

THE ECONOMIC IMPACT OF NASHVILLE INTERNATIONAL AND JOHN C. TUNE AIRPORTS



METROPOLITAN NASHVILLE
AIRPORT AUTHORITY
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THE ECONOMIC IMPACT OF NASHVILLE INTERNATIONAL AND JOHN C. TUNE AIRPORTS

Executive Summary



Commercial airports are vital engines of economic growth for the regions they serve. They provide services fundamental to business and commerce, while boosting the growth of jobs, business revenue, payroll, and taxes. Airport activity contributes to the local and state economy by generating business revenue for local and national firms providing air passenger service, air cargo service, and support services to the airport and the airlines. These firms then provide employment and income to individuals and pay taxes to state and local governments. Similarly, airports foster tourism and related economic activity by facilitating visitors into the region to spend money, which in turn creates jobs in the hospitality industry and beyond.

Nashville International Airport (BNA) contributes and supports the regional economy by the movement of domestic and international passengers as well as air cargo through its terminal. BNA is located in the southeastern section of Nashville-Davidson County, just miles from downtown Nashville, the capital of Tennessee, serving more than 460 daily flights and providing air travel to more than 70 non-stop destinations.

John C. Tune Airport (JWN) is the largest general aviation airport in the state and is located just eight miles west of downtown Nashville.

The Metropolitan Nashville Airport Authority retained the services of Martin Associates to measure the economic impact of airport activity generated by Nashville International Airport and the general aviation activity at John C. Tune Airport in calendar year 2018. **The purpose of the study is to quantify the economic impacts generated by passenger, air cargo, and general aviation activity at both airports.** In order to measure the impacts in the most defensible manner possible, the methodology utilized is based on detailed tenant and service provider interviews, local economic data, and airport statistics – in other words, *direct measurement*.

Economic Impacts of Nashville International Airport (BNA) and John C. Tune Airport (JWN) in 2018

IMPACTS	BNA-SITE GENERATED & VISITOR INDUSTRY	JWN-SITE GENERATED & VISITOR INDUSTRY	2018 TOTAL IMPACTS	2012 TOTAL IMPACTS	% Increase 2018-2012
JOBS					
DIRECT	33,639	156	33,795	20,096	68.2%
INDUCED	13,607	79	13,686	8,418	62.6%
INDIRECT	<u>20,186</u>	<u>92</u>	<u>20,278</u>	<u>9,406</u>	<u>115.6%</u>
TOTAL JOBS	67,432	327	67,759	37,921	78.7%
PERSONAL INCOME (\$ MILLIONS)					
DIRECT	\$1,017.3	\$6.9	\$1,024.1	\$548.8	86.6%
RE-SPENDING/CONSUMPTION	\$1,134.1	\$8.5	\$1,142.6	\$547.4	108.7%
INDIRECT	<u>\$676.6</u>	<u>\$3.8</u>	<u>\$680.4</u>	<u>\$277.4</u>	<u>145.3%</u>
TOTAL INCOME	\$2,827.9	\$19.2	\$2,847.1	\$1,373.6	107.3%
BUSINESS REVENUE (\$ MILLIONS)	\$5,948.8	\$26.9	\$5,975.6	\$2,996.1	99.4%
ECONOMIC ACTIVITY (\$ MILLIONS)					
BUSINESS REVENUE	\$5,948.8	\$26.9	\$5,975.6	\$2,996.1	99.4%
RE-SPENDING/CONSUMPTION	<u>\$1,134.1</u>	<u>\$8.5</u>	<u>\$1,142.6</u>	<u>\$547.4</u>	<u>108.7%</u>
TOTAL ECONOMIC ACTIVITY	\$7,082.8	\$35.3	\$7,118.2	\$3,543.5	100.9%
LOCAL PURCHASES (\$ MILLIONS)	\$1,188.2	\$7.5	\$1,195.8	\$532.6	124.5%
STATE AND LOCAL TAXES (\$ MILLIONS)	\$167.9	\$1.3	\$169.2	\$90.6	86.8%
FEDERAL GOVERNMENT AVIATION-SPECIFIC TAXES (\$ MILLIONS)	\$223.9	\$0.5	\$224.5	\$121.4	84.9%

Totals may not add due to rounding

As is clear from the chart, the vast majority of the impacts are generated by Nashville International Airport. In 2018, BNA served **16 million passengers** and handled 105.4 million pounds of air cargo (freight and mail). This passenger and air cargo activity generates substantial economic impact benefits throughout the Nashville metropolitan area. In addition to these airport-generated impacts, it is estimated that 52,736 direct, induced, and indirect jobs were generated in the Nashville visitor industry due to expenditures by the 4.4 million visitors to the region who arrived via Nashville International Airport. The impacts of the visitors are estimated from the results of an in-terminal passenger survey conducted by Tennessee Connections as part of this study. These visitors, who include both domestic and international travelers, spent approximately \$2.9 billion on area hotels, restaurants, retail stores, and entertainment establishments, which in turn, generated jobs in the Nashville visitor industry. As a result of visitors arriving via BNA, \$101.7 million of state and local tax revenues were generated. Total economic activity generated by the Nashville visitor industry is \$3.6 billion.

Overall, the economic impacts of the passenger and air cargo activity at Nashville International Airport in calendar year 2018 generated the following:

- **67,432 jobs in the Nashville area;**
- **\$2.8 billion in direct, induced, and indirect personal income;**
- **\$6.0 billion in business revenue;**
- **\$168 million in state and local taxes;**
- **\$224 million in Federal aviation-specific taxes; and**
- **\$7.1 billion in total economic impact (combines business revenue (\$6 billion) and the re-spending/consumption impact (\$1.1 billion))**

NASHVILLE INTERNATIONAL AIRPORT (BNA)

The economic impacts on the Nashville metropolitan area are quantified in terms of:



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

BNA Employment Impacts

Passenger and air cargo activity at Nashville International Airport supported 67,432 direct, induced, and indirect jobs in the Nashville metropolitan area.

- **Airport-Generated Employment Impacts**

In calendar year 2018, passenger and airport activity at Nashville International Airport generated 7,601 direct jobs, of which the majority were employed directly with the fixed base operators, including the airline maintenance firms, fuel operators, and service companies serving the airlines at BNA. Approximately 93% of the direct jobs are held by residents of the Nashville metropolitan area.

Because of the local purchases by the 7,601 directly employed, an additional 3,903 induced jobs were supported in the local economy. The majority of these induced jobs are supported in the local and state government, and professional and personal services sector of the economy, followed by local grocery stores and restaurants, the local housing and real estate sector, and the health sector.

As a result of \$329.7 million of local purchases by airport-dependent firms, an additional 3,102 indirect jobs were supported in local office supply firms, retail and wholesale outlets, telecommunications firms, and machine and parts firms.

- **Visitor Industry Employment Impacts**

In 2018, of the 8 million passengers boarding flights at Nashville International Airport, 4.4 million were visitors to the Nashville metropolitan area. An in-terminal departing passenger survey was conducted as part of this study to develop visitor profiles of expenditure activity while in Nashville, length of stay in the area, purpose of the trip to Nashville, and whether the passenger is a foreign resident or a resident of the United States.

The majority of these 4.4 million visitors to the Nashville metropolitan area in 2018 are domestic passengers (99%, or 4.3 million), while the remaining 24,610 are international visitors to the Nashville metropolitan area.

The 4.4 million visitors spent \$2.9 billion in the Nashville visitor industry in 2018 for food, lodging, entertainment services, retail purchases, and transportation services. These \$2.9 billion of visitor industry purchases supported 26,038 direct jobs in the Nashville metropolitan area visitor industry.

As a result of local purchases by these 26,038 employees of the Nashville visitor industry, an additional 9,614 induced jobs were supported in the local economy. Furthermore, as the result of \$858.5 million of local purchases by the firms dependent upon the Nashville visitor industry, an additional 17,083 indirect jobs were supported, for a total visitor industry impact of 52,736 direct, induced, and indirect jobs.

BNA Business Revenue Impacts

The passenger and air cargo activity at Nashville International Airport generated \$6 billion in business revenue to firms providing services at the airport and to local visitor industry firms.

- **Airport-Generated Business Revenue Impacts**

The passenger and air cargo activity at Nashville International Airport created \$3.1 billion of business revenue to firms supplying passenger and air cargo services at the airport. The majority of this revenue was received by airlines carrying the enplaning passengers at Nashville International Airport, while ground transportation operations generated 8.6 percent, construction operations generated 6.7 percent, and air cargo operations generated 4.6 percent of the \$3.1 billion in business revenue.

- **Visitor Industry Business Revenue Impacts**

In 2018, the local area visitor industry received \$2.9 billion in revenue from the 4.4 million visitors arriving in the Nashville metropolitan area via Nashville International Airport. These purchases were made for lodging, food, retail, entertainment, and transportation services.

BNA Personal Income Impacts

A total of \$2.8 billion of wages and salaries were generated as a result of passenger and air cargo activity at Nashville International Airport in 2018, including airport-generated income (direct, induced (re-spending/consumption), and indirect) as well as the visitor industry income impacts.

- **Airport-Generated Income Impacts**

In 2018, the 7,601 direct employees earned \$329.7 million in income (i.e. wages and salaries) from airport activity. This represents an average salary of \$43,370. In contrast, the average salary for the Nashville metropolitan area is \$48,370.¹ Based on data from the U.S. Department of Commerce, Bureau of Economic Analysis, it is estimated that an additional \$429.1 million of personal income and local consumption expenditures were generated.

¹ Bureau of Labor Statistics, "Occupational Employment Statistics," May 2018

In addition, the 3,102 indirect job holders received \$148.1 million of indirect wages and salaries. Combining the direct, induced, and indirect income impact, the total local income impact of Nashville International Airport is estimated at \$906.9 million in 2018.

- **Visitor Industry Income Impacts**

The 26,038 directly generated jobs in the Nashville visitor industry received income (i.e. wages and salaries) totaling \$687.6 million. As a result of re-spending of this income, an additional \$705.0 million of income and consumption expenditures were generated. Furthermore, the 17,083 indirect job holders, supported by the \$858.5 million local purchases by Nashville visitor industry firms dependent upon the visitors using the airport, received \$528.5 million of indirect wages and salaries.

BNA Tax Impacts

Passenger and air cargo activity at Nashville International Airport, as well as visitor industry impacts, generated \$167.9 million of state, county, and municipal taxes; and \$223.9 million of Federal aviation-specific taxes.

- **Airport-Generated Tax Impacts**

Direct airport activity generated approximately \$66.2 million of state and local taxes in 2018. As a result of the passenger and air cargo activity, \$223.9 million of Federal aviation-specific taxes are generated. These taxes include the domestic passenger departure tax, the air cargo tax, and taxes on departing and arriving international passengers, as well as security fees.

- **Visitor Industry Tax Impacts**

As a result of the 4.4 million visitors to the Nashville metropolitan area, \$101.7 million of state and local taxes were generated.

JOHN C. TUNE AIRPORT

General aviation activity at John C. Tune Airport (JWN) also contributed to the local Nashville economy. In 2018, there were an estimated 85,000 annual operations, and this activity supported the following economic impacts (on-site and visitor industry) at JWN:

- **327 jobs;**
- **\$19.2 million in direct, induced, and indirect personal income;**
- **\$26.9 million in business revenue;**
- **\$1.3 million in state and local taxes;**
- **\$500,000 in Federal aviation-specific taxes; and**

- **\$35.3 million in total economic impact.**

SUMMARY

In summary, this analysis of impacts demonstrates the economic development contribution of Nashville International Airport and John C. Tune Airport to the Nashville regional economy. In order to continue to grow its economic contribution, it is essential that BNA continue to adjust and accommodate the growing passenger and air cargo demands with adequate facilities and services.

Nashville International Airport is addressing the dramatic increase in passengers and taking steps to facilitate the region's robust growth by implementing *BNA Vision*, a comprehensive series of capital projects that includes expansion of the terminal, a new concourse, more security screening lanes, and additional parking, among other improvements. The price tag on *BNA Vision 1.0* is approximately \$1.2 billion in construction and capital expenditures and is scheduled for completion in 2023.

Additional phases of *BNA Vision* are set to follow thereafter in an effort to meet the future market demands of Middle Tennessee. The economic impacts specifically for *BNA Vision* activities in 2018 are detailed in Chapter 5 of this study.



Chapter 1

Introduction, Overview and Summary of Results

The Metropolitan Nashville Airports Authority retained the services of Martin Associates to measure the economic impacts of airport activity generated by Nashville International Airport and John C. Tune Airport. This chapter provides an overview of the methodology used to measure the economic impacts of Nashville International Airport. Similar methodology was used to determine the economic impacts of John C. Tune Airport, presented in Chapter 7.

The base year of the analysis is calendar year 2018. The economic impacts created by the airports are measured in terms of jobs, personal income, state and local taxes, and revenue generated directly by airport activity, as well as in terms of the airport's role in providing a gateway for air cargo services to the businesses and manufacturing communities of Tennessee, as well as the United States. In addition, this includes the impact of visitors to the Nashville metropolitan area who use the airports.

In order to measure the impacts in the most defensible manner possible, the methodology utilized is based on interviews, local economic data, and airport statistics; i.e., direct measurement. An operational model of the airport was also developed to use in updating the impacts on a short term basis, and to measure the incremental changes in airport-generated impacts due to changes in such factors as total passenger and air cargo levels, the number of flight operations, domestic vs. international passenger levels, and work rules by airlines. Also, the model can be used to test the economic impacts of various capital investment and airport expansion projects.

The remainder of this chapter summarizes the methodology, highlights key assumptions, and summarizes the major findings. This chapter does not include the methodology, assumptions and/or findings for the Related User Impacts, which are described in Chapter 6. The chapter consists of the following sections:

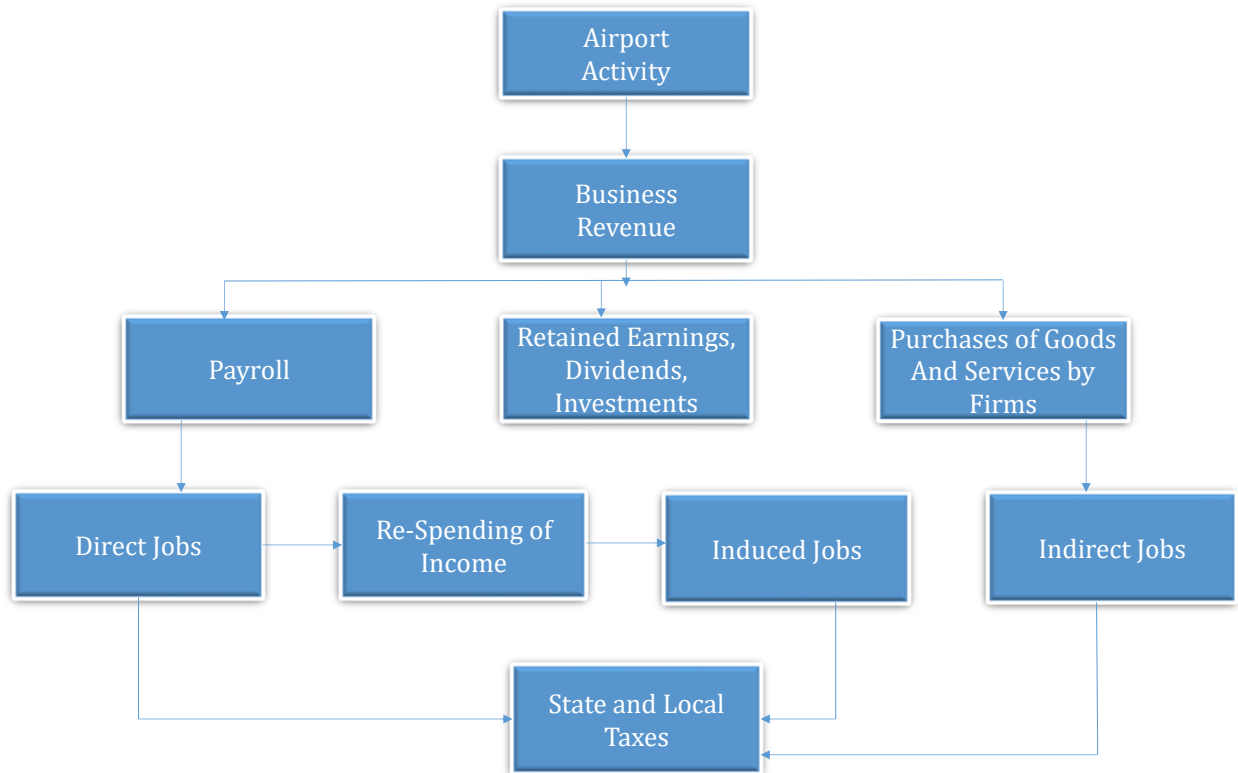
- *Section 1 provides an overview of the impact structure and describes how the airport activity creates and supports jobs, personal income, business revenue, and taxes in the local, regional and state economies.*
- *Section 2 defines and describes the detailed categories and sectors of the economy in which the impacts occur.*
- *Section 3 gives an overview of the data collection methodology and a summary of results.*
- *Section 4 presents a summary of the key findings of the analysis.*

1. IMPACT STRUCTURE

Activity at an airport contributes to the local and state economy by generating business revenue for local and national firms providing air passenger service, air cargo service and support services to the airport and the airlines. These firms, in turn, provide employment and income to individuals and pays taxes to state and local governments. **Exhibit 1-1** shows how air traffic activity at Nashville International Airport generates impacts throughout the local, state and national economy. As this exhibit indicates, the impact of an airport on a local, state or national economy cannot be reduced to a single number, but instead, airport activity creates several categories of impacts. These are the Revenue impact, Employment impact, Personal income impact, and Tax impact. These impacts are not additive. For example, the personal income impact is a part of the revenue impact, and adding these impacts together would result in double counting.



*Exhibit 1-1
Flow of Economic Impacts Generated by
Airport Activity*



1.1 Revenue Impact

At the outset, activity at the airports generate *business revenue* for firms which provide air passenger service, concessions, air cargo service and ground support services. This revenue impact is dispersed throughout the economy in several ways. It is used to hire people to provide the services, to purchase goods and services, to pay for the use of the airport and to make federal, state and local tax payments.

The remainder is used to pay stockholders, retire debt, make investments, or is held as retained earnings. It is to be emphasized that the only portions of the revenue impact that can be definitely identified as remaining in the Nashville metropolitan area where the airport is located are those portions paid out in salaries to direct employees, local purchases from other firms, state and local taxes and payments to the airport itself.

1.2 Employment Impact

The *employment impact* of aviation activity, shown in full-time equivalent jobs (FTEs), consists of three levels of job impacts.

- *Direct employment impact* - jobs directly generated by airport activity, which would vanish if activity at Nashville International Airport were to cease. These jobs include jobs with airlines serving the airport, charter airlines, Federal and local government workers, retail concessions, rental car agencies, construction employees, taxi cabs and rideshare vehicles moving passengers to and from the airport, fixed base operators serving the airlines, flight training schools, aircraft parts and repair firms, etc.
- *Induced employment impact* - jobs created throughout the local economy because *individuals* directly employed due to airport activity spend their wages locally on goods and services such as food, housing and health care. Also included in this category are non-consumption driven jobs supporting the direct jobs such as jobs with State and local government agencies (including public schools) and personal and business services (including private education, real estate and financial services).
- *Indirect employment impact* - jobs generated due to the purchase of goods and services by *airport-dependent firms*. This includes local purchases by the airport tenants and the airport administration.

1.3 Personal Income Impact

The *personal income impact* is the measure of personal wages and salaries received by individuals directly employed due to airport activity. This direct personal income is re-spent throughout the region by those that are directly employed. This re-spending/induced effect, in turn, generates additional jobs -- the induced employment impact. This re-spending throughout the Nashville metropolitan area is estimated using a regional personal income multiplier specific to Nashville. The re-spending effect varies by region: a larger re-spending effect occurs in regions that produce a relatively large proportion of the goods and services consumed by residents, while lower re-spending effects are associated with regions that import a relatively large share of consumer goods and services (since personal income "leaks out" of the region for these out-of-state purchases). For this study, separate personal income multipliers are used for airport-generated income versus visitor industry generated income. The use of the two multipliers reflects the differences in average wages and, hence, consumption power generated by on-site activity compared to the impacts supported in the visitor- industry.

1.4 Tax Impact

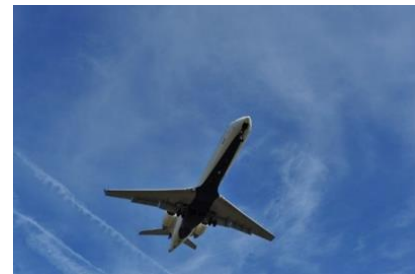
Federal, state and local *tax impacts* are tax payments to the Federal, state and local governments by firms and by individuals whose jobs are directly dependent upon activity at Nashville International Airport. The Federal aviation-specific taxes include the Cargo Way Bill Tax, the INS tax on international passengers, security charges, and the domestic departure tax. Customs revenue generated by international air passengers and air cargo is also included.

These four types of impacts, outlined above, are estimated for calendar year 2018 passenger, air cargo and general aviation activity at Nashville International Airport.

2. ECONOMIC IMPACT SECTORS

An airport is a diverse economic system. The businesses that have employees at Nashville International Airport cover a wide spectrum of trade and service sectors. For the purposes of this study, the airport economic system is divided into five sectors:

- *Airline/airport service sector;*
- *Air cargo transportation sector;*
- *Passenger ground transportation sector;*
- *Construction and consulting services sector; and*
- *Visitor industry services sector.*



Each of these sectors covers a variety of activities. A discussion of these five sectors is provided below, with a description of the major participants in each.

2.1 Airline/Airport Service Sector

The airline/airport service sector consists of airlines providing passenger services, general aviation, airport administration and firms providing support services to the airlines, passengers, and to the airport. This group consists of the following participants:

- *Passenger Airlines;*
- *General Aviation and Aviation Services, (i.e., corporate hangars and business aircraft, not-for-profit aviation services, flying clubs, fixed base operators, aviation parts suppliers, etc.);*
- *Airport Administration (Metropolitan Nashville Airport Authority);*
- *Catering Firms;*
- *Janitorial Firms;*
- *Sky Caps;*
- *Security Firms;*
- *Airport Retail Tenants (i.e., newsstands, retail shops, and food concessions);*

- *Federal Government Agencies (i.e., F.A.A., TSA, and U.S. Customs); and*
- *Parking and Miscellaneous (i.e. not-for-profit organizations at the airport).*

Jobs in this category are typically located on airport property.

2.2 Air Cargo Transportation Sector

The air cargo transportation sector includes freight airlines, freight forwarders, and common carrier trucking firms involved in transporting air cargo. The air cargo consists of air freight and mail transported on dedicated freight airlines and in the cargo section of passenger airlines. Jobs in this category are located both on and off the airport.² Please note, the air cargo transportation sector does not include those firms and impacts discussed in Chapter 6, “Related User Impacts”.

2.3 Passenger Ground Transportation Sector

The passenger ground transportation sector consists of car rental firms and other ground transportation modes, such as buses, taxis, rideshare vehicles (Uber and LYFT) and limousines. This group covers all commercial transportation of individuals to and from the airport and includes both drivers and supporting reservation and maintenance employees.

2.4 Construction and Consulting Sector

Individuals employed in this sector include those providing construction and remodeling work at the airports, as well as architects and engineers providing planning and design services. This sector measures the annual impact of capital projects.

2.5 Visitor Industry Services Sector

Both domestic and international passengers arrive in the Nashville metropolitan area via Nashville International Airport for several purposes, including business and pleasure. As a result of these out-of-town visitors purchasing lodging, food and entertainment, jobs are created in the service and retail industries in the Nashville metropolitan area. To evaluate the impacts of visitors in the Nashville area, the results of an in-terminal survey of departing passengers using Nashville International Airport was used to develop expenditure data by air visitors.

This visitor industry impact of Nashville International Airport is addressed in Chapter 4 and the visitor industry impact of John C. Tune Airport is included in the discussion of the airport impacts in Chapter 7.

²Jobs with passenger airlines dedicated to handling air cargo are counted as jobs with airlines and included with jobs in the airline/airport sector. However, when the impacts are estimated by **type of activity** - passengers versus air cargo – these jobs are counted as dedicated to air cargo.

3. DATA COLLECTION

Impacts were estimated on the basis of interviews with firms in the five economic impact sectors described above. Approximately 133 firms were interviewed as part of this study, which represents more than 95% coverage of the airport community serving Nashville International Airport. Because of this coverage, the resulting direct impacts are highly defensible and traceable back to the individual firms. In addition to the airport tenants and service providers, an in-terminal passenger survey was conducted to develop expenditure data and passenger profiles of passengers using Nashville International Airport.

Published data were used to complement the interview results, particularly in estimating induced, and indirect job impacts. The major sources of published data are publications by the U.S. Bureau of Census: the Census of Service Industries, Census of Wholesale Industries, Census of Construction, the Census of Retail Industries, County Business Patterns, and the Survey of Manufactures for the Nashville Metropolitan Statistical Area (MSA).

4. SUMMARY OF FINDINGS

The key findings of the analysis are outlined in **Table 1-1**. It is to be emphasized that these measure separate and distinct economic impacts generated by airport activity and are not additive. For example, income and state and local taxes are paid from business revenue. Therefore, if personal income and taxes are added together with business revenue, the results would be double counted, and overstate the monetary impact of the airports. The impacts are also presented separately for airport-generated impacts, which are the impacts generated at the airport, as well as for visitor industry impacts, which are the impacts generated in the area's hotels, restaurants, local transportation services, etc. by the out-of-town passengers using Nashville International Airport.

*Table 1-1
Economic Impacts of the Nashville International Airport*

IMPACTS	BNA-SITE GENERATED	BNA VISITOR INDUSTRY	2018 TOTAL IMPACTS	2012 TOTAL IMPACTS	% Increase 2018-2012
JOBS					
DIRECT	7,601	26,038	33,639	19,990	68.28%
INDUCED	3,993	9,614	13,607	8,367	62.62%
INDIRECT	<u>3,102</u>	<u>17,083</u>	<u>20,186</u>	<u>9,364</u>	<u>115.57%</u>
TOTAL JOBS	14,696	52,736	67,432	37,721	78.76%
PERSONAL INCOME (\$MILLIONS)					
DIRECT	\$329.7	\$687.6	\$1,017.3	\$544.7	86.76%
RE-SPENDING/CONSUMPTION	\$429.1	\$705.0	\$1,134.1	\$543.3	108.74%
INDIRECT	<u>\$148.1</u>	<u>\$528.5</u>	<u>\$676.6</u>	<u>\$275.9</u>	<u>145.25%</u>
TOTAL INCOME	\$906.9	\$1,921.1	\$2,827.9	\$1,363.9	107.35%
AVERAGE INCOME/DIRECT EMPLOYEE	\$43,370	\$26,407			
BUSINESS REVENUE (\$MILLIONS)	\$3,066.9	\$2,881.9	\$5,948.8	\$2,978.4	99.73%
ECONOMIC ACTIVITY (\$ MILLIONS)					
BUSINESS REVENUE	\$3,066.9	\$2,881.9	\$5,948.8	\$2,978.4	99.73%
RE-SPENDING/CONSUMPTION	<u>\$429.1</u>	<u>\$705.0</u>	<u>\$1,134.1</u>	<u>\$543.3</u>	<u>108.74%</u>
TOTAL ECONOMIC ACTIVITY	\$3,496.0	\$3,586.9	\$7,082.8	\$3,521.7	101.12%
LOCAL PURCHASES (\$MILLIONS)	\$329.7	\$858.5	\$1,188.2	\$529.5	124.43%
STATE AND LOCAL TAXES (\$ MILLIONS)	\$66.2	\$101.7	\$167.9	\$89.8	86.83%
FEDERAL GOVERNMENT AVIATION-SPECIFIC TAXES (\$ MILLIONS)	\$223.9	N/A	\$223.9	\$121.0	85.10%

Totals may not add due to rounding

Chapter 2

Employment Impacts of Nashville International Airport

In this chapter, the employment generated by calendar year 2018 activity at Nashville International Airport is estimated. The chapter does not include the employment impacts for the Visitor Industry, which are described in Chapter 4; the Related User Impacts, which are described in Chapter 6; nor the impacts of John C. Tune, which are detailed in Chapter 7. This chapter is organized as follows:

- *Section 1 estimates the employment that is totally or partially dependent on the activities at Nashville International Airport.*
- *Section 2 analyzes the subset of total employment that is judged to be totally dependent on airport activity in the following ways:*
 - *Jobs are estimated in terms of the economic impact sectors and for job classifications within these sectors;*
 - *Direct jobs are estimated by type of activity; and*
 - *Job impacts are allocated to cities and counties within the Nashville metropolitan area based on the residence of those directly dependent upon airport activity.*
- *Section 3 describes the induced jobs generated by local purchases by those directly employed.*
- *Section 4 presents the indirect jobs supported by local purchases by the airport-dependent firms.*

1. TOTAL JOB IMPACTS

In calendar year 2018, 14,696 jobs are supported by the passenger and air cargo activity at Nashville International Airport. Of these 14,696 total jobs:

- *7,601 jobs are directly dependent upon activity at the airport.* These jobs include jobs with airlines serving the airport, retail concessions, rental car companies, fixed base operators, government agencies (i.e., TSA, Federal Aviation Administration, U.S. Customs, etc.), air cargo carriers, freight forwarders and construction workers involved with airport expansion projects, such as BNA Vision.

These jobs would be discontinued immediately if airport activity ceased, since the firms employing these direct employees are directly dependent upon the passenger and air cargo activity at the airport. Also, these jobs would be impacted because of changes in the number of flights and passenger levels. For example, as the number of flights and passenger activity increases, more airline personnel are needed to check-in passengers and service aircraft, the number of employees with security and custodial firms will increase as the number of passengers using the terminals increase, and the number of employees handling air cargo will increase as the amount of air cargo handled at the airport increases.

These jobs are measured in terms of full-time equivalent jobs (FTEs). For example, if a worker works 20 hours per week, this worker is classified as .5 full-time equivalent jobs.

- *3,993 induced jobs are created in the region due to the local purchases of goods and services by those 7,601 individuals directly dependent upon activity at Nashville International Airport. These induced jobs include jobs with the local construction industry providing housing to the direct employees, with grocery stores, restaurants, health care facilities, transportation services firms, and retail stores, all of whom provide services to the direct employees.*
- *3,102 indirect jobs are created with local companies providing goods and services to the airport-dependent firms. These jobs are with such firms as office supply distributors, utilities, communications firms, local transportation services, aircraft parts and machine shops supporting the airlines at Nashville International Airport.*

2. DIRECT JOB IMPACTS

In this section, the 7,601 airport-generated direct jobs are discussed in terms of distribution by economic sector; by type of activity -- passenger, air cargo and construction; and by place of residence.

2.1 Direct Jobs by Economic Sector

The distribution of the airport-generated direct job impacts by the four economic impact sectors, excluding the visitor industry sector, which are described in Chapter 4, follows:

- *63.4% Airline/Airport Service Sector;*
- *20.6% Passenger Ground Transportation Sector;*
- *11.3% Construction and Consulting Sector; and*
- *4.7% Air Cargo Transportation Sector.*

Sixty-three percent of the airport-generated direct job impact is in the airline/airport service sector, which includes the passenger airlines, Federal government, and the food/beverage and retail concessions, etc. Nearly 21% of the direct job impact is in the passenger ground transportation sector, including the rental cars, taxis/buses/limos, Uber and Lyft.

The 11 percent of the direct job impact is in the construction and consulting sector, which reflects expenditures in calendar year 2018 of \$194.6 million in capital improvements and consulting expenditures at Nashville International Airport as part of BNA Vision.

Finally, about 4.7 percent of the direct jobs are concentrated with freight airlines, freight forwarders and courier services (the air cargo transportation sector). This percentage *does not include* the employees of passenger airlines who are dedicated to air cargo. These are included in the airline/airport service sector. For example, there are 11 employees with passenger airlines serving Nashville International Airport who are dedicated to air cargo transportation in the belly of the airplanes, and these 11 employees are included in the airport/airline service sector.

Table 2-1 shows the distribution of employment within each major employment sector. The majority of the impacts are concentrated in the airline/airport service sector, and within that sector, the majority of the impacts are concentrated with fixed base operators/aircraft maintenance, followed by passenger airlines, food/beverage and retail concessions and military operations.

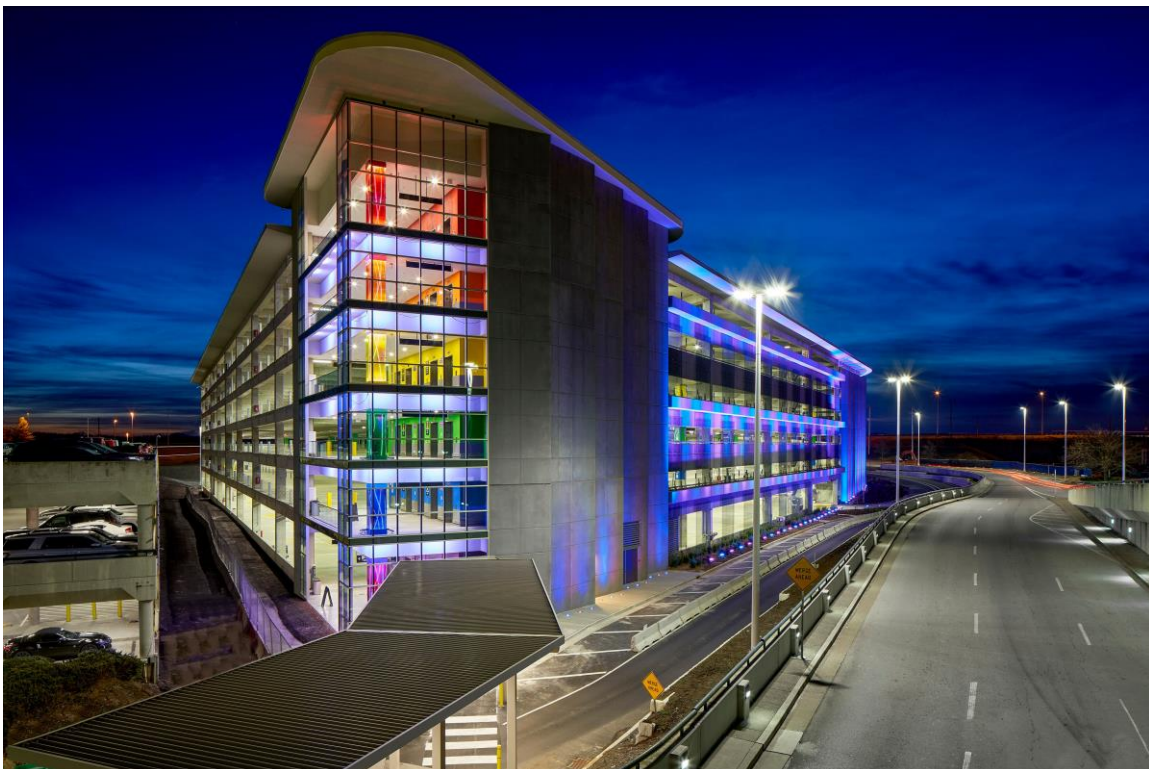


Table 2-1
Direct Job Impacts by Sector, 2018

IMPACT CATEGORY	DIRECT JOBS
AIRLINE/AIRPORT SERVICE SECTOR	
PASSENGER AIRLINES	799
CATERING (NON-AIRLINE-OWNED)	37
FEDERAL GOVERNMENT	474
METROPOLITAN NASHVILLE AIRPORT AUTHORITY	289
RETAIL/FOOD & BEVERAGE CONCESSIONS	613
FIXED BASE OPERATORS/AIRCRAFT MAINTENANCE	1,514
CLEANING SERVICES	163
SECURITY/SKYCAPS	42
GENERAL AVIATION/CORPORATE	102
MUSICIANS	23
MILITARY	586
PARKING	<u>171</u>
SUBTOTAL	4,813
AIR CARGO TRANSPORTATION SECTOR	
FREIGHT AIRLINES & COURIERS	303
FREIGHT FORWARDERS	<u>55</u>
SUBTOTAL	358
PASSENGER GROUND TRANSPORTATION SECTOR	
RENTAL CARS	340
TAXIS	1,090
LIMOS/BUS/VANS	<u>138</u>
SUBTOTAL	1,569
CONSTRUCTION AND CONSULTING SECTOR	862
TOTAL	7,601

Totals may not add due to rounding

2.2 Direct Job Impacts by Type of Activity

The airport-generated direct jobs are allocated by type of activity as follows:

- 83.8% Passenger Activity;
- 4.9% Air Cargo; and
- 11.3% Construction Activity.

2.2.1 Passenger Activity Impacts

Of the 7,601 direct jobs, a total of 6,371 direct full-time equivalent jobs or 83.8 percent of the total airport-generated direct jobs were generated by commercial airline passenger activity. Of these 6,371 direct jobs, 788 are with the airlines. These airline jobs include flight crew and pilots who are based out of Nashville International Airport, ticket agents, dispatchers, equipment mechanics and technicians, custodial workers who are employees of the airlines (and not contractors to the airlines), and airline management and clerical jobs. It is clear from this diverse set of jobs with passenger airlines that certain jobs are dependent upon the number of flights at Nashville International Airport, others are dependent upon the number of passengers at the airport, while still other jobs, such as pilots and crew based out of Nashville International Airport and jobs with airline system maintenance facilities, are dependent upon airlines' corporate decisions and airline system activity throughout the U.S.



Because of this diversity in the types of jobs with airlines and their dependency upon the airport activity at Nashville International Airport, changes in the level of airport activity will not have a proportionate impact on the level of total direct airline jobs. For example, the airline flight attendants based out of Nashville International Airport, as well as system maintenance facilities, are not necessarily dependent upon the level of flights in and out of the airport. Instead, they may be based on the growth in the specific airline system of which they are employees. In contrast, certain jobs are directly dependent on the number of flights at Nashville International Airport, such as the equipment service technicians and dispatchers.

Furthermore, because of this diversity in the types of airline employees at Nashville International Airport, it is critical to emphasize that an increase or decrease in flight activity at Nashville International Airport will not result in a proportional change in the number of airline employees. For example, if flights are decreased at Nashville International Airport, airline employment could increase. This would be the case if the passenger load factor increased for the aircraft operating at the airport, or if the size of planes increased (while number of flights declined). Similarly, if a specific airline system activity increased, this could, in turn, result in an increase in the number of flight

attendants employed system-wide and based in the Nashville area as well as the number of system maintenance facility employees.

Based on analysis of employee job classifications for the airlines servicing the Nashville International Airport, it was estimated that 90 percent of the direct airline employment would be totally dependent upon the actual number of flights and passengers at Nashville International Airport. The remaining 10 percent of the direct airline employment at Nashville International Airport would not be totally dependent upon the actual number of flights and passengers at the airport. These include flight crews based at Nashville International Airport, but dependent upon airline system-wide performance; system maintenance facility employees; and airline management stationed at Nashville International Airport.

2.2.2 Air Cargo Activity Impacts

In calendar year 2018, 105.4 million pounds of air cargo (air freight and mail) were transported by commercial air carriers and dedicated air cargo carriers at Nashville International Airport. Of the 7,601 jobs directly generated by airport activity, 369 direct jobs, or 4.9 percent of the total airport-generated direct job impact, are directly generated as a result of air cargo activity at Nashville International Airport. These jobs are with the freight airlines, freight forwarders, courier services and the employees with passenger airlines handling the air cargo being carried in the belly of the passenger airplanes.

2.2.3 Construction Activity Impacts

As a result of \$194.6 million capital and consulting expenditures paid by Metropolitan Nashville Airport Authority in calendar year 2018, 862 airport-generated direct jobs were created in the local construction industry (for construction at Nashville International Airport).

2.3 Geographic Distribution of the Direct Jobs

To estimate the local economic impact created by airport activity, data on residency of employees was collected from the interviews with members of the airport community serving Nashville International Airport, including all airport tenants and service providers at the airport. The direct job impact was then allocated based on county/city of residence of these employees. **Table 2-2** shows the distribution of job impacts by major cities and counties. This table underscores the importance of the airport as an economic development catalyst throughout local and regional economies. Approximately 93 percent of the 7,601 direct jobs are held by residents of the Nashville metropolitan area, as presented in the table.

*Table 2-2
Distribution of Job Impacts by
Place of Residence, 2018*

JURISDICTION	PERCENT OF DIRECT JOBS	DIRECT JOBS
Nashville	30.01%	2,281
Brentwood	0.97%	74
Fairview	0.13%	10
Franklin	1.13%	86
Gallatin	0.88%	67
Goodlettsville	1.13%	86
Hendersonville	2.02%	154
LaVergne	1.34%	102
Lebanon	3.91%	297
Millersville	0.00%	0
Mt. Juliet	5.36%	408
Murfreesboro	7.29%	554
Portland	0.30%	23
Smyrna	2.82%	214
Springfield	0.45%	34
Spring Hill	0.62%	47
White House	0.35%	26
BALANCE OF EMPLOYMENT IN THE AREA COUNTIES		
<u>COUNTIES</u>		
Davidson	19.28%	1,465
Maury	0.67%	51
Montgomery	2.28%	173
Robertson	1.43%	109
Rutherford	4.04%	307
Smith	0.51%	38
Sumner	1.05%	80
Williamson	1.57%	119
Wilson	3.18%	242
Other TN	3.57%	271
Other US	3.72%	283
TOTALS	100.00%	7,601

Totals may not add due to rounding

3. INDUCED JOB IMPACT

A portion of the income received by those 7,601 directly employed due to airport activity is saved; another portion is used to pay Federal, state and local taxes, while another portion is used to purchase goods and services from firms located in the Nashville regional economy, as well as from firms out of the region. The purchases of goods and services from firms in the region create induced jobs for area residents in the firms supplying the goods and services. Furthermore, those individuals supplying the goods and services also receive income from their employers and use a portion of it for additional purchases from firms located in the region. This "trickle-down" effect of an initial income expenditure results in a multiplier effect throughout the regional economy known as the personal income multiplier. This income multiplier is discussed in the following chapter, but the resulting induced jobs are measured in this chapter.

The following describes the methodology for estimating the induced job impact.

- *The average propensity to consume was developed from a personal income multiplier for the Nashville regional economy that was developed for Martin Associates by the Bureau of Economic Analysis, Regional Input-Output Modeling System (RIMSII). Using this propensity to consume, local consumption expenditures were derived.*
- *The percentage of income spent by Nashville regional residents on various expenditure categories of the economy (i.e., manufacturing, housing, services, food, etc.) was developed from the Consumer Expenditure Survey for the Nashville regional economy.*
- *The ratio of employment to sales in each of the expenditure categories for both wholesale and retail purchases were calculated for the Nashville Metropolitan Statistical Area (MSA), from data published by the U.S. Bureau of the Census.*
- *The airport-induced consumption impact was allocated to the various expenditure categories based on the Bureau of Labor Statistics breakdown for a typical consumer in the Nashville MSA.*
- *The personal consumption impact allocated to each expenditure category was multiplied by the ratio of employment to sales in that category to estimate the number of induced jobs for regional residents.*

Support jobs, such as jobs with business and personal service firms, and jobs with local and state government agencies (including jobs with public schools), are also estimated based on the ratio of jobs in these service sectors to total state employment. Because of the local purchases by the 7,601 directly employed individuals, 3,993 **induced jobs** were supported in the regional economy.

The induced impacts are greatest with the region's municipal and state government agencies and finance and insurance services. This sector includes public and private schools, municipal and state government services and business and personal services that are not driven directly by consumption expenditures, but are created to support the direct jobs associated with the airport activity. The next largest induced job impact is generated in the local retail and wholesale food and beverage industries, followed by jobs in the local housing and construction industry and by the healthcare industry.

4. INDIRECT JOBS

In addition to the induced jobs created due to purchases by the 7,601 *individuals* directly employed due to activity at Nashville International Airport, additional jobs in the regional economy are created *indirectly* due to the purchase of goods and services by the *firms* involved in airport activity (airport-dependent firms). For example, airlines purchase items such as fuel, catering services, parts and office supplies from local firms, thereby creating jobs in these supplying industries. Similarly, the airport (MNA) itself purchases such services as contract construction, utilities, and maintenance services from local suppliers, also creating jobs in the local economy. For the most part, the jobs resulting from such purchases are included in the direct job impacts (see Table 2-1). For example, the 37 jobs in the Catering (Non-Airline-Owned) category, the 1,514 jobs in the Fixed Base Operators/Aircraft Maintenance category, the 163 jobs in the Cleaning category and the 862 jobs in the Construction and Consulting category are all included as direct job impacts. In some studies, impacts in these supplying industries are included as indirect jobs and are measured through the use of a regional input/output model. For the purposes of this study, a more detailed assessment of jobs in the supplying industries was more appropriate since many are located on the airport facility and these impacts are considered as direct job impacts. To estimate these indirect jobs, the local purchases for goods and services were identified from each firm surveyed.

Based on the interview responses, a total of \$329.7 million was spent locally by airport-dependent firms.³ To estimate the indirect economic impact, the local purchases were grouped by type of purchases (office supplies, utilities, transportation services, airline parts and machine shop repairs, etc.). The types of services were then linked to a producing or supplying industry in the Nashville metropolitan area. The local purchases by airport-dependent firms were then combined with employment to sales ratios in supplying firms, as developed by the U.S. Bureau of Economic Analysis, to estimate the number of indirect jobs that are supported by purchases by the airport-dependent firms. A total of 3,102 *indirect jobs* were supported in local industries by the purchases by airport-dependent firms.

³*These purchases by airport-dependent firms are for services other than those provided by airport tenants. For example, the indirect jobs do not include jobs with caterers or with fixed base operators supplying services to the airlines, since these jobs are counted as direct jobs.*

Chapter 3

Revenue, Income and Tax Impacts Generated by Nashville International Airport

In this chapter the revenue, personal income and tax impacts are described. This chapter does not include the impacts for the Visitor Industry, which are described in Chapter 4; the Related User Impacts, which are described in Chapter 6; nor the impacts of John C. Tune, which are detailed in Chapter 7. This chapter is organized as:

- *Section 1 describes the revenue generated by airport activity, and provides a description of how the revenue is distributed across the economic impact sectors and categories.*
- *Section 2 presents the local purchases of the directly dependent firms.*
- *Section 3 details the personal income impact, including a description of the re-spending impact and the indirect personal impact.*
- *Section 4 presents the tax impacts. The tax impacts include state and local tax revenue impacts as well as airport specific taxes that are contributions to the Aviation Trust Fund.*

1. REVENUE IMPACT

The movement of passengers and air cargo via Nashville International Airport generates revenue for firms in each of the four sectors of airport-related activity. For example, in the airline/airport service sector, revenue is received by the security and skycap firms providing services to the airlines, and by airport tenants who sell retail merchandise to passengers in the airport. In the air cargo transportation sector, airlines receive revenue from moving the air cargo to and from the airport and freight forwarders receive revenue from arranging air transportation for the cargo. Similarly, the rental car agencies and the firms providing ground transportation receive revenue from transporting passengers to and from the airport. Construction and consulting firms receive revenue from the airport operator and airlines that have contracted these services.

Revenue generated by airport activity is dispersed throughout the economy in several ways. For example, gross revenue is used to pay employee salaries and the whole range of taxes, it is distributed to stockholders, and it is used for purchases of goods and services (as described in the discussion of indirect job impacts in the preceding chapter). Only part of this revenue can be traced geographically with any degree of accuracy -- the portion of the revenue paid out in salaries, in local purchases by

the directly dependent firms, and in state and local taxes. These impacts are addressed in separate sections of this chapter.

In calendar year 2018, passenger and air cargo activity at Nashville International Airport generated \$3.1 billion of business revenue to the airlines and service companies directly dependent on the airport.⁴ Only those portions of business revenue used for local purchases, paid to the direct employees in wages and salaries, and used for state and local tax payments by the directly dependent firms, are the impacts that can be traced as remaining in a particular region or state. Therefore, the focus of the revenue impact will be on identifying those portions of business revenue used for the local purchases of goods and services by the directly dependent firms, the wages and salaries earned by those directly employed, and the tax payments.

While the total business revenue impact of \$3.1 billion does not represent a local impact, it nonetheless is useful to estimate the revenue received by each category of firms involved with airport activity, because the distribution is quite different from that of employment. The \$3.1 billion of business revenue impact is distributed across the economic impact sectors as follows:

- 80.2% Airline/Airport Service Sector;
- 8.6% Passenger Ground Transportation Sector;
- 6.7% Construction and Consulting Sector; and
- 4.6% Air Cargo Transportation Sector.

The findings of the business revenue distribution are:

- The majority (80.2 percent) of the \$3.1 billion direct business revenue impact is received by firms in the airline/airport service sector. This compares to 83.8 percent of the direct jobs concentrated in this sector.
- About 8.6 percent of the business revenue impact is received by firms in the passenger ground transportation services sector, compared to 20.6 percent of the *direct jobs* being held by firms in the passenger ground transportation sector.
- About 6.7 percent of the business revenue impact is received by firms in the construction and consulting sector. This compares to 11.3 percent of the direct jobs in this sector.
- About 4.6 percent of the \$3.1 billion business revenue impact is received by firms in the air cargo transportation services sector.

⁴The revenue impact is derived directly from the interview results with each airport tenant. The revenue also includes the revenue from enplaned air passengers. Care is taken to avoid double counting of revenue used to make purchases from other tenants at the airport, and, as such, user fees and gate charges are not included in the revenue count. For taxis and other non-rental car ground transportation, revenue is based on average fares for cabs, limos, buses, etc., and the share of passengers using those modes of transportation to and from the airport.

2. LOCAL PURCHASES

In calendar year 2018, it is estimated from the interviews with the airport community that about \$329.7 million of local purchases were made by airport-dependent firms. These purchases include purchases for retail goods and office supplies, utilities, communications services, maintenance services and airline parts, etc. Because of these purchases, 3,102 local indirect jobs were generated, as detailed in the previous chapter.

3. PERSONAL INCOME IMPACTS

An estimated total of \$329.7 million was paid in wages and salaries to the 7,601 direct airport generated employees. This \$329.7 million personal income impact is estimated based on the average wage and salaries for each job category multiplied by the corresponding number of jobs in that category. The spending of this personal income within the Nashville metropolitan area creates the additional employment estimated as induced jobs in Chapter 2, which results in an additional \$429.1 million of personal income and consumption purchases throughout the region.

Re-spending of income within a region is measured by a regional personal earnings multiplier. The size of the multiplier varies by region depending on the proportion of regional goods and services purchased by individuals. The higher this percentage, the lower the income leakage is out of the region. The personal earnings multiplier is based on data provided by the Bureau of Economic Analysis (BEA), Regional Input-Output Modeling System (RIMSII). The BEA estimates that for every one dollar earned by direct employees of the airport, another \$1.30 of personal income and consumption expenditures would be created as a result of re-spending the income for purchases of goods and services produced locally. Hence, a personal earnings multiplier of 2.30 was used to estimate the total income and consumption impact of \$429.1 million, inclusive of the re-spending and local consumption impact.

It is to be emphasized that the re-spending effect measures the total re-spending impact in the Nashville area. The induced jobs, which are generated by this re-spending of the direct income, only include jobs generated at the retail and wholesale level due to consumer purchases, since it is assumed that these jobs will most likely occur in the Nashville metropolitan area. In addition to these induced retail and wholesale jobs, there are also additional induced and indirect jobs created to support purchases by those induced jobs in the wholesale and retail sectors, i.e., a second round of induced and indirect jobs. These second level induced and indirect jobs are not estimated, since it is not possible to identify with any degree of defensibility the geographic location where these second round induced and indirect jobs are created. Because the total number of induced and indirect jobs (second, third and fourth levels, etc.) generated by airport activity is not estimated, it is not possible to divide the induced income (\$429.1 million) by the estimated induced jobs (3,993) to estimate the

salary and wage income associated with the estimated induced jobs. To do so would result in a gross overestimation of the personal income associated with the induced jobs.

In addition to the direct and induced income and consumption impacts, the 3,102 indirect jobholders earned \$148.1 million in indirect personal wages and salaries.

Thus, the total airport-generated direct, induced and indirect personal income and consumption impact is estimated at \$906.9 million.

The distribution of the direct personal income impact throughout the Nashville metropolitan area is presented in **Table 3-1**. As expected, this distribution reflects the distribution of the direct jobs, by jurisdiction of residence.



*Table 3-1
Distribution of Direct Personal Income Impact by
Place of Residence, 2018*

JURISDICTION	DIRECT INCOME (\$ MILLIONS)
Nashville	\$98.9
Brentwood	\$3.2
Fairview	\$0.4
Franklin	\$3.7
Gallatin	\$2.9
Goodlettsville	\$3.7
Hendersonville	\$6.7
LaVergne	\$4.4
Lebanon	\$12.9
Millersville	\$0.0
Mt. Juliet	\$17.7
Murfreesboro	\$24.0
Portland	\$1.0
Smyrna	\$9.3
Springfield	\$1.5
Spring Hill	\$2.0
White House	\$1.1
BALANCE OF EMPLOYMENT IN THE AREA COUNTIES	
<u>COUNTIES</u>	
Davidson	\$63.6
Maury	\$2.2
Montgomery	\$7.5
Robertson	\$4.7
Rutherford	\$13.3
Smith	\$1.7
Sumner	\$3.5
Williamson	\$5.2
Wilson	\$10.5
Other TN	\$11.8
Other US	\$12.3
TOTALS	\$329.7

Totals may not add due to rounding

4. TAX IMPACTS

Airport activity in 2018 generated state and local tax revenues paid by the 7,601 individuals directly employed due to airport activity. Furthermore, the firms purchasing the services also paid state and local taxes. As shown in **Table 3-2**, in calendar year 2018, airport activity at Nashville International Airport generated \$66.2 million of state and local taxes and \$223.9 million to the Federal government, in terms of airport-specific taxes.⁵

*Table 3-2
Summary of Annual Tax Impacts
Millions of Dollars, 2018*

TYPE OF TAX	TAXES (MILLIONS)
STATE AND LOCAL TAXES	\$66.2
FEDERAL AVIATION-SPECIFIC TAXES	
CARGO WAYBILL	\$8.3
INS	\$0.9
DOMESTIC PASSENGER TAX	\$213.9
INTERNATIONAL DEPARTURE	\$0.8
TOTAL FEDERAL AVIATION-SPECIFIC TAXES	\$223.9

Totals may not add due to rounding

⁵Federal taxes paid by individuals and companies are not included in the tax impact. Only Federal tax revenue generated by airport-specific Federal taxes is included in this study. The state and local tax impacts are estimated using tax indices for the State of Tennessee as identified by the Tax Foundation. These indices multiplied by the direct, induced and indirect income impacts are used to estimate the state and local taxes. The allocation of the taxes between state, county and municipal local taxes is based on actual taxes collected by the specific county and municipal governments.

Chapter 4

Visitor Industry Impacts Generated by Nashville International Airport

The impact of visitors on the local and regional economy is measured in terms of jobs, revenue, and taxes generated by expenditures for hotels, retail, entertainment activities, and transportation service firms.

Travelers on business and pleasure visits are vital elements to Nashville's local economy. Nashville International Airport is a primary gateway to the region, and as such, provides air services key to the area's visitor industry. Individuals visit the Nashville metropolitan area for a variety of reasons, including business, pleasure and for participation in conventions. Visitors purchase hotel rooms, pay for meals and entertainment, and make retail purchases while in the Nashville area. These purchases of goods and services stimulate the local economy, in turn generating jobs with hotels, restaurants, retail outlets, and local entertainment establishments. Those individuals employed in the Nashville visitor industry due to visitors' purchases receive income. This income is re-spent in the local economy generating induced jobs in the regional economy.

The magnitude of the economic impact generated by the visitors using Nashville International Airport varies directly with the volume of out-of-town visitors and the length of time the visitors stay in the Nashville area. Also, the impacts depend upon the amount of money spent by visitors on a daily basis as well as the type of purchases made. The volume of air visitors to the area depends upon the number of origin and destination passengers compared to connecting passengers and the number of out-of-town airport users versus the number of local resident users of the airport. The length of time visitors spend in the Nashville area, and how they spend their money, further depends upon the purpose of the trip to Nashville and whether the visitor is a domestic air traveler or an international air traveler. For example, domestic business travelers tend to spend more per day on hotels than a visitor on a pleasure trip, but the pleasure traveler may spend more on retail and entertainment and stay in the Nashville area for a longer period of time.

To estimate the economic impact of visitors arriving via Nashville International Airport, two 1,000 passenger in-terminal intercept surveys of enplaning passengers were conducted during the weeks of December 12th-15th, 2018 and February 10th-14th, 2019. The passenger survey sample was selected to parallel the distribution of the passengers by the key air routings representing the top 75 percent of the destination markets of the passenger traffic at Nashville International Airport. The survey results were used to develop passenger characteristics, including:

- *Location of permanent residence;*
- *Primary purpose of stay while in the Nashville area (business, pleasure, etc.);*
- *Number of nights stayed in the Nashville area;*
- *Type of overnight accommodations (e.g. hotel, private home, etc.);*
- *Amount of off-airport purchases and spending (e.g. lodging, rental car, food/beverage, retail purchases, entertainment and in-town taxi cabs);*
- *Number of people covered by these expenses;*
- *Method of arrival to the airport (e.g. private car, rental car, limo, rideshare, hotel shuttle, taxi, etc.).*

In calendar year 2018, about 8 million passengers boarded commercial aircraft at Nashville International Airport. Of the 8 million enplaning passengers, about 4.4 million were visitors to the area. The remaining 3.6 million enplaning passengers were connecting to other flights or residents of the area. It is the travel and spending characteristics of the 4.4 million visitors that will contribute to the visitor industry through lodging, retail purchases, eating in restaurants, and local transportation services. The following passenger characteristics were derived directly from the results of the in-terminal passenger survey. Each passenger was asked their trip purpose and permanent place of residence. The share by trip purpose was then applied to the number on non-resident enplanements to determine the number of domestic and international visitors to the Nashville area traveling for business or pleasure.

Table 4-1 shows the trip purpose of the 4.4 million visitors departing via air.

*Table 4-1
Estimated Visitors by Trip Purpose*

TRIP PURPOSE	ESTIMATED ENPLANEMENTS
DOMESTIC:	
Domestic Business	2,346,565
Domestic Pleasure	<u>1,980,496</u>
TOTAL DOMESTIC VISITORS	4,327,061
INTERNATIONAL:	
International Business	11,865
International Pleasure	<u>12,746</u>
TOTAL INTERNATIONAL VISITORS	24,610
TOTAL VISITORS	4,351,671

In addition to trip purpose, the visitor characteristics related to length of stay in the Nashville area and their daily expenditures were also derived directly from the in-terminal passenger survey. The passengers were asked the number of nights they stayed in the Nashville area for their current trip as well as how much they spent while in Nashville for lodging, food and beverage purchases, retail purchases, in-town ground transportation services and entertainment. The results of these questions were calculated to determine the average length of stay and the average daily expenditures of these visitors by trip purpose and domestic versus international travelers. Visitor spending and length of stay patterns vary depending on the type of visitor.

Table 4-2 shows the average length of stay and average daily expenditures by purpose of trip of the visitors to the Nashville area. As this table indicates, *international business* travelers tend to spend the most money per day, followed by the *domestic business* travelers. *International pleasure* visitors on vacation or visiting friends and relatives tend to stay the longest in Nashville, an average of 8.1 days but they tend to have one of the lower amount of daily expenditures (about \$156 per day). *Domestic pleasure* visitors stay an average of 5.1 days, and tend to spend the least amount on a daily basis, an estimated \$136 per day. Together, these visitors from out-of-town brought \$2.9 billion to the Nashville area in 2018.

*Table 4-2
Length of Stay and Daily Expenditures*

TRIP PURPOSE	LENGTH OF STAY (DAYS)	EXPENDITURES PER DAY
DOMESTIC:		
Domestic Business	4.0	\$217
Domestic Pleasure	5.1	\$136
INTERNATIONAL:		
International Business	6.3	\$242
International Pleasure	8.1	\$156

A summary of visitor industry impacts are presented in **Table 4-3**.

Table 4-3
Nashville International Airport Visitor Industry Impacts, 2018

IMPACTS	BNA VISITOR INDUSTRY
JOBS	
DIRECT	26,038
INDUCED	9,614
INDIRECT	<u>17,083</u>
TOTAL JOBS	52,736
PERSONAL INCOME (\$ MILLIONS)	
DIRECT	\$687.6
RE-SPENDING/CONSUMPTION	\$705.0
INDIRECT	<u>\$528.5</u>
TOTAL INCOME	\$1,921.1
AVERAGE INCOME/DIRECT EMPLOYEE	\$26,407
BUSINESS REVENUE (\$ MILLIONS)	\$2,881.9
ECONOMIC ACTIVITY (\$ MILLIONS)	
BUSINESS REVENUE	\$2,881.9
RE-SPENDING/CONSUMPTION	<u>\$705.0</u>
TOTAL ECONOMIC ACTIVITY	\$3,586.9
LOCAL PURCHASES (\$ MILLIONS)	\$858.5
STATE AND LOCAL TAXES (\$ MILLIONS)	\$101.7

Totals may not add due to rounding

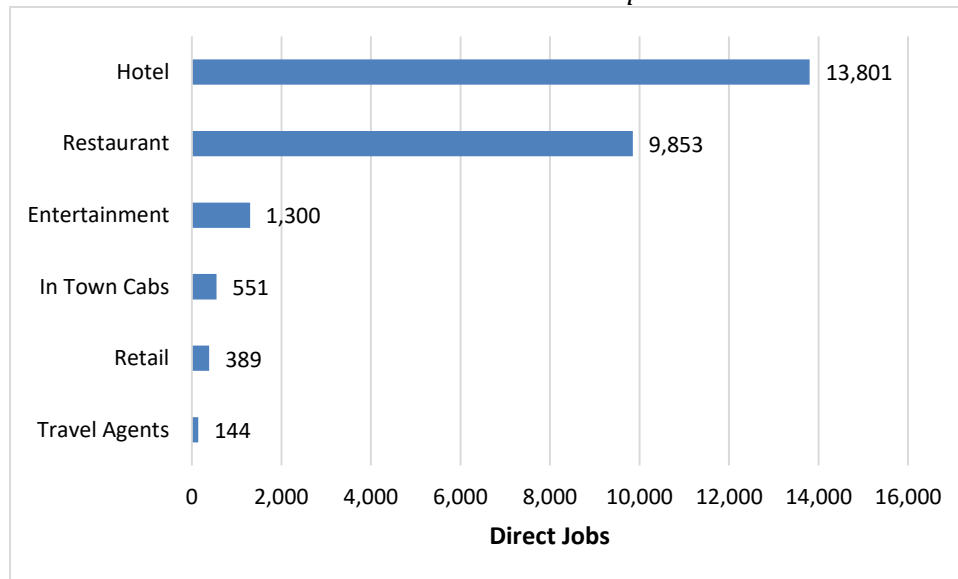
1. VISITOR INDUSTRY JOB IMPACT

As previously mentioned, the visitor industry job impacts (direct jobs) are jobs generated in the visitor industry at the local hotels, restaurants, retail stores, entertainment facilities, etc. These jobs are directly dependent on the Nashville International Airport, however, they are located in the Nashville area and not at the airport.

Similar to the on-site induced job impacts, the visitor industry induced jobs are a result of the individuals directly employed in the visitor industry re-spending their personal income into the local economy for the purchase of goods and services from local firms. In addition, the visitor industry indirect jobs are created by the purchases of goods and services by the direct visitor industry firms, i.e. hotels, restaurants, etc. Both the induced and indirect visitor industry jobs are created in the Nashville area, not at the airport.

Using the results of the in-terminal passenger survey, the 4.4 million visitors arriving via Nashville International Airport are estimated to have spent \$2.9 billion in the Nashville area for lodging, food, entertainment, and transportation. This spending supported 26,038 direct jobs in the Nashville area visitor industry. **Exhibit 4-1** summarizes these direct visitor industry jobs.

*Exhibit 4-1
Direct Job Impacts Due to Visitors Arriving via
Nashville International Airport*



Most of the direct visitor industry jobs are generated in area hotels (13,801), followed by 9,853 jobs with area restaurants. Approximately 1,300 jobs are created with local entertainment/recreational activities, 551 jobs with local transportation firms, 389 jobs with local retail outlets and 144 jobs with local travel agents.⁶

As the result of local purchases made by the 26,038 employees of the Nashville visitor industry, an additional 9,614 induced jobs are supported in the Nashville area economy.

⁶ The local transportation jobs exclude the airport-generated jobs with rental cars, cabs, limos and buses moving passengers to and from the Airport.

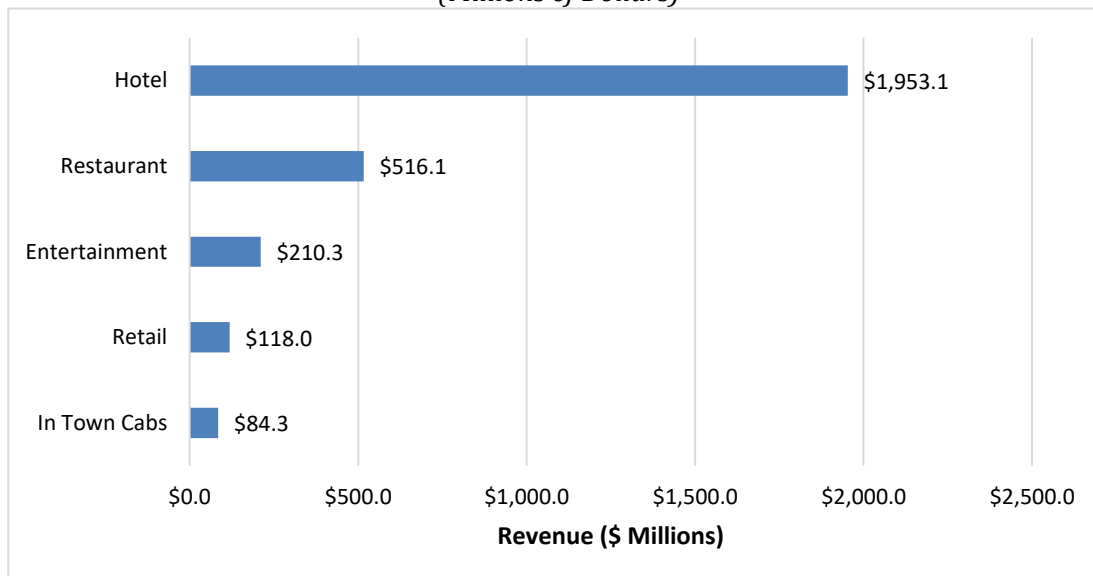
No local purchase data was collected from hotels and other sectors of the visitor industry. Instead, the Bureau of Economic Analysis developed indirect job multipliers for the various sectors of the Nashville visitor industry. These multipliers were combined with the direct job impacts by visitor industry sector to estimate the indirect impacts. Using the indirect job multipliers for the Nashville visitor industry, it is estimated that \$858.5 million of local purchases were made by the visitor industry firms for goods and services. These local purchases, in turn, supported an additional 17,083 indirect jobs in the local economy.

2. BUSINESS REVENUE IMPACT

The local purchases made by visitors to the Nashville area in 2018 generated \$2.9 billion of business revenue to hotels, restaurants, retail outlets, entertainment establishments, and local transportation firms. The distribution of the business revenue by the Nashville visitor industry is described in *Exhibit 4-2*.

As this exhibit demonstrates, local hotels received approximately \$2.0 billion due to visitors using Nashville International Airport. Local restaurants received approximately \$516.1 million in sales, while visitors spent \$210.3 million on local entertainment and recreational activities in the Nashville area, \$118.0 million on local retail purchases and \$84.3 million on local transportation services.

Exhibit 4-2
Distribution of Visitor Industry Expenditures, 2018
(Millions of Dollars)



3. PERSONAL INCOME AND TAX IMPACTS

The personal income generated by visitors arriving via Nashville International Airport is \$1.9 billion. This represents a combination of direct and indirect personal income, as well as the additional re-spending and consumption income generated by the visitors arriving via Nashville International Airport.

The 26,038 individuals directly employed in the Nashville visitor industry as a result of expenditures by the 4.4 million visitors to the area received \$687.6 million in personal income. A portion of this personal income of the 26,038 directly employed individuals is used for regional purchases of goods and services, creating induced jobs. Applying the personal income multiplier for the local area visitor industry (estimated by the U.S. Bureau of Economic Analysis), an additional re-spending and consumption income impact of \$705.0 million was generated locally.

The 17,083 indirect job holders received \$528.5 million of personal income.

Finally, as a result of the visitors arriving via the Nashville International Airport, \$101.7 million of state and local taxes are created, including local hotel tax receipts.

Chapter 5

Economic Impacts of BNA VISION

In August 2016, the Metropolitan Nashville Airport Authority unveiled their plans for a comprehensive, detailed construction project that would include expanding the parking, the concourses and the lobby areas, as well as adding new gates, developing an International Arrivals Facility and creating additional Federal security screening lanes. This plan is called BNA Vision and is expected to cost more than \$1 billion and will span over five to seven years.



BNA Vision is in response to the rapidly growing passenger activity at Nashville International Airport. The airport saw tremendous growth with an increase of approximately 5 million passengers since 2014, which has reached nearly 16 million passengers arriving and departing out of the airport in calendar year 2018. According to the Nashville Area Metropolitan Planning Organization, the population in the Nashville metropolitan area is expected to grow to 2.6 million people by the year 2035. With the growth in passenger activity and the robust forecasted growth for the area, it is critical for the Airport Authority to continue to meet the demands of air transportation in Nashville.

This chapter highlights and isolates the economic impacts of the expenditures of BNA Vision for calendar year 2018. The importance of BNA Vision to the Nashville metropolitan area can be measured in terms of the direct, induced and indirect jobs, as well as the personal income and state and local taxes generated by the 2018 expenditures. These construction impacts have been included in the overall measures of the economic impacts generated in 2018 by the Nashville International Airport. However, because of the importance of BNA Vision to the future of the airport to accommodate air travel demands of the Nashville regional economy, the impacts of the investments are discussed separately in this chapter.

In 2018, \$194.6 million of construction and consulting expenditures were made by the Metropolitan Nashville Airport Authority for construction projects as part of BNA Vision at Nashville International Airport.

In 2018, BNA Vision generated 823 direct jobs in the Nashville metropolitan area. Of these 823 direct, full-time equivalent jobs, the \$176.8 million of capital/construction expenditures supported 722 construction jobs, while the \$17.8 million of expenditures spent on consulting and engineering projects supported about 101 full-time jobs. **Table 5-1** details the impacts generated by the expenditures for BNA Vision in 2018.

*Table 5-1
Economic Impacts Generated by BNA Vision, 2018*

IMPACTS	BNA VISION
JOBS	
DIRECT	823
INDUCED	560
INDIRECT	<u>621</u>
TOTAL JOBS	2,004
PERSONAL INCOME (\$ MILLIONS)	
DIRECT	\$54.2
RE-SPENDING/CONSUMPTION	\$70.5
INDIRECT	<u>\$29.6</u>
TOTAL INCOME	\$154.3
BUSINESS REVENUE (\$ MILLIONS)	\$194.6
ECONOMIC ACTIVITY (\$ MILLIONS)	
BUSINESS REVENUE	\$194.6
RE-SPENDING/CONSUMPTION	<u>\$70.5</u>
TOTAL ECONOMIC ACTIVITY	\$265.1
LOCAL PURCHASES (\$ MILLIONS)	\$42.7
STATE AND LOCAL TAXES (\$ MILLIONS)	\$11.3

Totals may not add due to rounding

These 823 direct employees received \$54.2 million of personal earnings. As a result of purchases in the Nashville metropolitan area by these directly employed construction workers and architects/consultants, an additional \$70.5 million of income and consumption expenditures were generated throughout the region. This re-spending generated an additional 560 induced jobs in the Nashville metropolitan area. In addition, \$42.7 million of local purchases were made by the construction and consulting firms, which supported another 621 indirect jobs. Therefore, as a result of the \$194.6 million of expenditures by BNA Vision in 2018, it is estimated that 2,004 direct, induced, and indirect jobs were generated in the region, and a total of \$154.3 million of personal earnings and consumption expenditures were created in the Nashville metropolitan area.

In addition to the jobs, personal earnings, and consumption expenditures generated by BNA Vision expenditures, a total of \$11.3 million of state and local taxes were also generated in 2018. The total economic activity of BNA Vision is \$265.1 million.

Chapter 6

Related User Impacts of Regional Air Freight Shippers

In addition to the baseline direct, induced, and indirect economic impacts that are generated by the air cargo handled at the airport, the air freight (cargo, excluding mail) that is shipped via Nashville International Airport supports additional jobs in the local, regional, and state economy and are identified as ***related user impacts***. Related user jobs are with the direct producers and consumers of the air freight as well as jobs with the industry sectors in the regional economy that also supply the direct manufacturers and consumers of the air freight. The related user jobs are not directly dependent on Nashville International Airport as they can and do use other airports for the shipment of their air freight. For purposes of this analysis, the jobs are classified as “related” to Nashville International Airport in 2018 since these related user jobs are generated as a result of the actual air freight that was shipped at the airport in 2018. ***It is important to note that these related user jobs are different than the air cargo jobs discussed in Chapter 2.*** The air cargo jobs (Chapter 2) are directly dependent on Nashville International Airport and are jobs with the freight airlines, freight forwarders and trucking firms/couriers involved in transporting the air cargo. These air cargo jobs would be directly affected by any major changes in the volume of air cargo handled at the airport.

In calendar year 2018, 52,089 tons of air freight were loaded and unloaded at Nashville International Airport. Mail shipments were not included in the calculation of related user impacts and the economic value of the air freight operations at the airport in 2018. The total air freight was adjusted to reflect air freight originating or destined (O/D) in the local region.

The following methodology was used to quantify the economic importance to the region of the domestic and international air freight handled at Nashville International Airport in 2018. There does not exist a data base that identifies the type of domestic air freight loaded and discharged at airports throughout the United States. However, the U.S. Census provides a description of the specific commodities, including commodity type, weight and value moving internationally via U.S. airports. While this data is for international air freight only, discussions with airlines and freight forwarders indicate that the composition of the air freight is representative of the domestic air freight handled at the airports, as well. Therefore, this distribution of the international air freight by type of commodity was applied to all air freight handled at Nashville International Airport, adjusted for the originating or destined freight in the local region and excluding the freight shipped through the airport in-transit – the freight that is either loaded onto aircraft for consumption beyond the local region or originates outside the area. The international and domestic cargo by type of commodity was aggregated by commodity to estimate total weight and value of air freight handled at Nashville International Airport in 2018.

The employment and payroll coefficients corresponding to each producing industry sector or consuming industry sector were then identified from the RIMS II model for the state of Tennessee (prepared for Martin Associates by the U.S. Bureau of Economic Analysis). The value of each of the top commodities loaded and unloaded (80 percent) were then combined with the relevant employment, payroll and output coefficients (by consuming and producing industry) to estimate the direct, induced, and indirect jobs, payroll, and output associated with the air freight handled at Nashville International Airport. It is to be emphasized that the impacts include not only the jobs, income, and output with the direct producers/consumers of the air freight, but also with the industry sectors in the regional economy that also supply the direct manufacturers and the producers and consumers of the air freight.

Using this methodology, ***it is estimated that the air freight enplaned and deplaned at Nashville International Airport supported 49,082 related user jobs in the Tennessee economy.*** In total, the value of Tennessee-based air freight loaded and unloaded at the airport is estimated at \$10.5 billion in related user output and supported 49,082 jobs with a \$2.5 billion related user payroll in the Tennessee economy. In addition, the air freight shipped and received by these users of Nashville International Airport supported \$183.5 million of state and local taxes. **Table 6-1** identifies the related user economic impacts as a result of the air freight shipped through Nashville International Airport in 2018.

*Table 6-1
Related User Economic Impacts, 2018*

RELATED USER IMPACTS	
JOBS	49,082
PERSONAL INCOME (\$ MILLIONS)	\$2,513.7
ECONOMIC ACTIVITY (\$ MILLIONS)	\$10,461.7
TAXES (\$ MILLIONS)	\$183.5

It is important to emphasize that these associated related user jobs should only be viewed as “related” to the air freight moving via Nashville International Airport, and not directly dependent upon the airport. These related jobs would not likely disappear if Nashville International Airport were to discontinue handling air freight. Given a level of demand for the specific air freight, the air freight would be shipped through another airport in the area at the discretion of the shipper and/or consumer of the air freight.

It is to be further emphasized that when the impact model is used for planning purposes, related user jobs should not be used to judge the economic benefits of a project. Related user jobs are not estimated with the same degree of defensibility as are the direct, induced and indirect jobs. Therefore, only these three types of job impacts should be used in evaluating airport investments. The purpose of the related user job estimates is to provide a way of assessing the magnitude of the more general economic development impact of the airport.

Nonetheless, these 49,082 jobs related to the air freight moving via Nashville International Airport demonstrates the importance of the airport to the Nashville and Tennessee State economies.

Chapter 7

Economic Impacts of John C. Tune Airport



In addition to Nashville International Airport, Martin Associates estimated the economic impacts generated as a result of general aviation activities at John C. Tune Airport. The airport is owned and managed by the Metropolitan Nashville Airport Authority and is located in west Nashville about 8 minutes from downtown Nashville. The general aviation airport serves regional corporate aircraft as well as private aircraft. The general aviation airport has a 6,000 ft runway and 403,500 sq. ft of aircraft parking and apron space. There are approximately 134 hangars located at John C. Tune Airport, including 125 T-hangars.

In 2018, there were about 85,000 estimated operations at John C. Tune Airport and approximately 40,000 passengers used this airport for business and pleasure travel on private aircraft as well as chartered flights. The airport is home to flight training schools for aircraft and helicopters, a fixed base operator, and a hangar rental company.

1. TOTAL ECONOMIC IMPACTS

Overall, the passenger activity at John C. Tune Airport supports 327 direct, induced and indirect jobs in the Nashville metropolitan area, including the local visitor industry, \$19.2 million of personal income, \$26.9 million of business revenue, \$1.3 million of state and local taxes, and \$0.5 million of Federal aviation-specific taxes. **Table 7-1** summarizes the impacts of the airport, both airport-

generated impacts as well as impacts generated by the visitors to the Nashville metropolitan area using this airport.

*Table 7-1
Economic Impacts Generated by John C. Tune Airport*

IMPACTS	JWN-SITE GENERATED	JWN- VISITOR INDUSTRY	TOTAL IMPACTS
JOBS			
DIRECT	94	62	156
INDUCED	56	23	79
INDIRECT	<u>51</u>	<u>41</u>	<u>92</u>
TOTAL JOBS	201	126	327
PERSONAL INCOME (\$ MILLIONS)			
DIRECT	\$5.2	\$1.7	\$6.9
RE-SPENDING/CONSUMPTION	\$6.8	\$1.7	\$8.5
INDIRECT	<u>\$2.6</u>	<u>\$1.3</u>	<u>\$3.8</u>
TOTAL INCOME	\$14.6	\$4.6	\$19.2
AVERAGE INCOME/DIRECT EMPLOYEE	\$55,596	\$26,814	
BUSINESS REVENUE (\$ MILLIONS)	\$19.2	\$7.6	\$26.9
ECONOMIC ACTIVITY (\$ MILLIONS)			
BUSINESS REVENUE	\$19.2	\$7.6	\$26.9
RE-SPENDING/CONSUMPTION	<u>\$6.8</u>	<u>\$1.7</u>	<u>\$8.5</u>
TOTAL ECONOMIC ACTIVITY	\$26.0	\$9.3	\$35.3
LOCAL PURCHASES (\$ MILLIONS)	\$5.5	\$2.0	\$7.5
STATE AND LOCAL TAXES (\$ MILLIONS)	\$1.1	\$0.2	\$1.3
FEDERAL GOVERNMENT AVIATION- SPECIFIC TAXES (\$ MILLIONS)	\$0.5	N/A	\$0.5

Totals may not add due to rounding

2. EMPLOYMENT IMPACTS

Activity at John C. Tune Airport supported 327 direct, induced and indirect jobs in the Nashville metropolitan area.

Airport-Generated Employment Impacts

In calendar year 2018, airport activity at John C. Tune Airport generated 94 **direct jobs**. These jobs include jobs at the flight training schools, FBO, Airport Administration and the hangar rental company located at John C. Tune Airport.

Because of the local purchases by the 94 directly employed, an additional 56 **induced jobs** were supported in the local economy. As the result of \$5.5 million of local purchases by the airport-dependent firms, an additional 51 **indirect jobs** were supported, for a total airport-generated impact of 201 direct, induced and indirect jobs.

Visitor Industry Employment Impacts

In calendar year 2018, of the 85,000 annual operations at John C. Tune Airport, it is estimated that approximately 40,000 passengers passed through the airport and about 18,000 were visitors to the Nashville metropolitan area.

The 18,000 visitors spent \$7.6 million in the Nashville visitor industry in 2018 for food, lodging, entertainment services, retail purchases, and transportation services. These \$7.6 million of visitor industry purchases supported 62 **direct jobs** in the Nashville visitor industry.

As the result of local purchases by these 62 employees of the Nashville visitor industry, an additional 23 **induced jobs** were supported in the local economy. Furthermore, as the result of \$2.0 million of local purchases by the firms dependent upon the Nashville visitor industry, an additional 41 **indirect jobs** were supported, for a total visitor industry impact of 126 direct, induced and indirect jobs.

3. BUSINESS REVENUE IMPACTS

General aviation activity at John C. Tune Airport generated \$26.9 million of business revenue to firms providing services at the airport and to local visitor industry firms.

Airport-Generated Business Revenue Impacts

The general aviation activity at John C. Tune Airport created \$19.2 million of business revenue to firms supplying passenger and training services at the airport.

Visitor Industry Revenue Impacts

In calendar year 2018, the local visitor industry received \$7.6 million in revenue from the 18,000 visitors using the John C. Tune Airport.

4. PERSONAL INCOME IMPACTS

A total of \$19.2 million of personal income was generated as the result of general aviation activity at John C. Tune Airport, including the re-spending impact, indirect income impact, and visitor industry.

Airport-Generated Income Impacts

In calendar year 2018, the 94 direct employees earned \$5.2 million of personal income from general aviation activity. This represents an average salary of \$55,596. In contrast, the average salary for the Nashville metropolitan area is \$48,370.⁷ Based on data from the U.S. Department of Commerce, Bureau of Economic Analysis, it is estimated that an additional \$6.8 million of personal income and local consumption expenditures were generated.

In addition, the 51 indirect job holders received \$2.6 million of indirect wages and salaries. Combining the direct, induced/consumption and indirect income impact, the total local income and local consumption impact of the general aviation activity at John C. Tune is estimated at \$14.6 million in 2018.

Visitor Industry Income Impacts

The 62 directly generated jobs in the Nashville visitor industry received personal income totaling \$1.7 million. As a result of re-spending of this income, an additional \$1.7 million of income and consumption expenditures were generated. Furthermore, the 41 indirect job holders supported by the \$2.0 million of local purchases by Nashville visitor industry firms dependent upon the visitors using John C. Tune Airport received about \$1.3 million of indirect wages and salaries. Combining the direct, induced/consumption, and indirect income impact, the total local income and local consumption impact of the visitor industry at John C. Tune Airport is estimated at \$4.6 million in 2018.

5. TAX IMPACTS

General aviation activity at John C. Tune Airport, including visitor industry impacts, generated \$1.3 million of state, county, and municipal taxes and \$0.5 million of Federal aviation-specific taxes from charter passengers.

⁷ Bureau of Labor Statistics “Occupational Employment Statistics”, May, 2018.

Airport-Generated Tax Impacts

Direct airport activity generated approximately \$1.1 million of state, county, and municipal taxes in calendar year 2018.

As a result of passenger activity on charter flights, \$0.5 million of Federal aviation-specific taxes are generated.

Visitor Industry Tax Impacts

As the result of the 18,000 visitors to the Nashville metropolitan area, \$0.2 million of state, county, and municipal taxes were generated.

Chapter 8

Comparison of Economic Impacts

The purpose of this chapter is to provide a comparison of the results of this current economic impact assessment of Nashville International and John C. Tune Airports with the previous study. The last comprehensive economic impact study of the airports operated and managed by the Metropolitan Nashville Airport Authority (MNA) was completed in 2012 by Martin Associates. The same methodologies were used to estimate the 2012 and 2018 impacts generated by airport activity of both airports. Therefore, direct comparisons between the results of these studies can be made.

1. COMPARISON OF OPERATIONAL FACTORS AT BNA

Between 2012 and 2018, total passengers using Nashville International Airport increased from 9.6 million passengers in 2012 to 16 million passengers in 2018. Total air cargo increased from 45,000 tons in 2012 to 52,000 tons in 2018. **Table 8-1** summarizes the change in passenger and air cargo activity at Nashville International Airport between 2012 and 2018.

Table 8-1
Comparison of Passenger and Air Cargo Activity

	2018	2012	2012-2018 CHANGE
TOTAL PASSENGERS	15,996,194	9,602,169	6,394,025
TOTAL CARGO (TONS) <i>Freight and Mail</i>	52,697	44,999	7,698

As a result of the significant increase in passengers and air cargo since 2012, the total economic activity as well as the related user impacts increased over the period. **Table 8-2** identifies the change in total economic activity (direct business revenue and re-spending/consumption) between 2012 and 2018, shown as an increase of \$3.6 billion.

Table 8-2
Comparison of Total Economic Activity

IMPACTS	2018	2012	2012-2018 CHANGE
ECONOMIC ACTIVITY (\$ MILLIONS)			
BUSINESS REVENUE	\$5,948.8	\$2,978.4	\$2,970.4
RE-SPENDING/CONSUMPTION	<u>\$1,134.1</u>	<u>\$543.3</u>	<u>\$590.8</u>
TOTAL ECONOMIC ACTIVITY	\$7,082.8	\$3,521.7	\$3,561.1

Table 8-3 identifies the change in the related user impacts at Nashville International Airport since 2012. The increase in the related user impacts reflects the increase of air freight (air mail is not calculated in the related user impacts) being handled at the airport. Related user jobs grew by more than 15,700 jobs, personal income increased by \$1.5 billion, economic activity increased by \$5.7 billion and taxes grew by \$105 million.

Table 8-3
Comparison of Related User Impacts

RELATED USER IMPACTS	2018	2012	2012-2018 CHANGE
JOBS	49,082	33,369	15,713
PERSONAL INCOME (\$ MILLIONS)	\$2,513.7	\$1,018.4	\$1,495.3
ECONOMIC ACTIVITY (\$ MILLIONS)	\$10,461.7	\$4,768.5	\$5,693.2
TAXES (\$ MILLIONS)	\$183.5	\$78.4	\$105.1

2. COMPARISON OF AIRPORT-SITE GENERATED JOBS AT BNA

Airport-site generated impacts at the Nashville International Airport are described in this section. **Table 8-4** compares the impacts between 2012 and 2018. The increase in passenger and air cargo activity over this period created an additional 2,650 direct airport-generated jobs at Nashville International Airport, reflecting an increase in several economic sectors.

Direct wage and salary income increased by \$110.5 million since 2012, reflecting the growth in direct jobs, particularly with the construction and consulting firms (as a result of BNA Vision), the ground transportation firms (the increased use of Uber and Lyft), food/beverage and retail concessions, and the fixed base operators/aircraft maintenance companies. The re-spending impact and local consumption impact grew by \$216.2 million over the period reflecting an increase in the local income multiplier as estimated by the Bureau of Economic Analysis (from 1.9712 in 2012 to 2.3015 in 2018).

This, in turn, resulted in an increase in airport-generated induced jobs of 1,482 jobs. The increase in the income multiplier reflects a smaller leakage of consumption expenditures from the metropolitan area over the period. The local purchases increased by \$115.1 million over the period, reflecting an increase of 1,049 indirect jobs.

Business revenue increased from \$1.8 billion in 2012 to \$3.1 billion in 2018, primarily reflecting the significant growth in passenger and air cargo activity, as well as the construction and consulting expenditures spent in the local economy as a result of BNA Vision.

State and local taxes increased by \$26.9 million, reflecting the increase in personal income and the overall total jobs since 2012. In addition, Federal aviation-specific tax revenues increased by \$102.9 million due to the increased passenger activity, an increase in air cargo handled at Nashville International Airport as well as higher tax rate structures.

*Table 8-4
Comparison of Airport-Site Generated Impacts (BNA)
2012-2018*

IMPACTS	2018	2012	CHANGE 2018-2012	% Increase 2018-2012
JOBS				
DIRECT	7,601	4,952	2,650	53.5%
INDUCED	3,993	2,511	1,482	59.0%
INDIRECT	<u>3,102</u>	<u>2,054</u>	<u>1,049</u>	<u>51.1%</u>
TOTAL JOBS	14,696	9,516	5,180	54.4%
PERSONAL INCOME (\$ MILLIONS)				
DIRECT	\$329.7	\$219.2	\$110.5	50.4%
RE-SPENDING/CONSUMPTION	\$429.1	\$212.8	\$216.2	101.6%
INDIRECT	<u>\$148.1</u>	<u>\$78.8</u>	<u>\$69.3</u>	<u>87.9%</u>
TOTAL INCOME	\$906.9	\$510.8	\$396.0	77.5%
BUSINESS REVENUE (\$ MILLIONS)	\$3,066.9	\$1,763.5	\$1,303.4	73.9%
ECONOMIC ACTIVITY (\$ MILLIONS)				
BUSINESS REVENUE	\$3,066.9	\$1,763.5	\$1,303.4	73.9%
RE-SPENDING/CONSUMPTION	<u>\$429.1</u>	<u>\$212.8</u>	<u>\$216.2</u>	<u>101.6%</u>
TOTAL ECONOMIC ACTIVITY	\$3,496.0	\$1,976.4	\$1,519.6	76.9%
LOCAL PURCHASES (\$ MILLIONS)	\$329.7	\$214.6	\$115.1	53.6%
STATE AND LOCAL TAXES (\$ MILLIONS)	\$66.2	\$39.3	\$26.9	68.3%
FEDERAL GOVERNMENT AVIATION-SPECIFIC TAXES (\$ MILLIONS)	\$223.9	\$121.0	\$102.9	85.1%

Totals may not add due to rounding

3. COMPARISON OF DIRECT JOBS AT BNA

Table 8-5 compares the direct employment in 2012 and 2018, by detailed job category. As a result of an increase of 6.4 million passengers and approximately 7,700 tons of air cargo, direct jobs significantly increased since 2012. Total direct jobs increased by 2,650 direct jobs over the period. The airline/airport sector increased by 1,058 direct jobs, primarily the result of an increase in fixed-base operators and aircraft maintenance personnel, retail and food/beverage concessions and commercial airline employees. Jobs in the passenger ground transportation sector increased by approximately 740 jobs, as a result of the increase in passengers using available ridesharing transportation services such as Uber and Lyft. In addition, the significant increase of nearly 800 jobs in the construction and consulting sector reflects the large increase in capital and consulting expenditures spent by the Metropolitan Nashville Airport Authority for BNA Vision from \$15.4 million in 2012 to \$194.6 million in 2018.

*Table 8-5
Comparison of Direct Job Impacts, 2012-2018*

IMPACT CATEGORY	2018	2012	CHANGE 2012-2018
AIRLINE/AIRPORT SECTOR			
PASSENGER AIRLINES	799	626	173
CATERING (NON-AIRLINE-OWNED)	37	5	32
FEDERAL GOVERNMENT	474	480	(6)
METROPOLITAN NASHVILLE AIRPORT AUTHORITY	289	264	25
RETAIL/FOOD & BEVERAGE CONCESSIONS	613	374	239
FIXED BASE OPERATORS/AIRCRAFT MAINTENANCE	1,514	1,021	493
CLEANING SERVICES	163	95	68
SECURITY/SKYCAPS	42	53	(11)
GENERAL AVIATION/CORPORATE	102	96	6
MUSICIANS	23	11	12
MILITARY	586	586	0
PARKING	<u>171</u>	<u>144</u>	<u>27</u>
SUBTOTAL	4,813	3,755	1,058
AIR CARGO TRANSPORTATION SECTOR			
FREIGHT AIRLINES & COURIERS	303	247	56
FREIGHT FORWARDERS	<u>55</u>	<u>58</u>	<u>(3)</u>
SUBTOTAL	358	305	53
PASSENGER GROUND TRANSPORTATION SECTOR			
RENTAL CARS	340	433	(93)
TAXIS (INCLUDES UBER/LYFT)	1,090	338	752
LIMOS/BUS/VANS	<u>138</u>	<u>58</u>	<u>80</u>
SUBTOTAL	1,569	829	740
CONSTRUCTION AND CONSULTING SECTOR			
	862	63	799
TOTAL	7,601	4,952	2,649

Totals may not add due to rounding

4. COMPARISON OF VISITOR INDUSTRY IMPACTS AT BNA

Reflecting the large growth in total passengers at Nashville International Airport between 2012 and 2018, the number of out-of-town visitors increased from 2.9 million in 2012 to 4.4 million visitors in 2018. It is the passenger profiles and spending patterns of these visitors in the Nashville area that creates the visitor industry impacts at Nashville International Airport. The comparison of visitor industry impacts between 2012 and 2018 is described in **Table 8-6**.

*Table 8-6
Comparison of Visitor Industry Impacts, 2012-2018*

IMPACTS	2018	2012	CHANGE 2018-2012	% Increase 2018-2012
JOBS				
DIRECT	26,038	15,038	11,000	73.15%
INDUCED	9,614	5,857	3,758	64.16%
INDIRECT	<u>17,083</u>	<u>7,310</u>	<u>9,773</u>	<u>133.69%</u>
TOTAL JOBS	52,736	28,205	24,530	86.97%
PERSONAL INCOME (\$ MILLIONS)				
DIRECT	\$687.6	\$325.5	\$362.0	111.22%
RE-SPENDING/CONSUMPTION	\$705.0	\$330.5	\$374.5	113.34%
INDIRECT	<u>\$528.5</u>	<u>\$197.0</u>	<u>\$331.4</u>	<u>168.19%</u>
TOTAL INCOME	\$1,921.1	\$853.0	\$1,068.0	125.20%
BUSINESS REVENUE (\$ MILLIONS)	\$2,881.9	\$1,214.8	\$1,667.0	137.22%
ECONOMIC ACTIVITY (\$ MILLIONS)				
BUSINESS REVENUE	\$2,881.9	\$1,214.8	\$1,667.0	137.22%
RE-SPENDING/CONSUMPTION	<u>\$705.0</u>	<u>\$330.5</u>	<u>\$374.5</u>	<u>113.34%</u>
TOTAL ECONOMIC ACTIVITY	\$3,586.9	\$1,545.3	\$2,041.6	132.11%
LOCAL PURCHASES (\$ MILLIONS)	\$858.5	\$314.9	\$543.7	172.66%
STATE AND LOCAL TAXES (\$ MILLIONS)	\$101.7	\$50.5	\$51.1	101.26%

Totals may not add due to rounding

As this table shows, direct visitor industry jobs created by the Nashville International Airport passenger activity increased by 11,000 direct jobs, induced jobs grew by 3,758 jobs. In addition, indirect jobs increased by 9,773 jobs as a result of the local purchases increasing by \$543.7 million since 2012.

As a result of the increase in direct visitor industry jobs in the Nashville area since 2012, personal income increased by \$362.0 million and business revenue in the Nashville visitor industry increased from \$1.2 billion in 2012 to \$2.9 billion in 2018. Furthermore, state and local taxes grew by \$51.1 million over the period.

The composition of visitors to the Nashville area has slightly changed since 2012, as the share of air visitors that are domestic pleasure travelers increased to 45.8% in 2018, thus the share of domestic business travelers decreased to 54.2% in 2018. Domestic business travelers tend to spend more per trip than do domestic pleasure travelers, but domestic pleasure travelers tend to stay longer. The composition of international visitors to the Nashville area primarily stayed similar to trip purpose in 2012. International pleasure travelers, who tend to stay longer than the international business travelers but spend less than the international business travelers, who tend to spend the most in daily expenditures, averaging \$242 per day. The pleasure travelers, both domestic and international, decreased the average length of time they spent in the Nashville area but spent more money during their trip in the Nashville area, creating the increase in the direct visitor industry jobs as well as the business revenue since 2012. As shown in **Table 8-7**, the domestic business travelers spent an average of \$217 per day in Nashville in 2018 and stayed an average of 4.0 days, while the domestic pleasure travelers spent \$136 per day and stayed an average of 5.1 days in the Nashville area. In addition, the international pleasure travelers, who spent \$156 per day in 2018 and stayed an average of 8.1 days and the international business travelers are spending \$242 per day and staying an average of 6.3 days in the Nashville area in 2018.

*Table 8-7
Comparison of Nashville Visitor Profiles and Spending Patterns*

TRIP PURPOSE	SHARE OF PASSENGERS		LENGTH OF STAY (DAYS)		EXPENDITURES PER DAY	
	2018	2012	2018	2012	2018	2012
DOMESTIC:						
Domestic Business	54.23%	62.62%	4.0	3.5	\$217	\$170
Domestic Pleasure	45.77%	37.38%	5.1	6.9	\$136	\$53
INTERNATIONAL:						
International Business	48.21%	45.83%	6.3	3.8	\$242	\$226
International Pleasure	51.79%	54.17%	8.1	10.9	\$156	\$101

5. COMPARISON OF IMPACTS AT JOHN C. TUNE AIRPORT

Operations at John C. Tune Airport increased from 73,000 operations in 2012 to 85,000 operations in 2018. **Table 8-8** summarizes the comparison of impacts at John C. Tune Airport from 2012 to 2018.

Table 8-8
Comparison of Impacts at John C. Tune Airport, 2012-2018

IMPACTS	TOTAL IMPACTS 2018	TOTAL IMPACTS 2012	CHANGE 2018-2012	% Increase 2018-2012
JOBS				
DIRECT	156	107	49	45.97%
INDUCED	79	51	28	54.59%
INDIRECT	<u>92</u>	<u>42</u>	<u>50</u>	<u>119.38%</u>
TOTAL JOBS	327	200	127	63.60%
PERSONAL INCOME (\$ MILLIONS)				
DIRECT	\$6.9	\$4.1	\$2.7	66.63%
RE-SPENDING/CONSUMPTION	\$8.5	\$4.1	\$4.4	109.48%
INDIRECT	<u>\$3.8</u>	<u>\$1.5</u>	<u>\$2.3</u>	<u>149.01%</u>
TOTAL INCOME	\$19.2	\$9.7	\$9.5	97.53%
BUSINESS REVENUE (\$ MILLIONS)	\$26.9	\$17.7	\$9.1	51.34%
ECONOMIC ACTIVITY (\$ MILLIONS)				
BUSINESS REVENUE	\$26.9	\$17.7	\$9.1	51.34%
RE-SPENDING/CONSUMPTION	<u>\$8.5</u>	<u>\$4.1</u>	<u>\$4.4</u>	<u>109.48%</u>
TOTAL ECONOMIC ACTIVITY	\$35.3	\$21.8	\$13.5	62.14%
LOCAL PURCHASES (\$ MILLIONS)	\$7.5	\$3.2	\$4.4	138.17%
STATE AND LOCAL TAXES (\$ MILLIONS)	\$1.3	\$0.7	\$0.6	84.98%
FEDERAL GOVERNMENT AVIATION-SPECIFIC TAXES (\$ MILLIONS)	\$0.5	\$0.4	\$0.1	23.68%

Totals may not add due to rounding

NOTES: Photo Credit – Metropolitan Nashville Airport Authority