

# THE ECONOMIC IMPACT OF SAN JOSE INTERNATIONAL AIRPORT



CITY OF SAN JOSE  
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**EXECUTIVE SUMMARY****Economic Impact of San Jose International Airport**

The movement of people and goods through commercial airports, and the services provided to support that movement, generates substantial economic benefits for the surrounding local areas and regions. This report presents the findings of the economic impact analysis prepared for the Norman Y. Mineta San Jose International Airport (SJC), which served approximately 9.1 million annual passengers and 122,350 aircraft operations in FY2013-14.

Airport economic impacts consist of four separate but related measures:

- **Employment**
- **Business Revenue**
- **Personal Income**
- **Tax Revenue**

Within these measures, there are direct impacts generated by activity at the Airport site itself (“site-generated” impacts) and the impacts generated by the off-site expenditures of visiting air travelers (“visitor-generated” impacts). Further, as a portion of the direct business revenue and personal income impacts is re-spent locally, induced and indirect economic impacts are also generated.

This economic impact analysis of San Jose International Airport was conducted by the consulting firm of Martin Associates, which specializes in airport economic impact studies utilizing an intentionally-conservative methodology that emphasizes collection and application of local data. The key findings of the study are as follows:

<b>SUMMARY OF AIRPORT ECONOMIC IMPACTS</b>			
<b>Impact Measure</b>	<b>Site-Generated</b>	<b>Visitor-Generated</b>	<b>Total</b>
<b>Employment</b>	<b>5,239</b>	<b>26,987</b>	<b>32,226</b>
<b>Business Revenue</b>	<b>\$1,738.9 million</b>	<b>\$1,657.6 million</b>	<b>\$3,396.5 million</b>
<b>Personal Income</b>	<b>\$290.5 million</b>	<b>\$747.3 million</b>	<b>\$1,037.8 million</b>
<b>State &amp; Local Taxes</b>	<b>\$33.1 million</b>	<b>\$85.2 million</b>	<b>\$118.3 million</b>

**San Jose International Airport generated an estimated 32,226 jobs in the San Jose area in FY2013-14.**

- Aviation-related activity at the Airport site provided for 3,139 direct jobs (full-time equivalent). More than half of these employees (57%) lived in the City of San Jose and slightly more than 3/4 of these employees (76%) lived in San Jose or elsewhere within Santa Clara County.
- Re-spending of personal income by these direct site-generated employees provided for an additional 1,194 induced jobs, and local spending of business revenue by Airport-related employers provided for 905 indirect jobs.
- Visiting air travelers (non-residents of the San Jose area), who accounted for more than half of the airline passenger traffic at the Airport during 2014, directly generated an estimated 16,962 jobs in the San Jose area, mostly in service industry businesses such as hotels, restaurants, and retail stores. Re-spending of income by these direct visitor-generated employees provided for an additional 5,839 induced jobs, and local spending of business revenue by visitor-service employers provided for 4,186 indirect jobs.

**San Jose International Airport generated approximately \$3.4 billion in business revenue in FY2013-14.**

- Aviation-related activity at the Airport site produced \$1.7 billion in direct revenue. Visiting air passenger spending resulted in another \$1.7 billion in direct revenue.
- Only a portion of this direct business revenue can be assumed to remain in the San Jose area, such as income paid to local employees and purchases of local goods and services, which are included in this study. However, due to the difficulty of geographically tracking other disbursements of business revenue, this study did not attempt to estimate induced or indirect business revenue impacts.

**San Jose International Airport generated more than \$1.0 billion in personal income in FY2013-14.**

- Aviation-related activity at the Airport site produced an estimated \$146 million in direct personal income. Re-spending of this direct income provided an additional \$97 million in income, and local spending of business revenue by Airport-related employers provided another \$48 million in indirect income.
- Spending by visiting air passengers generated an estimated \$394 million in direct personal income. Re-spending of this direct income produced an additional \$233 million in induced income, and local spending by visitor-service employers provided another \$120 million in indirect income.

**San Jose International Airport generated an estimated \$118 million in State and local tax revenue in FY2013-14.**

- Airport site-generated activity, including direct, induced, and indirect, generated approximately \$33 million in State and local tax payments. Airport visitor-generated activity generated about \$85 million in estimated direct, induced, and indirect State and local tax payments. As the Airport is a self-supporting public enterprise that does not

rely on general public funds for its operation, this \$118 million is net revenue to State and local government.

- Airport activity also generated approximately \$144 million in federal aviation-specific tax revenue. This study did not attempt to estimate any other federal tax revenue (such as income taxes paid by the more than 32,000 site-generated and visitor-generated employees) since such payments cannot be attributed as local or regional impacts.

The direct site-generated and visitor-generated economic impacts can also be broken down to some extent by the distinct contributions of the three major types of aviation activity at San Jose International -- Air Carrier (airline passenger service), Air Cargo, and General Aviation.

<b>DIRECT AIRPORT ECONOMIC IMPACTS BY TYPE OF AVIATION ACTIVITY</b>			
	<b>Employment</b>	<b>Business Revenue</b>	<b>Personal Income</b>
<b>Site-Generated</b>	<b>3,139</b>	<b>\$1,738.9 million</b>	<b>\$145.7 million</b>
<b>Air Carrier</b>	<b>2,291</b>	<b>\$1,373.8 million</b>	<b>\$67.4 million</b>
<b>Air Cargo</b>	<b>163</b>	<b>\$118.8 million</b>	<b>\$4.9 million</b>
<b>General Aviation</b>	<b>178</b>	<b>\$27.1 million</b>	<b>\$8.6 million</b>
<b>Non-Allocated*</b>	<b>507</b>	<b>\$219.3 million</b>	<b>\$64.9 million</b>
<b>Visitor Generated**</b>	<b>16,962</b>	<b>\$1,657.6 million</b>	<b>\$393.9 million</b>
<b>Total</b>	<b>20,101</b>	<b>\$3,396.5 million</b>	<b>\$539.6 million</b>
<p>* "Non-allocated" includes all site-generated activity which cannot be allocated exclusively to Air Carrier, Air Cargo, or General Aviation, such as City, FAA, and some contract services.</p> <p>** Approximately 99% is attributable to Air Carrier activity, with the remainder attributable to General Aviation.</p>			

Air Carrier activity, comprised of passenger airlines, rental car companies, terminal retail concessions, ground transportation operators, and other service providers) is the dominant contributor to the Airport's economic impacts, minimally including more than 70% of the site-generated impacts and almost all of the visitor-generated impacts.

**The following report sections present in more detail the formulation and findings of the Airport's current economic impacts.**

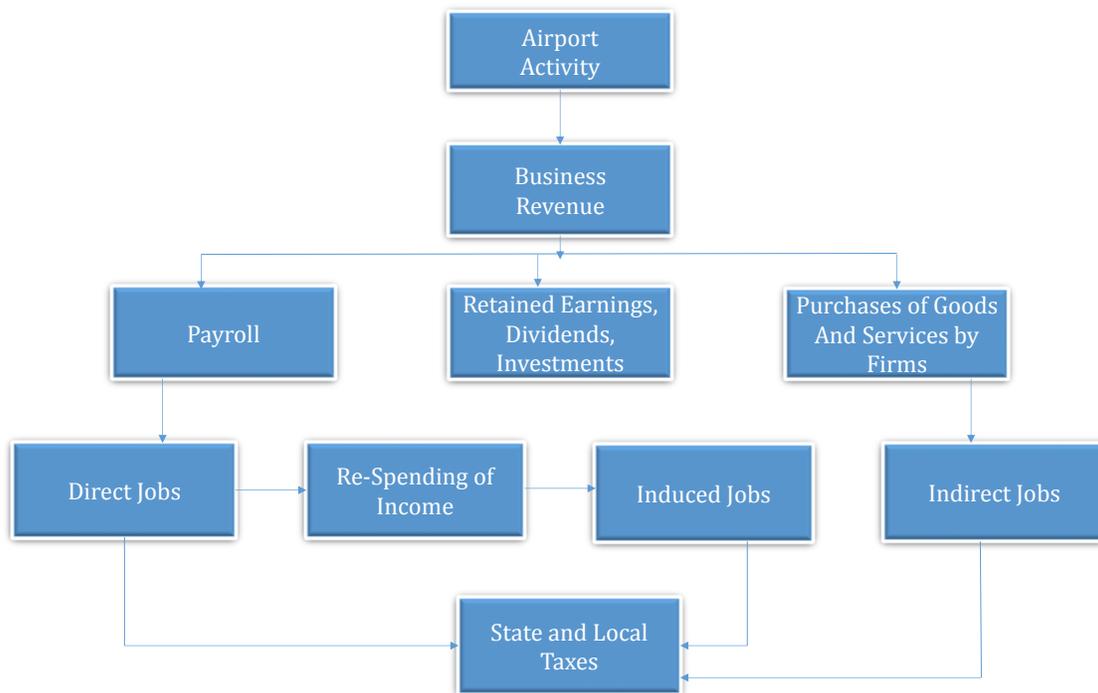
## Chapter 1 Introduction

The Norman Y. Mineta San Jose International Airport, owned and operated by the City of San Jose, provides air transportation services (airline passenger, air cargo, and general aviation) to the San Jose/Silicon Valley area and the greater San Francisco Bay region. It is considered a medium-hub airport in the national air transportation system, and served approximately 9.1 million passengers and over 122,300 commercial and non-commercial aircraft operations (landings/takeoffs) in FY2013-14, an average of almost 25,000 passengers and 335 aircraft operations a day.

This report presents the results of a quantitative study to estimate the economic contributions of San Jose International during FY2013-14 in terms of employment, business revenue, personal income, and tax revenue. The study was conducted by Martin Associates, a consultant firm with extensive nationwide experience in conducting airport economic impact studies utilizing a conservative, research-intensive methodology focused on collection of data directly from airport businesses and users as well as from statistical reports.

### Impact Structure and Components

Airports generate economic impacts through the provision of services that allow or support the movement of people and goods in and out of the local area by air transportation. These services create business revenue, which in turn produce employment, personal income and tax revenue. A portion of that business revenue and personal income generated directly by airport activity is also re-spent locally or regionally, resulting in induced and indirect employment, business revenue, personal income, and tax revenue. The following exhibit illustrates the general flow of economic impacts associated with airport activity.



As indicated, the economic impact of an airport consists of a set of related but non-additive measures: **employment, business revenue, personal income, and tax revenue**, as further described below.

## Employment

The employment impact of airport activity consists of three types of jobs:

**Direct Jobs** – those aviation-related jobs generated in direct support of activity at the airport.

**Direct Site-Generated Jobs** – those aviation-related jobs physically located at the airport or in direct support of activity at the airport site, including jobs with airlines, rental car companies, cargo businesses, general aviation fixed-base operators, terminal retail concessions, aircraft maintenance and fueling, federal and local government agencies, ground transportation providers, on-site construction projects, etc.

**Direct Visitor-Generated Jobs** – those off-airport jobs that directly serve visiting air travelers during their stay in the airport area, including jobs with hotel, restaurant, convention, and retail businesses, etc.

**Induced Jobs** – those jobs in the wider community created by the expenditure of income of direct site-generated and visitor-generated employees for goods and services such as housing, food, transportation, etc. This expenditure of income generates successive rounds of induced employment.

**Indirect Jobs** – those jobs in the wider community generated by the direct purchase of goods and services by the businesses and agencies located at the airport site or serving visiting air travelers. These indirect employees also in turn generate induced employment.

Some airport economic impact studies also attempt to identify jobs at area businesses that are dependent on air transportation services for the ongoing functioning of their businesses, such as manufacturers of high-value goods that are shipped by air. This category of “related” employment is not included in this study due to the difficulty of measurement.

## Business Revenue

The business revenue impact of airport activity is the total earnings derived from all the services involved in air transportation, both site-generated and visitor-generated, such as airline ticket sales, rental car charges, food and lodging payments, retail purchases by air travelers, and airport-related construction and service contracts. This gross revenue is dispersed throughout the economy in several ways (e.g., wages to employees, payments to other businesses, debt retirement, internal re-investments, stockholder payments, and taxes), much of which is not retained locally. The portions of business revenue which do contribute to the local/regional economy, and are included in this study, are personal income to site-generated and visitor-generated employees, local purchases for goods and services, and some State and local tax payments. However, due to the difficulty in tracking the flow of other re-spending of revenue, this study does not estimate induced or indirect business revenue impacts.

## **Personal Income**

As a subset of business revenue, the personal income impact of airport activity consists of the total wages and salaries paid to direct employees, both site-generated and visitor-generated, the induced wages and salaries created by the re-spending of income by direct employees, and the indirect wages and salaries resulting from the local purchase of goods and services by airport-related businesses and service providers.

## **Tax Revenue**

Also a subset of business revenue, taxes are paid to State and local agencies by direct, induced, and indirect airport service providers and employees, much of which is expended locally or regionally. This study also identified federal aviation-specific tax revenue which is used to operate and improve national air transportation services.

A description of the methodology used to calculate the above airport economic impacts is presented in **Appendix A** of this report.

## Chapter 2 Employment Impact

The following employment impacts of San Jose International Airport are presented in this chapter: direct jobs, both site-generated and visitor-generated; induced jobs resulting from expenditure of income from direct employees; indirect jobs resulting from local expenditure of revenue by Airport service providers; direct jobs attributable to each of the three major segments of aviation activity (air carrier, air cargo, and general aviation); and distribution of residence of direct site-generated employees in the greater San Jose area.

<b>Airport Employment Impacts</b>			
	<b>Site-Generated</b>	<b>Visitor-Generated</b>	<b>Total</b>
Direct	3,139	16,962	20,101
Induced	1,194	5,839	7,034
Indirect	905	4,186	5,091
<b>Total</b>	<b>5,239</b>	<b>26,987</b>	<b>32,226</b>

### **Direct Site-Generated Employment**

An estimated total of 3,139 full-time equivalent jobs were located at the Airport site or in direct support of the aircraft and passenger activity occurring at the Airport in FY2013-14. The largest component group of direct site-generated jobs was the passenger airlines (426 jobs, including locally-based flight crews, ticket counter and boarding gate agents, and baggage handling and ramp service workers). Other major groups comprising site-generated employment were federal agencies (339 jobs, including TSA, FAA, and CBP), rental car companies (323 jobs), terminal retail concessions (293 jobs), ground transportation operators (292 jobs), City of San Jose (214 jobs), general aviation fixed-base operators (202 jobs), airline catering companies (171 jobs), and air cargo airlines (157 jobs). The remainder comprised a variety of on-site contract service jobs, including construction, custodial/maintenance, parking lot/shuttle bus, security, and other Airport tenant personnel.

### **Direct Visitor-Generated Employment**

A total of 16,962 full-time equivalent off-Airport jobs were directly supported by the local expenditures of the 2.5 million air travelers in FY2013-14 (approximately 57% of the Airport's passenger total) who were visitors to the San Jose area. According to the passenger surveys conducted for this study, these visitors spent an estimated \$1.7 billion in the region, thus generating jobs in hotel, restaurant, entertainment, convention, retail, and other local businesses. Visiting air travelers using general aviation aircraft also contributed to the number of visitor-generated jobs, although insignificant compared to air carrier activity. **Appendix B** of this report provides further data on the characteristics of visiting air travelers.

**Induced and Indirect Employment**

The personal income spent by the direct site-generated employees generated an additional estimated 1,194 induced jobs in the San Jose area, while the income spent by the direct visitor-generated employees generated an additional estimated 5,839 induced jobs. This total of 7,034 induced jobs were mostly in businesses serving residents, such as housing, retail, health care, transportation, restaurants, and entertainment.

The revenue spent by site-generated and visitor-generated service providers on local goods and services additionally supported an estimated 5,091 indirect jobs. These jobs were typically in businesses such as equipment parts/repair, office supplies and furnishings, utility and communication services, and other contract purchases.

**Direct Employment by Aviation Activity Segment**

Of the 20,101 direct jobs generated by Airport activity in FY2013-14, the majority can be exclusively allocated to the three major segments of aviation activity -- air carrier (passenger airline), air cargo, and general aviation. As indicated in the table below, Air Carrier activity accounts for over 90% of site-generated jobs and almost all the visitor-generated jobs.

<b>Direct Employment by Type of Aviation Activity</b>		
Site-Generated Jobs	=	3,139
Air Carrier	=	2,291
Air Cargo	=	163
General Aviation	=	178
Non-Allocated*	=	507
Visitor Generated Jobs**	=	16,962
<b>Total Jobs</b>	<b>=</b>	<b>20,101</b>
* "Non-allocated" includes all site-generated activity which cannot be allocated exclusively to Air Carrier, Air Cargo, or General Aviation, such as City, FAA, and some contract services.		
** Approximately 99% is attributable to Air Carrier activity, with the remainder attributable to General Aviation.		

Within the Air Carrier segment of aviation, it is noteworthy that international airline service tends to generate a higher job impact than domestic airline service. While the volume of international passenger traffic at the Airport is relatively small (less than 4% of all passengers in 2014), more than 90% of international passengers were visitors to the San Jose area (vs a little more than 50% for domestic passengers), thus generating a higher share of visitor-generated jobs than domestic visitors.

**Geographic Distribution of Residency of Site-Generated Employees**

As an indicator of the distribution of Airport economic impacts throughout the greater San Jose area, the data collection effort for this study included residency of the direct site-generated employees. As shown in the following table, more than half of the 3,139 employees resided within the City of San Jose and slightly more than 75% of all direct site-generated employees resided within Santa Clara County.

<b>Residency of Direct Site-Generated Employees</b>			
Santa Clara County	=	2,387	(76%)
City of San Jose	=	1,776	(57%)
Remainder of Santa Clara County	=	610	(19%)
Alameda County	=	275	(9%)
San Mateo County	=	76	(2%)
Santa Cruz County	=	63	(2%)
Other	=	338	(11%)
<b>Total Jobs</b>		<b>3,139</b>	<b>(100%)</b>

Although it was not feasible to collect data on the residency of the estimated 16,962 direct visitor-generated employees, the survey of air passengers conducted for the study did collect data on the distribution of visiting passenger accommodations, which showed a more dispersed pattern than for site-generated employees (lower percentages in City of San Jose and higher percentages in the remainder of Santa Clara County and elsewhere).

### Chapter 3 Business Revenue Impact

Airport activity in FY2013-14 generated approximately \$3.4 billion in direct business revenue, roughly evenly split between site-generated and visitor-generated service providers. These revenue figures represent total earnings for services associated with Airport activity, including payments for airline ticket purchases, aircraft and ground vehicle fuel purchases, air cargo shipment payments, rental car charges, terminal concession sales, lease and fee payments to the Airport, aircraft and vehicle parking fees, visiting air traveler expenditures during their stay in the San Jose area, airport construction project payments, etc. Air Carrier activity accounted for about 89% of all direct business revenue.

<b>Direct Business Revenue by Type of Aviation Activity (\$ millions)</b>		
Site-Generated Revenue	=	\$1,738.9
Air Carrier	=	\$1,373.8
Air Cargo	=	\$118.8
General Aviation	=	\$27.1
Non-Allocated*	=	\$219.3
Visitor Generated Revenue**	=	\$1,657.6
<b>Total Revenue</b>	<b>=</b>	<b>\$3,396.5</b>
<p>* "Non-allocated" includes all site-generated activity which cannot be allocated exclusively to Air Carrier, Air Cargo, or General Aviation, such as City, FAA, and some contract services.</p> <p>** Approximately 99% is attributable to Air Carrier activity, with the remainder attributable to General Aviation.</p>		

Business revenue generated at the Airport is dispersed in several ways, so much of it is not necessarily retained within the San Jose area. The three subcategories of business revenue which do contribute to the local/regional economy are local purchases of goods and services (indirect business revenue), which are estimated to total \$407.8 million in FY2013-14, personal income to site-generated and visitor-generated employees (presented in Chapter 4), and payments for local and some State taxes (presented in Chapter 5). This study did not attempt to estimate induced business revenue due to the difficulty in tracking the flow of revenue to that extent.

## Chapter 4 Personal Income Impact

The income earned by direct Airport employees, both site-generated and visitor-generated, is a component of business revenue that can be identified as a local/regional impact. Local re-spending of that direct personal income produces an induced income impact.

<b>Airport Personal Income Impacts (\$ millions)</b>			
	<b>Site-Generated</b>	<b>Visitor-Generated</b>	<b>Total</b>
Direct	\$145.7	\$393.9	\$539.6
Induced	\$97.0	\$232.8	\$329.8
Indirect	\$47.8	\$120.6	\$168.4
<b>Total</b>	<b>\$290.5</b>	<b>\$747.3</b>	<b>\$1,037.8</b>

Direct site-generated employees were paid an estimated \$146 million in wages and salaries in FY2013-14. Direct visitor-generated employees were paid an estimated \$394 million. With local re-spending of this direct personal income, plus income earned by indirect employees providing local goods and services to Airport site and visitor-service providers, a total of over \$1 billion was earned by residents in the San Jose area during FY2013-14 as a result of Airport activity.

<b>Direct Personal Income by Type of Aviation Activity (\$ millions)</b>		
Site-Generated Personal Income	=	\$145.7
Air Carrier	=	\$67.4
Air Cargo	=	\$4.9
General Aviation	=	\$8.6
Non-Allocated*	=	\$64.9
Visitor Generated Personal Income**	=	\$393.9
<b>Total Revenue</b>	=	<b>\$539.6</b>
<p>* "Non-allocated" includes all site-generated activity which cannot be allocated exclusively to Air Carrier, Air Cargo, or General Aviation, such as City, FAA, and some contract services.</p> <p>** Approximately 99% is attributable to Air Carrier activity, with the remainder attributable to General Aviation.</p>		

Similar to the employment and business revenue impact findings, Air Carrier activity accounts for the predominant share of the Airport's personal income impact.

## Chapter 5 Tax Revenue Impact

Airport activity generates federal, State, county, municipal, and special district government revenue through an assortment of tax payments by Airport service providers, passengers, and employees. Based on tax indices for the State of California, site-generated activity at the Airport in FY2013-14, including direct, induced, and indirect, produced an estimated \$33.1 million in State and local tax revenue. Visitor-generated activity produced an additional estimated \$85.2 million, for a total of \$118.3 in State and local tax revenue. Approximately 63% of the total (\$74 million) was State taxes and 37% (\$44 million) was local taxes. Sales taxes, property taxes, and personal income taxes accounted for most of the State and local tax revenue derived from Airport activity.

<b>Airport State and Local Tax Revenue Impacts (\$ millions)</b>				
		<b>Site-Generated</b>	<b>Visitor-Generated</b>	<b>Total</b>
<b>State:</b>	Direct	\$10.5	\$28.3	\$38.8
	Induced	\$7.0	\$16.7	\$23.7
	Indirect	\$3.4	\$8.7	\$12.1
	<b>Total</b>	<b>\$20.9</b>	<b>\$53.7</b>	<b>\$74.6</b>
<b>Local:</b>	Direct	\$6.1	\$16.6	\$22.7
	Induced	\$4.1	\$9.8	\$13.9
	Indirect	\$2.0	\$5.1	\$7.1
	<b>Total</b>	<b>\$12.2</b>	<b>\$31.5</b>	<b>\$43.7</b>
<b>Total State and Local</b>		<b>\$33.1</b>	<b>\$85.2</b>	<b>\$118.3</b>

As the Airport is a self-supporting public enterprise, i.e., all its operational costs are paid by revenues from aviation activity rather than through use of any general government funds, the \$118.3 million in gross State and local tax revenue is also net revenue to those governing jurisdictions.

Federal tax revenue paid by Airport service providers and employees is not included in this study since it cannot be considered a local or regional impact. Of notable interest, however, is the revenue contributed to the federal government through the direct payment of four aviation-specific taxes on commercial aviation activity at the Airport. This revenue is used by federal agencies for the operation and development of the national air transportation system.

<b>Federal Aviation-Specific Tax Impacts (\$ millions)</b>		
Domestic Passenger Ticket Tax	=	\$131.1
Air Cargo Waybill Tax	=	\$7.0
International Passenger Departure Tax	=	\$2.9
International Passenger Arrival Tax	=	\$2.9
<b>Total</b>	<b>=</b>	<b>\$143.9</b>

## Appendix A Methodology

The process of quantifying the economic impact of an airport (as with any activity or site producing employment or revenue) can be approached in a number of ways. The methodology utilized in this study, developed by Martin Associates and consistently applied in numerous studies of airports across the country, relies primarily on direct measurement of impacts through surveys of on-airport businesses, agencies, and travelers, supplemented by published statistical reports. The collection and modeling of local data is a more conservative and defensible approach than using more general economic models based on broader assumptions not necessarily reflective of the particular airport under study.

The key sources of local data were as follows:

**Survey of Airport Tenants and Service Providers.** All businesses and agencies providing services at the Airport, including airlines, rental car companies, government agencies, terminal concessions, fixed base operators, and supporting contract businesses, were contacted directly and requested to provide local employment and revenue/expenditure data. Of these approximately 70 entities, all but three provided data. In lieu of survey data from the three non-responsive service providers, which consisted of one government agency (TSA), one airline (Delta), and one small aircraft maintenance contractor (Matrix Aviation Services), estimates were developed based on data provided by these same, or similar, service providers at other airports comparable to San Jose. Data for local ground transportation businesses that are based off-airport were derived from surveys of air passengers.

**Survey of Air Passengers.** A survey of approximately 1,100 departing passengers was conducted in the airline boarding gate areas of the terminals to gather passenger profile characteristics, such as the percentage of originating passengers who were visitors to the San Jose area, trip purpose, length and place of stay while in the San Jose area, and local expenditures by type. The sampling plan targeted passengers on flights representing a proportional cross-section of annual activity in terms of airline, flight destination, and time of day. The survey was conducted by professional interviewers over the course of five separate days between late September and mid November to reduce the chance of any daily or seasonal bias in the sample. The data obtained from the survey were extrapolated to annual totals.

**Survey of General Aviation Based Aircraft Operators.** A survey of the approximately 130 based aircraft tenants at the Airport was attempted to obtain both site-generated and visitor-generated data. However, most of the responses received (33) were from the non-jet aircraft tenants based in hangar, shelter, and tie-down facilities managed directly by the Airport, with the data obtained extrapolated to annual totals. The study was also not able to conduct a desired survey of transient aircraft operators, who are based elsewhere but transport visiting passengers, and sometimes groups of visitors (including sports teams), in and out of the Airport using the parking and services managed by Atlantic Aviation, the Airport's one full-service fixed-base operator. Transient aircraft are estimated by Airport staff to account for roughly 70% of all general aviation aircraft operations at the Airport. Therefore, given the lack of visitor data from most of the FBO-managed aircraft tenants and, more notably, from the transient aircraft operators using the Airport, the economic impacts of General Aviation presented in this study should be regarded as underestimated.

**Secondary Data Sources.** Published data were used to complement the data collected from the direct surveys described above, particularly in estimating the induced and indirect impacts. Key sources of published data include the various economic sector reports of the U.S. Bureau of the Census, Bureau of Economic Analysis, and Bureau of Labor Statistics specific to the San Jose area. State and local tax revenue impacts were estimated using published State of California tax indices prepared by the Tax Foundation, a national non-profit research organization.

Additional discussion of the methodology for each of the four measures of economic impact is provided below:

- **Employment**

For the direct site-generated impact, employment data were obtained directly from the surveys with all employers physically located at the Airport or providing services supporting Airport activity, supplemented by some expenditure data obtained in the air passenger survey. Part-time employee numbers were converted to a full-time equivalent number. Based on the function of each Airport tenant or service provider, jobs were allocated to the Air Carrier, Air Cargo, or General Aviation segments of Airport activity where possible. The surveys also requested residency data to determine the number of employees who live in San Jose, the rest of Santa Clara County, and elsewhere in the region.

The direct visitor-generated impact was derived by determining the number of annual non-resident air passengers, and their expenditures while in the San Jose area for each consumption category (e.g., lodging, food, ground transportation, etc.), as obtained from the air passenger survey. Published revenue/employee ratios were then applied to those visiting air passenger expenditures to estimate number of employees, again with part-time jobs converted to a full-time equivalent number.

For the induced impact, the re-spending of income by direct employees, both site-generated and visitor-generated, was applied to published regional data on consumption expenditures and revenue/employee ratios. Indirect jobs were estimated from the local purchase data collected in the survey of Airport tenants and service providers and applied to published expenditure and employee data for the San Jose area.

- **Business Revenue**

Data for site-generated revenue were obtained directly from the surveys of Airport tenants and service providers, from City of San Jose revenue reports, or derived from airline industry averages. Visitor-generated revenue was derived from the air passenger survey data on local expenditures by consumption category.

- **Personal Income**

Income data for site-generated employees were obtained directly from the surveys of Airport tenants and service providers. For visitor-generated income, expenditures by consumption category, as obtained in the air passenger surveys, were applied to published revenue/employee ratios and average employee wages for the San Jose area.

Induced and indirect personal income was derived using a regional income multiplier. Based on data provided by the U.S. Bureau of Economic Analysis, the personal income multiplier for the

San Jose area is \$2.70, meaning that for every dollar earned by individuals in the San Jose area, another \$1.70 is earned in the region through successive rounds of re-spending.

- **Tax Revenue**

For all site-generated and visitor-generated employment, business revenue, and personal income, State and local tax payments were derived by estimating per capita tax burdens from an income index. All State and local taxes are included in the analysis, with the State tax totals proportionally applied to the Airport's economic activity to estimate the tax revenue impact.

### **Additional Methodological Notes**

In addition to estimating the economic impacts of current airport activity, a product of the methodology is an airport-specific model that can be used to estimate the economic impacts of short-term changes in aviation activity at the Airport. For instance, if an airline proposed to add or reduce a certain number of flights, the potential changes in employment, business revenue, personal income, and tax revenue impacts can be calculated based on the economic data built into the Airport-specific model.

The San Francisco Bay Area airports, including the San Francisco International Airport (SFO), Oakland International Airport (OAK) and San Jose International Airport (SJC), are vital economic engines that create a contribution to the local and regional economy in terms of jobs, revenues, income and taxes generated. These airports connect the Bay Area to the rest of the world with the movement of people and goods domestically and internationally. In addition, these three major airports provide the Bay Area with combined capacity and a level of commercial air service that would not otherwise be possible should only one airport infrastructure exist in the Bay Area. For example, the economic impacts generated at SJC, as discussed in this report, compliment the commercial aviation service provided at both SFO and OAK and vice versa. And furthermore, if SJC did not exist, the passenger and cargo operations currently at SJC could possibly be handled at either of the other two Bay Area airports if sufficient capacity exists. This would result in a transference of impacts away from the San Jose area to other Bay area businesses. However, these impacts will not be transferred in their entirety since the existing infrastructure and operations at SFO and OAK could absorb some of the additional traffic without directly increasing the employment levels.

## Appendix B Visitor Passenger Characteristics

The magnitude of the economic impact generated by visitors using San Jose International Airport depends upon the volume of visitors, the length of stay in the San Jose area, the amount of money spent during the stay, and the types of expenditures made. These visitor purchases of goods and services (e.g., hotels, food, retail, entertainment, local travel) generate jobs, business revenue, personal income, and tax revenue. For this study, visitor impacts were estimated based upon the data collected from the survey of 1,100 departing airline passengers plus a smaller sample survey of general aviation operators, as highlighted below.

### Air Carrier Visitors (Passengers)

The air passenger survey determined that of the more than 4.4 million total passengers boarding flights at the Airport in FY2013-14 (excluding connecting airline passengers), approximately 57%, or 2.5 million enplanements, were visitors to the San Jose area. The other 43% of originating enplanements were residents of the greater San Jose/Northern California region.

Of these 2.5 million visitors, approximately 41% were traveling for business purposes and 59% for personal/leisure purposes. This trip purpose split was only slightly different from resident air passengers (38% business and 62% personal/leisure). More detailed visiting passenger characteristics are presented in the following tables.

<b>Visiting Air Passenger Characteristics</b>			
<b>Type of Visitor</b>	<b>2014 Enplanements</b>	<b>Average Length of Stay (nights)</b>	<b>Average Daily Expenditures</b>
Domestic Business	1,013,158	2.5	\$274
Domestic Personal	1,424,076	4.0	\$202
International Business	30,544	4.4	\$222
International Personal	61,069	6.5	\$185
<b>Total</b>	<b>2,528,847</b>	<b>3.5</b>	<b>\$231</b>

It is noteworthy that, in general, business-purpose travelers had shorter visits to the San Jose area than personal/leisure-purpose travelers, but tended to spend more money per day during their visit. International visitors, although only a very small percentage of all visitors due to the limited number of flights available at the Airport, stayed longer than domestic visitors. The survey also found that a very high percentage of international passengers were visitors (more than 90%), which suggests that international airline service proportionately generates a greater share of economic impacts than domestic airline service.

<b>Visiting Air Passenger Expenditures by Type of Purchase</b>			
<b>Expenditure Category</b>	<b>Business</b>	<b>Personal</b>	<b>Total (average)</b>
Accommodations	\$187	\$111	\$155
Eateries	\$53	\$35	\$43
Retail	\$13	\$30	\$23
Other	\$17	\$24	\$21
<b>Total</b>	<b>\$269</b>	<b>\$200</b>	<b>\$242</b>

Business-purpose visitors spent more on accommodations and eateries per day than personal/leisure-purpose visitors, but less on other expenditure categories.

<b>Visiting Air Passenger Place of Accommodation</b>			
	<b>Business</b>	<b>Personal</b>	<b>Total</b>
Santa Clara County	76%	58%	64%
City of San Jose	37%	32%	34%
Remainder of Santa Clara County	39%	26%	30%
Alameda County	7%	4%	5%
San Mateo County	5%	6%	5%
Santa Cruz County	1%	12%	9%
Other	11%	20%	17%

Almost two-thirds of visiting air passengers stayed in Santa Clara County. Business-purpose visitors were more concentrated in both the City of San Jose and elsewhere in the County than personal/leisure-purpose visitors. Overall, the distribution of accommodations for visitors wasn't significantly different than the residency of the resident air passengers (38% in San Jose and 27% in remainder of Santa Clara County).

**General Aviation Visitors**

As noted in Appendix A above, the survey data from general aviation aircraft operators at the Airport were obtained mostly from a sizable sample (40%) of the based aircraft tenants of the City-managed hangar, shelter, and tie-down storage facilities serving small piston-powered aircraft, augmented by data from a small number of operators of larger corporate aircraft based at FBO-managed facilities. The survey yielded the following visitor characteristics which were extrapolated out to represent the approximately 26,000 annual itinerant general aviation aircraft operations at the Airport during FY2013-14.

Average number of monthly flights with visitors:	3.1
Average number of visitors per flight:	1.6
Average length of visitor stay in San Jose area:	2.4
Average visitor daily expenditures in San Jose area:	\$157

As no data were obtained from the majority of the mostly corporate jet aircraft based in FBO facilities, or from any of the transient aircraft operators (based elsewhere) who account for an estimated 70% of all general aviation itinerant operations at the Airport, the general aviation visitor data included in this study is significantly under-estimated.

## Appendix C

### Comparison with 1998 Airport Economic Impact

Prior to the current study, the last economic impact analysis for San Jose International was done for 1998. Since both studies were done by Martin Associates using essentially the same methodology, it may be of interest to compare the impact findings. As shown in the table below, the Airport's FY2013-14 economic impacts, while significant, are less than the impacts identified in the 1998 study.

<b>SUMMARY OF AIRPORT ECONOMIC IMPACTS: 1998 &amp; 2014</b>		
<b>Impact Measure</b>	<b>1998</b>	<b>2014</b>
Employment	74,930	32,226
Business Revenue	\$4,206 million	\$3,397 million
Personal Income	\$1,960 million	\$1,038 million
State & Local Taxes	\$471 million	\$118 million

There are several key factors that primarily account for these differences. First, aviation activity levels were significantly higher in 1998 than in FY2013-14. In 1998, the Airport had 10.5 million annual air passengers (vs 9.1 million in 2014), 138,000 commercial airline operations (vs 91,000 in 2014), 133,000 tons of air cargo (vs 47,000 in 2014), and 143,000 non-commercial operations (vs 31,000 in 2014). There were also more passenger airlines, cargo airlines, and general aviation fixed-base operators serving the Airport in 1998 than in FY2013-14.

Second, major structural changes have occurred in the aviation industry since 1998, including the terrorist attacks of 9/11 and the subsequent national economic recession, which in turn spurred airlines and other service providers to reduce costs through mergers and reductions in flights, employment, and associated customer service functions. In 1998, there were 5,300 direct site-generated jobs associated with the Airport, compared to the 3,100 direct site-generated jobs in FY2013-14.

Third, the characteristics of visiting air travelers also changed. While there were slightly more total visiting air passengers in FY2013-14 (almost 2.5 million vs just over 2.4 million in 1998), there were more visitors coming to the San Jose area for business purposes in 1998 (68%) than in FY2013-14 (41%). Business-purpose travelers also tended to stay longer in the San Jose area, and spend more money per day, in 1998 than in FY2013-14.

Another factor is the broader structural changes (beyond just aviation) in the national economy, such as increasing use of technology, which have resulted in lower multipliers for jobs/sales ratios, even as both the national and local economy have returned to a growth cycle in recent years. These lower multipliers mean that fewer Airport direct visitor-generated impacts, and lower induced site-generated and visitor-generated impacts, were created in 2014 compared to 1998.