InterVISTAS

AVIATION TRANSPORTATION TOURISM

Economic Impact Study of Mexico Air Services at John Wayne Airport

FINAL REPORT

Prepared for

John Wayne Airport, Orange County

Prepared by

Inter*VISTAS* Consulting LLC

August 16, 2013

Executive Summary

Every arrival and departure of a commercial passenger flight at John Wayne Airport, Orange County (JWA) generates labor hours for individuals with jobs involved in handling passengers, their baggage, cargo and the aircraft. In addition, each flight will bring in non-local visitors, who will spend money on hotels, meals, taxis, airport food and beverage, entertainment, shopping, etc. "Micro" economic impact studies describe and quantify the economic inputs and outputs associated with the operations of such passenger flights, including the spending impacts of the visitors on-board the flights.

This micro study presents the total annual estimated economic impact of all JWA international air services to/from Mexico. JWA's service to Mexico began in June 2012. Now, Southwest Airlines (through its wholly-owned subsidiary AirTran) and Interjet offer services to three destinations – Mexico City, Guadalajara, and Cabo San Lucas. *Note that this does not quantify the full economic impact of the airport and its operations.*

The *combined* economic impact of the Mexico air services, which includes the total impact of the airport related operations and the direct impact of visitor spending, is summarized in Table ES-1.[1] The annual *combined* impacts of the services are estimated to be 990 person years of employment and approximately $131 million in economic output.

Table ES-1: *Combined* Annual Economic Impacts of Mexico Air Services at John Wayne Airport

Type of Impact	*Combined* Economic Impacts			
	Employment (Full-Time Equivalents)	Earnings ($ Millions)	GDP ($ Millions)	Economic Output *(Spending Impacts)* ($ Millions)
Direct	700	$26	$48	$84
Indirect	130	$6	$12	$22
Induced	160	$7	$13	$25
Total	*990*	*$39*	*$73*	*$131*

Notes: Figures shown above are rounded.

[1] Only the direct impacts of visitor spending is estimated to mitigate double counting. Multiplier impacts (used to calculate indirect and induced impacts) of visitor spending are not included because they incorporate impacts associated with aviation, which are already measured separately. Industries that supply and provide services to the tourism industry (which generates the *indirect* impacts) would include airlines. Similarly, the expenditures by individuals involved in the tourism industry (which generates the *induced* impacts) would include the expenditures of airline employees.

Contents

1 Introduction

1.1 Mexico Air Services at John Wayne Airport

In 2012, John Wayne Airport, Orange County (JWA) handled close to 9 million passengers and nearly 260,000 total aircraft landings and takeoffs. Beginning in June 2012, JWA began offering services to/from Mexico. Currently, JWA offers services to three destinations in Mexico: Mexico City, Guadalajara, and San Jose del Cabo, provided by Southwest Airlines (through its wholly-owned subsidiary, AirTran) and Interjet. Details of the Mexico air services are summarized in Table 1-1.

Table 1-1: Details of Mexico Air Services at John Wayne Airport

Destination	Airline	Aircraft Type	Seats	Average Load Factor	Frequency
Guadalajara	Interjet	Airbus A320	150	60%	Once Daily Year-Round
Mexico City	Interjet	Airbus A320	150	60%	Once Daily Year-Round
Mexico City	AirTran	Boeing 737-700	137	73%	Once Daily Year-Round
Cabo San Lucas/ San Jose del Cabo	AirTran	Boeing 737-700	137	73%	Once Daily 9.5 Months; Twice Daily 2.5 Months

Notes: Details of the Mexico air service were provided by airline and airport representatives at John Wayne Airport, and taken from schedules data from the Official Airline Guide.

Each operation of a passenger flight at JWA generates labor hours for individuals with jobs involved in handling passengers, their baggage, cargo and the aircraft. To gain an understanding of the effect that an air service may have on the labor necessary to operate every aspect of a flight, economic impact studies examine the economic inputs and outputs of the air service. These analyses are called “micro” studies to differentiate them from other broader economic impact studies of an airport that take into account all employment and economic activity at an airport, not just that associated with a given service to a particular destination.

In addition, each flight brings in visitors, who spend money on hotels, taxis, food and beverage, entertainment, etc. By spending money in a region, in-bound visitors exert an immediate and direct impact on the local economy. Visitor spending facilitated by the air services is also estimated in this micro study.

This micro study presents the total annual estimated economic impact of all JWA international air services to/from Mexico. The purpose of this micro study is to demonstrate the full extent of the economic contributions to the surrounding community and economy that are associated with the Mexico air services at John Wayne Airport. This study does not quantify the full economic impact of the airport and all of its operations.

2 Methodology

2.1 What is Economic Impact?

Economic impact is a measure of the spending and employment associated with a sector of the economy, a specific project (such as the construction of a new facility), or a change in government policy or regulation. Economic impacts can be measured in various ways.

1. *Employment* - person years (expressed in terms of "full time equivalents," or FTEs) of employment generated.[2] Because many jobs may be only part-time or seasonal, the number of jobs is greater than the number of person years of employment.
2. *Earnings* – includes wages, salaries, and benefits associated with employment tied to the airport.
3. *Gross Domestic Product (GDP) or Value-added* – a measure of the money value of final goods and services produced as a result of economic activity. This measure is net of the value of intermediate goods and services used up to produce the final goods and services.
4. *Economic output* - the dollar value of industrial output produced. Sometimes referred to as "economic activity," it reflects the spending (e.g., capital improvement plus revenue) by firms, organizations and individuals. In the case of organizations that do not generate revenue (e.g., government-provided air traffic control services), annual operating expenses are counted.

These are not "net" measures that weigh benefits against costs; nevertheless, these measures can be useful in developing an appreciation of projects, investments, activities, and economic sectors.

This micro study estimates the economic impact generated by Mexico air services at John Wayne Airport, including:

- Direct Airport Related Impacts – These are impacts associated with employment in the aviation sector directly related to operating and servicing the Mexico air services. This includes employment in customer services, airline crew based in Orange County, and jobs related to ground handling, cleaning and maintenance. These can be either on-site or off-site. Direct airport related impacts also include those from employment of airport staff members.
- Indirect Economic Impacts – Impacts associated with employment in industries that depend on the presence of the air service. For example, food wholesalers that supply food for catering on flights would be considered indirect employment. Indirect employment is generated in industries that supply or provide services to the direct employment.
- Induced Economic Impacts – Impacts that stem from expenditures by individuals employed indirectly or directly. For example, if an airline employee decides to expand or re-model his/her home, this would result in additional (induced) employment hours in the general economy. The

[2] In general, one person year is equivalent to 1,800 hours of work. Person years are the same as FTEs. With airline employment, because of flight and duty restrictions (crew rest requirements), pilots and flight crew work fewer hours in a full year.

home renovation project would support hours of induced employment in the construction industry, the construction materials industry, etc.

- Direct Visitor Spending Impacts – economic impacts generated by spending in the area of visitors that arrive via the Mexico air services. This includes spending on lodging, meals, entertainment, car rentals and retail.[3]

2.2 Estimating Economic Impact

The analysis that follows provides the average economic impact of labor hours associated with turning around an aircraft on a per flight basis. The direct economic impact of Mexico air services to/from JWA was based on an analysis of the employment associated with these services. For the specific purpose of these micro studies, we examined the size of the employment base involved in processing the aircraft and its passengers for each air service, and the impact it has on the economy.

Employment attributable to Mexico air services to/from JWA was estimated through interviews with airline and airport representatives, as well as data available to Inter*VISTAS* from previous studies and existing industry data. Inter*VISTAS* asked airline staff to estimate the time and resource required in processing a flight with respect to different tasks and functions that an airline needs to execute to turn an aircraft at the airport. The responses provided were then used as the primary inputs to modeling the total estimated amount of employment that is associated with a particular air service.

In addition, economic multipliers were used to infer other economic impacts from the employment figures, such as wages, gross domestic product (GDP) and economic output. GDP is a measure of the money value of final goods and services produced as a result of economic activity, while economic output is the dollar value of industrial output produced. Economic multipliers were also used to estimate the indirect and induced (or multiplier) impacts. Inter*VISTAS* applied economic multipliers produced by the U.S. Bureau of Economic Analysis (BEA) to translate the number of direct person years of employment in a specific economic sector into the associated monetary measures of economic activity.[4]

---

[3] Inter*VISTAS* counts only the direct impacts of visitor spending (and not indirect and induced impacts) to mitigate the possibility of double counting. Multiplier impacts of visitor spending are not included as the indirect and induced effects of visitor spending contain impacts in aviation, which are already measured in the multiplier impacts of the airport. Industries that supply and provide services to the tourism industry (which generates the indirect impacts) would include airlines. Similarly, the expenditures by individuals involved in the tourism industry (which generates the induced impacts) would include the expenditures of airline employees. As these impacts are difficult to separate out from the total indirect and induced impacts of the entire tourism industry, indirect and induced visitor spending impacts (which include impacts of other supplier industries) are not estimated in this study in order to mitigate double-counting of impacts.

[4] The multipliers used for this analysis are from the BEA's widely accepted Regional Input-Output Modeling System (RIMS II). BEA derives them from its national input-output tables to reflect each region's unique industrial structure and trading patterns. These multipliers are updated with Consumer Price Indices to account for inflation. Inter*VISTAS* worked with officials from John Wayne Airport, Orange County to select the appropriate geographic area for the multipliers: Orange County, Los Angeles County, Riverside County and San Bernardino County.

2.3 Estimating Visitor Spending Impacts

The air services will also bring in visitors who spend money on items such as hotels, taxis, food and beverage, entertainment, etc. This study includes an estimate of the visitor spending in the study region facilitated by the Mexico air services at JWA.[5]

The annual number of visitors to the region from the Mexico air services at JWA is estimated based on annual deplaned passenger statistics provided by the airport.[6] We estimated the percentage of visitors on-board each flight from interviews with airline staff and/or data provided by the airlines. Given estimates of the number of in-bound visitors, we applied data on visitor spending patterns and travel characteristics obtained from the Anaheim/Orange County Visitor & Convention Bureau to produce estimates of the total spending of visitors from each air service.

[5] As noted above, we determined the geographic area of interest in consultation with the John Wayne Airport, Orange County. The study region includes the following counties: Orange County, Los Angeles County, Riverside County and San Bernardino County.

[6] Airline representatives expect their traffic to grow as the market becomes more familiar with the air services to Mexico. In that event, the estimated impact from visitor spending will increase as well.

3 Aviation Economic Impacts

3.1 Direct On-site Employment Impacts

This micro study assesses the impact of all activities related to aircraft landing, departure and activities completed during turnaround time and in-flight. Among others, these activities include unloading inbound passengers and their baggage, and then re-loading the aircraft with outbound passengers and their baggage. The estimated labor hours in this micro study also include those involved in processing each aircraft and its passengers, such as catering, cleaning, maintenance, fuelling, ground service, etc. The impacts also include the labor hours of in-flight airline employees (flight crew) based at JWA. The employment and earnings associated with these activities are considered to be "direct" impacts of the flight. They are immediately associated with the operation of the aircraft.

Furthermore, this study measures the direct labor hours of other services offered at the airport, such as car rental agencies, food concessions, etc. Direct employment impacts at ground transport providers and at hotels are also considered. In addition to the airline employees in the public areas of the terminal, the airlines also have administrative employees in the office area of the terminal. The labor hours of employees behind the scenes, such as managers, accountants, crew trainers and load planners are included in this micro study, as well. The figures in this study represent the average labor impacts of the potential air service. It includes the sum of all of the labor hours from all jobs associated with the potential flight – both "hands-on" jobs as well as "overhead" jobs.

The direct employment impact of air passenger services on a per flight basis for jobs occurring at the airport and the annual impact based on the number of flights operated each year are illustrated in Table 3-1. The average labor requirements of the air services by position are provided in Appendix A on a per flight basis. In summary, this study estimates that annually all flights to/from Mexico generate approximately 180 person years or full-time equivalent jobs.

Table 3-1: *Direct* Aviation Employment Impact of Mexico Air Services at John Wayne Airport

Destination	Aircraft Type (Seat Capacity)	Number of Annual Services	Employment Per Flight (Person Years)	Annual Employment (Person Years)
Guadalajara	Airbus A320 (150 seats)	364	0.11	38
Mexico City	Airbus A320 (150 seats)	364	0.11	38
Mexico City	Boeing 737-700 (137 seats)	364	0.13	47
Cabo San Lucas/ San Jose del Cabo	Boeing 737-700 (137 seats)	440	0.13	57
TOTAL		*1,532*		*180*

Notes: Person years are the same as full-time equivalents (FTEs). One person year is equivalent to 1,800 hours of work. The yearly totals for flight crew are less: one full-time equivalent job for flight attendants is equivalent to 1,500 hours of work per year, and one full-time equivalent job for pilots is equivalent to 900 hours of work per year. Figures shown above are rounded.

3.2 Total Economic Impacts

Employment associated with the air services to/from Mexico would generate 180 person years of *direct* local employment in the study region during the year, generating economic earnings estimated at more than $11 million each year. In addition, the Mexico air services at JWA generate an estimated $18 million in *direct* gross domestic product (GDP) and $35 million in *direct* economic output. Table 3-2 provides a summary of the annual economic impact of the air passenger services, including wages, GDP and economic output. Economic multipliers from the U.S. BEA are used to estimate wages and other economic impacts.

The *total* economic impact of a flight would also include indirect and induced effects. Considering multiplier effects (indirect and induced), the *total* economic impacts of the Mexico air services amount to approximately 470 person years, with earnings of over $24 million. Furthermore, the Mexico air services at JWA could contribute an estimated $43 million and $82 million, in *total* gross domestic product (GDP) and *total* economic output, respectively, to the local economy.

Table 3-2: *Total* Annual Aviation Impacts of Mexico Air Services at John Wayne Airport

Type of Impact	Employment (Person Years)	Earnings ($ Millions)	GDP ($ Millions)	Economic Output ($ Millions)
Direct	180	$11	$18	$35
Indirect	130	$6	$12	$22
Induced	160	$7	$13	$25
Total	*470*	*$24*	*$43*	*$82*

Notes: Figures shown above are rounded.

4 Visitor Spending Impacts

4.1 Estimated Visitors and Visitor Expenditure

Visitors arriving on these air services at JWA spend money on items such as hotels, taxis, food and beverage, entertainment, etc. The impact of that spending on a regional economy can be significant.

After making reasoned assumptions on the mix of outbound and inbound passengers on the Mexico air services, we estimated that together the air services bring nearly 69,400 visitors to the study region each year.[7] According to visitor spending patterns and travel characteristics obtained from the Anaheim/Orange County Visitor & Convention Bureau, Mexican visitors arriving to the region by air stay in the area for an average of six to seven nights and spend approximately $717 per person per trip. The yearly visitor expenditure in the region resulting from the air services from Mexico is estimated to be over $49 million. The annual estimated number of visitors and total tourist expenditure are shown in Table 4-1.

Table 4-1: Estimated Annual Number of Non-Local Visitors and Visitor Expenditure of Mexico Air Services at John Wayne Airport

Origin	Aircraft Type (Seat Capacity)	Total Non-Local Visitors	Total Visitor Expenditure ($ Millions)
Guadalajara	Airbus A320 (150 seats)	22,700	$16
Mexico City	Airbus A320 (150 seats)	23,700	$17
Mexico City	Boeing 737-700 (137 seats)	16,900	$12
Cabo San Lucas/ San Jose del Cabo	Boeing 737-700 (137 seats)	6,100	$4
Total		*69,400*	*$49*

Notes: See Appendix B for a detailed calculation of the estimated annual number of visitors per air service. Data on visitor spending patterns and travel characteristics were obtained from the Anaheim/Orange County Visitor & Convention Bureau. Figures shown above are rounded.

[7] See Appendix B for a detailed calculation of the estimated annual number of visitors per air service. Estimates of the percentage of non-local passengers per air service were obtained from interviews with airline managers and airport staff.

4.2 Direct Visitor Spending Impacts

In addition to the employment and other economic impacts related to servicing the flight, visitor spending helps sustain jobs in the region and promote further spending. Spending in the region by visitors arriving on the Mexico air services generates employment in hotels, restaurants, retail, local transportation and entertainment industries. The U.S. BEA's employment impact multipliers are used to estimate the direct employment generated by each dollar of non-local visitor spending, as well as wages and GDP.[8] The employment and economic impacts associated with visitor spending from the air services from Mexico could potentially include up to 520 *direct* person years of employment and $30 million in *direct* GDP per annum in the region. The *direct* economic impacts of the annual visitor spending from the Mexico air services at JWA are summarized in Table 4-2.

Table 4-2: *Direct* Annual Visitor Spending Impacts of Mexico Air Services at John Wayne Airport

Type of Impact	Visitor Spending *(Economic Output)* ($ Millions)	Employment (Person Years)	Earnings ($ Millions)	GDP ($ Millions)
Direct	$49	520	$15	$30

Notes: Figures shown above are rounded.

[8] Only the direct impacts of visitor spending is estimated (and not indirect and induced impacts) to mitigate double counting. Multiplier impacts of visitor spending are not included as the indirect and induced effects of visitor spending contain impacts in aviation, which are already measured in the multiplier impacts of the airport. Industries that supply and provide services to the tourism industry (which generates the indirect impacts) would include airlines. Similarly, the expenditures by individuals involved in the tourism industry (which generates the induced impacts) would include the expenditures of airline employees. As these impacts are difficult to separate out from the total indirect and induced impacts of the entire tourism industry, indirect and induced visitor spending impacts (which include impacts of other supplier industries) are not estimated in this study in order to mitigate double-counting of impacts.

5 Combined Aviation and Visitor Spending Impacts

The *combined* economic impact of the Mexico air services, which includes the total impact of the airport related operations and the direct visitor spending impacts, is shown in Table 5-1.[9] The annual *combined* impacts of the services are estimated to be 990 person years and approximately $131 million in spending.

Table 5-1: *Combined* Annual Economic Impacts of Mexico Air Services at John Wayne Airport

Type of Impact	*Combined* Economic Impacts			
	Employment (Full-Time Equivalents)	Earnings ($ Millions)	GDP ($ Millions)	Economic Output *(Spending Impacts)* ($ Millions)
Direct	700	$26	$48	$84
Indirect	130	$6	$12	$22
Induced	160	$7	$13	$25
Total	*990*	*$39*	*$73*	*$131*

Notes: Figures shown above are rounded.

[9] As noted above, Inter*VISTAS* estimates only the direct impacts of visitor spending (and not indirect and induced impacts) to mitigate double counting.

Appendix A: Average Labor Requirements by Position

The table below summarizes the average local person hours by position on a per flight basis of Mexico air services at John Wayne Airport.

Table B-1: Average Local Person Hours per Flight of Mexico Air Services at John Wayne Airport

Staff Position	Average Local Person Hours per Return Flight			
	Guadalajara (Airbus A320)	Mexico City (Airbus A320)	Mexico City (Boeing 737-700)	Cabo San Lucas / San Jose del Cabo (Boeing 737-700)
Airline In-Flight Services	0	0	0	0
Airline In-Terminal	31	31	20	17
Other Terminal	145	145	157	157
Cargo Terminal	0	0	0	0
Ground Support	13	13	14	14
Aircraft Maintenance	1	1	0.2	0.2
Off-Site	0	0	48	48
Total	*190*	*190*	*239*	*236*

Notes: Airline In-Flight Services includes labor hours of pilots and flight attendants based at JWA. Because neither Southwest nor Interjet reported that any of their flight crews were based at JWA, there is no local employment effect. Airline In-Terminal includes labor hours of check-in agents, ticket agents, gate agents, escorts (e.g., for wheelchairs), supervisors and the airline's overhead staff. Other Terminal includes labor hours of jobs in air traffic control, security screening, Customs and Border Protection, retail and restaurant, car rental and the airport attributed to the air service. Cargo Terminal includes labor hours of cargo agents and their supervisor. Ground Support includes labor hours of jobs in ramp crew, bag room, fuelling, grooming, and catering. Aircraft Maintenance includes labor hours of mechanics based at JWA. Off-site includes labor hours of jobs in accommodations attributed to serving the air service's flight crew and passengers. Figures shown for hours-per-flight are rounded. It is assumed that one full-time equivalent job for flight attendants is equivalent to 1,500 hours of work per year, and one full-time equivalent job for pilots is equivalent to 900 hours of work per year. For all other staff positions, it is assumed that one full-time equivalent job is equivalent to 1,800 hours of work per year.

Although the total estimated number of hours required for the Cabo San Lucas/San Jose del Cabo flight is less than that for the Mexico City B737 flight, the total estimated number of annual FTEs associated with the flight shown in Table 3-1 is greater because the flight operates twice daily during 2.5 months of the year.

Appendix B: Calculation of Estimated Annual Number of Visitors

The following are details of calculations for the annual number of visitors per Mexico air passenger service at John Wayne Airport.

Table C-1: Estimated Annual Number of Visitors of Mexico Air Passenger Services at John Wayne Airport

Potential Air Service	Guadalajara (Airbus A320)	Mexico City (Airbus A320)	Mexico City (Boeing 737-700)	Cabo San Lucas / San Jose del Cabo (Boeing 737-700)
Total Annual Deplaned Passengers	70,847		74,636	
Annual Frequency	364	364	364	440
# of Passengers On-Board per Flight	97	97	93	93
# of Passengers On-Board per Annum	35,424	35,424	33,799	40,837
Percentage O & D Traffic	100%	100%	100%	100%
Total Annual Deplaned Passengers	*35,424*	*35,424*	*33,799*	*40,837*
Estimated % Visitors	64%	67%	50%	15%
Estimated Visitors per Flight	62	65	46	14
Total Annual Estimated Deplaned Visitors	*22,671*	*23,734*	*16,900*	*6,125*

Notes:

- The frequency of each air service, estimated load factor and percentage of non-local passengers were provided by airline managers and airport representatives at John Wayne Airport.
- Annual deplaned passengers per flight are estimated based on total annual deplaned passengers and total annual frequency per airline.
- Annual estimated non-local visitors are calculated by multiplying the annual deplaned passengers per flight, the annual flight frequency and the estimated percentage of visitors on board each flight.
- Figures shown above are rounded.

Appendix C: Glossary of Terms

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

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

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

Full Time Equivalent (FTE): (also Person Year) One full time equivalent (FTE) year of employment is equivalent to the number of hours that an individual would work on a full time basis for one year. In this study we have calculated one full time equivalent year to be equivalent to 1,800 hours. Full time equivalent years are useful because part time and seasonal workers do not account for one full time job.[10]

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

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

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

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

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

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

---

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

Prepared by
Inter*VISTAS* Consulting LLC

7200 Wisconsin Ave, Suite 1103
Bethesda, MD
20814

Telephone: 301-941-1400
Facsimile: 301-941-1402
www.intervistas.com