

Appendix H : Kelowna International Airport Master Plan 2045 Economic Impact Study Update



Kelowna International Airport Master Plan 2015 Economic Impact Study Update

FINAL REPORT
October 2016

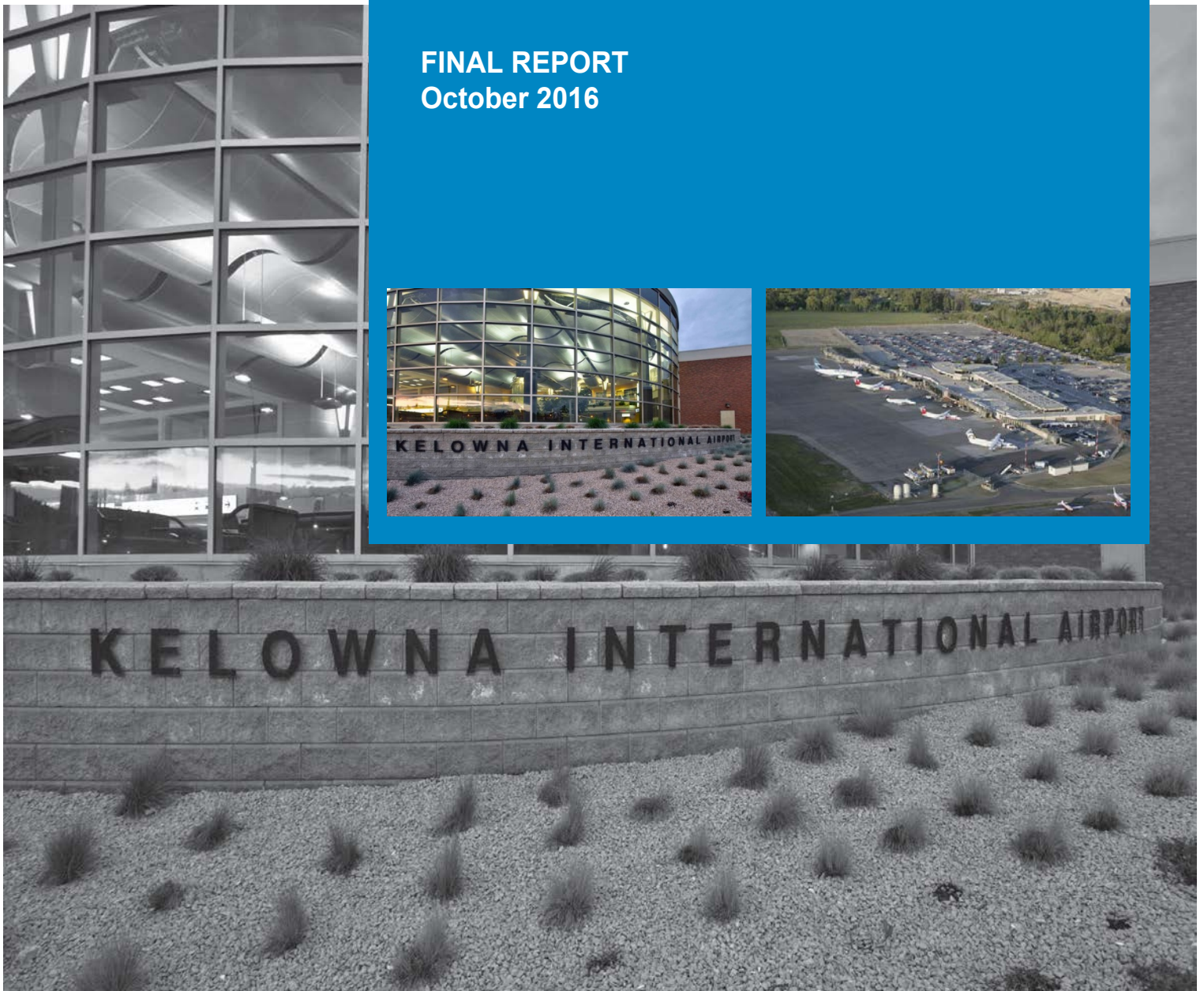




TABLE OF CONTENTS

TABLE OF CONTENTS	i
EXECUTIVE SUMMARY	1
1 INTRODUCTION	5
1.1 Background and Context.....	5
1.2 What is Economic Impact?.....	5
1.3 Study Approach.....	7
2 AIRPORTS AND THEIR IMPACT ON THE ECONOMY	9
2.1 Airports as Economic Generators	9
3 KELOWNA INTERNATIONAL AIRPORT	13
3.1 Airport Overview.....	13
3.2 Traffic at the Airport	15
3.3 E/D Passenger Traffic Forecast	17
4 ECONOMIC IMPACT ASSOCIATED WITH ACTIVITY AT AIRPORT	19
4.1 Employment.....	19
4.2 Labour Income	21
4.3 Economic Output	23
4.4 GDP.....	25
4.5 Taxes and Other Remittances to Governments	25
4.6 Impact of an Additional Daily B737 Flight	28
4.7 One-time Impacts of Airport Expansion Projects	29
4.8 Summary.....	29
5 CATALYTIC AND SOCIO-ECONOMIC CONTRIBUTION	31
5.1 Impact of Tourism Enabled by the Airport.....	31
5.2 Impacts on Businesses in the Region	32
5.3 Enables Commuter Workers to Other Areas.....	36
5.4 Value of Air Transport Beyond What Users Pay for Air Services.....	36
5.5 Socio Economic Importance of Airport.....	37
6 KELOWNA INTERNATIONAL AIRPORT’S FUTURE ECONOMIC IMPACT.....	39
6.1 Recurrent Airport Operations	39
6.2 Proposed Capital Expenditures	39
7 CONCLUSIONS	41
APPENDIX A - LIST OF AIRPORT TENANTS AND CONCESSIONAIRES	



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EXECUTIVE SUMMARY

As part of the work leading up to the development of Master Plan 2045, SNC-Lavalin Inc.'s (SLI) Airport and Aviation Group has been engaged to deliver an updated Economic Impact (EI) Study for YLW.

The previous economic impact study conducted for Kelowna International Airport (YLW) was completed in February 2011 using data from calendar year 2010. Since that time, YLW has continued to experience strong growth with passenger traffic increasing by 15%. This study primarily uses data from calendar year 2014 although the study was completed in 2015.

Employment

There are 46 organizations operating at YLW in 2014 with 1,411 full time equivalent (FTE) direct jobs. Of these, 1,306 FTE jobs were located at the airport and another 105 FTE jobs were attributable to off-site organizations operating at the airport. The 105 jobs represents the portion of the time those employees spend either at the airport or providing services to users of the airport (e.g., flight crew not based at YLW, but operating flights to/from YLW). There were another 10 FTE voluntary workers at the airport (excluded from the 1,411 total FTE jobs given above). The 1,411 FTE jobs represent an increase of 9% from the 1,290 direct jobs at the airport in 2010. Total employment including indirect and induced employment increased 6% from 2,520 to 2,670 FTEs.

Operations at YLW generate 1,411 direct person years of employment and \$83 million in direct wages

Labour Income

It is estimated that activity at YLW directly contributes \$83 million in labour income (including benefits unless otherwise stated). This is an increase of 18% since 2010. Total labour income including indirect and induced effects is \$142 million. On average labour income is \$58,610 per direct FTE at YLW.

Average wage at YLW is \$59,000 per direct FTE

Economic Output

It is estimated that activity at YLW contributes \$336 million in direct output. This is an increase of 12% since 2010. Total output including indirect and induced effects is \$600 million.

GDP

Gross Domestic Product (GDP) is calculated using Statistics Canada economic multipliers for B.C. applied to direct output. Different multipliers were used for different activity categories. \$336 million in direct output is estimated to produce \$169 million in direct GDP, an increase of 41% from that estimated in 2010. Total GDP including indirect and induced effects is over \$345 million, an increase of 38% from 2010.



Recurrent Airport Operations

Even without airport development, the airport would continue to generate recurrent impacts based on ongoing operations. SNC-Lavalin forecast that in year 2020, a total of 1.93 million passengers will travel through the airport, an increase of 20%; and 2.25 million in 2025 (40% increase).

Assuming a similar relationship between growth in passenger traffic and economic benefits as was found over the past 5 years, by the year 2020 operations at YLW can be expected to generate approximately \$381 million (2014\$) in direct output. This in turn equates to almost 1,600 FTE workers being directly employed at the airport and \$94 million (2014\$) in direct wages.

Ongoing operations at YLW contribute a total of 2,670 FTE jobs and \$600 million to the economy of the province

Catalytic Impact

Tourism is one of the major catalytic impacts associated with the airport. The impacts of visitors to the region travelling by air are significant equating to roughly 70% of the employment impact of the airport and between 26% and 36% of the income, output and GDP impacts of the airport. The economic impacts to the region of visitors travelling by air, excluding the airport component, are summarized below.

Tourism Economic Impact of Visitors Travelling by Air, Excluding Airport Component, in 2014

Impact Component	Employment		Wages (\$ Million)	GDP (\$ Million)	Gross output (\$ Million)
	Jobs	Person-yrs			
Direct Impacts					
Accommodation	528	372	\$13	\$22	\$37
Net Other Tourism Industries	671	387	\$15	\$36	\$77
Visitor Spending	711	555	\$16	\$25	\$47
Total Direct Excl. Airport Component	1,910	1,314	\$44	\$83	\$161
Net Indirect	493	247	\$3	\$2	\$11
Net Induced	586	311	\$4	\$4	\$17
Total Impact	2,990	1,872	\$51	\$90	\$190

A survey of businesses and organizations in the region indicated that the airport is very important in bringing customers to the region. The second most important impact of YLW was on investment decisions to expand in the region, followed by connecting staff with other businesses/organizations, clients, and other offices of their business/organization. The airport is also important in attracting skilled workers to the region. YLW is therefore very important to economic growth in the Okanagan region.



Each additional daily B737 service generates up to 38 FTE jobs associated with all passenger-related activities at the airport

Impact of an Additional Daily B737 Flight

The 2010 Economic Impact Study included an analysis of the microeconomic impact of additional WestJet short and long haul daily B737-700 services to Calgary and Toronto, respectively. It was determined through this micro analysis that the additional jobs created from the addition of these new direct services would generate 16 new jobs (FTE) for the Calgary daily service and 21 new jobs (FTE) for the longer haul Toronto daily service. A high-level desktop calculation, using more general and broad employment benchmarks, reveals a range of 16 - 38 new jobs would be generated from the addition of a single daily B737 flight. The analysis finds that 16 FTE jobs directly relate to air carrier and supporting services; while the higher range of 38 FTE jobs support all passenger-related activities at the airport, excluding aircraft maintenance, charter and GA activities.

Summary

With 1,411 FTEs and \$336 million in direct output, YLW is a powerful economic generator for the City of Kelowna and Central Okanagan Region. The airport is a gateway to the Region and plays a major role in supporting industry, tourism and overall quality of life.

Summary of Economic Impacts at YLW – 2014

ACTIVITY CATEGORY	ASSOCIATED WITH AIRPORT ACTIVITY				CATALYTIC
	DIRECT	INDIRECT	INDUCED	TOTAL	TOURISM
Employment (Person/yr)	1,411	737	525	2,673	1,872
Wages (million)	\$83	\$37	\$22	\$142	\$51
Output (million)	\$336	\$169	\$94	\$599	\$190
GDP (million)	\$169	\$88	\$88	\$345	\$90



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1 INTRODUCTION

1.1 BACKGROUND AND CONTEXT

Understanding the economic impact of the Kelowna International Airport (YLW) is important for increasing business and community awareness of the activities taking place at the airport and their contribution to the economic well-being of the Central Okanagan Valley. It is also beneficial towards communicating the linkages between the airport and other aspects of the regional economy.

As part of the work leading up to the development of Master Plan 2045, SNC-Lavalin Inc.'s (SLI) Airport and Aviation Group has been engaged to deliver an updated Economic Impact (EI) Study for YLW. The analysis includes two components:

1. Economic impact of businesses located at the airport; and
2. Economic assessment of the influence of YLW on the surrounding regional economy.

The Economic Impact Study is a valuable tool for garnering support among local government, tenants, residents and other community stakeholders for preservation and enhancement of airport activities; providing input to future business planning exercises; and supporting business cases for capital funding initiatives at the airport.

The previous economic impact study was completed in 2011. Since that time, the passenger traffic at YLW has increased significantly.

The last economic impact study conducted for the Airport was completed in 2011 using data from year 2010¹. The study found that ongoing operations at YLW generated 1,290 direct person years of employment and nearly \$70 million in direct wages. It also found that the airport contributed a total of 2,730 jobs and \$610 million in total economic output to the province. Since that time, the passenger traffic at Kelowna International Airport increased significantly.

1.2 WHAT IS ECONOMIC IMPACT?

Economic impact is a measure of the level of economic activity such as employment, personal income, business output and value added associated with a sector of the economy, a specific project or government policy. Economic impact is typically determined using the input-output method which measures three separate effects:

- **Direct Impacts** result from activities carried out by firms and others with a direct involvement in the operation and management of the airport and associated aviation related services. The distinguishing feature of a direct impact is that it is an immediate consequence of airport activities. Most direct impacts are generated on-site.

¹ 2010 Kelowna International Airport Economic Impact Study, Final Report, by InterVistas Consulting, Feb. 2011.



- **Indirect Impacts** are those attributable to non-aviation industries, largely off-site, that supply or provide services to businesses and other groups operating at the airport; i.e., in support of direct airport activities. Examples include travel agents, and suppliers to airport-based organizations.
- **Induced Impacts** occur when employees directly or indirectly linked to the airport spend their wages.

Economic impacts can be measured and quantified in several different ways, including the following which are calculated for YLW in this report:

- **Gross output (\$)** – the total gross value of all business revenue – the broadest measure of economic activity and indicates the total sales and transactions triggered by operations;
- **Value-added (\$ GDP)** – the “value added” to the economy or the unduplicated total value of goods and services; includes only final goods to avoid double counting of products and services sold during an accounting period;
- **Employment (jobs / FTE)** – the number of jobs created expressed in full-time equivalent jobs or person-years;
- **Wages / salaries (\$)** – the total value of wages and salaries associated with employment impacts; and
- **Tax Revenue (\$)** – the total amount of tax revenues generated for different levels of government.

The economic impact of an airport is typically measured based on the activity at the airport and the associated indirect and induced benefits. This approach has been used for determining the economic impact of most major airports in Canada, and a recent study of the economic impact of aviation in Canada for the Canadian Airports Council².

Catalytic Impacts

While these measures provide a measure of the economic impact of operations at the airport, it does not include the economic impact on businesses in the region of air travel to/from the region using YLW, nor other socio-economic benefits to residents. These are commonly referred to as catalytic benefits and can be at least as important to the region as the direct, indirect and induced impacts. The impact of the airport on tourism is a good example of one of the catalytic impacts.

² The Economic Impact of the Air Transportation Industry in Canada, Canadian Airports Council (CAC), April 2013



1.3 STUDY APPROACH

The primary data collection tool used in determining the economic impact of business operating at the airport was an online survey/questionnaire which was sent to all tenants and organizations based at YLW.³ The list of the 46 organizations that participated in the survey is shown in Appendix A. A response rate of 93% was achieved for the survey, although some responses were incomplete. Responses could not be obtained from three companies, including one charter helicopter company and two scheduled airlines both with limited service at YLW. The economic impact of these companies was estimated based on the number of aircraft based at YLW for the charter helicopter company and number of movements at YLW for the scheduled carriers and the impacts and aircraft/movements of similar companies at YLW for which responses were obtained. The estimated FTE employees of these three companies represent only 1.4% of total FTE jobs and errors in these estimates of even 50% would represent only 0.7% of the total employment impact.

An online survey was used as the primary data collection tool to determine the economic impact of businesses operating at the airport.

To protect the confidentiality of the respondents, all data outputs were aggregated into categories of activity taking place at the airport (see Table 1).

Table 1. Activity Categories

ACTIVITY CATEGORY	EXAMPLES
Airport Operations	Airport operator and sub-contracted firms, air traffic control, security firms, other government departments / agencies operating at airport
Scheduled Carrier	Air carriers operating scheduled passenger services
Charter Operator	Air carriers operating charter and medevac services
Aircraft/Aviation Services	FBO and fuelling, maintenance and repair, aircraft modification, aircraft cleaners, aircraft sales / leasing, aircraft parts, ground-handling
Airport Commercial Services	Retail concessions, F&B operations, car rentals
General Aviation	Private, Corporate, Flight training
Ground Transportation	Taxi, limo, bus, other public transportation, vehicle parking
Other	Hotel, Tourism promotion and other organizations

To calculate the direct impacts of organizations providing only partial responses, the values were estimated using other data provided, data from other similar organizations, or values from the B.C. Input-Output Model, as appropriate.

Indirect and induced impacts are almost impossible to determine by examination of the individual businesses affected by airport activity. Instead, economic impact studies, including the last study for YLW, use economic multipliers for estimating the indirect and induced impacts. Similarly, multipliers from the

³ A covering and link to an online survey questionnaire was distributed via email. Follow ups were completed with non-respondents via email and telephone.



B.C. Input-Output Model were used in this study. The total impacts, which include the direct, indirect and induced impacts, are those for the province of B.C., not just the Kelowna or the Central Okanagan. Care was taken to use the multipliers appropriate for the various industry groups operating at the airport. These impacts are less precise than the direct impacts and greater importance should therefore be given to the direct impacts when assessing the overall impact.

Ongoing, long-term impacts were based on the current economic impacts applied to forecasts of passenger and aircraft traffic. Temporary impacts associated with capital improvements were also calculated based on the construction value estimates provided by the Airport.

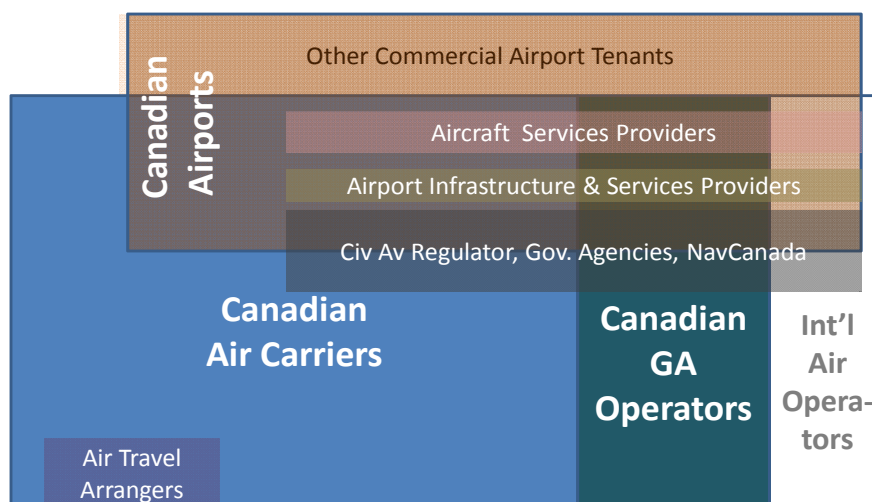
The catalytic impacts of air travel using YLW are more difficult to estimate and, except for tourism, only qualitative measures of these impacts could be determined. Information for determining the catalytic benefits was collected through a second survey of other businesses operating in the region to collect information on the importance of YLW to their business. Also, other key stakeholders not based at the airport, such as the City of Kelowna Economic Development, Okanagan Economic Development Commission and Kelowna Tourism were contacted to get their views on the importance of the airport to the regional economy. The economic impacts of tourism associated with air travel to YLW were estimated using information from Kelowna Tourism, past studies of economic impact of tourism in Kelowna area, and from the passenger market study for YLW.



2 AIRPORTS AND THEIR IMPACT ON THE ECONOMY

Airports are a critical component of the Canada’s air transportation industry, providing the land-based infrastructure from which aircraft operate. Figure 1 presents a summary of Canada’s air transportation industry and how airports fit in. Air operators, including both air carrier and General Aviation (GA), are the largest portion of the industry, but much of their economic impact does not overlap with airports. Thus, while airports generate significant economic impact to the region they serve, they enable the aviation industry to function which produces a much larger economic impact throughout Canada.

Figure 1. Canada’s Air Transportation Industry and How Airports Fit In
(Source: SLI Airports+Aviation Group)



2.1 AIRPORTS AS ECONOMIC GENERATORS

Commercial airports provide essential, if not indispensable public services. YLW, as with most commercial airports, has tenants engaged in a wide array of aeronautical and general business enterprises located on, and generating revenue for, the airport. YLW’s annual operating budget runs into the millions of dollars, with capital projects accounting for millions more. The Air Terminal Building complex, general aviation facilities, airport support facilities such as maintenance buildings and equipment, and aircraft operating areas such as runways, taxiways and aprons easily value in the hundreds of millions of dollars. YLW, as with all large commercial airports, is “big business”, and impacts the social, economic and political life of the Central Okanagan region.

Airports provide significant economic and transportation benefits, and have become an integral part of their local, regional and national economies. They are a key catalyst for economic growth through employment and the utilization of goods and services and provision of vital links to the rest of Canada and internationally. YLW, as with most airports, has a profound influence on the quality of life and ability of businesses to attract skilled workers.

Airports integrate world markets and promote the international exchange of people, products, investment and ideas. They also

Airports are key catalysts for economic growth through employment and the utilization of goods and services, and provision of vital links to the rest of Canada and internationally.



provide a variety of other public benefits such as time and cost savings associated with air transportation. Many businesses operating in the region are heavily dependent on air transportation and the availability of efficient and affordable air services at YLW have allowed the tourism and other businesses to expand which has driven economic development both in the region and Canada as a whole.

Airports provide communities with a focal point, and with essential infrastructure to:

- attract new investment and skilled personnel;
- retain and expand existing companies;
- have businesses relocate to the area;
- promote success; and
- enhance competitiveness.

There are some distinct advantages for communities or regions that are within the reach of efficient air transportation. By facilitating the activity of industrial and service sectors – connecting them to global economic activity – airports play a key role in a community’s ability to attract and retain businesses.

Economic development agencies interviewed indicated that YLW has provided all these dynamics and that these have acted as strong regional drivers and been a fundamental catalyst of business growth.

Clearly, air transportation has facilitated business’ ability to move its products around the world. It has, however, played a far more important role in bringing business managers together, enabling them to build the links, communications and personal relationships necessary to achieve such a level of international business activity. This has been critical in the development of the Information Technology (IT) industry in Kelowna. Despite continuous advances in telecommunications technologies, the growth in global business over the last 50 years could not have been achieved without the personal contact established by the world’s civil aviation system⁴.

Figure 2 (following page), originally described in a report by Oxford Economics Limited⁵ depicts how air transportation can affect the economy in a broader way than traditionally measured by input-output models. For example, if prices of aviation services increase, this could lead to higher fares or longer transport times, which could reduce competitiveness among firms that make heavy use of air transportation. There is also a long-run impact of aviation on productivity growth in other sectors of the economy; as well as an impact of changes in productivity growth on investment and the amount of capital equipment available for production in other sectors of the economy.

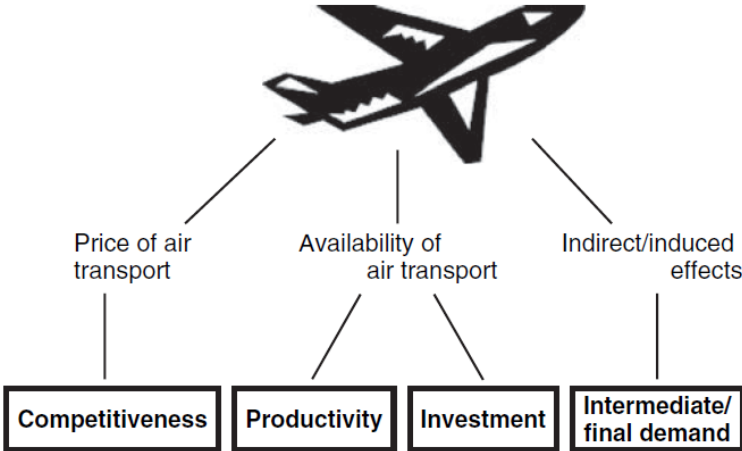
Somewhat separate, but of significant importance, is the fact that airports attract inbound tourism with the consequent development of the tourism industry generating growth, income and employment.

⁴ “The National Economic Impact of Civil Aviation, July 2002”, DRI-WEFA, Inc. in collaboration with the Campbell-Hill Aviation Group, Inc.

⁵ Exhibit sourced from ACRP Synthesis 7 “Airport Economic Impact Methods and Models – A Synthesis of Airport Practice”, ISBN 978-0-309-09801-1, 2008. Original



Figure 2. Direct, Catalytic and Indirect/Induced Impacts





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3 KELOWNA INTERNATIONAL AIRPORT

3.1 AIRPORT OVERVIEW

The Kelowna International Airport (YLW) is located 6 miles northwest of the City of Kelowna, the largest city in B.C. outside the B.C. Lower Mainland, with a population of 130,000⁶. The primary catchment area is the Central Okanagan, which has a population of 192,000.

Kelowna International Airport is the second most important airport in the province based on passenger traffic.

In March 2015, YLW was served by eight airlines providing scheduled or major charter service as shown in Table 2. These carriers link Kelowna to twelve destinations year-round (eleven domestic, one U.S) and six seasonal destinations, including two in the U.S. and four in Mexico. A number of charter carriers also provide domestic passenger service from the Air Terminal Building (ATB) in 2014/2015, including Air North, Flair Airlines and Canadian North, and the private operator, Suncor. United Airlines and Northwestern Air also recently served YLW, but their services were suspended in early 2015.

YLW is the second busiest airport in British Columbia and is served by 9 airlines providing domestic, transborder and international service.

Table 2. Scheduled Air Carriers Operating at YLW in March 2015 and Destinations

AIRLINE	DESTINATION(S)
Air Canada / Air Canada Regional	Vancouver, Calgary, Toronto
WestJet / Encore	Vancouver, Calgary, Toronto, Edmonton, Victoria, Saskatoon, Fort McMurray, Cancun, Los Vegas, Phoenix, Puerto Vallarta, San Jose Cabo
Canadian North Airlines	Vancouver, Whitehorse
Central Mountain Air	Kamloops, Prince George
Pacific Coastal Airlines	Cranbrook, Trail
Alaska Airlines / Horizon	Seattle
Ait Transat	Cancun, Puerto Vallarta
Sunwing	Ixtapa-Zihuatanejo

KF Aviation (previously Kelowna Flightcraft) is YLW’s largest tenant and has its base at YLW providing both aircraft maintenances and freighter services from the airport. KF Aviation provided freighter services throughout Canada on behalf of Purolator until March 15th 2015 when their contract expired. They currently operate once weekly scheduled courier flight from YLW and also provide on demand charter air cargo service. Carson Air operates daily courier services out of YLW on behalf of FedEx. Some cargo at YLW is also carried in the belly of passenger aircraft on scheduled passenger service.

⁶ 2015 BC Stats



YLW had 101 aircraft based at the airport in March 2015. Two-thirds of the based aircraft were owned by commercial operators and included 17 narrow-body jets, 4 wide-body jets, 30 turboprops and 9 helicopters. All 33 privately owned aircraft were piston.

At the start of 2015, there were 46 organizations operating at the airport – see Table 3 and Figure 3. Air carriers (scheduled and charter) is the largest aviation sector at the airport.

Table 3. Distribution of Organizations Operating at the Kelowna International Airport by Primary Category of Operation – 2014

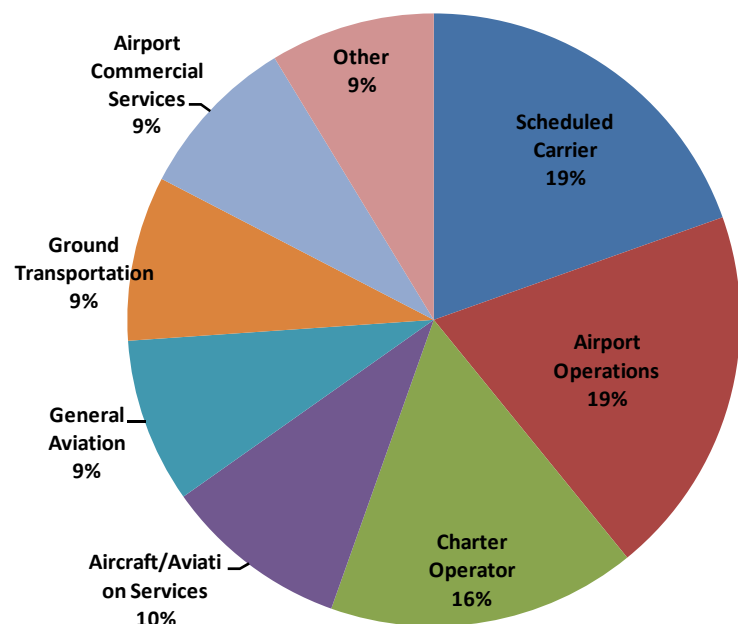
AVIATION SECTOR	NO. OF ORGANIZATIONS	% OF TOTAL
Airport Operations	9	20%
Scheduled Carrier [^]	9	20%
Charter Operator	8*	16%
Aircraft/Aviation Services	5*	10%
Airport Commercial Services	4	23%
General Aviation	4	9%
Ground Transportation	4	5%
Other	4	9%
TOTAL	46	100%

Notes: * One large company, KF Aviation, operates both charter and Aircraft/Aviation services and has been included in both categories (once in the total)

[^] Air carriers operating scheduled charter services (Canjet and Air Transat) are included as Scheduled air carriers

Figure 3. Distribution of Organizations Operating at the Kelowna International Airport 2014

(Measured by number of organizations in each primary category of operation)





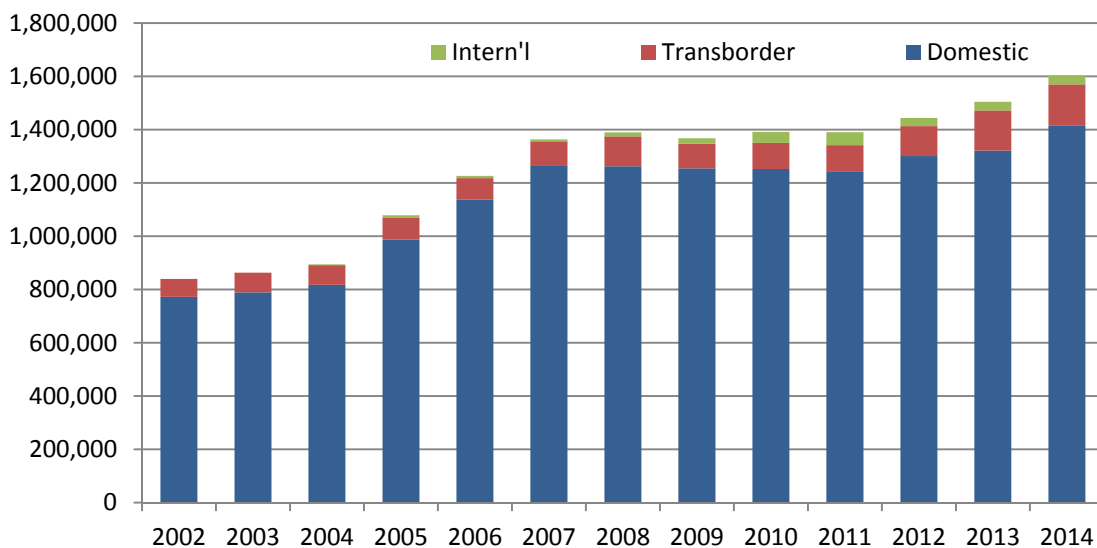
3.2 TRAFFIC AT THE AIRPORT

Passenger Traffic

Ylw handled 1.6 million Enplaned/Deplaned (E/D) passengers in 2014, an increase of 7.1% over 2013. Domestic passengers totaled 1.4 million, 88.3% of the total. As shown in Figure 4, passenger traffic at Ylw increased slowly in the late 1990 and early 2000s; but grew strongly during the four-year period of strong economic growth from 2005 to 2008. Traffic declined in 2009 with the global financial crisis and recession, then recovered slowly in 2010 and 2011, before growing strongly again in 2012 to 2014. Ylw first received transborder service in 2004. Since then, transborder passengers have accounted for 6.5% to 10% of total traffic, the high being reached in 2013. Other international traffic has fluctuated between 0.3% and 3.5% of total traffic, the high being recorded in 2011.

Ylw handled 1.6 million passengers in 2014, an increase of 7.1% over 2013.

Figure 4. Total Passengers at Ylw by Year (2002 – 2014)





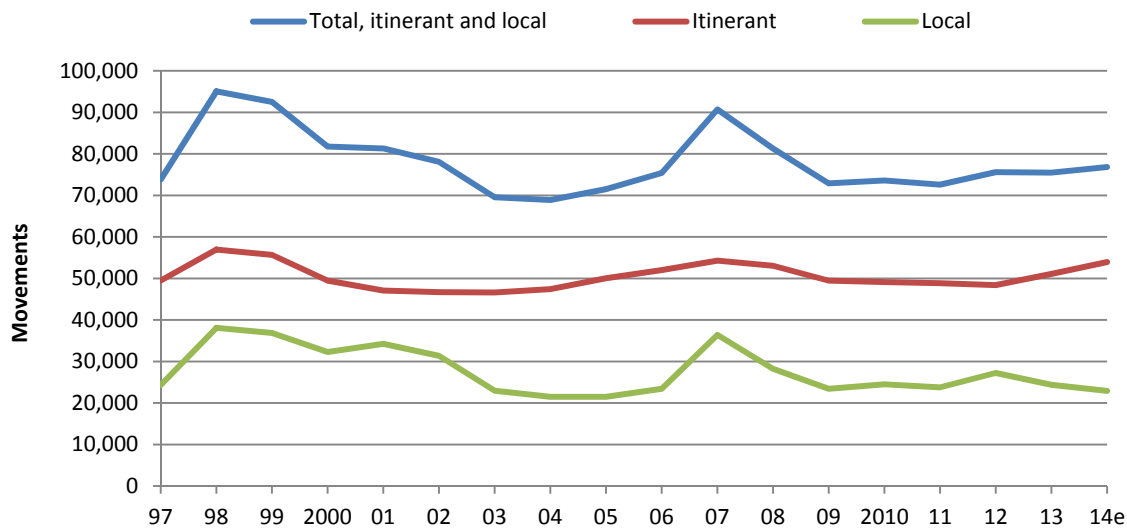
Air Traffic Movements

The number of annual aircraft movements at YLW has fluctuated over the past 18 years, as shown in Figure 5⁷, but has changed significantly. The variation generally follows periods of economic growth in the region. The variation in total movements is largely due to changes in local movements (essentially recreation and flight training aircraft movements) which account for 30-40% of all movements. Over most of the 18-year period, annual itinerant movements showed a similar trend as local movements, but with less variation. However, since 2012, itinerant movements have increased strongly (5.6%/yr) while local movements have declined significantly (-8.3%/yr).

The number of total annual aircraft movements has not changed significantly in the past 18 years.

not

Figure 5
Annual Itinerant and Local Aircraft Movements, 1997 to 2014



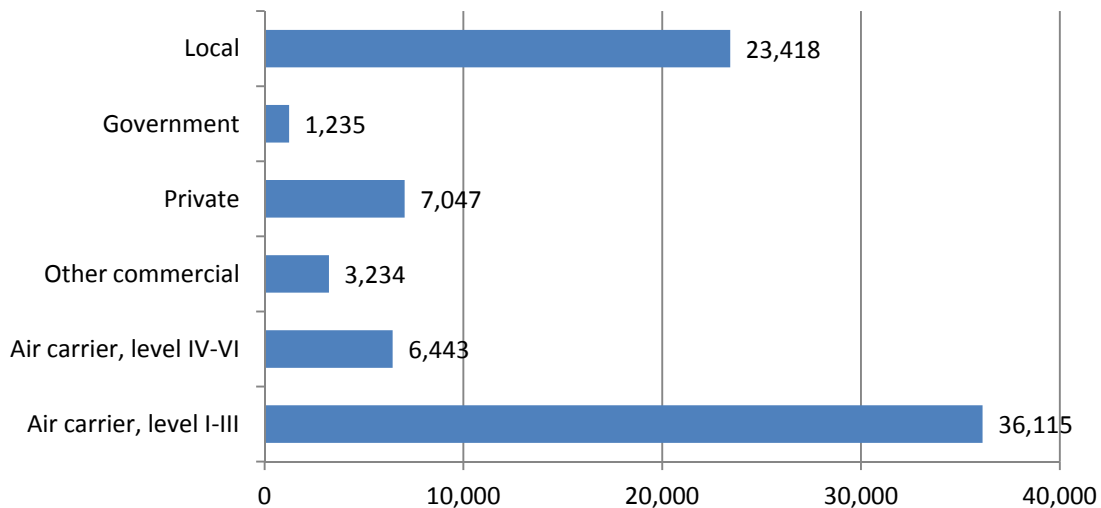
Source: Statistics Canada

Most aircraft movements are by air carriers with the larger Level I-II carriers accounting for 67% of itinerant movements and the other smaller air carriers accounting for another 12% (see Figure 6). Local movements account for 30% of total movements.

⁷ 2014 values estimated based on values for January to October for that year



Figure 6. Local and Itinerant Movements by Operator Segment in 2014



Source: Statistics Canada

Air Cargo

Statistics Canada data indicates total annual cargo handled at YLW peaked in 2012 at 2,971 tonnes, but declined by 22% in 2013 to 2,327 and grew by 1% in 2014 to 2,296 tonnes. Approximately 60% of the cargo is inbound, and unloaded at YLW.

Five air carriers based at YLW reported carrying air cargo in 2014. The most common types of cargo included:

- Wine;
- Fruit;
- Personal effects;
- Company material (COMAT) / aircraft parts;
- Kennelled animals; and
- General cargo which includes unpacked and packed goods, for example in cartons, crates, bags or bales, often palletized.

3.3 E/D PASSENGER TRAFFIC FORECAST

The forecast E/D passengers through to 2045 are given in Table 4 by sector, with average annual growth rates, and are shown graphically in Figure 7 for the Medium, Low and High Case scenarios. The forecasts show that traffic, after declining by 0.6% in 2015, will grow at a fairly strong rate of 3.5% in 2016 under the Medium Case Scenario. Stronger growth rates of 4.5%, 4.3% and 3.7% are forecast for 2017, 2018 and 2019, with growth slowing to 3.3% in 2020 to 2022. Growth slows gradually after that to 2.8% in 2025.

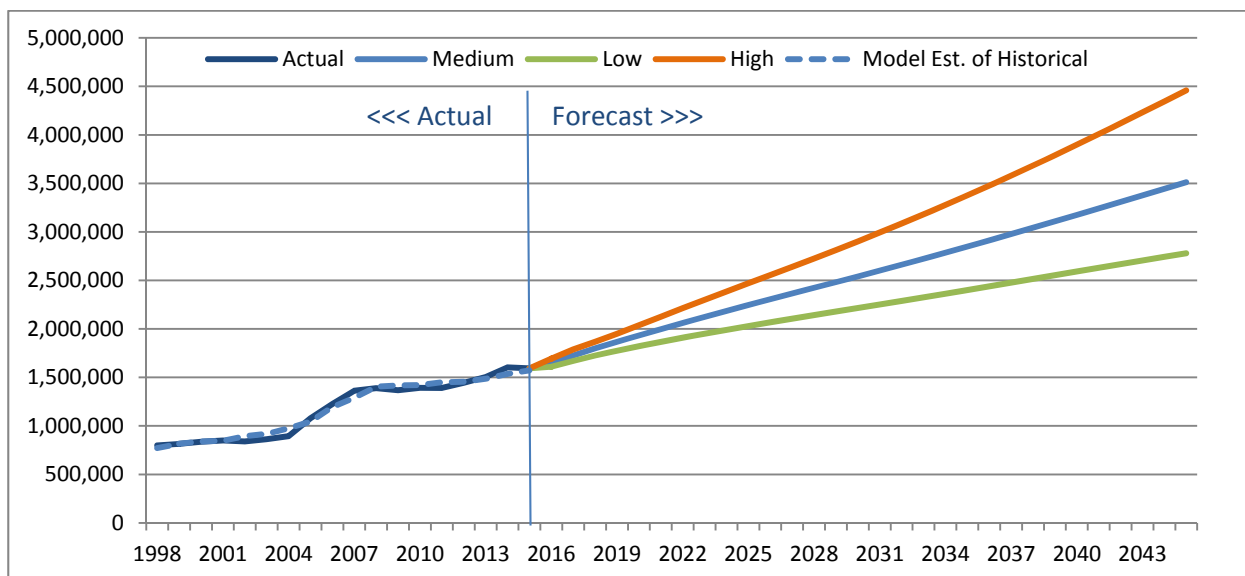
Passenger traffic forecasts show continued strong growth (medium case scenario).



Table 4. Forecast E/D Passengers and Average Annual Growth Rates by Sector under the Medium Case Scenarios, 2015 to 2045

Year	E/D Passengers			
	Domestic	Transborder	Intern'l	Total
2014	1,416,512	153,342	33,045	1,602,899
2015	1,432,456	126,559	34,591	1,593,606
2016	1,493,600	121,200	35,200	1,650,000
2017	1,559,900	127,400	37,700	1,725,000
2018	1,626,100	133,700	40,200	1,800,000
2019	1,685,000	139,400	42,600	1,867,000
2020	1,739,200	144,800	45,000	1,929,000
2025	2,017,600	173,300	58,100	2,249,000
2030	2,268,100	200,900	72,000	2,541,000
2035	2,529,300	230,900	87,800	2,848,000
2040	2,806,300	263,800	105,900	3,176,000
2045	3,088,300	298,800	125,900	3,513,000
Average Annual Growth Rates				
2005-2015	3.8%	4.6%	12.9%	4.0%
2010-2015	2.7%	5.2%	-3.5%	2.7%
2015-2020	4.0%	2.7%	5.4%	3.9%
2020-2025	3.0%	3.7%	5.2%	3.1%
2025-2030	2.4%	3.0%	4.4%	2.5%
2030-2045	2.1%	2.7%	3.8%	2.2%

Figure 7. Actual and Forecast E/D Passengers under the Medium, Low and High Case Scenarios





4 ECONOMIC IMPACT ASSOCIATED WITH ACTIVITY AT AIRPORT

To protect the confidentiality of information provided by private operators, their information has been aggregated into categories of activity. All impacts quoted, unless otherwise noted, include those from respondent organizations and inferred impacts from respondent organizations providing only partial responses.

4.1 EMPLOYMENT

Direct

Direct employment at the airport was calculated in terms of full-time equivalents (FTEs). The conversion from jobs to FTE, where necessary, was based on an available 2080 working hours per year (40 hours a week, 52 weeks per year).

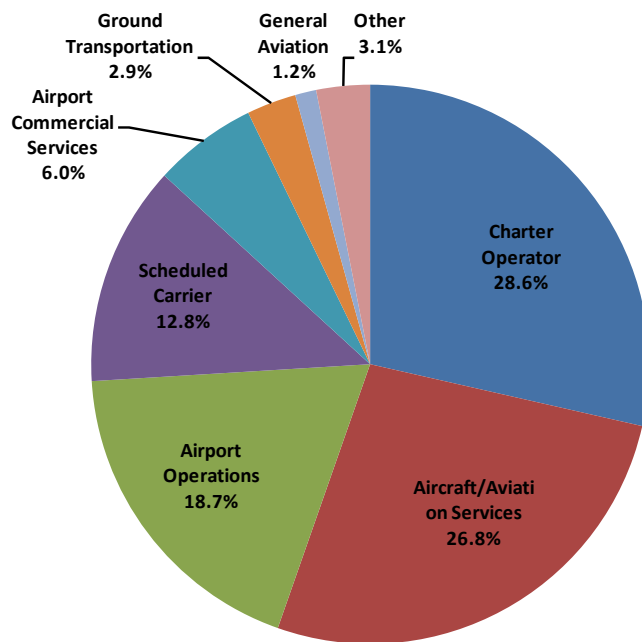
Tenants, concessionaires, service providers and organizations based at the airport were asked to report employment directly related to activities at the airport. 2014 employment figures were provided for 44 of the 46 current organizations. Values for the other two businesses were estimated based on information provided by the airport. The latter accounted for only 1.4% of total full time equivalent (FTE) jobs at the airport.

There were 46 organizations operating at YLW in 2014 with 1,411 FTE direct jobs. Of these, 1,306 FTE jobs were located at the airport and another 105 FTE jobs were attributable directly to operations at the airport. The 105 jobs represents the portion of the time those employees spend either at the airport or providing services to users of the airport (e.g., flight crew not based at YLW, but operating flights to/from YLW). There were another 10 FTE voluntary workers at the airport (excluded from the 1,411 total FTE jobs given above). The 1,411 FTE jobs represent an increase of 9% from the 1,290 direct jobs at the airport in 2010. Figure 8 show the distribution of direct employment at YLW in 2014. Charter Operators is the largest activity category as measured by direct employment, followed closely by Aircraft/aviation Services, then by Airport Operations.

There are 46 companies operating at YLW. These companies generated 1,411 FTE direct jobs in 2014 – an increase of 9%, or 121 new direct jobs since 2010.



Figure 8. Distribution of Direct Employment at YLW (2014)



Indirect

Indirect employment was calculated by using a multiplier applied to the direct effects in an open model, less the direct effects. Different multipliers were used for different activity categories.⁸ **Indirect employment at YLW in 2014 is estimated at 735 FTE jobs.**

Induced

Induced employment was calculated by using a ‘total’ multiplier applied to the direct effects less the direct and indirect effects. Different multipliers were used for different activity categories. **Induced employment at YLW in 2014 is estimated at 516 FTE jobs.**

Summary

Table 5 summarizes the 2014 employment impacts at YLW.

Operations at YLW directly employ over 1,400 people on a full-time equivalent basis. In addition, when accounting for indirect and induced effects, over **2,660** people are employed because of activities on airport property which represents an increase of 6% from 2010.

For every 1,000 enplaning passengers, there are 1.8 direct full time jobs (FTE).

For every 1,000 passengers, there are 1.8 direct full time jobs created.

⁸ Multipliers from the Statistics Canada for B.C. were used for the following activity categories: Air Transportation Industry, Airport Commercial Services, Other federal government services (except defence) for Airport Operations, Aircraft/Aviation Services, Traveller accommodation, Urban transit systems for Ground Transportation, and Transportation Engineering Construction.



Table 5. 2014 Employment Impacts at YLW

	Direct	Indirect	Induced	Total
Charter Operator	403	334	185	922
Aircraft/Aviation Services	378	98	98	575
Airport Operations	263	100	114	477
Scheduled Carrier	180	150	83	413
Airport Commercial Services	85	20	14	119
Ground Transportation	40	9	4	54
General Aviation	17	14	8	39
Other	44	9	9	61
Grand Total	1,411	735	516	2,661

4.2 LABOUR INCOME

Direct

Tenants, concessionaires, service providers and organizations based at the airport were asked to report employment earning and wages for their employees directly involved in activities at the airport. Twenty-two organizations reported average labour income figures. For other organizations, average labour

The average FTE salary at YLW is \$58,610. YLW contributes \$83 million in labour income to the economy.

incomes were determined based on other similar organizations or average values for those types of businesses in the B.C. input-output tables with adjustments for inflation and average wage rates at Kelowna relative to the provincial average.

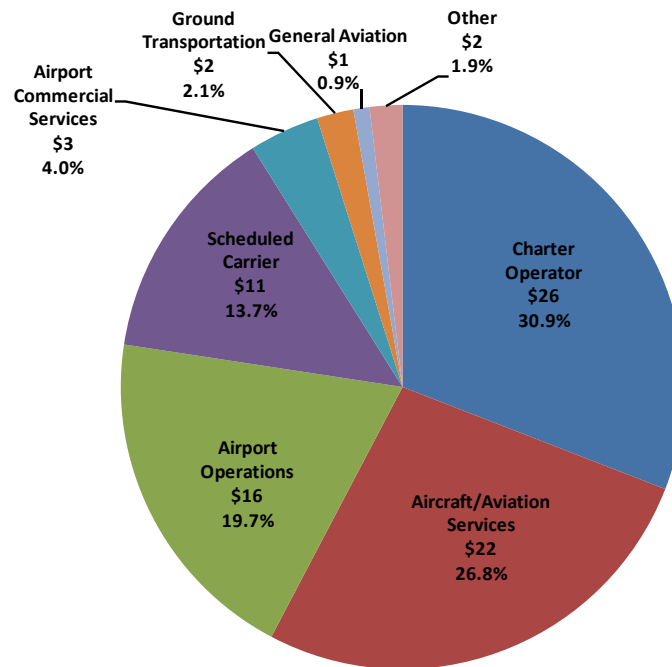
It is estimated that activity at **YLW directly contributes \$83 million in labour income**, an increase of 18% over 2010. This equates on average to \$58,610 per FTE. Figure 9 shows the distribution of direct labour

income at YLW in 2014.

Charter Carrier is the largest activity category as measured by direct labour income, followed by Aircraft/Aviation Services.



Figure 9. Distribution of Direct Labour Income at YLW (2014, millions)



Indirect

Indirect labour income was calculated by using the appropriate economic multiplier, as discussed in Section 1.3, applied to the direct effects given above. Different multipliers were used for different activity categories. **Indirect labour income at YLW in 2014 is estimated at \$37 million.**

Induced

Induced labour income was calculated by using a 'total' multiplier applied to the direct effects less the direct and indirect effects. Different multipliers were used for different activity categories. **Induced labour income at YLW in 2014 is estimated at \$22 million.**

Summary

Table 6 summaries the 2014 labour income impacts at YLW.

Persons employed at YLW **directly earn almost \$83 million** which combined with indirect and induced effects mean that close to **\$142 million** is earned because of activities on airport property.



Table 6. 2014 Labour Income Impacts at YLW (millions)

ACTIVITY CATEGORY	DIRECT	INDIRECT	INDUCED	TOTAL
Charter Operator	\$26	\$17	\$8	\$51
Aircraft/Aviation Services	\$22	\$6	\$5	\$34
Airport Operations	\$16	\$3	\$3	\$23
Scheduled Carrier	\$11	\$8	\$4	\$22
Airport Commercial Services	\$3	\$1	\$1	\$6
Ground Transportation	\$2	\$1	\$0	\$3
General Aviation	\$1	\$1	\$0	\$2
Other	\$2	\$0	\$0	\$2
TOTAL	\$83	\$37	\$22	\$142

4.3 ECONOMIC OUTPUT

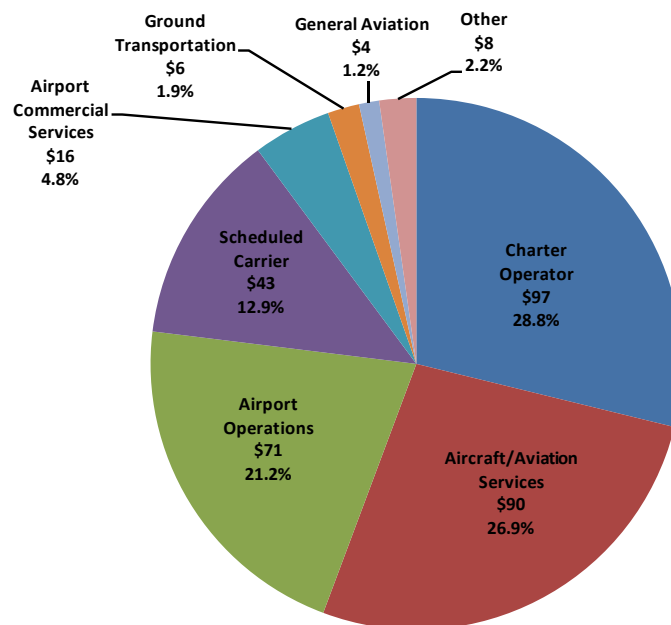
Direct

Tenants, concessionaires, service providers and organizations based at the airport were asked to report direct output (components of sales of goods and services, including that of the Airport Authority) directly related to activities at the airport. Only ten organizations reported direct output figures and for the others direct output was inferred based on the type of service provided, other information collected (e.g., concession revenue collected by airport), output rates per FTE employee for similar tenants, and/or ratios of direct output to employment income from the B.C. input-output model.

It is estimated that activity at YLW **directly contributes over \$336 million in direct output.**

Figure 10 shows the distribution of direct output at YLW in 2014. Charter Operators and Aircraft/Aviation Services are the largest aviation sectors as measured by direct gross output, followed by Airport Operations. Specifically there is approximately almost \$420 in direct gross output generated on a per enplaned passenger basis.

Figure 10. Distribution of Direct Output at YLW (2014, millions)





Indirect

Indirect output was calculated by using the appropriate economic multiplier applied to the direct effects given above. Different multipliers were used for different activity categories. **Indirect output at YLW in 2014 is estimated at \$169 million.**

Induced

Induced output was calculated by using a ‘total’ multiplier applied to the direct effects less the direct and indirect effects. Different multipliers were used for different activity categories. **Induced output at YLW in 2014 is estimated at \$94 million.**⁹

Every time a passenger boards an airplane at YLW, \$420 of direct gross output is generated. This translates to a total of \$336 million in direct output or \$600 million when indirect and induced effects are considered.

Summary

Table 7 summarizes the 2014 gross output impacts at YLW.

Organizations based at YLW **directly produce over \$336 million** in gross output which combined with indirect and induced effects mean that close to **\$600 million** is produced because of activities on airport property.

Table 7. 2014 Gross Output Impacts at YLW (millions)

ACTIVITY CATEGORY	DIRECT	INDIRECT	INDUCED	TOTAL
Charter Operator	\$97	\$55	\$20	\$172
Aircraft/Aviation Services	\$90	\$34	\$34	\$159
Airport Operations	\$71	\$41	\$21	\$133
Scheduled Carrier	\$43	\$25	\$9	\$77
Airport Commercial Services	\$16	\$6	\$5	\$28
Ground Transportation	\$6	\$3	\$2	\$11
General Aviation	\$4	\$2	\$1	\$7
Other	\$8	\$3	\$2	\$13
TOTAL	\$336	\$169	\$94	\$599

⁹ Induced impacts of employment, wages and output are significantly lower than those estimated in the previous study for 2010. Discussions with Statistics Canada have confirmed the multiplier and applicable methodology that is used in this report. While direct and indirect impacts have demonstrated growth over 2010, the sizeable methodological difference in the calculation of the induced impact compared to that assumed to be used in the previous study results in a negative variation from 2010 on the calculation of total output.



4.4 GDP

Direct

Gross Domestic Product (GDP) is calculated using Statistics Canada economic multipliers for B.C. applied to direct output previously estimated. Different multipliers were used for different activity categories. \$336 million in direct output is estimated to produce **\$152 million in direct GDP**.

Indirect GDP

Indirect GDP was calculated using Statistics Canada economic multipliers for B.C. applied to direct GDP and results in an estimate of **\$75 million in indirect GDP**.

Induced GDP

Induced GDP was calculated using Statistics Canada economic multipliers for B.C. applied to direct GDP and results in an estimate of **\$79 million in induced GDP**.

Summary

Table 8 summarizes the 2014 GDP impacts at YLW.

Organizations based at YLW **directly produce over \$152 million** in GDP. Combined with indirect and induced effects, it means that over **\$306 million** GDP is produced because of activities on airport property.

Table 8. 2014 GDP Impacts at YLW (millions)

ACTIVITY CATEGORY	DIRECT	INDIRECT	INDUCED	TOTAL
Airport Operations	\$49	\$12	\$21	\$82
Charter Operator	\$36	\$27	\$19	\$81
Aircraft/Aviation Services	\$35	\$17	\$23	\$75
Scheduled Carrier	\$16	\$12	\$8	\$36
Airport Commercial Services	\$7	\$4	\$4	\$15
Ground Transportation	\$3	\$1	\$1	\$5
General Aviation	\$2	\$1	\$1	\$3
Other	\$5	\$1	\$2	\$8
TOTAL	\$152	\$75	\$79	\$306

4.5 TAXES AND OTHER REMITTANCES TO GOVERNMENTS

There are many taxes and other remittances to paid Governments associated with activities at the airport. Some are paid by passengers, some are paid by companies operating at the airport and by their employees, and other taxes are paid by the Airport Authority itself in its procurement processes. These are summarized below:

- Statistics Canada provides Average Expenditure Statistics for households in each province¹⁰. In B.C., the average household spends 14.2% of their income on personal income taxes. By applying this percentage to the \$82.7 million in earnings directly associated with activity at the airport activity, approximately **\$11.7 million in direct personal income taxes** was remitted to the provincial and

¹⁰ Statistics Canada – 2013 Average household expenditures, by province and territory



federal governments in 2014, with \$8.3 million going to the Federal Government and \$3.5 million going to the B.C. Government.

- Statistics Canada also reports that the average British Columbian household spends 32% of their income on retail goods and services. By applying 5% GST to the amount spent on retail goods and services, (32% x \$82.7 million in earnings x 5% GST) we estimate that **\$1.3 million in direct GST** was paid to the federal government by persons employed by organizations at the airport.
- The Provincial Sales Tax is charged at a rate of 7% on retail sales. Using the Statistics Canada data for B.C. it is estimated that 17% of income is spend on retail goods which would result in a total of **\$845,000** to the provincial government by persons employed on airport property.
- The GST is paid by passengers on airfares. One-way fares from YLW average approximately \$300¹¹ (including AIF, ATSC, NavCanada, and optional airline fees) resulting in **GST payments of \$25.5 million**. Splitting this between the origin and destination airports of each passenger, this represents GST payments attributable to YLW of **\$12.5 million**.
- Passengers and employees pay GST on their food and beverage concession purchases and car rentals at the airport; this is estimated at **\$800,000**.
- The GST is also applicable on expenditures on vehicle parking and ground transportation (primarily taxi fares) to/from the airport and is estimated to result in **\$450,000** to the federal government.
- In 2014, tenants at the airport paid property taxes of **\$1.10 million** to the City.
- The combined federal / provincial corporate tax rate is approximately 17% for B.C. Using gross output of \$288 million¹², and net income estimates of 10% of gross output, we estimate that the organizations based at YLW pay approximately **\$4.9 million in corporate tax** of which almost approximately 74% goes to the Federal Government.
- All employers at the airport are required to pay payroll taxes including Canada Pension Plan (CPP), employment insurance (EI), and worker's compensation. These are estimated at **\$6.4 million**.
- Air passengers are also levied, through the Air Travellers Security Charge (ATSC) which is applied to the price of their airline ticket, to cover the cost of security screening services. Currently the ATSC is set at \$7.48 for a domestic round-trip, \$12.71 for a transborder departure and \$25.91 for an international departure. Assuming half of the domestic round-trip charge is attributable to YLW (i.e., \$3.74) and using the distribution of passenger traffic at YLW, it is estimated that in 2014, passengers paid approximately **\$6.7 million in ATSC** for departures from YLW.
- The Province of British Columbia levies an aviation fuel tax of 2 cents per litre of aviation fuel sold and a carbon tax of 7.38 c/L. It is estimated that the province collected approximately **\$28,000 in aviation fuel taxes** in 2014 from fuel sales at YLW, but collected a total of \$5.7 million due to fuel used on flight operations to/from YLW. In addition, the Federal government levies a \$0.04 c/L excise

In 2014, the City of Kelowna received \$1.1 million in taxes from airport tenants.

¹¹ Value of \$295 given in Air Service Update by InterVistas, Jan 23, 2014, for top 10 markets in 2013. Assumed average fare in 2014 over all domestic and transborder markets was 2% higher at \$300.

¹² Excludes output of Airport, Nav Canada and government departments & agencies (TC, CATSA, CBSA) as they do not pay corporate taxes.



tax on aviation jet fuel sold for domestic flights and collected an estimated **\$12,000 on fuel** sold at YLW, but collected \$2.42 million due to fuel used for flights to/from YLW. Less than 1% of the fuel used on flights to/from YLW is purchased at YLW.

- Residents of B.C. must pay **Medical Service Plan (MSP)** premiums to the provincial government. The rates vary by net income and family size and in 2014 are estimated to average \$67 for singles, and \$128 for families per month. Assuming that all single direct employees and half the direct employees with family pay, the total annual MSP premiums paid by workers at YLW will be approximately **\$934,000 to the provincial government.**
- Workers Compensation Board (WCB) contributions of approximately \$550,000 to the provincial government in 2014.

Activity at YLW resulted in \$45.3 million in taxes and other remittances paid to all levels of government in 2014

The estimates of the taxes and other remittances paid to governments broken down by type and level of government are summarized in Table 9. Activity at YLW resulted in \$45.3 million in taxes and other remittances being paid to federal, provincial and municipal governments in 2014.

Table 9. Taxes and Other Remittances Paid to Governments in 2014

FEDERAL	(million)
Income tax*	\$8.3
Corporate tax*	\$3.6
GST - Air tickets (YLW share)	\$11.2
- Concession & car rentals	\$0.8
- Vehicle parking & ground transport	\$0.5
- Expenditures of direct income	\$1.3
Fuel Sales tax on fuel sold at YLW**	\$0.01
Payroll taxes	\$6.4
ATSC	\$4.1
Total Federal Taxes and Remittances	\$36.2
Provincial	
Income tax*	\$3.5
Corporate tax*	\$1.3
PST - Retail concessions & car rentals	\$0.9
- Expenditures of direct income	\$0.8
Fuel Sales tax & Carbon Tax on fuel sold at YLW**	\$0.03
Health Insurance Plan premiums	\$0.9
Workers Compensation Board contributions	\$0.5
Total Provincial Taxes and Remittances	\$8.0
MUNICIPAL	
Municipal Taxes	\$1.1
Total Federal, Provincial & Municipal	\$45.3

Notes:

* Income tax assumed to be split 70% Federal & 30% Provincial, and Corporate tax assumed to be split 74% Federal & 26% Provincial.

** Tax on fuel sales much higher if all fuel on flights to/from YLW is considered.



The total value of taxes and other remittances paid to governments of \$45.3 million is significantly higher than the value of \$31 million given in the previous study for 2010, primarily due to:

- Higher GST revenue on air tickets – previous study appears to have underestimated the GST revenue¹³;
- GST and PST collected from expenditures of employees due to direct employment at the airport which were excluded from the previous study;
- ATSC revenue which was excluded from the previous study;
- Higher GST and PST revenues collected on car rentals (current analysis included the full GST & PST on all rentals from the airport); and
- Higher corporate taxes collected – difference due to the way in which taxable income was estimated.

4.6 IMPACT OF AN ADDITIONAL DAILY B737 FLIGHT

Each additional flight at YLW will require additional employee time for a range of personnel from flight crew, air traffic controllers, baggage handlers, airline check-in and departure lounge staff, aircraft cleaners and maintenance providers, security screeners, and airport operations, ground transportation and airport concessions staff. Many employees are employed full-time and are not working at full capacity all the time and, depending on the time of day of the additional flight, may be able to provide services for these flights without requiring additional employment. In other situations additional staff may need to be employed.

The 2010 Economic Impact Study included an analysis of the microeconomic impact of additional WestJet short and long haul daily B737-700 services to Calgary and Toronto, respectively. It was determined through this micro analysis that the additional jobs created from the addition of these new direct services would generate 16 new jobs (FTE) for the Calgary daily service and 21 new jobs (FTE) for the longer haul Toronto daily service. Although this more in-depth analysis is not part of the

16-38 new jobs are generated from the addition of a single daily B737 flight.

scope of the current study undertaking, a high-level desktop calculation, as outlined below, using more general and broad employment benchmarks reveals a range of 16 - 38 new jobs would be generated from the addition of a single daily B737 flight. This would appear to support the findings of the previous report. The analysis finds that 16 FTE jobs directly relate to air carrier and supporting services; while the higher range of 38 FTE jobs support all passenger-related activities at the airport, excluding aircraft maintenance, charter and GA activities.

¹³ GST revenue was estimated at \$4 million attributable to YLW (1/2 of total for round-trips). GST revenues of \$400,000 on the Airport Improvement Fees and \$350,000 on the ATSC were estimated separately giving a total of \$4.75 million collected on airfares in 2010. At the GST rate of 5% this implies total cost of airfares of \$95 million for departures from YLW. In 2010 there were 1,350,441 E/D passengers, or 675,221 departing passengers. This implies an average one-way airfare of only \$142. However, in their Air Service Update of Jan 23, 2014, InterVistas gives a chart showing the average base fare for the top 10 markets as being \$265 in 2010 and \$295 in 2013.



The impact of a single additional daily B737-700 flight at typical load factors was examined in two ways:

- Determine impact considering the time spent by the various airline and contracted employees servicing the flight. The incremental airline related jobs per year at YLW was estimated to be 16 FTE jobs at YLW¹⁴ and this represents the minimum additional jobs.
- Determine impact considering the total impact of scheduled service flights¹⁵ at YLW and assume the proportion of these impacts related to a single daily B737 flight represents the impact of that flight. Excluding jobs related to aircraft maintenance, charter and GA operations, and a small proportion of airport operations staff (5% assumed), there are approximately 700 FTE jobs at YLW serving scheduled operations. A single daily B737-700 flight would carry approximately 75,000 annual E/D passengers, or 5.4% of the total passengers at YLW in 2014. The portion of total jobs at YLW associated with a single B737-700 flight is therefore approximately 38. As there is usually some slack in the system with all employees not operating at full capacity, an additional flight will likely not result in the full 38 jobs that its passenger share would suggest and 38 FTE jobs therefore represents the maximum additional jobs.

4.7 ONE-TIME IMPACTS OF AIRPORT EXPANSION PROJECTS

In addition to the employment and other economic impacts of on-going operations at YLW, there are also economic impacts associated with capital construction programs at the airport. In 2014, the Airport undertook \$10.356 million of capital improvements to airport facilities¹⁶ and tenants spent another \$120,000, bringing the total spent on capital improvements to \$10.47 million.

The economic impacts of the YLW's capital expenditures were estimated using the cost of the capital projects and Statistics Canada economic multipliers for B.C. of direct employment generated by each dollar of capital spending and corresponding wages, GDP and economic output. The capital expenditure in 2014 is estimated to have created:

- 53 FTE annual direct jobs;
- \$3.39 million direct labour income; and
- \$4.39 million direct GDP.

4.8 SUMMARY

A summary of outputs can be found in Table 10.

- There are 46 organizations operating at YLW in 2014 with 1,411 full time equivalent (FTE) direct jobs. This is an increase of 9% from 2010. Total employment including indirect and induced employment increased 6% from 2010 to 2,660 FTEs.

¹⁴ Value presented in Section 7.2 of 2010 Kelowna International Airport Economic Impact Study by InterVistas, Feb. 2011. Labour elements included in this value are described in Section 7.1.

¹⁵ Includes Sunwing and Air Transat flights

¹⁶ Kelowna International Airport 2014 Financial Statements, additions during year to Tangible Capital Assets for land improvements, building and infrastructure



- It is estimated that activity at YLW directly contributes \$83 million in labour income. This is an increase of 18% since 2010. Total labour income including indirect and induced effects is over \$142 million. On average labour income is \$58,610 per direct FTE at YLW.
- It is estimated that activity at YLW contributes \$336 million in direct output. Total output including indirect and induced effects is almost \$600 million.
- \$336 million in direct output is estimated to produce \$152 million in direct GDP. Total GDP including indirect and induced effects is over \$300 million.

Table 10. Summary of Economic Impacts at YLW – 2014

ACTIVITY CATEGORY	DIRECT	INDIRECT	INDUCED	TOTAL
Employment (Person/yrs)	1,411	735	516	2,661
Wages (million)	\$83	\$37	\$22	\$142
Output (million)	\$336	\$169	\$94	\$599
GDP (million)	\$152	\$75	\$79	\$306

Direct economic impacts are 9% higher for jobs than found in the previous Economic Impact study, and between 12% and 26% higher for wages, output and GDP. Larger increases in the dollar values are partly due to inflation over the five years which has increased the price of goods by 6% between 2010 and 2014. The indirect impacts are generally consistent with the previous study allowing for changes in multiplier values provided by Statistics Canada, increasing by 6% to 25%.

Induced impacts of employment, wages and output are significantly lower than those estimated in the previous study for 2010. The previous study had the induced benefits being higher than, or close to, the indirect benefits. This is atypical in most circumstances and therefore may have been overestimated. Discussions with Statistics Canada have confirmed the multiplier and applicable methodology that is used in this report. Therefore, while direct and indirect impacts have demonstrated growth over 2010, the sizeable methodological difference in the calculation of the induced impact results in a negative variation from 2010 on the calculation of total output (\$600M vs. \$610M).



5 CATALYTIC AND SOCIO-ECONOMIC CONTRIBUTION

5.1 IMPACT OF TOURISM ENABLED BY THE AIRPORT

Air transportation is a critical enabler of the tourism industry bringing people from distant places to the region. In 2011, 1.5 million tourists visited the Kelowna area, up 27% from the number in 2006 (6% per year). In 2014, the number of tourists was expected to reach 1.7 million¹⁷. Leisure accounts for almost half of the booking of overnight accommodation in Kelowna. Air travel is particularly important for meetings/conferences, events, and golf and ski vacations. Summer vacation travellers tend to predominantly access the area by road.

The economic impact of visitors travelling by air in 2014 is \$190 million (gross output).

Most tourists come from Canada, the large majority of these from B.C. (60%) or Alberta (23%). Approximately 17% come from more distant provinces where all would likely fly, with Ontario being the largest of these accounting for 7% of domestic tourists. International tourists account for about 10% of tourists, the majority of these from the U.S. (mostly Washington State), with 1-2% of the total coming from Europe, and a similar number from other international regions.

Based on the origin of tourists and information from the Passenger Market Study for YLW in 2010, it is estimated that 55% of passengers at YLW are visitors to the region. In 2014, this equates to 440,000 visitors.

Provincial and regional tourism data do not provide separate estimates of the spending by tourist in the Okanagan who travel by air to region. An Economic Impact Study conducted in 2011 for Kelowna Tourism provides estimates of the total impact of tourism to the City of Kelowna and the Central Okanagan (plus the Big White ski resort). The impacts of tourists arriving by air in 2014 were estimated from these findings as follows:

- To determine the spending of tourists coming by air, it was necessary to assume that spending patterns, excluding car rental, are similar, on average, between those arriving by air and those accessing the area by other modes. While spending by tourists arriving by air is likely higher, no good data is available on which to estimate the difference. Impacts for air mode tourists are therefore likely conservative.
- The tourism impacts given in the 2011 study include the economic impact on the airport of the passengers arriving by air (i.e., the airfares and associated impacts at the airport). Since these impacts are already included in the Airport economic impacts, they were subtracted to avoid double counting.
- The economic impact due to the car rental services at the airport was assumed to be all attributable to visiting passengers.
- Average wages, and output and value added per passenger, were assumed to have increased at the rate of inflation in B.C. between 2010 and 2014.

¹⁷ Economic Impact Study of Tourism in Kelowna prepared for Kelowna Tourism by InterVistas Consulting, Dec. 2011; and interview with Kelowna Tourism



The estimated tourism economic impact of visitors travelling by air in 2014, excluding airport component, are presented in Table 11 (categories used in the table are those used in the 2011 study). These tourism impacts are very significant equalling approximately 71% of FTE employment, a third of the wages and gross output, and a quarter of GDP impacts of YLW. As mentioned earlier, this is likely a conservative estimate. The direct output equates to an average of \$366 per visitor. This compares with average spending by tourists in Canada of \$265 for domestic, \$510 for US, and \$1,390 for other international visitors in 2011¹⁸. Note that tourists include groups such as those visiting friends and relatives who would typically have much lower expenditures than those on a vacation or on business.

Table 11. Tourism Economic Impact of Visitors Travelling by Air, Excluding Airport Component, in 2014

Impact Component	Employment		Wages	GDP	Gross output
	Jobs	Person-yrs	(\$ Million)	(\$ Million)	(\$ Million)
Direct Impacts					
Accommodation	528	372	\$13	\$22	\$37
Net Other Tourism Industries*	671	387	\$15	\$36	\$77
Visitor Spending**	711	555	\$16	\$25	\$47
Total Direct Excl. Airport Component	1,910	1,314	\$44	\$83	\$161
Net Indirect	493	247	\$3	\$2	\$11
Net Induced***	586	311	\$4	\$4	\$17
Total Impact	2,990	1,872	\$51	\$90	\$190

Notes:

* “Other Tourism Industries” impact reflects employment in attractions and other supporting businesses and organizations of the tourism sector in the region, but excludes air transportation.

** “Visitor Spending” impact is based on the 2011 Visitor Survey Spending Profile conducted by Kettle Valley Research in July and August 2011, and includes expenditure on retail, food & beverage and local transportation within the greater Kelowna area.

*** Does not include indirect and induced impacts for visitor spending (value is only for Accommodations and Other Tourism Industries) in order to avoid double-counting of impacts.

Source: Economic Impact Study conducted in 2011 for Kelowna Tourism, interview with Kelowna Tourism, and SLI analysis

5.2 IMPACTS ON BUSINESSES IN THE REGION

Other than tourism, the economic impacts of the availability of convenient local air service on businesses in the region are difficult to quantify. Instead, a qualitative analysis of the importance of the airport to businesses and organizations in the Central Okanagan region was undertaken. In addition, the good examples of industry segments that have benefited are given.

A survey of businesses and organizations in the Central Okanagan was conducted to obtain feedback on the importance of YLW to their business/organization. The overall response rate to the survey was low, as is typical for these types of surveys; but many groups for which YLW is important responded and provided some useful insights to the importance of the airport. The 32 respondents covered a wide range of types of businesses and organizations as is shown in Table 12. The respondents had a total of 1,720 employees in the region, the most being in the transportation services, accommodation and food services, and finance

¹⁸ The Canadian Tourism Industry – A Special Report by the Tourism Industry Association of Canada, Fall 2012



and insurance industries. Most of those responding (80%) indicated that the airport was *very important* to their business/organization, and another 17% indicated it was *somewhat important*. It should be noted, however, that businesses that do not rely on the airport are more likely not to respond as they would see little value in spending time to respond.

Table 12. Summary of Responses to the Economic Influence Survey of Businesses and Organizations in the Central Okanagan

Business/Organization Group	No. of Responses	Local Employees	Overall Importance of YLW*
Accommodation and Food Services	4	414	4.0
Arts, Culture, Entertainment	1	21	3.0
Business Organization	3	13	3.7
Finance and Insurance	3	275	3.3
Manufacturing	1	40	3.0
Professional Services	5	163	4.0
Real Estate	2	13	4.0
Transportation Services	4	720	4.0
Travel/Tourism Agent/Promotion	5	55	4.0
Other**	4	6	3.3
Total	32	1,720	3.8

* Average rating, rating varied from 1 – No Importance, to 4 – Very Important

** Includes respondents from Community Association, Construction, Recreation and Retail Trade groups

Businesses that operate only within the Okanagan placed less importance on the airport, but business with national and international operations, almost all (90%), indicated the airport is *very important* to their business.

The airport impacts businesses and organizations in different ways. Figure 11 shows the average importance rating of various different impacts for business and organizations responding to the survey. Not unexpectedly, bringing customers from outside the region was given as the most important. Second, however, was the importance of the airport in their investment decisions in locating or expanding in the Okanagan region. This is often an overlooked, or underappreciated, benefit of the airport and is critical to the economic development of the region. The importance of the airport in attracting skilled employees to their business in the Central Okanagan also ranked as one of the more importance impacts of the airport.



Figure 11. Average Importance Rating of Various Ways Airport Impacts Businesses and Organizations in the Central Okanagan



Note: Based on responses to the economic influence survey of businesses and organization; Rating varied from 1 – No Importance, to 4 – Very Important

YLW benefits different industries in different ways, as is outlined below.

- Bringing customers from outside the region – this was rated by respondents as *very important* for the travel, manufacturing, real estate and transportation services industries, and to a lesser extent the food and accommodation services.
- Connecting staff with other offices of business/ organization – this was rated by respondents *somewhat important* to the finance and insurance, transportation, and arts, culture & entertainment industries.
- Connecting staff with clients/customers – this was rated by respondents as *very or somewhat important* the food and accommodation, professional services, travel and transportation services industries.
- Connecting staff with suppliers – this was rated by respondents as *somewhat important* to the food and accommodation and travel industries.
- Connecting staff with other businesses and organizations suppliers – this was rated by respondents as *very important* for the food and accommodation industry and, *somewhat important* to the transportation services, professional services, and arts, culture and entertainment industry.
- Moving items quickly to/from other regions – this was rated by respondents as *somewhat important* for the real estate, transportation services, and arts, culture an entertainment industries.



- Attracting skilled employees to the respondents' business in the Central Okanagan – this was rated by respondents as *very important* for the real estate industry and, *somewhat important* to the transportation services, finance and insurance, accommodation & food services, and arts, culture & entertainment industries.
- Respondents' decision to locate their business in the Okanagan – this was rated by respondents as *very important* for the real estate, accommodation & food services, and transportation services industries.
- Investment decisions in locating or expanding business or organization in the Okanagan region – this was rated by respondents as *very important* for the transportation services, real estate, and arts, culture & entertainment industries, and *somewhat important* to the accommodation & food services, finance & insurance, manufacturing, and travel industries.

Some comments from businesses in the region include:

"Having availability of flights is key to this very important region."

"It Influences our business a great deal."

"The more direct flights between Kelowna and other major cities opens the opportunity for further Tourism development and expansion. If there is the demand of guests then there's more opportunity to develop more attractions and activities for the traveler while visiting the city."

"YLW and its continued expansion and ability to attract more airlines and more direct flights to sun and Europe and Asia destinations is very, very important to us."

"People mobility within organization of greatest importance."

A good example of an industry where good local air service is critical is the technology industry. The direct and indirect impact of the Okanagan technology sector in 2013 was estimated to be \$1.02 billion. This includes direct impacts of 6,500 employees and \$797 million in revenues generated by tech companies as well as an indirect impact of \$223 million created by businesses that supply inputs to the technology sector. The two most predominant sectors are technology software and services, and new media and Internet technology. Overall, in the high tech sector revenues increased by 3.5% to \$23.2 billion and the GDP had 3.4% growth, which is double the overall provincial GDP growth.¹⁹ One prominent business, Disney Canada, has over 300 employees in Kelowna and relies on air service for employees to meet with other staff, primarily in Los Angeles, and attend meetings and conferences. Another prominent company in the sector is Bardel Entertainment which employed 650 artists and professionals in B.C., including over 50 in Kelowna in 2013, and is projecting to grow to over 100 employees in 2016. Again, air service is important for collaborating with staff in their Vancouver office and meeting clients such as DreamWorks, Nickelodeon, Disney, Warner Bros. and Cartoon Network-Adult Swim, many of which are in the U.S. According to the Kelowna City Chamber of Commerce, Kelowna is quickly becoming a high-tech hub in animation, video game development, aerospace development and Information Technology services. Accelerate Communications Group Inc., which promotes the technology sector in the Okanagan, indicates that the airport is very important for connecting businesses in the region with other offices, clients, suppliers and other businesses in the sector. YLW is very important to the growth of this sector.

¹⁹ Study on Technology Sector in the Okanagan by Accelerate Okanagan, Jan. 2015



5.3 ENABLES COMMUTER WORKERS TO OTHER AREAS

The airport allows people to live in the region and air commute to work outside the region, particularly to large oil and gas development projects in Alberta and B.C, typically on a 10-day on, 10-day off work schedule. These workers and their families live in the Okanagan region and most of their disposable income is spent in the region and stimulates the local economy.

The number of commuter workers working on resource development projects and their incomes are difficult to determine, but some data is available which indicates the magnitude of the economic impact to the Okanagan region. In 2014, there were 851 movements at YLW of medium or regional jets or medium or large turboprop aircraft to airports serving resource projects at Fort Mackay/Albian, Conklin, Christina Lake, Fort St. John, Terrace and Dawson Creek. Assuming typical seat capacity and load factors on these flights, it is estimated they carried 10,800 workers from the Kelowna area to these work sites, noting that these workers make multiple trips over the year. In addition, WestJet commenced daily scheduled service using 78-seat Q400 aircraft to Fort McMurray in May 2014. This service will carry approximately 34,000 E/D passengers annually, or 17,000 enplaned passengers. Surveys taken at Fort McMurray Airport indicate that 40% of passengers are commuting to/from work on oil sands projects. This would imply another 7,000 worker commuting trips from YLW for a total of 18,000 commuter work trips annually. The number is likely higher as many workers likely connect through Calgary or Edmonton. Assuming a typical work schedule and hourly rate, it is estimated that these workers generated at least \$75 million in income in the year May 2014 to April 2015, much of which will be spent in the Central Okanagan²⁰.

5.4 VALUE OF AIR TRANSPORT BEYOND WHAT USERS PAY FOR AIR SERVICES

Air transportation has value beyond just the cumulative amount of output produced by the industry and the associated indirect and induced outputs. The amount people pay for air travel drives the output produced by the aviation industry. However, people, whether travelling for business, work, personal reasons or leisure, value their air trips at least as much as the airfare they pay, otherwise they would not travel. For many air trips they value the trip at much more than the price paid, particularly business/work trips. The amount they value their trips above what they pay is very difficult to determine, particularly at an airport level. However, an analysis of the consumer surplus generated by air travel provides a method of estimating, at least approximately, the total benefit to air travellers. A study of the consumer surplus that Canadians derived from air travel indicated that the **total value that consumers place on the industry is roughly double the cumulative of GDP produced by the industry.**

²⁰ Assuming 10 day work shift associated with each commuter work trip, average 10 hour shift and wage of \$50 per hour.



5.5 SOCIO ECONOMIC IMPORTANCE OF AIRPORT

The Kelowna International Airport provides key socio-economic contributions to residents, businesses and visitors.

The airport provides critical support for the public sector in the regional essential for the communities they service. The public services include:

- **Health care** – Emergency or high-risk transfers (critical care) are always made by air; patients often travel by air for specialist treatment not available in the region, and doctors and other medical staff use YLW to visit the regional hospital and to attend conferences and other meetings.
- **Education** – University and college students often use air transport at the start and end of each term to access the university/college campus, both those from the region travelling out-of-town and visiting students attending university/college in the Okanagan. Air transportation is important to staff to attend conferences and other meetings.
- **Policing / Law Enforcement / Courts** – RCMP officers and judges often need to travel for meetings, witnesses and prisoners may use air transport depending on the location of the trial.

In addition, the airport improves the quality of life of residents of the region by allowing them to travel to more distant locations to see family and friends, attend to personal matters (such as funerals, health issues, etc.), attend social, cultural and sporting events, and go on vacation.



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6 KELOWNA INTERNATIONAL AIRPORT’S FUTURE ECONOMIC IMPACT

The future economic impact is generated by both recurrent (ongoing) airport operations as well as by temporary activities related to construction and development at the airport.

6.1 RECURRENT AIRPORT OPERATIONS

Even without airport development, the airport would continue to generate recurrent impacts based on ongoing operations. In Section 2.4 it was forecast that in year 2020, a total of 1.93 million passengers will travel through the airport, an increase of 20%; and 2.25 million in 2025 (40% increase).

Over the past 5 years, direct employment has grown at 65% of the rate of growth of passenger traffic, while growth rates on average for direct wages, output and GDP have been roughly equal to the growth in passenger traffic. However, adjusting for inflation, the rate of growth for direct wages, output and GDP has followed the same trend as that of direct jobs. Future recurrent direct economic impacts of airport operations were estimated assuming the same trend continues and are summarized in Table 13. By the year 2020 operations at YLW can be expected to generate approximately \$381 million (2014\$) in direct output. This in turn equates to almost 1,600 FTE workers being directly employed at the airport and \$94 million (2014\$) in direct wages.

Table 13. Future Impacts Due to Recurrent Airport Operations at YLW

ACTIVITY CATEGORY	2015	2017	2020	2025
Employment	1,405	1,481	1,597	1,780
Wages (million)	\$82.4	\$86.8	\$93.6	\$104.3
Output (million)	\$334.9	\$352.8	\$380.6	\$424.2
GDP (million)	\$151.1	\$159.2	\$171.7	\$191.4

6.2 PROPOSED CAPITAL EXPENDITURES

The Airport is in the process of expanding the air terminal building and further expansion may be necessary over the next 10 years. The capital investment associated with the expansion of the terminal will involve expenditure on construction, equipment, and raw and finished materials, all of which support employment, GDP, economic output and taxes receipts. The economic impacts of the YLW’s terminal expansion were estimated using the cost of the capital projects and Statistics Canada economic multipliers of direct employment generated by each dollar of capital spending and corresponding wages, GDP and economic output for B.C.

In addition to the terminal building, tenants at YLW are planning to spend another \$0.56 million on capital improvements over the next five years.

Using the Provincial Input-Output model for the construction industry, we can estimate that should the Airport and tenants complete the full development program as outlined in their capital plans, the following non-recurring economic impacts will occur.



Table 14. Recent and Future Temporary Impacts Due to Planned Development at YLW

MEASURE	2014	2015	2016	2017-2026	Average per Year 2017-2026
Direct Gross Output (M)	\$10.47	\$3.1	\$21.6	\$280.3	\$28.0
Direct GDP (M)	\$4.39	\$1.28	\$9.0	\$117.4	\$11.7
Direct Employment	53.1	15.5	109	1,421	142
Direct Labour Income (M)	\$3.39	\$0.99	\$7.0	\$90.8	\$9.1

Note: 2014 and 2015 impacts are based on additions during year to tangible capital assets for land improvements, building and infrastructure as reported in the Kelowna International Airport 2014 and 2015 Financial Statements.

As shown above, proposed development at the airport will directly create 1,421 additional FTE of annual employment during the 10-year period 2017 to 2026, an average of 142 per year.



7 CONCLUSIONS

The previous economic impact study conducted for the Kelowna International Airport (YLW) was completed in 2011 using data from calendar year 2010. Since that time, the Kelowna International Airport traffic has increased by 15% over the five years.

YLW provides significant economic and transportation benefits and is an integral part of the local and regional economy. Table 15 summarizes the economic benefits of YLW as measured in 2014. Indirect and induced impacts were determined using Statistics Canada economic multipliers for B.C.

Table 15. Summary of Economic Impacts at YLW – 2014

ACTIVITY CATEGORY	ASSOCIATED WITH AIRPORT ACTIVITY				CATALYTIC
	DIRECT	INDIRECT	INDUCED	TOTAL	TOURISM
Employment (Person/yr)	1,411	737	525	2,673	1,872
Wages (million)	\$83	\$37	\$22	\$142	\$51
Output (million)	\$336	\$169	\$94	\$599	\$190
GDP (million)	\$152	\$75	\$79	\$306	\$90

Tourism is one of the major catalytic impacts associated with the airport. As shown in the above table, the total impacts of visitors to the region travelling by air are significant with 1,872 FTEs, \$51 million in wages, \$190 million in output and \$90 million in GDP. This equates to roughly 70% of the total employment impact of the airport and between 26% and 36% of the total income, output and GDP impacts of the airport. Businesses and organizations in the region indicated that the airport is very important in bringing customers to the region. The second most important impact of YLW was on investment decisions to expand in the region, followed by connecting staff with other businesses/organizations, clients, and other offices of their business/organization. The airport is also important in attracting skilled workers to the region. YLW is therefore very important to economic growth in the Okanagan region.

An additional single daily B737-700 flight at YLW is estimated to result in between 16 and 38 FTE jobs. Other measures of economic impact relative to traffic and employment numbers are provided in Table 16.

Table 16. Additional Economic Impact Measures (2014)

MEASURE	2014
Passengers (E/D)	1,602,899
Direct Output per E/D Passenger	\$210
Direct Output per Landing (All Movements)	\$7,087
Direct Output per Direct FTE	\$238,258
Direct Wages per Direct FTE	\$58,608
Increase in total FTE for every 1,000 increase in E/D passengers	1.8
Number of Landings per direct FTE	34

In conclusion, with 1,411 FTEs and \$336 million in direct output, YLW is a powerful economic generator for the Kelowna area. In addition, capital expenditures at the airport increase direct employment and direct output by another 53 FTEs in 2014 (4% of total). The value of transportation services beyond what travellers pay for their air tickets cannot be determined, but consumer surplus economic theory indicates that inclusion of this benefit to air travellers would roughly double the economic impacts presented above.



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APPENDIX A – LIST OF AIRPORT TENANTS / CONCESSIONNAIRES



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CURRENT YLW TENANT / BASED ORGANIZATION

Kelowna int'l Airport Authority
Okanagan Aero Engine (1999) Ltd.
Strategic Aviation Services LTD
Ironman Holdings LTD
ARINC
Devon Transport Ltd. (Budget)
Skyway (Tims, White Spot, Duty Free, etc)
Enterprise Rent-A-Car Canada Company
Avis Rent A Car
G4S Secure Solutions, Aviation
BC Corps of Commissionaires
Transport Canada
RCMP
Nav Canada
CBSA
CATSA
Ambassadors
North Cariboo Air
NT Air
Enerjet
Flair Airlines Ltd
Carson Air Ltd.
Canjet
Royal Star Enterprises Inc.
Western Bus Lines
All Rush Express
Kelowna Cabs
Big White Central Reservations
Tourism Kelowna
Coast Capri Hotel
Suncor Energy
Kelowna T Hangars
Kelowna and District Flying Club
Air North
WestJet
Pacific Coastal Airlines
Alaska - Horizon Air
Central Mountain Air
Air Canada / Express-Jaz
Bouygues Energies & Services
KF Aerospace (prev. Kelowna Flightcraft) - Air Carrier
Great Slave Helicopters
Skyline Helicopters Ltd.
Air Transat
Canadian North
Southern Interior Flight School

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