

# **The Economic Impact of the Ottawa Airport**

## *Year 2000*

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# Table of Contents

Executive Summary .....	iii
Part I: The Ottawa Airport.....	1
1.0 Introduction .....	1
2.0 Background: Ottawa Airport .....	4
<b>PART II: DIRECT EMPLOYMENT IMPACT .....</b>	<b>6</b>
3.0 Employment Survey .....	6
4.0 Direct Employment Impact .....	9
5.0 Types of Employment .....	11
<b>PART III: OTHER ECONOMIC IMPACTS.....</b>	<b>19</b>
6.0 Multiplier Effects .....	19
7.0 GDP and Economic Output Impacts.....	21
<b>PART IV: COMPARISON &amp; CONCLUSIONS.....</b>	<b>23</b>
8.0 Trends in Employment Impacts .....	23
9.0 Summary and Conclusions .....	29
<b>GLOSSARY OF TERMS .....</b>	<b>30</b>
<b>APPENDICES.....</b>	<b>32</b>
Appendix 1: Survey Methodology .....	33
Appendix 2: Questionnaire and Cover Letter .....	35
Appendix 3: Calculation of Hours Per Person Year.....	45
Appendix 4: Research Methodology .....	46
Appendix 5: Total Employees and Person Years.....	47
Appendix 6: Inferred Employment.....	48
Appendix 7: Taxi Cab Employment .....	49
Appendix 8: Limousine Service.....	50
Appendix 9: Public Transport Service .....	51
Appendix 10: Multiplier Effects.....	53
Appendix 11: Cover Letter and Employment Survey for Hotels.....	55

## Table of Figures

Figure 3-1 Survey Response Rate.....	7
Figure 4-1 Jobs and Person Years Ottawa Airport (YOW) .....	9
Figure 5-1 Part Time versus Full Time Employment.....	11
Figure 5-2 YOW Passenger Traffic Seasonality .....	12
Figure 5-3 Employment by Type of Business .....	13
Figure 5-4 Employment by Type of Air Carrier .....	14
Figure 5-5 Employment by Job Type .....	18
Figure 6-1 Employment Ratio-type Multipliers (per direct person year).....	19
Figure 6-2 Direct, Indirect and Induced Employment at YOW (2000).....	20
Figure 7-1 Economic Impacts: Monetary Measures – Output, GPD and Wages.....	22
Figure 8-1 YOW Passenger Volumes over Time .....	24
Figure 8-2 Economic Impact of the Airport on the National Capital Region.....	24
Figure 8-3 Part Time Employment: Previous Studies versus 2000.....	25
Figure 8-4 Jobs and Person Years of Employment: Previous Studies versus 2000 .....	25
Figure 8-5 Person Years of Employment: Previous Studies versus 2000 .....	26
Figure 8-6 Employment versus Passenger Traffic.....	27
Figure 8-7 Passenger and Employment Forecasts (forecasts in italics).....	28
Figure 8-8 Employment Forecasts.....	28
Figure 9-1 Economic Impact of Ottawa Airport: April 2000 .....	29

## Executive Summary

Economic impact is a measure of the spending and employment associated with a sector of the economy. This study focuses on the employment impact of the Ottawa Macdonald-Cartier International Airport (YOW) in terms of person years and number of jobs. In order to determine the number of employees at all airport related firms, an employment survey was conducted in April 2000. This employment data was then analyzed to infer other economic impacts.

As of April 2000, the Ottawa International Airport accounted for close to 4,000 direct jobs or 3,500 person years of employment.

This study found:

- YOW accounts for 3,992 direct jobs in the local economy or 3,455 person years;
- These employees, on average, are paid annual salaries of \$32,400; the total wage bill for the airport is \$129 million;
- The direct economic impact of this employment base is \$184 million in GDP and \$365 million in Economic Output;
- Considering multiplier effects, YOW stretches employment reach to an additional 2,509 indirect jobs (2,172 indirect person years ) and 2,277 induced jobs for a total impact of 9,079 jobs.
- Since 1995, the airport's employment has grown from approximately 2,850 to 4,000 jobs (+40%).
- Air carriers are the largest employers at the airport with just over 1,000 jobs.
- Air cargo/courier companies are second largest employers at the airport with just over 600 jobs. The large size of the air cargo employment base is often unappreciated.
- Drivers are the most commonly employed job trade at the airport with over 600 employees (largely associated with air cargo). The second largest employment group is customer service agents with 400 jobs.
- Virtually all of the employment at the airport is permanent rather than seasonal. Seasonal employment at YOW accounts for only 2% of jobs and 1% of person years.
- Full time employment accounts for 75% of jobs and 85% of person years.
- Every extra million passengers served by the airport generates roughly 1,160 jobs.

The following table summarizes the economic impact of YOW as of April 2000.

**Economic Impact of Ottawa Airport: Annual Impacts as of April 2000**

Type of impact	Economic Output	GDP	Wages & Salaries	Employment	
	Millions	Millions	Millions	Jobs	PY
Direct	\$365	\$184	\$129	3,992	3,455
Indirect	\$298	\$123	\$85	2,509	2,172
Induced	\$295	\$149	\$84.4	2,277	2,230
<b>Total</b>	<b>\$958</b>	<b>\$456</b>	<b>\$299</b>	<b>9,079</b>	<b>7,857</b>

# Part I: The Ottawa Airport

## 1.0 Introduction

The Ottawa Airport (YOW) is a major contributor to the National Capital Economy. YOW provides important links from metropolitan cities such as Toronto and Montreal to the capital city, making it a critical player in international trade and national development.

Since the last economic impact study in 1996, YOW has undergone many changes. This includes: the transfer of the airport from Transport Canada to a local airport authority, experiencing the full impact of the Canada-US Open Skies Agreement, growth in passenger traffic at the airport, and very strong growth in air cargo.

This study documents employment and other impacts of the airport community on the local economy.

### 1.1 The Economic Impact of the Airport

In 1999, 3.2 million passengers arrived or departed through the Ottawa Airport (YOW),<sup>1</sup> making Ottawa the sixth busiest airport in the country in terms of passenger traffic volume.<sup>2</sup> With a population base of 1.1 million residents,<sup>3</sup> this results in a ratio of passengers to residents of 2.9 to 1. Roughly 136,000 itinerant flights were serviced through the airport in 1998, making it the fifth busiest airport in Canada in terms of aircraft movements.<sup>4</sup>

In addition to contributing directly to the local and national economy, YOW also acts as an economic catalyst in facilitating the activity of other industrial and service sectors.

YOW's passengers contribute directly to the local and national economy by spending money and thus creating employment. More importantly, the airport acts as an economic catalyst in facilitating the activity of other industrial and service sectors. Since Ottawa is Canada's capital, convenient and efficient air services are required to ensure continued national and international links and trade.

<sup>1</sup> YOW site statistics 1999.

<sup>2</sup> Statistics Canada. Air Carrier Traffic at Canadian Airports, 1997. Table 1.1: page 11.

<sup>3</sup> Statistics Canada website. Population of census metropolitan areas 1999.

<sup>4</sup> Transport Canada. Aircraft Movement Statistics Annual Report 1998. Table 1: page 2.

The economic contribution of the airport to the community is termed the economic impact of YOW. This study will examine the economic impact of the airport on the regional economy. One of the most important components of the YOW economic impact is given particular attention: Employment Impact.

## 1.2 What is Economic Impact?

Economic impacts can be measured in various ways. Two of the most popular ways to quantify the economic impact are: i) in terms of the dollar value of services provided, or ii) in terms of person years of employment created. Other measures include value added and value of capital used and/or created. All of these attempt to assess the gross level of activity or expenditure. The advantage of measuring economic impact is that it takes a broad look at the activity in a particular sector of the economy. Measuring the economic impact, however, is not the same as measuring the economic viability of a sector.

In measuring economic impact, the *overall* impact of a sector (or *macro* impact of a sector) can be measured. Alternatively, the individual activities in a particular sector can also be examined, as a sort of *micro* impact analysis. For example, the marginal change in employment as a result of a specific new service could be measured.

This study examines the *macro* impact of YOW, paying particular attention to employment. Employment was chosen for a number of reasons. First, economists, policy makers and the business community may understand the significance of GDP, Output, and Capital expenditures; however, the general public may find these concepts too abstract. Employment, on the other hand, is an intuitive and natural concept. How many people work at the airport? In what types of jobs? How well do they pay? It is easier for many to comprehend the importance of one job than it is to understand the impact that \$91,000 in GDP has on the economy.

This study examines the macro impact of YOW, focussing primarily on employment impact.

Second, gross monetary measures can be inaccurate or inconsistent. For example, some companies may report revenues before taxes, while other report revenues net of taxes. These two numbers cannot be aggregated, or compared, and requesting detailed numbers will result in time consuming survey collection processes, and ultimately, low response rates. Third, double counting must be avoided. For example, the catering costs of an airline is revenue for the catering company, but are also included in the revenues of the airline (catering costs are included in the ticket price). Adding catering revenues to the value of airline tickets sold would be double counting.

Third, and probably most significant, is the fact that companies are not comfortable reporting their revenues and/or expenses, resulting in low response rates and possibly useless results.

### 1.3 Scope of this Study

This study measures the macro impact of the commercial operations of the Ottawa Airport. This is done in three stages. First, the direct employment base of the airport is measured and described. Employment figures are generally more understandable by the public than more abstract measures such as economic output or Gross Domestic Product (GDP). Employment figures also have an advantage of being a more accurate measure. Firms are more likely to provide data on employment as opposed to sensitive data on revenues, wages and other monetary amounts. Employment figures offer less chance of double counting economic activity. The economic impact of employment at YOW is significant in its own right because the airport has a dynamic and wide-reaching employment base in the National Capital Region. We wish to examine the size of this employment base and the impact it has on the regional economy.

Second, the study assesses the indirect and induced employment attributable to airport operations. For example, direct catering activities at the airport generate indirect employment at food wholesalers. The indirect and induced effects are measured by use of multipliers. Because of the problems associated with the use of multipliers, these results must be used with caution.

Third, using ratio multipliers, the study infers the economic output and GDP at the airport. Monetary measures such as GDP and output measured by means of a survey can lead to the problems discussed above. Statistics Canada, however, provides ratio multipliers, which translate numbers of employees in a specific economic sector into these monetary measures of economic activity. The ratios are used to infer the direct economic activity at the airport as well as measure the indirect and induced multiplier effects. Since Statistics Canada multipliers are based on the industry sector, we are more comfortable with results derived in this manner.

### 1.4 Outline of this Study

This report is designed to provide a snapshot of airport employment as of April 2000. It is organized into four parts:

- **Part I** contains a brief introduction and history of the airport. (Chapters 1 and 2)
- **Part II** measures and describes the direct employment base of the airport. This is done by means of a survey of YOW employers. (Chapters 3 to 5)
- **Part III** uses the employment results to infer the indirect and induced employment effects of the airport as well as the monetary impacts of economic activity at YOW. (Chapters 6 and 7)
- **Part IV** compares results from this study to results from the 1990 and 1996 economic impact studies. (Chapter 8)
- A summary is provided in Chapter 9.

## 2.0 Background: Ottawa Airport

### 2.1 History of the Airport

The original Uplands site of the present Ottawa Airport was leased by the Ottawa Flying Club from private interests in 1928. Laurentian Air Services purchased the field in 1936 and subsequently sold it to the Department of Transport in 1938. The Department built three runways and was the now Federal airport formally opened on August 20, 1938.

With the onset of World War II, the airport was designated for military use on December 23, 1939, and a Service Flying Training School was established by RCAF, the first such school in Canada. Airport lighting was installed in 1940 after which a permanent airport licence was issued.

By the end of 1947, the longest runway at the airport was 1,250 meters in length. In 1951, two new runways were constructed south of the original runway layout, one 1,829 meters, the other 2,682 meters. On July 15, 1954 the airport was designated as an international alternate for North Atlantic operations. A new terminal building was completed in 1960 followed by the construction of the cantilever styled Transport Canada Flight Services Hangar.

The official designation of the airport was changed to Ottawa Macdonald-Cartier International Airport on August 24, 1964. A major improvement in ground access to the present terminal area from central Ottawa occurred in 1972 with the opening of the Airport Parkway by the National Capital Commission (NCC). A terminal building expansion project began in the early eighties culminating in the inauguration of the existing air terminal building (ATB) in 1987. The project included improvements not only to the ATB and its facilities, but also to the airside face of the complex (apron and gate facilities), and to groundside facilities (roadways and parking).

On February 1, 1997, the Ottawa Airport Authority signed a 60-year lease agreement, officially transferring operation and control of Ottawa International Airport from Transport Canada.

### 2.2 Geographic Location

Greater Ottawa-Hull is located on the border of Ontario and Quebec. As the nation's capital, Ottawa attracts international visitors and business travellers along with various government officials. Ottawa is also the base for numerous high tech and advanced technologies firms.

The Ottawa Airport is located roughly 13 kilometres from the Ottawa downtown core in the city of Gloucester and comprises 2,145 hectares. While being the airport for the nation's capital could imply a likelihood of high passenger volume, YOW has the disadvantage of being located between 2 major international airports, Montreal and Toronto. Nevertheless,

YOW has been able to maintain a respectable passenger volume (roughly 3.2 million passengers per year) and continues to aggressively pursue other opportunities. In fact, Ottawa does have a geographic advantage over the busy Toronto hub in that a flight via Ottawa from Vancouver to Halifax, for instance, is 125 kilometres shorter than one via Toronto.



### **2.3 Open Skies**

With the ratification of the Open Skies Treaty on February 23, 1995, the Ottawa Airport was finally able to offer non-stop service to a larger number of U.S. cities. Service has grown from 21 daily flights to the US in 1996 to 39 daily flights in 1999. This includes service to Boston, New York, Newark, Philadelphia, Washington (Dulles and National), Detroit, Pittsburgh and Chicago. The impact of these changes on the Ottawa-Hull community is in the form of employment as well as economic impact.

## PART II:

# DIRECT EMPLOYMENT IMPACT

## 3.0 Employment Survey

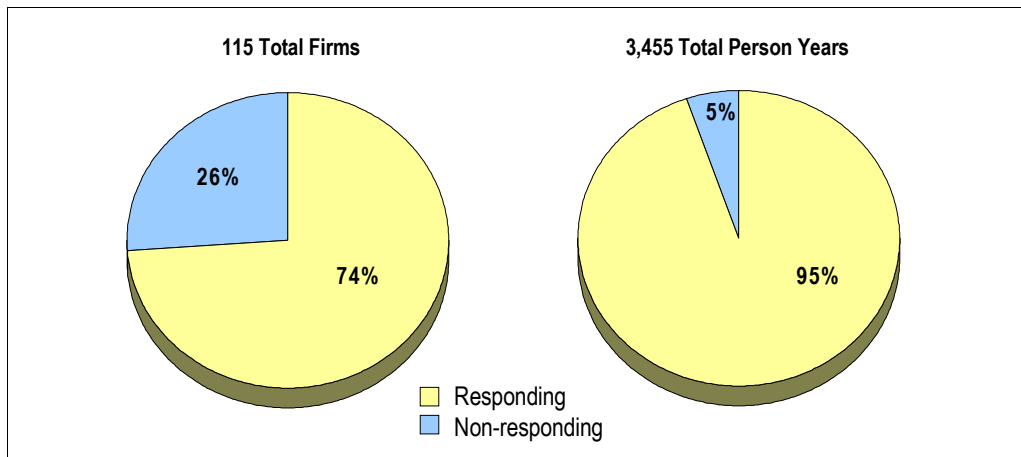
Employment at the airport was measured by means of a survey of businesses physically present at the airport or economically linked to the airport. A distribution list consisting of 115 firms was compiled from Ottawa Airport Authority tenant information. These represent almost all of the commercial aviation activity at YOW, and a survey form was sent to each. Specifics of the survey methodology are contained in **Appendix 1** and a sample copy of the survey is found in **Appendix 2**.

Efforts were made to obtain a high rate of questionnaire return by phone follow-up. **Figure 3-1** shows the response rates. Seventy-four percent of total firms contacted responded to the survey. However, since all of the large employers at the airport responded, the response rate in terms of employment is 95%.<sup>5</sup> In a few cases, firms did not provide financial data since the corporate headquarters, and much of the payroll, financial management and accounting was done elsewhere. Overall, we judge that due to the high response rate, the accuracy of our direct employment impact calculation is very high.

74% of the 115 firms contacted for this study responded to the employment survey.

<sup>5</sup> Inferred employment is 206 jobs (185 person years) as described in **Appendix 6**.

**Figure 3-1 Survey Response Rate**



**3.1 Scope of the Study**

The scope of this study is the Greater Ottawa-Hull based employment impact of YOW. That is, the total number of jobs created in the Ottawa-Hull region directly attributable to the airport. Firms, such as airlines, with employees based at many locations around the country were asked to provide data only on Ottawa-Hull based employment. Some firms have air transport employees based not only at the airport, but at various locations in the Ottawa-Hull region, and these were included. An example would be airline sales managers working from offices downtown. Employment for this study was literally measured by counting the number of employees working at the Ottawa Airport or in aviation-related jobs off-airport.

This study calculates the total number of jobs created in the Ottawa-Hull region directly attributable to the airport.

**3.1.1 Non-Aviation Firms**

Increasingly, employment at airports involves more than air-related employment. In fact, the National Airports Policy encourages airports to broaden their non-aviation base. YOW is no exception. A number of non-aviation related, industrial firms operate at the Ottawa Airport. It is important to recognize that while these firms contribute to the National Capital Region, they do not necessarily form a part of the *direct* economic impact of the airport. If the airport closed, these firms would not necessarily cease

Although non-aviation firms are excluded from this study, they do provide an increasingly important component of diversification to YOW's economic and employment base.

operations as well. At YOW, on-site non-aviation related employers include logen (an enzymes company) and the National Research Council.

Although we exclude the employment and economic impacts of these non-aviation firms from total numbers, it is important to recognize these firms as an increasingly important component of a trend towards diversification of an airport's economic and employment base.<sup>6</sup>

### 3.2 Direct vs. Indirect vs. Induced Employment

Employment can be broken into three categories: Direct employment, indirect employment, and induced employment.

- **Direct employment** is employment that can be attributed to the operation and management of the airport and associated air services (e.g., airline employees, airport authority employees and caterers).
- **Indirect employment** is employment in non-aviation industries which results because of the airport activity (e.g., suppliers of food to airline catering companies). It is employment that is generated to support direct airport-related employment.
- **Induced employment** is employment created by expenditures of individuals employed directly or indirectly. For example, an employee decides to expand or remodel his/her home, creating additional (induced) employment hours in the economy.

The employment survey is confined to measuring direct employment. Part III of this report shows how one might infer indirect and induced employment, as well as GDP and Economic Output impacts with the help of multipliers. A report done by Erbe and Tretheway entitled "A Study of Economic Multipliers and their Application to the Economic Impact of the Vancouver International Airport" describes the problems with using multipliers, and in general discourages their use. However, recognizing their popularity and usefulness in a few situations, indirect and induced employment at YOW are estimated in later sections of this report.

### 3.3 Study Time Frame

The employment survey was conducted in April 2000, and results reflect employment as of this date. In this study, whenever possible, employment impacts are measured both in terms of jobs and in terms of person years.<sup>7</sup>

<sup>6</sup> The economic impact of military operations at YOW are also excluded from this analysis.

<sup>7</sup> One person year is equivalent to 1,832 hours of work. See **Appendix 3** for a detailed calculation of the number of hours per person year. Person years are the same as "full time equivalents (FTE)".

## 4.0 Direct Employment Impact

### 4.1 Introduction

This section looks at the economic impact of YOW from the point of view of employment: jobs supported directly by YOW related activities. The employment impact of the Ottawa Airport can be expressed in three manners:

- 1) Number of employees;
- 2) Number of person years of employment;
- 3) Annual wages and salaries;

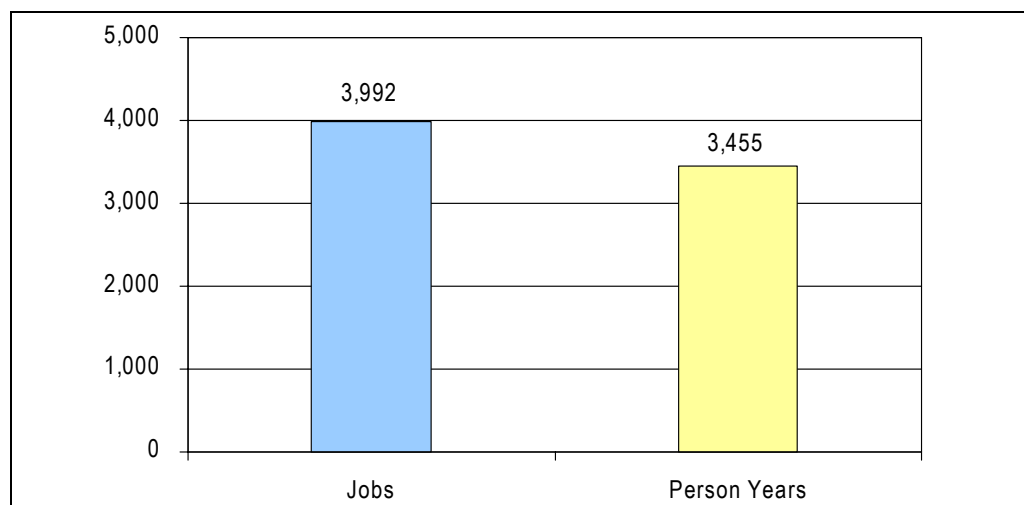
Each of these are dealt with in this section. Because some employees at the airport are seasonal or part-time, data are broken down between permanent versus seasonal, and full-time versus part-time. Part time and seasonal hours were adjusted to determine full time equivalent jobs, or person years of employment.

### 4.2 Jobs, Person Years and Wages

As of April 2000, direct employment at YOW was 3,992 jobs. This represented 3,455 person years of employment, or a ratio of 1.16 jobs per person year. Details of the construction of these figures are given in **Appendix 4**. **Figure 4-1** graphically depicts jobs versus person years at the airport.

As of April 2000, direct employment at YOW was 3,992 jobs or 3,455 person years.

**Figure 4-1 Jobs and Person Years at Ottawa Airport**



These individuals are paid \$129 million in wages and salaries, making the average wage rate for airport employees \$32,400, about the same as the provincial average annual salary of \$32,900.<sup>8</sup>

### 4.3 Inferred Employment

Despite follow-up calls, a certain number of firms did not respond. For these firms, employment was inferred. (Details are contained in **Appendix 6**). Of the 115 firms on the contact list, 30 did not respond with any data. For these firms, we have inferred 206 jobs and 185 person years of employment.<sup>9</sup> These figures are included in the 3,992 jobs and 3,455 person years totals given above. The inferred employment accounts for 5.4% of person years of employment, and 5.2% of jobs.

On average, individuals working in jobs directly related to YOW are paid \$32,400 per year, totalling \$129 million for all 3,992 jobs.

For the 30 firms which did not respond to the survey, a total of 206 jobs or 185 person years have been inferred.

### 4.4 Contracting Out

Some firms contract out services they do not have expertise in, or when cost advantages of doing so exist. As an example, many airport firms contract out janitorial, maintenance and aircraft servicing duties. The employment survey asked firms to identify whether they contracted out some of their work, and to estimate the number of person years involved.<sup>10</sup> Most firms were unable to estimate the number of annual hours that their contractors worked for them. Based on the previous YOW economic impact study and other similar studies, between 2% and 3% of total airport employment is contracted out. Using an average of 2.5%, an estimated 85 person years of employment is provided on contract. The average ratio of jobs to person years (1.16) was applied to contract person years to estimate in 99 jobs on contract.

<sup>8</sup> Statistics Canada. Labour Force Survey, 1999 data.

<sup>9</sup> Inferred employment was calculated, as described in Appendix 6, by applying a firm-type average to the outstanding firms. Averages were scaled down to obtain conservative results. The person year to jobs ratio was used to scale up person years to equivalent jobs for total inferred employment.

<sup>10</sup> Some firms contract person hours to other on-airport firms. Since these firms were included in our survey, person hours of this type were excluded from the contracted out person years. An example would be Canadian Airlines contracting its ground handling needs to Hudson General.

## 5.0 Types of Employment

### 5.1 Introduction

This section examines the employment at YOW in more detail. Jobs are broken down by full time vs. part time, and seasonal vs. permanent. Employment by type of firm is examined as well as by type of job trade. Locational effects are also considered: on-site versus off-site employment. The research methodology of the employment survey is described in **Appendix 4** and a summary table of employment calculations is presented in **Appendix 5**.

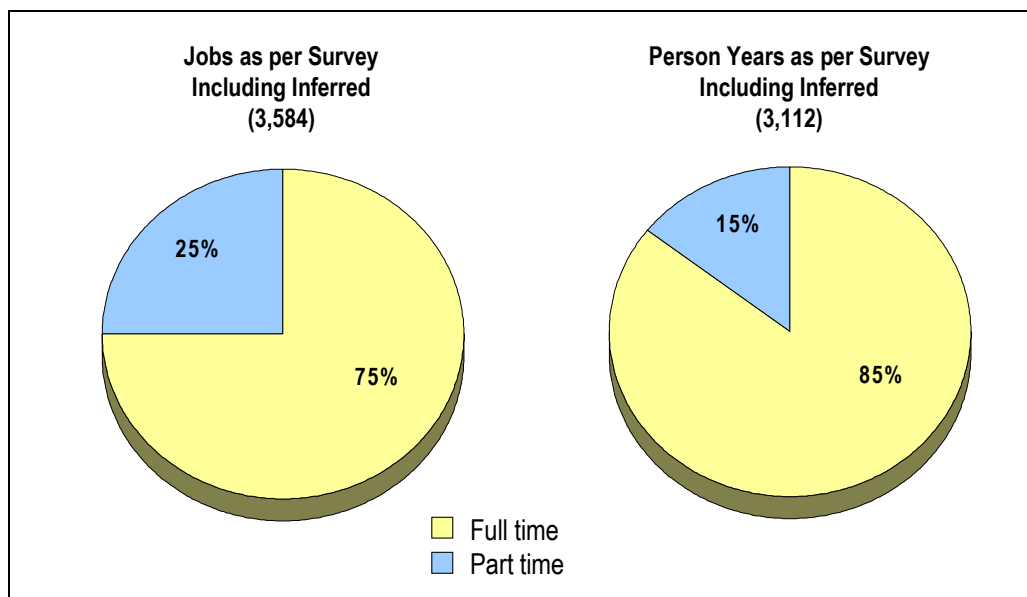
### 5.2 Full time vs. Part time and Permanent vs Seasonal Jobs

**Full time versus Part time.** Jobs at YOW are largely held by full time employees. 2,689 of total surveyed jobs (including inferred data) are full time positions while 895 are part time positions. Person years due to part time jobs at YOW amount to 452 person years.

75% of surveyed jobs and 85% of person years at YOW are full time positions.

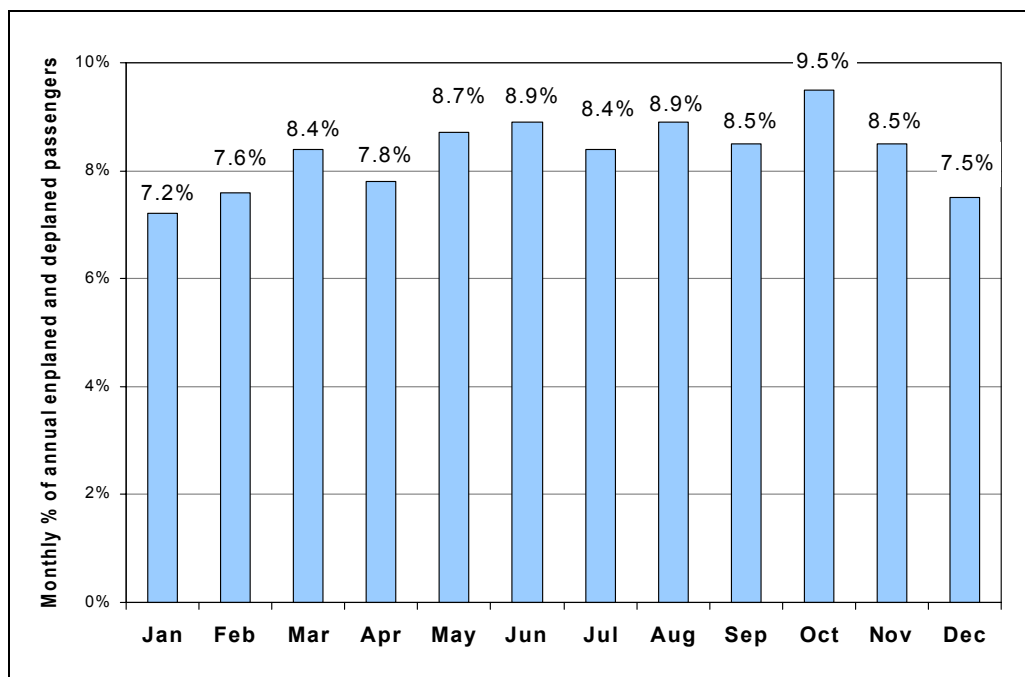
Full time employment accounts for 75% of surveyed jobs and 85% of surveyed person years, as shown in **Figure 5-1**.

**Figure 5-1 Part Time versus Full Time Employment**



**Permanent versus Seasonal.** The aviation industry generally experiences annual fluctuations in demand due to seasonality and some firms hire additional temporary staff at peak times. However, as **Figure 5-2** demonstrates, YOW's traffic is not subject to extreme peaks and troughs. Likely, the higher proportion of business traffic in Ottawa provides a more stable demand pattern than more tourism-oriented markets.

**Figure 5-2 YOW Passenger Traffic Seasonality**



Source: Ottawa Airport statistics 1999.

Survey results for YOW confirm this low degree of seasonality in the Ottawa air market. Of the total 3,584 surveyed jobs at the airport (including inferred), only 2.0% (71 jobs) are seasonal in nature. In terms of person years, seasonal employment at the airport amounts to only 23 person years, or slightly less than 1% of total person years.<sup>11</sup>

Only 2% of YOW's jobs are seasonal positions.

### 5.3 Employment by Type of Firm

The Ottawa Airport houses many diverse types of firms, from airlines to retail shops to customs brokers. Examining employment by type of firm is helpful to highlight the special mix of companies at the airport.

<sup>11</sup> It is important to note that firms were asked to give employment figures for April 2000. Peak seasonality in the air industry generally occurs in August. Firms were asked if additional seasonal employees would be hired at this time. The person years represented by these employees were added to the seasonal employment figures.

The largest employers at the airport are air carriers followed by air cargo/courier companies and government agencies. **Figure 5-3** indicates both the number of employees for each category as well as the number of firms. Each category is discussed in the following sections.

**Figure 5-3 Employment by Type of Business**

Discussed in Section	Type of Business	Jobs	# Firms
5.3.1	Air Carriers	1,019	14
5.3.2	Customs Brokers & Freight Forwarders	89	10
5.3.3	Aircraft Maintenance and Handlers	115	4
5.3.4	Fixed Base Operators and Fuelling Companies	103	5
5.3.5	Catering	n/a <sup>12</sup>	1
5.3.6	Security	109	4
5.3.7	Retail and Concessions	205	12
5.3.8	Ottawa Airport Authority	148	1
5.3.9	Ground Transportation*	311	3
5.3.10	Car Rental Companies	157	6
5.3.11	Air Cargo/Courier Companies	602	6
5.3.12	Government Agencies	317	9

Note: Total jobs include inferred data and total firms includes firms for which data was inferred.

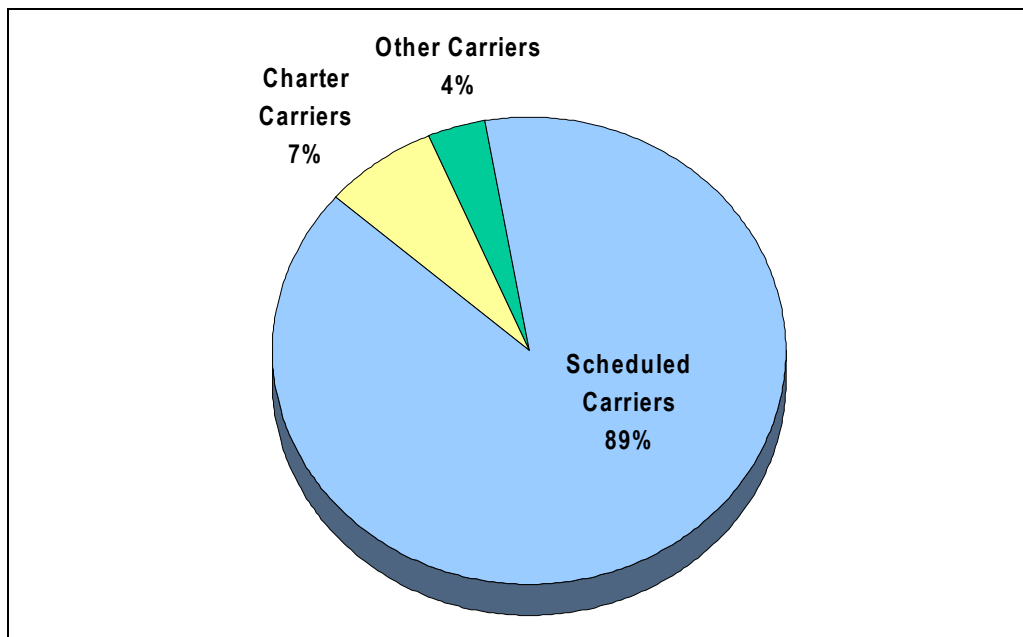
\* Includes both surveyed and special case (taxi, limousine and public transit) data.

### **5.3.1 Air Carriers**

Because air carriers are the largest category of employers at the airport, with over 1,000 employees, it is worthwhile to provide some additional detail on types of air carriers. **Figure 5-4** shows how carrier employment is broken down by type of carrier.

<sup>12</sup> Employment figures are excluded from this table for reasons of confidentiality.

**Figure 5-4 Employment by Type of Air Carrier**



**Scheduled Carriers** are those carriers which provide service on fixed routes on a regular basis. Scheduled carriers account for 908 jobs at the airport, 89% of all air carrier employment and 23% of the total jobs at the airport. These jobs range from mechanics to customer service agents. Scheduled carriers may also provide services for charter operators or smaller scheduled airlines at the airport.

Scheduled carriers account for close to one-quarter of all jobs at YOW.

**Charter Carriers** account for 7% of air carrier employment at the airport with 75 jobs. In the past few years, charter carriers are again becoming more significant players in the Canadian airline industry. They are able to provide service on the basis of predicted demand and often charge lower rates than the scheduled airlines. Charter airlines also have the ability to provide direct service between cities that are normally not connected with scheduled services, such as some of the northern communities in Ontario and Quebec. For the most part, chartered carriers provide some of their own staff, with at least one station attendant. Some of the larger chartered carriers have their own customer service agents, but smaller ones contract these services to the larger scheduled, or chartered carriers. Ground handling is contracted to Air Canada or Hudson General or to the fixed base operators.

**Other Commercial air services** such as helicopters account for 36 jobs at the airport.

### ***5.3.2 Freight Forwarders and Customs Brokers***

Freight forwarders are those companies who consolidate freight to be shipped. They are able to purchase space on planes, trains and ships in large volumes at a reduced price, which they, in turn, pass on, in part, to shippers. They may also provide customs brokerage services. A total of 10 customs brokers and freight forwarders operate at YOW with 89 jobs.

### ***5.3.3 Aircraft Maintenance and Aircraft handlers***

Aircraft maintenance and aircraft handlers provide support to air carriers and account for 115 jobs at the airport. They include the companies who provide much of the ground servicing to aircraft.

### ***5.3.4 Fixed Base Operators and Fuelling Companies***

Fixed Base Operators (FBOs) provide a number of services to the industry. Fuelling of small aircraft is usually a major part of the service provided, along with aircraft handling and parking. Many FBOs lease hangar, office and parking space to other companies.

Fuelling and FBO employment at the airport amounts to 103 jobs.

### ***5.3.5 Catering***

Caterers prepare and provide meals for flights. Cara is *the only* catering company with a flight kitchen at YOW. Not all flights leaving the airport are stocked with meals, since some flights arrive from a larger airport and stop in Ottawa before continuing on their journey. For reasons of confidentiality, we cannot provide detailed information on employment at Cara and its employment figures have been included in the 'other airport services' category in section 5.3.12.

### ***5.3.6 Security***

Security services at the passenger screening area are provided by Aeroguard Ltd. Security agents and RCMP officers also ensure the safety of all passengers and staff at the airport. Security from these firms and organizations accounts for 109 jobs at the airport.

### ***5.3.7 Retail and Concessions***

A number of retail and concession shops operate at the airport, accounting for 215 jobs.

### ***5.3.8 Airport Authority***

The Ottawa Airport was previously run by Transport Canada, but is now run by the Ottawa Airport Authority. The independent, not-for-profit Authority accounts for 148 jobs.

### ***5.3.9 Ground Transportation***

Ground transportation companies account for 311 jobs. These companies include taxis, limousines, public transportation and airport parking. Some ground transportation is further discussed in a later section titled *Special Cases*.

### ***5.3.10 Car Rental Companies***

Six car rental companies are based at the airport, accounting for almost 157 jobs, many of which are part time, working less than 25 hours per week.

### ***5.3.11 Air Cargo/Courier Companies***

Couriers such as Federal Express and Purolator Courier provide courier services to other cities through their wide networks.<sup>13</sup> Air cargo and courier companies account for a total of 602 jobs.

### ***5.3.12 Government Agencies***

Other government agencies still operate at the airport, including Customs and Excise, Immigration, Agriculture and Public Works. Government-related employment at the airport amounts to 317 jobs.

### ***5.3.13 Other Airport Services***

Other employers at the airport include tour operators, maintenance companies, consulting firms and insurance companies. These firms account for an additional 671 jobs.<sup>14</sup>

### ***5.3.14 Special Cases***

Counting the number of jobs in certain areas would prove misleading, therefore some adjustments were made to reflect the true employment impact of these particular services (i.e., taxi cabs, limousine services, public transportation and airport-related hotel employment). Although the adjusted impacts of the taxi, limousine and public transit services have been included in the above ground transportation figures, it is useful to highlight their particulars.

**Taxi Cabs.** In order to pick up passengers at the airport, taxi cabs need a license issued by the airport. One hundred and twenty airport taxi licenses are issued to the Westway Airport Taxi company for open licensed pick-up. A number of taxis are also licensed for pre-arranged pick-up at the airport. This includes taxis from the Gloucester Region (Blue Line Taxi, Capital Taxi, Deville Taxi, Beta Taxi and Crystal Taxi) and a number of taxis from the Cumberland Region - 106 such licenses are issued to these companies. However, these drivers spend only a

Taxis account for 230 jobs or 191 person years of employment at YOW.

<sup>13</sup> While Purolator Courier provided us with the total number of employees at its Ottawa location, it did not provide any details of full-time/part-time positions or job categories. We have estimated these based on confidential information gathered from another Purolator site.

<sup>14</sup> Catering data is also included in the 671 jobs as it cannot be presented separately due to confidentiality reasons. There is only one catering employer at YOW.

very small portion of their total time at the airport. These taxis are also able to drop off passengers at the terminal along with other non-licensed taxis.

In total, 191 person years of employment (230 jobs) are attributed to taxi service at the airport. Calculation details are outlined in **Appendix 7**.

**Limousines.** Thirty licensed limousine companies operate at the airport, with a combined fleet of 98 vehicles. However, limousine drivers spend only a small portion of their time at the airport, resulting in only 5 person years of employment. Details are outlined in **Appendix 8**.

**Public Transportation.** The OC Transpo provides service between the airport and downtown 7 days per week from 4:55 a.m. to 1:30 a.m. on weekdays and from about 5:30 a.m. to 1:45 a.m. on weekends. The service runs each day every 15 minutes, with the exception of very early morning and very late night service which runs approximately every half hour. The employment impact of the airport on public transport is 23 person years as calculated in **Appendix 9**.

**Hotels.** Despite an important economic linkage between business/tourism travel by air and hotel stays, employment at a hotel is generally not be considered a direct result of airport operations.

A direct linkage between hotels and airport operations exist in a few areas: airline flight crew overnight stays and some connecting passengers requiring an overnight stay between flights. A separate survey was formulated for hotels since such employment is not straightforward to measure, but is directly attributable to the airport. A copy of the hotel survey is found in **Appendix 11**. It was decided to allocate a portion of total hotel employment as direct aviation jobs with the portion based on the percent of total hotel stays which are due to flight crew or overnight connecting passengers.

Airline crew layover contracts and overnight connecting passenger stays account for a total of 36 person years of employment at Ottawa hotels.

A total of 10 hotels are included in the study. These hotels account for 38 person years of employment directly related to the airport (34 person years for airline crew layover contracts and 4 person years for connecting passenger overnight stays).

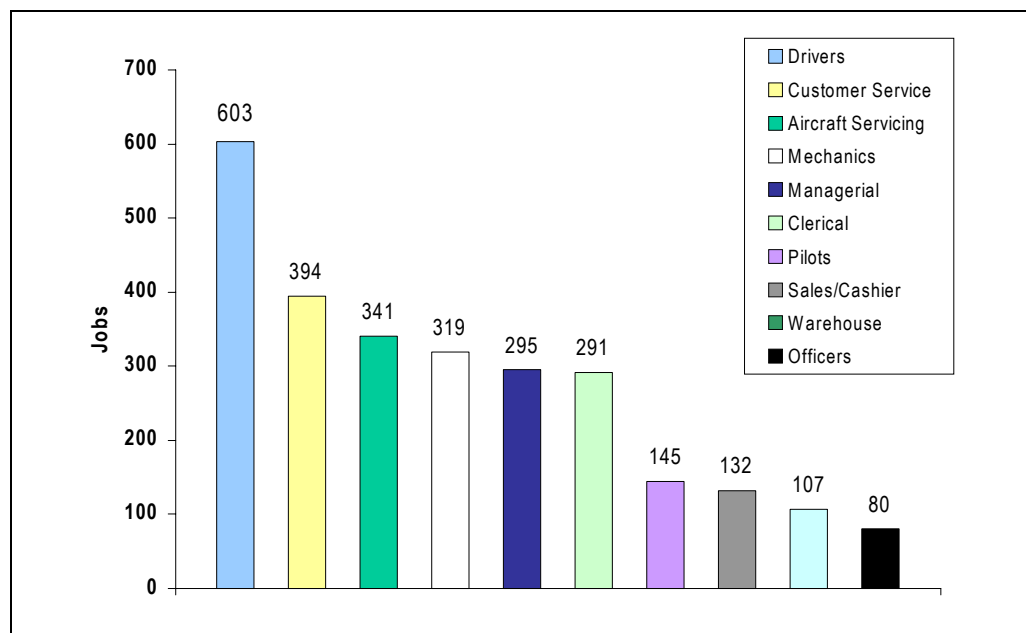
## 5.4 Types of Jobs

Employees at YOW work at many different types of jobs including customer service representatives, managers and mechanics. The largest group of workers at the airport are

The largest group of workers at the airport are drivers, followed by customer service agents.

drivers, due mainly to the fact that ground transportation and courier companies together account for over 900 jobs, as discussed above. As there were some incomplete responses with regard to types of jobs at firms, figures are presented only for those companies which did respond to this question (86% of surveyed firms provided this data). **Figure 5-5** shows the distribution of the top ten job types at YOW.

**Figure 5-5 Employment by Job Type**



### 5.5 On-site versus Off-site Employment

The employment survey asked firms whether they were physically located at the airport, or off-site, but within the region. In order to be included as a component of direct employment, off-site employers must perform airport or aviation-related duties for airport companies. Almost all of the direct employment at the airport was based at the airport, represented by 97% of jobs. Only 3% of jobs are located off-site, making the airport an important economic entity in its own right.

97% of direct employment was based on-site.

# PART III: OTHER ECONOMIC IMPACTS

## 6.0 Multiplier Effects

The previous chapters addressed and measured the *direct* employment impact attributable to the operation of the airport. But, in addition to these direct jobs, other sectors of the economy are dependent on activity at the airport. *Indirect* employment covers jobs of suppliers to primary airport operations as well as of "downstream" firms such as various sectors of the manufacturing and tourism industries.

In addition to direct impacts, YOW also creates indirect and induced impacts in the economy.

Additionally, there is a general stimulus to the economy when, for example, an airport employee decides to remodel a home and thus creates additional employment hours in the construction industry. These general stimulus employment effects are referred to as *induced* employment. Total employment effects are the sum of direct, indirect, and induced effects.

$$\begin{array}{r}
 \text{Direct Employment} \\
 + \quad \text{Indirect Employment} \\
 + \quad \text{Induced Employment} \\
 \hline
 \text{Total Employment Impact}
 \end{array}$$

Indirect and induced employment are inferred using ratio multipliers. Details of the calculations involved in this section are included in **Appendix 10**. Here, we report the simple multipliers and the main results. First, the air industry ratio-type employment multipliers we used are presented in **Figure 6-1**.

**Figure 6-1 Employment Ratio-type Multipliers (per direct person year)**

	Multiplier	Cumulative impact
Direct Person Years	1.0000	1.0000
Indirect Person Years	0.6286	1.6286
Induced Person Years	0.6454	2.2740
Indirect: Statistics Canada, System of National Accounts, Input-Output Division. Induced: Statistics Canada, System of National Accounts, Table II.C.3. <i>Total Direct and Indirect Employment Generated in province of production per direct Job.</i>		

Thus, every airport job potentially affects 1.274 additional person year of employment either by supporting suppliers or supporting the economy in general. The table below gives the results for the potential employment multiplier impacts of YOW.

Every airport job potentially affects an additional 1.274 person years of indirect and induced employment.

**Figure 6-2 Direct, Indirect and Induced Employment at YOW (2000)**

Direct Person Years	3,455
Indirect Person Years	2,172
Induced Person Years	2,230
<b>Total</b>	<b>7,857</b>

The airport thus may be an economic facilitator for a total of 7,857 person years of employment. In addition to the 3,455 direct person years of employment at YOW, we infer an additional 2,172 person years in supplier and user industries, and 2,230 person years in the general economy which may be induced by airport spending.

Including multiplier effects, YOW may be responsible for a total of 7,850 person years of employment.

## 7.0 GDP and Economic Output Impacts

### 7.1 Introduction

Although this study focuses on the employment impact of the Ottawa airport, it is important to recognize the degree to which the airport contributes to the Ontario and the Quebec economy. The two most common measures of economic contribution (in addition to employment) are *Economic Output* and *Gross Domestic Product (GDP)*. Economic output roughly corresponds to gross revenues, while GDP measures value added.

To find economic output for a sector, one adds up the revenues of the various firms in that sector. However, care must be taken to avoid double counting.<sup>15</sup> GDP roughly takes gross revenues for a firm or industry and subtracts payments made to suppliers for materials and services. What is left is value added: the value of the labour used in provision of services, and the value of capital. To contrast economic output and GDP, consider automobile *retailing*. The economic output of automobile retailing is high: the gross revenues they receive for vehicles sold. Its value added is much lower, as the dollar amounts of labour and capital services at automobile retailers are low relative to the final selling price. The bulk of the value of a vehicle is provided by the auto manufacturer.

One approach to measuring economic output and value added is to ask firms via a survey to provide information on their gross revenues, payments to suppliers, etc. The survey conducted for this study did ask for such revenues and expenditure figures. However, many firms were reluctant to respond with these numbers and the response rate we received was low. Scaling up the few responses to attempt to estimate economic output and GDP for the entire airport community would likely be highly inaccurate.

An alternative approach is to infer economic output and GDP from employment data using multipliers.<sup>16</sup> As discussed in **Appendix 10**, multipliers must be used with caution as many problems may arise. Nevertheless, they are an effective method for obtaining an indication of the magnitude of economic impacts.

<sup>15</sup> Consider adding revenues of airlines with revenues of catering companies. Airline revenues correspond to the final ticket price paid by the customer. Included in this are the costs of the in-flight meals provided by caterers. The catering costs are an expense for the airline, but revenues for the caterer. Adding gross ticket revenues to catering firm revenues results in double counting of the catering revenues: it is included once in the ticket price, and a second time in the payment by the carrier to the caterer.

<sup>16</sup> More precisely, absolute multipliers are used. Ratio multipliers allow one to infer indirect and induced effects from direct measures. Output and GDP are inferred from employment data by use of absolute multipliers.

## 7.2 Economic Impact of Employment on Output

Figure 7-1 gives the results of the various direct monetary measures of the economic impact of YOW. In addition, the table provides the potential multiplier impacts of these measures.

Using the Statistics Canada economic multipliers for output and employment, we find that the 3,455 person years at YOW contribute \$365 million in direct economic output. An additional \$298 million dollars is created indirectly while \$295 million is induced by purchases of direct and indirect employees.

Including indirect and induced impacts, YOW contributes close to \$1 billion in economic output.

**Figure 7-1 Economic Impacts: Monetary Measures – Output, GPD and Wages in Millions of Dollars YOW (2000)**

	<b>Output</b>	<b>GDP</b>	<b>Wages</b>
Direct	\$365.5 million	\$184.3 million	\$129.4 million
Indirect	\$297.8 million	\$123.2 million	\$85.3 million
Induced	\$294.9 million	\$148.7 million	\$84.8 million
<b>Total</b>	<b>\$958.1 million</b>	<b>\$456.1 million</b>	<b>\$299.5 million</b>

## 7.3 Economic Impact of Employment on GDP

Statistics Canada input-output absolute multipliers for GDP created in the economy can be inferred as well. We find that the 3,455 person years of employment at the Ottawa airport initiates roughly \$184 million in direct GDP, \$123 million in indirect GDP and \$149 million is induced by the value added purchases of direct and indirect employees.

Including indirect and induced effects, YOW contributes \$456 million in GDP.

Since employee wages are a large component of value added (GDP), the figure for employee compensation was multiplied into indirect and induced impacts as shown above. Note that wages to employees comprise 70% of direct GDP and 35% of direct economic output.

## PART IV: COMPARISON & CONCLUSIONS

### 8.0 Trends in Employment Impacts

#### 8.1 Introduction

In 1990, ADI Ltd. conducted an economic impact study of the Ottawa International Airport. In 1995, Lisa Erbe and Mike Tretheway of the University of British Columbia and the Vancouver International Airport Authority conducted a direct economic and employment impact study, as well as a number of micro economic impact studies. The 1990 methodology is somewhat different from the methodology used in the 1996 and 2000 studies. Nevertheless, it is useful to compare the employment and other figures to see what effects the changes in the air industry have had on the airport.

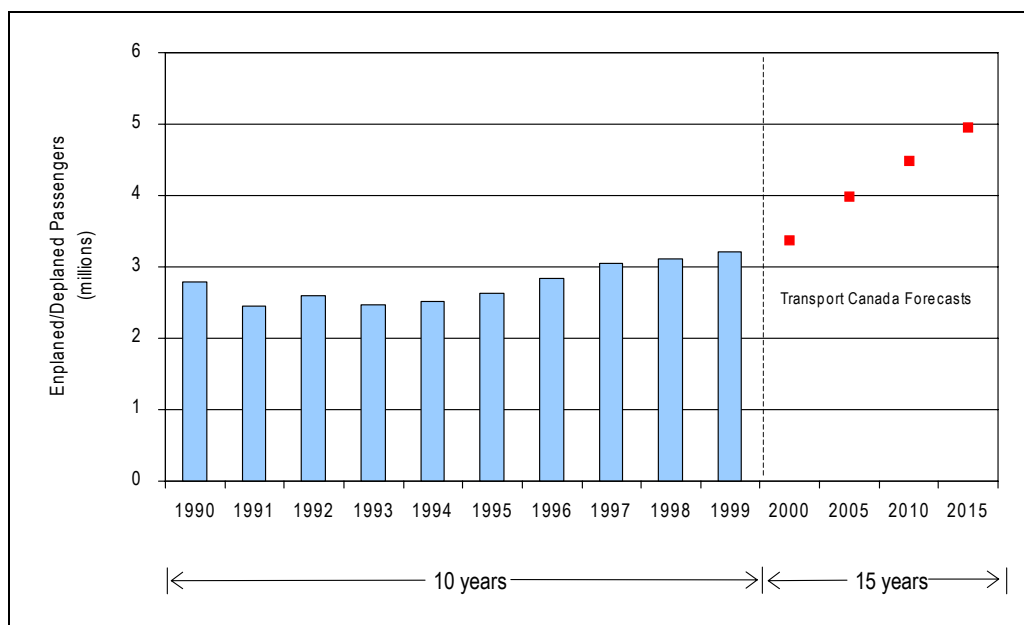
The 1990 study found that the airport impacted 100 firms and was responsible for 2,895 jobs in the National Capital Region and beyond. Except for identifying 20 part time person years, the study made no estimate of the number of person years at the airport in 1990. The 1996 study found that 83 firms at the airport were responsible for 2,852 direct jobs or 2,370 person years of employment in the National Capital Region.

We correct for this in the next section in order to provide a more meaningful comparison between the three study years: 1990, 1996 and 2000. First, we discuss how activity at YOW has changed over the past ten years.

#### 8.2 The Ottawa Airport: Then and Now

***Increase in Commercial Traffic.*** Commercial traffic at YOW has been generally increasing over the past 10 years. Steady traffic growth has occurred since the traffic decreases experienced in the early 1990's. Traffic has grown from 2.7 million passengers and 136,738 itinerant aircraft movements in 1990 to 3.2 million passengers and 139,094 itinerant aircraft movements in 1999. **Figure 8-1** plots Passenger volumes over time and includes the Transport Canada forecast for YOW passengers.

**Figure 8-1 YOW Passenger Volumes over Time**



### 8.3 1990, 1995 and 2000 Employment

#### 8.3.1 Employment: Jobs

The 1990 study included some employment which does not fall under the scope of our study. Specifically, the study included some employment which was generated outside of the National Capital Region. Since the 1995 and 2000 studies measure the employment impact of the airport only on the **National Capital Region**, to compare the results, the non-NCR employment must be removed. This is done in the following table.

**Figure 8-2 Economic Impact of the Airport on the National Capital Region**

	1990 Adjusted Jobs	1995 Jobs	2000 Jobs
Employment as per ADI Study:	2,895 jobs	-	-
less non-NCR employment:	525 jobs	-	-
	2,370 jobs	2,852 jobs	3,992 jobs

### 8.3.2 Employment: Person Years

Only on one occasion did the 1990 study comment on part time jobs and person years. For purposes of comparison, the new and old studies will make some assumptions regarding 1990 part time employment at the airport.

- Part time workers work for 25 hours per week.
- Part time workers work 30 weeks of the year.
- Unless otherwise noted in the 1990 study, all employment was assumed to be full time.

With these assumptions, it is possible to obtain an estimate of 1990 person years of employment. The 1990 study identified 300 part time jobs at the airport, and an additional 20 full time equivalents identified as *Other part time*. The 300 jobs amount to 122 person years of employment, bringing total 1990 part time employment to 142 person years. The table below compares part time employment at the airport for the three study years.

**Figure 8-3 Part Time Employment: Previous Studies versus 2000**

	1990	1995	2000
Jobs	320	765	895
Person Years	142	318	452

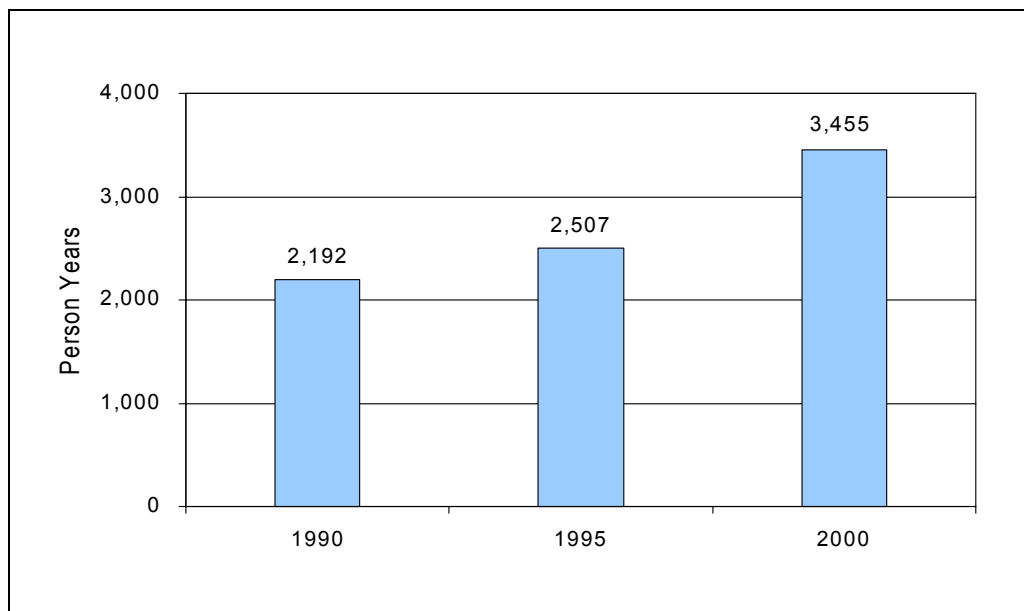
It is now possible to compare person years of employment and not just jobs, for the three study years. As shown in **Figure 8-4**, employment has increased by approximately 1,600 jobs or 1,300 person years since 1990. This is an increase of 68% in jobs and 58% in person years over the past ten years.

Since 1990, employment at YOW has increased by approximately 1,600 jobs or 68%.

**Figure 8-4 Jobs and Person Years of Employment: Previous Studies versus 2000**

	1990	1995	2000
Jobs	2,370	2,852	3,992
Person Years	2,192	2,507	3,455

A comparison of person years of employment from all three studies is shown graphically in **Figure 8-5**.

**Figure 8-5 Person Years of Employment: Previous Studies versus 2000**

#### 8.4 Forecasted Traffic and Employment Projections

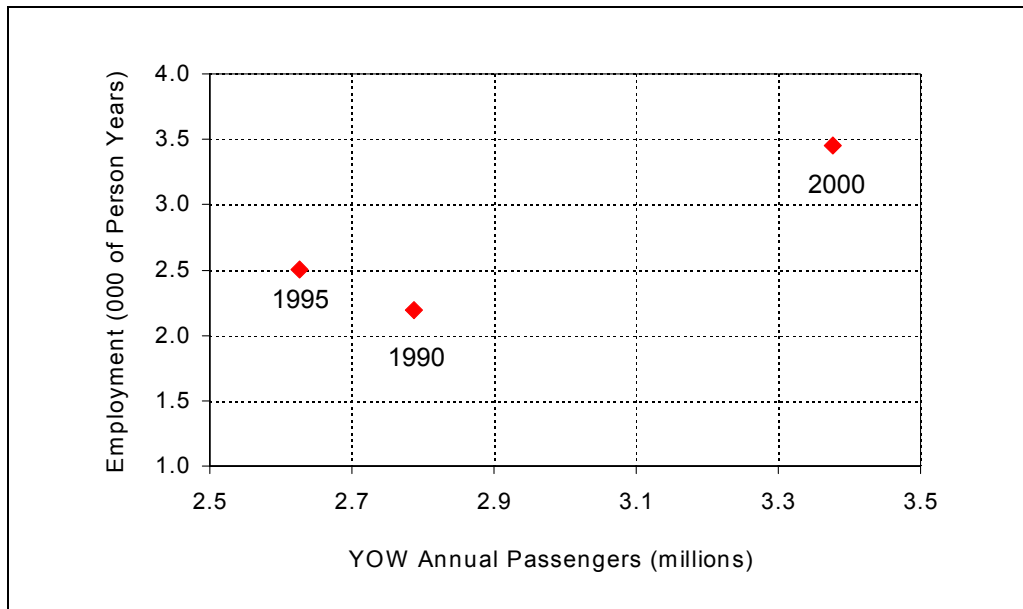
**Figure 8-1** plotted the recent historical trend in YOW passenger traffic, as well as the Transport Canada forecast for the next decade. Traffic is projected to increase from 3.2 million passengers per year to 3.9 million in 2005, 4.5 million in 2010 and 5.0 million in 2015. As traffic increases, it is expected that employment at the airport will also increase.

In many cases, planners, airport analysts and policy makers would like to know what airport employment levels will be in the future. It is not the purpose of this study to provide a definitive set of forecasts of future airport employment. With only three reference points (the 1990, 1995 and 2000 employment studies), any forecast will be subject to much speculation. Nevertheless a few indications of future employment will be noted.

To forecast employment, it seems reasonable to begin by forecasting the number of passengers the airport will be serving, and then to use a relationship between passengers and employment to obtain the employment forecast.

**Figure 8-6** plots person years of employment against passengers for the three years in which employment has been measured.

**Figure 8-6 Employment versus Passenger Traffic**



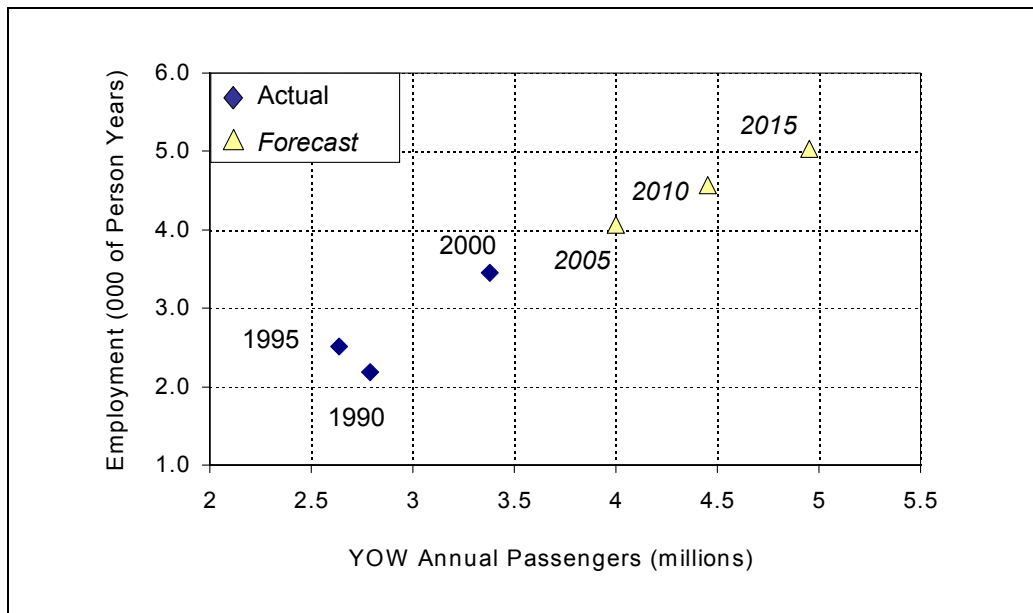
The estimate of passenger traffic for 2000 (3.4 million passengers) suggests, on average, just over 1,000 person years of employment (1,160 jobs) for every one million passengers handled by the airport. This ratio has increased from 787 person years per million passengers in 1990 and 954 in 1995. The increasing ratio indicates higher value added activity at YOW. A regression analysis of the relationship between jobs and traffic levels was considered, but it was decided not to use such results given only three data points (1990, 1995 and 2000) exist.

To produce forecasts of future airport employment, a ratio of 1,000 person years of employment per million passengers was used with Transport Canada's forecast of YOW's future passenger traffic levels. The passenger and resulting employment data (actual and forecasts) are shown in **Figure 8-7** and graphically depicted in **Figure 8-8**.

**Figure 8-7 Passenger and Employment Data (actual and forecasts)**

Year	Passengers	Employment (Person Years)
1990 actual	2,788, 879	2,192
1995 actual	2,626,804	2,507
2000	3,377,000 <i>forecast</i>	3,455 actual
2005 <i>forecast</i>	4,000,000	4,100
2010 <i>forecast</i>	4,500,000	4,575
2015 <i>forecast</i>	4,950,000	5,025

**Figure 8-8 Employment Forecasts**



## 9.0 Summary and Conclusions

**Figure 9-1** summarizes the economic impact of YOW as of April 2000. As discussed in the report, the figures for indirect and induced economic effect were produced using economic multipliers, and thus, must be viewed with great caution.

**Figure 9-1 Economic Impact of Ottawa Airport: Annual Impacts as of April 2000**

Type of impact	Economic Output	GDP	Wages & Salaries	Employment	
	Millions	Millions	Millions	Jobs	PY
Direct	\$365	\$184	\$129	3,992	3,455
Indirect	\$298	\$123	\$85	2,509	2,172
Induced	\$295	\$149	\$844	2,277	2,230
<b>Total</b>	<b>\$958</b>	<b>\$456</b>	<b>\$299</b>	<b>9,079</b>	<b>7,857</b>

A number of conclusions can be drawn from this study:

- With almost 4,000 direct jobs, the Ottawa International Airport is an important economic generator for the National Capital region.
- Job growth has been strong. In the past five years (during which operation of the airport was transferred to the Ottawa International Airport Authority), 1,140 new jobs have been created, an amazing growth of 40% (8% per year).
- These jobs pay wages of roughly \$130 million.
- The airport contributes over \$350 million in direct economic output.
- If multiplier effects are considered, then the total contribution of the airport to the National Capital region may be almost 8,000 jobs and \$950 million in economic output (\$450 million in GDP).

While this study has documented the observable economic impact of the airport, it still understates its true economic contribution. Many businesses in Ottawa depend in critical ways on the services provided at YOW. Some linkages exist between YOW and other sectors of the Ontario economy, such as high tech sector. Without frequent, convenient and affordable air service into Ottawa, many firms might relocate, taking high quality employment and incomes with them. This impact of Ottawa Airport is much more difficult to measure but, in the end, may be the more important of all.

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## GLOSSARY OF TERMS

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

**Direct Employment:** Employment that can be attributed to the operation and management of the airport and associated air services. This includes all employment at the Ottawa Macdonald-Cartier International Airport: airline employees, associated suppliers, Airport Authority employees, etc.

**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.

**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 and induced number of jobs or person years created at the airport is examined to produce a snapshot of the airport operations.

**Full Time Equivalent:** (also **Person Year**) One full time equivalent of employment is equivalent to the number of hours than 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.

**GDP:** (also **Value Added**) A measure of the money value of goods and services becoming available to the nation as a result of economic activity in the nation.

**GNP:** GNP is equal to GDP plus net property income from abroad.

**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 taxi cab service, limousine service, shuttle bus service and public transit service.

**Indirect Employment:** Employment in non-aviation industries resulting from airport activity. For example, suppliers of food to airline catering companies would be considered indirect employment. It is employment that is generated to support direct airport-related employment.

**Induced employment:** Employment created by expenditures of individuals employed indirectly or directly. For example, an employee decides to expand or remodel his/her home, creating additional construction hours in the economy.

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

**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 and induced effects.

**Permanent Full time:** Employees working between 35 and 40 hours per week, 48 weeks per year.

**Permanent Part time:** Employees working less than 35 hours per week, 48 weeks per year.

**Seasonality:** Seasonality results when the supply and demand for a good are directly related to the season in which it is consumed. For example, ski resorts experience changes in income as a result of seasonality. Airport and airport services also experience seasonality as a result of vacation times, etc.

**Seasonal Full time:** Employees working between 35 and 40 hours per week, less than 48 weeks per year.

**Seasonal Part time:** Employees working less than 35 hours per week, less than 48 weeks per year.

**YOW:** Ottawa Airport.

# APPENDICES

# Appendix 1: Survey Methodology

## **A1.1 Identification of Survey Population:**

All of the firms surveyed in this study are either involved in the air transport industry, or directly support airport operations as their major lines of business. For our own purposes, and to facilitate survey response, the survey population was separated into the 12 categories listed in Table A1-1. These categories are based on the types of services firms provide and their employment structure. The survey was sent to the entire population, rather than a sample from which survey results would have to be scaled up. Large employers were targeted to have a 100% response rate for result accuracy, and this was achieved.

The survey population was determined using airport mailing lists and tenant lists provided by the Ottawa Airport. Lists of firms doing contract work were derived by asking firms if they contract out any essential services and to whom. Since a number of firms contract out some services which are internal to others (e.g., janitorial services), it was necessary to identify work contracted out in order to provide a complete picture of YOW employment.

Non-aviation related services and firms, that are based at the airport, are excluded from this study as they do not directly impact airport operations, nor are they a direct result of the airport. The study also confined itself to commercial operations at the airport. Military employment was excluded.

### Total Number of Surveyed Firms by Category

Type of Firm	Number of Firms 2000
Air Carriers	14
Airport Services & Maintenance	28
Fixed Base Operators & Fuelling	5
Aviation Related Manufacturing and Training	3
Catering	1
Security	4
Ground Transportation	3
Car Rental	6
Retail and Concessions	12
Government Agencies	10
Hotels	10
Other Aviation related services	19
<b>Total</b>	<b>115</b>

### A1.2 Questionnaire Design

It was decided that a questionnaire would be the most effective manner to obtain information. **Appendix 2** contains a sample questionnaire and cover letter.

### A1.3 Conducting the survey

The survey questionnaire was delivered by hand to firms, orally conveying what it was and the importance of responding. Although results for individual firms are kept confidential, we did keep track of responses, and followed up with phone calls to remind firms to return the survey, and to offer a new copy in case the original was misplaced.

### A1.4 Analysis of Results

Results of the survey were compiled into a database and analyzed by grouping specific fields. Business type and location were coded to facilitate sorting and analysis. Data are stored in a database for ease of use in future updates, or to explore other aspects of the data.

## **Appendix 2: Questionnaire and Cover Letter**

# OTTAWA MACDONALD- CARTIER INTERNATIONAL AIRPORT

## ECONOMIC IMPACT STUDY

### EMPLOYMENT SURVEY



This survey is part of an update of the 1996 Ottawa Airport Economic Impact Study. The study is a very good means of conveying the importance of the aviation sector to the Greater Ottawa-Hull community and to policy makers. We ask that you complete this survey by April 20<sup>th</sup>. Instructions for returning the survey are on the last page. So that the survey results fully capture the true size of the airport employment base, it is important that the entire airport community participates. Your time and effort are greatly appreciated.

**APRIL 2000**

## 1.0 General Information

We need to know who you are and what kind of business you are in.

Name of Firm: \_\_\_\_\_

Address of Firm: \_\_\_\_\_

City, Province: \_\_\_\_\_ Postal Code: \_\_\_\_\_

Contact Person: \_\_\_\_\_ Title: \_\_\_\_\_

Phone Number: \_\_\_\_\_ Fax Number: \_\_\_\_\_

Email: \_\_\_\_\_ Web Page: \_\_\_\_\_

Please indicate the general location of your firm:

- On-airport (physically located at the airport)
- Off-airport (not physically located at the airport, but within the Regional Municipality of Ottawa Carleton and l'Outaouais)

The figures you provide in the following sections are strictly confidential and will only be used in an aggregate form to determine the total employment impact of the Ottawa Airport. For the purposes of this study, it is important that the figures you provide are as accurate and current as possible.

<b>REVENUES</b>	
Most recent fiscal year	
<b>EXPENSES</b>	
Most recent fiscal year	

## 2.0 Type of Business (check one)

**If you are involved in more than one of the following businesses, please choose the one that you feel makes the greatest economic contribution to Ottawa Airport:**

- |  |  |
|--|--|
| <input type="checkbox"/> 1. Scheduled Carrier                    | <input type="checkbox"/> 13. Aircraft Parts Supplier           |
| <input type="checkbox"/> 2. Charter Carrier                      | <input type="checkbox"/> 14. Aviation Related Manufacturing    |
| <input type="checkbox"/> 3. Helicopter                           | <input type="checkbox"/> 15. Aviation Related Training         |
| <input type="checkbox"/> 4. Air Taxi                             | <input type="checkbox"/> 16. Caterer                           |
| <input type="checkbox"/> 5. Private Carrier                      | <input type="checkbox"/> 17. Security Firm                     |
| <input type="checkbox"/> 6. Terminal Operator                    | <input type="checkbox"/> 18. Courier or Local Trucking Co.     |
| <input type="checkbox"/> 7. Freight Forwarder, Cargo Agent, etc. | <input type="checkbox"/> 19. Hotel                             |
| <input type="checkbox"/> 8. Customs Broker                       | <input type="checkbox"/> 20. Taxi, Bus, Limousine              |
| <input type="checkbox"/> 9. Aircraft Maintenance                 | <input type="checkbox"/> 21. Car Rental                        |
| <input type="checkbox"/> 10. Aircraft Handler                    | <input type="checkbox"/> 22. Airport Retail Outlet, Restaurant |
| <input type="checkbox"/> 11. Fueling Company                     | <input type="checkbox"/> 23. Government Agency                 |
| <input type="checkbox"/> 12. Fixed Base Operator                 | <input type="checkbox"/> 24. Other Please Specify:<br>_____    |

## 3.0 Total Employment

Our first question is about the total number of employees in your organization that are involved with Ottawa Airport. The figure you provide should be for the total number of payroll employees, including both full time and part time but should not include any work done on a contract basis. The latter will be dealt with later in this survey. Your figure for payroll employees should include all employees at the airport, plus any additional employees based in the Ottawa-Hull region whose jobs are directly related to air transportation. As an example, an airline sales manager at a Downtown Ottawa office should be included.

<b>TOTAL NUMBER OF EMPLOYEES:</b> As of April 1, 2000	
<b>TOTAL ANNUAL PAYROLL:</b> Excluding employee benefits	

## 4.0 Full and Part Time Employees

The purpose of this section is to categorize the total number of employees into full time versus part time and permanent versus seasonal.

### 4.1 PERMANENT EMPLOYEES

- Of the total number of employees that you described above, how many of these **permanent** employees are full time and how many are part time?

# Full Time Permanent Employees	
# Part Time Permanent Employees	

For **part time** workers, on average, how many hours per week would they work?

- Number of weekly hours: \_\_\_\_\_

### 4.2 SEASONAL EMPLOYEES

- Due to the seasonality of the airline industry, it is important for us to measure the extent of employment requirements at these special times of the year.
- Of the total number of employees you have listed above, how many are **seasonal** employees and how many of these are full time and how many are part time?

# Total Seasonal Employees	
# Full Time Seasonal Employees	
# Part Time Seasonal Employees	

Of the seasonal workers, approximately how many weeks per year would they work in 2000?

- Number of weeks per year: \_\_\_\_\_

For **part time** workers, on average, how many hours per week would they work?

- Number of weekly hours: \_\_\_\_\_

## 5.0 On-Site Versus Off-Site Employment

*If you wish, you may indicate the percentage of total employees that fall under each category.*

For the purposes of this survey, on-site workers are defined as those employees that work at Ottawa Airport. Off-site workers are those outside the area of the airport, but primarily performing airport or aviation-related duties. (i.e., airline sales managers at a downtown office)

Of the total number of employees, how many work on-site and how many off-site?

<b># ON-SITE EMPLOYEES</b>	
<b># OFF-SITE EMPLOYEES</b>	

## 6.0 Diversity of Employment

In order to reflect the diversity of employment at YOW, please provide us with a breakdown of total employees (including both full time and part time) by position or function, but excluding seasonal.

	Number of Employees
Managerial/Supervisory	
Clerical	
Sales Clerk/Agent	
Flight Attendant	
Aircraft Servicer	
Pilot	
Mechanic	
Trade (Electrician, etc.)	
Driver/Delivery/Pickup	
Production Worker	
Food Service Worker	
Security Agent	
Dispatcher	
Waiter/Waitress	
Cook	
Dishwasher/Table Bussing	
Bartender	
Officer	
Other (specify):	
Total:	

## 7.0 Outsourcing and Contracting Out

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

### 7.1 Firms on Contract

Do you engage in contracting out any functions to other firms? (for example, janitorial services, in-flight catering services, etc.)

YES, Please indicate which functions: \_\_\_\_\_  
\_\_\_\_\_

NO

If yes, we would be grateful if you could provide us with the names and/or addresses of the firms so that we may contact them to be included in our survey. Please attach a list of contractors or use the space below.

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

### 7.2 Contract Employees

If you pay some individuals through a contract as opposed to through payroll, please indicate the number of such employees. We would like to include these people in our total employment figures.

<b>Number of Employees on Contract</b>	
--	--

### 7.3 Hours of Contract Work

Finally, do you have a rough estimate as to how much work your contractors are providing you? If possible, separate figures for each service function.

- Number of annual hours \_\_\_\_\_
- Number of contract employees \_\_\_\_\_

Thank you for your assistance in completing this survey.  
Your input is essential for us to determine the employment  
and  
economic impact of Ottawa International Airport.

Please return as soon as possible, before April 20<sup>th</sup>, to:

**Economic Impact Study**

**c/o the Marketing Department Attn: Karen  
Hakib**

**Ottawa Airport Authority**

**50 Airport Road – Room 3117**

**Gloucester, Ontario**

**K1V 9B4**

**If you are in the terminal building, it would  
be very much appreciated if you could  
deliver the survey by hand.**

**Or fax to John Spinks at: (613) 248-2068**

**Or e-mail to [ivc@vegacom.on.ca](mailto:ivc@vegacom.on.ca)**

If you have any questions, please call  
Martin Copeland at (613) 799-3663



Re: Economic Impact Study

April 12, 2000

To:

We very much value the relationship that the Ottawa International Airport Authority has with the airport community. I think we can all be very proud of the job that we have all done in serving the travelling public at the Ottawa facility.

The Airport Authority is now undertaking an updated study of the economic impact of Ottawa International Airport. We are doing so in order to acquaint the public on the contribution that the airport, airlines, suppliers and other members of the airport community have on the local economy. We receive many requests for this information. Also, since we still have much to do in building a better airport, it is important that the community continues to appreciate the contributions we make to the regional and Ontario economy.

The last review of the economic impact of Ottawa International Airport was done in the Spring of 1996. Since then, the full impact of Canada/USA Open Skies has been realized and of course the airline industry in Canada has gone through a major structural change. Traffic growth during this time frame has been quite strong, led by the technology industries in the Ottawa region and an overall healthy economy. We are anxious to know how this has influenced the economic value of the Ottawa Airport.

To undertake this important study, we need your full cooperation. I would very much appreciate if you could participate in the attached survey that I believe should not take very long for you to complete. The data cannot be compiled and analyzed until everyone has submitted their information and therefore, in order for us to complete the study as soon as possible, we ask that you complete and return the questionnaire by Thursday, April 20<sup>th</sup>.

We appreciate that some of the information we need to collect may be of a sensitive nature. However, when we publish the results, the data will only be displayed in an aggregate form, so that the figures for any individual firm cannot be revealed, even implicitly.

We are being assisted by the same people that did the 1996 study. If you have any questions please do not hesitate to contact me at 248-2088 or Martin Copeland at 799-3663 or e-mail [ivc@vegacom.on.ca](mailto:ivc@vegacom.on.ca). Again, let me thank you in advance for your cooperation on this very important study. We look forward to sharing the results with all of you.

John Spinks  
Vice President, Business Development & Marketing

## Appendix 3: Calculation of Hours Per Person Year

The following are details of calculations for the average number of hours per person year (full time equivalent):

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

Work days vary anywhere from 7 to 8 hours. However, in order to be conservative, an 8 hour work day was assumed.<sup>17</sup>

<sup>17</sup> Essentially, we are using a measure of paid hours per year. Using a measure of productive hours per year with 6 1/2 hour work days (8 hours less 1 hour for lunch and two 15 minute tea/coffee breaks) would give 1,495 hours per person year.

## Appendix 4: Research Methodology

The following lists the methodology used in various sections of the report to derive economic impacts.

**Person Years vs. Jobs:** Distinguishing survey jobs from person years is necessary to obtain a true employment impact value for YOW. For example, an employment impact of 200 jobs is not as significant if all of the jobs are part time, working 25 hours per week. To obtain person years from jobs, part time and seasonal employment needs to be equated to full time equivalents. As described in **Appendix 3**, one person year of employment is equal to 1,832 hours of work per year.

- *Part time permanent* person years were derived by multiplying individual firm part time hours per week (as reported in the survey) by 48 work weeks per year, divided by 1,832.
- *Full time seasonal* person years were derived by multiplying individual firm full time seasonal employees by 40 hours per week and by the number of seasonal weeks (as reported in the survey), divided by 1,832.
- *Part time seasonal* person years were derived by multiplying individual firm part time seasonal hours per week by the number of seasonal weeks (as reported in the survey), divided by 1,832.

These person years were then added to the full time jobs reported by the survey to result in total YOW person years.

**Inferred Employment:** Inferred employment calculations are discussed in detail in **Appendix 6**. Inferred employment was calculated by applying a firm-type average to the number of non-responding firms in each category. Averages were scaled down to obtain conservative results. The person years to jobs ratio of survey results was applied to scale person years up to jobs.

**Contract Employment:** Some firms contract person years of employment to other on-airport firms, while others use firms which are located in the city. Person hours of contract work for on-site firms were not included in contract employment. On the other hand, person hours for contract work performed by off-airport firms (which were not surveyed) were included. Contract employment was estimated based on results of previous studies as the majority of firms were unable to provide the number of hours that their contractors worked for them over the year.

## Appendix 5: Total Employees and Person Years

<b>Total Employees and Person Years Ottawa Airport as of April 2000</b>		
	<b>Jobs</b>	<b>Person Years</b>
Employment per returned surveys	3,378	2,928
Inferred employment for non-respondents	206	185
Employment contracted out	99	85
Special cases**	309	256
<b>Total</b>	<b>3,992</b>	<b>3,455*</b>

\*Total does not add due to rounding.

\*\* Special cases include taxis, limousines, public transit and airport-related hotel employment.

## Appendix 6: Inferred Employment

The following table describes the number of person years that were inferred for each non-respondent business type. Some adjustment have been made to numbers to account for outliers and to maintain reasonable results. Where data was available from the 1996 study, estimates for 2000 were made on an individual basis.

Inferred Employment Calculations				
Outstanding firms	# firms not responding	Average PY per firm <sup>#</sup>	Adjusted Average PY per firm	Total inferred person years <sup>*</sup>
Scheduled Carrier	1	129	97	2
Chartered Carriers	2	22	16	32
Other Air Service	1	26	20	10
Customs Broker and Freight Forwarder	1	8	6	6
FBOs and Fuelling	2	9	7	45
Security	1	15	11	11
Courier	3	72	54	10
Car Rental	2	15	11	23
Retail Outlet	3	13	10	18
Government Agency	1	49	37	10
Aviation Support	3	6	4	13
Other Aviation Related	11	3	2	27
<b>TOTAL</b>				<b>206</b>
Notes:				
<sup>#</sup> Average person years, excluding outliers.				
<sup>*</sup> Total inferred PYs equals adjusted average times the number of firms not responding except where more accurate estimates of individual non-responding firms were available.				

---

## Appendix 7: Taxi Cab Employment<sup>18</sup>

### Assumptions:

- 128 licensed taxis with 170 drivers work at Westway Airport Taxi (open licensed pick-up).
- Westway has an administrative staff (dispatchers, managers, etc.) that totals 6 jobs or 5.5 person years of employment.
- A ratio of 0.85 person years of employment per taxi job is estimated.
- 106 licensed taxis with 118 drivers perform pre-arranged licensed pick-up. In 1999, these taxis accounted for approximately 4,400 pick-ups.
- The average taxi trip time is 45 minutes (10 minutes wait time + 20 minutes trip time + 15 minute empty return trip).

### Therefore:

- Westway accounts for approximately 109 person years of pick-ups at the airport.
- Pre-arranged taxi pick-ups account for 2 person years of employment (4,400 trips times 0.75 hours divided by 1832 hours per person year).
- Person years attributed to drop-offs equals 111.

An estimated 191 person years of employment are attributed to taxi service to and from the airport. The ratio of person years to drivers from Westway was applied to the person years attributable to non-Westway taxis to estimate the number of jobs these person years represented. Together with Westway drivers, taxis account for a total of 230 jobs at YOW.

<sup>18</sup> Information used to calculate taxi cab employment was provided by Ottawa Airport Ground Transportation Service.

## Appendix 8: Limousine Service<sup>19</sup>

Thirty license limousine companies pick up passengers at the airport. The combined fleet is made up of the following vehicles:

59 sedans

28 stretched limousines

9 vans

2 luggage vans

**98 total vehicles**

It is assumed that each vehicle represents one driver. However, as only a portion of each driver's work day is spent on airport related trips, the number of person years associated with limousines is much smaller than the number of drivers.

Assumptions:

- There were an estimated 7,290 limousine pick-ups in 1999.
- There are approximately 50% less drop-offs than pick-ups.
- Average trip length is 47 minutes (15 minute wait time + 20 minute trip time + 20 minute empty back haul for 60% of limousines).

Therefore:

- There were an estimated 10,930 total limousine trips in 1999.
- These trips accounted for 8,561 hours of employment (10,930 trips times 47 minutes converted to hours).
- This represents a total of 5 person years of employment (8,561 divided by 1832 hours per person year).

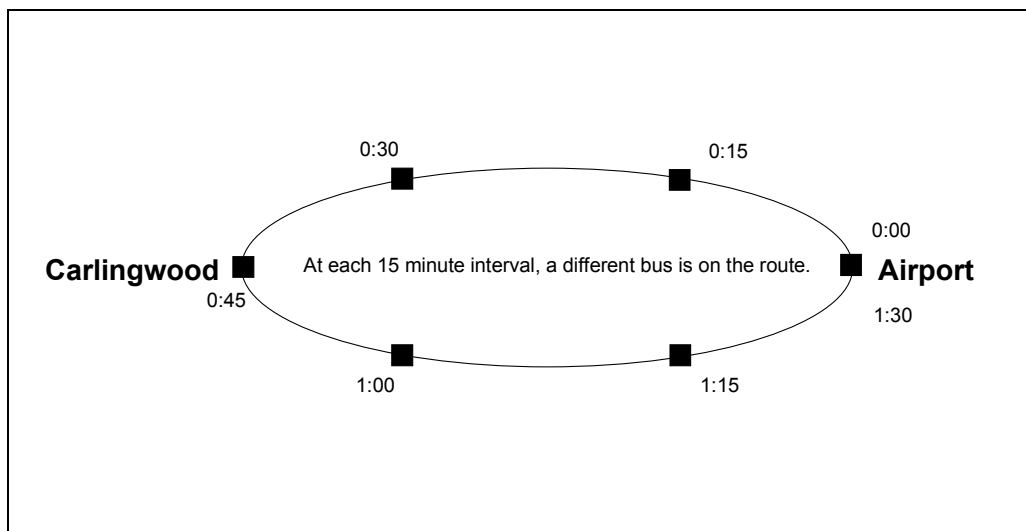
Limousines service to and from the airport represents a total of five person years of employment.

<sup>19</sup> Information used to calculate limousine employment was provided by Ottawa Airport Ground Transportation Service.

## Appendix 9: Public Transport Service

OC Transpo provides service between the airport and downtown 7 days per week from 4:55 a.m. to 1:30 a.m. on weekdays and from about 5:30 a.m. to 1:45 a.m. on weekends. The service runs each day every 15 minutes, with the exception of very early morning and very late night service which runs approximately every half hour. To calculate the number of person years attributable to airport transit service, observe the following diagram:

### Public Transit Route 97: Carlingwood to Airport



As can be seen by the diagram, on weekdays, at any given time, 6 buses travel route 97 during hours with 15 minute intervals and 3 buses travel the route during hours with 30 minute intervals. Running this route from 4:55 a.m. to 1:30 a.m., requires at least three shifts per day.

Therefore, the employment impact of the airport with regards to public transport is:

### Person Years for Bus Route 97 Airport - Carlingwood

Days	Hours of bus service per day	Hours with 15 minute service intervals	Hours with 30 minute service intervals	Hours per year <sup>20</sup>	Person years
5 weekdays	20.5	18.0	2.5	30,030	16.39
Saturday	20.0	18.5	1.5	6,006	3.28
Sunday	20.0	17.0	3.0	5,772	3.15
<b>Total</b>					<b>22.82</b>

A total of 23 person years of public transport is attributable to airport service.

<sup>20</sup> Calculated as follows: [(6 buses \* number of hours per day that 6 busses are running) + (3 buses \* number of hours per day that 3 buses are running)] \* number of days per week \* 52 weeks.

## Appendix 10: Multiplier Effects

Measurement of indirect and induced economic activity is difficult. A separate study could be conducted to look at some of the downstream and indirect impacts of the airport on local businesses by use of a survey questionnaire. However, for reasons of consistency with similar economic impact studies, we use a separate method of calculating indirect and induced effects: economic multipliers.

Multipliers are derived from economic/statistical models of the general economy. They come in a variety of forms and differ greatly in definition and application. However, multiplier analysis is limited by a number of factors, these being:

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

A detailed discussion of multipliers is contained in the 1996 report by Erbe and Tretheway titled "A Study of Economic Multipliers".<sup>21</sup> In general, the report discourages the use and reporting of multiplier impacts. When results are reported, Erbe and Tretheway recommend 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. These results must be used with extreme caution since multiplier analysis is fraught with potential problems. Tretheway and Erbe point out that assumptions for use of multipliers may not be reasonable in the air industry.

Despite these concerns, a few cases where legitimate multiplier effects are present may exist. Thus we provide here a set of multipliers for use with the Ottawa airport. We have chosen what we believe to be the most reliable multipliers. For the Ottawa airport, we use Statistics Canada multipliers. These Input-Output multipliers are provided by Stats Canada<sup>22</sup> and only include indirect and direct impacts. For induced Economic Output and GDP effects, we use the multipliers recommended in the Economic Impact Study of the

<sup>21</sup> Available from the Vancouver International Airport Authority.

<sup>22</sup> The Input-Output Structure of the Canadian Economy, 1992, Statistics Canada - Catalogue No. 15-201, Table 11: GDP and Employment per million Dollars of Industry Output.

Vancouver International Airport. For induced employment income effects, the average wage in Ontario in 1999 was applied to the total number of induced person years of employment.

In order to account for inflation, ratio multipliers then were applied to the employment data gathered from the employment study. It was determined that \$1 million of employment income represents \$1.424 million in GDP, \$2.824 million in economic output and 28.403 person years of employment. The final multipliers used in the study are presented in the following table:

Type of Impact	Employment	Economic Output (millions)	GDP (millions)	Employment Income (millions)
Direct	28.403	2.824	1.424	1.000
Indirect	17.854	2.301	0.951	0.659
<i>Direct + Indirect</i>	<i>46.258</i>	<i>5.124</i>	<i>2.375</i>	<i>1.659</i>
Induced	18.331	2.278	1.148	0.655
<b>TOTAL</b>	<b>64.589</b>	<b>7.402</b>	<b>3.524</b>	<b>2.314</b>

Multipliers Sources:

**Statistics Canada** - System of National Accounts, Input-Output Division, Catalogue Number 15-201, Table 11: *GDP and Employment per million Dollars of Industry Output (Aggregation M) 1992* Row 30: Transportation Industry.

## **Appendix 11: Cover Letter and Employment Survey for Hotels**



April 18, 2000

Re: Economic Airport Study

To: Hotel General Manager

And members of the Ottawa International Airport Community

We very much value the relationship that the Ottawa International Airport Authority has with the airport community. I think we can all be very proud of the job that we have all done in serving the traveling public both at the airport and the other travel infrastructure facilities throughout the city.

The Airport Authority is now undertaking an updated study of the economic impact of Ottawa International Airport. We are doing so in order to acquaint the public on the contribution that the airport, airlines, suppliers and other members of the airport community have on the local economy. We receive many requests for this information.

The last review of the economic impact of Ottawa International Airport was done in the Spring of 1996. Since then, the full impact of Canada/USA Open Skies has been realized and of course the airline industry in Canada has gone through a major structural change. Traffic growth during this time frame has been quite strong, led by the technology industries in the Ottawa region and an overall healthy economy. We are anxious to know how this has influenced the economic value of the Ottawa Airport.

To undertake this important study, we need your full cooperation. I would very much appreciate if you could participate in the attached survey that I believe should not take very long for you to complete.

We appreciate that some of the information we need to collect may be of a sensitive nature. However, when we publish the results, the data will only be displayed in an aggregate form, so that the figures for any individual firm cannot be revealed, even implicitly.

We are being assisted by the same people that did the 1996 study. If you have any questions please do not hesitate to contact me at 248-2088 or Martin Copeland at 799-3663 or e-mail [ivc@vegacom.on.ca](mailto:ivc@vegacom.on.ca). Again, let me thank you in advance for your cooperation on this very important study. We look forward to sharing the results with all of you.

John Spinks

Vice President, Business Development & Marketing

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## OTTAWA INTERNATIONAL AIRPORT ECONOMIC IMPACT STUDY

### EMPLOYMENT SURVEY FOR HOTELS

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We very much appreciate your cooperation in providing us with some basic information that we need to complete our study of the economic impact of the Ottawa International Airport. We appreciate that it may be difficult to provide a precise answer to the questions but what we are looking for is your best estimate of this information, an approximation will suffice.

- Total number of employees: \_\_\_\_\_
- Do you have any layover contracts with airlines? \_\_\_\_\_
  - NO
  - YES

If so how many airlines: \_\_\_\_\_

Percent of visitor nights accounted for by airline contracts. \_\_\_\_\_%

- Percent of visitor nights account for by single night stays of connecting passengers. \_\_\_\_\_%

**Thank you for your participation. Please return this survey by fax or e-mail as soon as possible, preferably by April 24, to:**

InterVISTAS Consulting Inc.

750-130 Slater Street

Ottawa, Ontario

K1P 6E2

fax: (613) 594-8705

or

e-mail: [angelica-sparolin@intervistas.com](mailto:angelica-sparolin@intervistas.com)

If you have any questions, please call us at 799-3663