



The Economic Role of Nashville International Airport

**Prepared for
Metropolitan Nashville Airport Authority
Nashville-Davidson County**

**Prepared by
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Forward

For more than 64 years, Nashville International Airport has been providing reliable and efficient air transportation services to the Nashville Metro Region. During those years, the airport has grown from a small, domestic service-only facility of 340 acres into a dynamic international airport situated on 4,600 acres.

Just how extensive the impact is, how many lives and jobs are touched by this thriving center of air commerce is the subject of this Economic Impact Study.

This is a report about one year in the life of Nashville International Airport, 1999 a year chosen as much for its symbolism as anything else as the world began moving into a year era starting with 2000. The raw numbers most probably would be different if the study looked at 1998 or reviewed impacts as of this year, 2001, but not the overriding conclusion.

Nashville International Airport has become a vigorous economic engine, the impact of which is felt far beyond metropolitan Nashville, extending throughout large portions of Tennessee and into Southern Kentucky and Northern Alabama. Countless families and individuals and businesses rely on it for business and leisure travel, for economic sustenance.

As the gateway to Nashville and its metro region, Nashville International Airport is as much a part of the fabric of the Nashville community as any of the other famous landmarks and cultural institutions that have put the city and its environs on the map.

This study shows why.

Purpose

Nashville International Airport is a vigorous economic engine for the 79 counties it serves within a 100-mile radius. In 1999, more than eight and one-half million travelers passed through the airport that is conveniently located in proximity to three interstate highways that provide easy access for both travelers and shippers. Nashville is a hub of activity for business and leisure travelers who benefit daily from more than 400 departing and arriving flights.

Airport-related activity provides many tangible economic benefits to Nashville and its environs, as travelers purchase goods and services at the airport, in the city and throughout the entire metro region. BNA, as the airport is known by its code assigned by the Federal Aviation Administration, also supports nearly 4,500 airport-related workers who pay taxes on their wages and spend their earnings in the Nashville Metro Region.

BNA also produces many intangible benefits. Among these are cultural exchanges as Tennesseans from the area travel to locations around the United States and the world and visitors travel to the Nashville region.

Nashville International Airport is situated in Nashville-Davidson County, an area of 533 square miles and a population of more than a half million. The Metropolitan Nashville Airport Authority (the MNAA), the agency responsible for the airport's operations, was created by the Nashville-Davidson County Government as a separate public corporation in 1970. The MNAA is a self-supporting, self-financing public agency responsible for all planning, construction and operations at both Nashville International Airport and John C. Tune Airport, a general aviation facility one mile northwest of the city. A primary responsibility of the MNAA is to assure that these airports promote and encourage development of commerce and industry through air transportation.

This report quantifies and describes the impact that Nashville International Airport has on the economy of the Nashville region and the surrounding metro areas. The study also assesses the future importance of continued development of Nashville International Airport and its customer base to benefit the businesses, individuals and continued economic development of Nashville and Middle Tennessee region.



Executive Summary

The economic impact of Nashville International Airport on the Nashville region is substantial, generating in 1999 in Nashville-Davidson County alone more than 56,611 jobs, \$1.3 billion in wages and \$3.6 billion in sales. The airport's capital spending for 1999 created 273 jobs, wages of \$7.9 million and sales amounting to \$32 million.

While substantial, these estimates of economic contribution are conservative. They do not, for example, include intangibles that are hard to quantify, such as the airport's reputation in the industry as a well-operated, low-cost facility with existing terminal and gate space sufficient for immediate growth. In today's airport environment, immediate airport capacity is hard to find. Even harder to find is a well-run, low-cost airport that can boast minimum delays.

These characteristics are immensely important to corporations deciding where to locate or expand their current operations. The fact that Nashville's airport continues to have space for immediate growth is a valuable selling point for the City of Nashville in its economic development efforts.

The Economic Impact of Nashville International Airport on Nashville and Middle Tennessee:

Over 56,000 Jobs

\$1.3 Billion in Wages

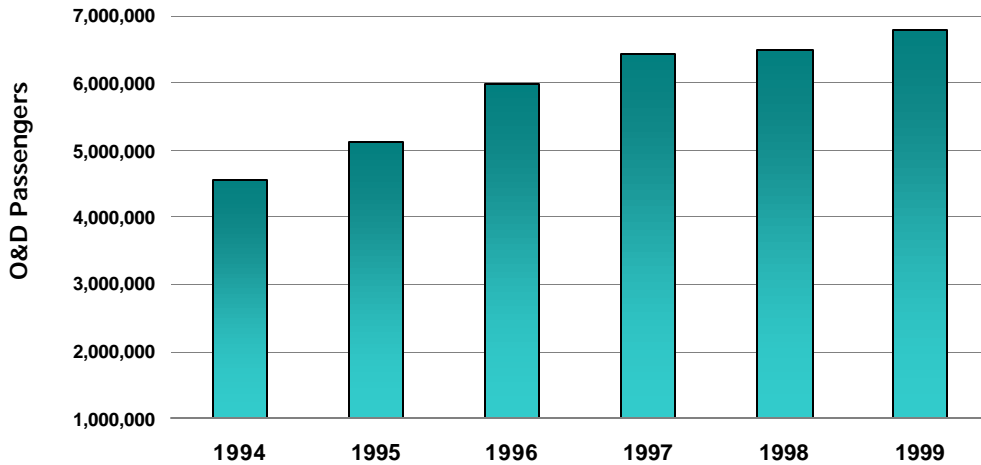
\$3.6 Billion in Sales

The collage features several images: a group of business professionals in a meeting, a close-up of US dollar bills, a person's hands typing on a computer keyboard, silhouettes of construction workers on a building site, a person pointing at a line graph, and a firm handshake.

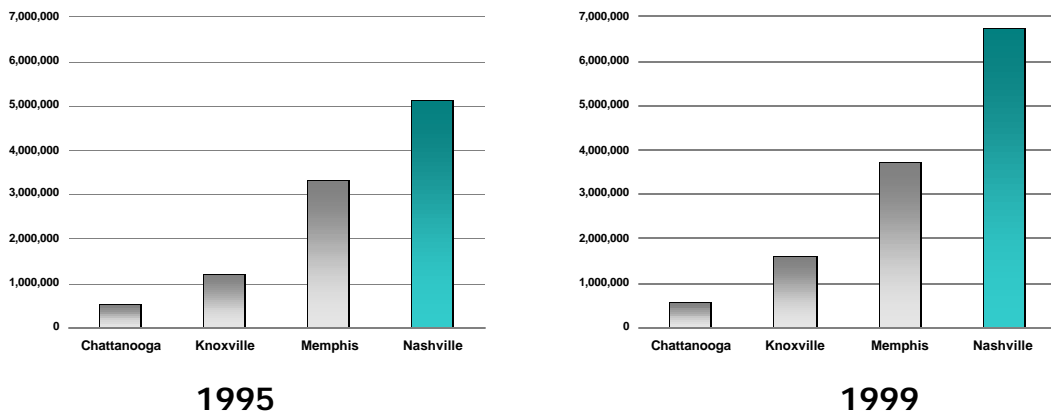
The airport's growth is a direct result of the fact that it is owned and operated by the Metropolitan Nashville Airport Authority. As a self-supporting public corporation that receives no tax dollars from local, county or state governments for its operating budget, the authority must itself generate the revenues necessary to finance its activities. The best way to do that is to make certain BNA is run efficiently and effectively and is thereby able to keep and attract new service.

Passenger traffic at Nashville has grown steadily and significantly in the years since American Airlines closed its Nashville hub. From 1994 to 1999, origin and destination traffic at Nashville increased from 4.6 million passengers to 6.8 million -- a 48.6% improvement that has exceeded growth at Tennessee's other three major commercial airports (Memphis, Knoxville and Chattanooga) combined. This achievement not only demonstrates the importance of Nashville's airport to the entire State of Tennessee but also is evidence of the ability of the MNAA to provide sound management for the operation of the facility.

**O&D Passengers at Nashville International Airport
1994 - 1999**



**O&D Passenger Growth -- Tennessee's Major Airports
1995 - 1999**



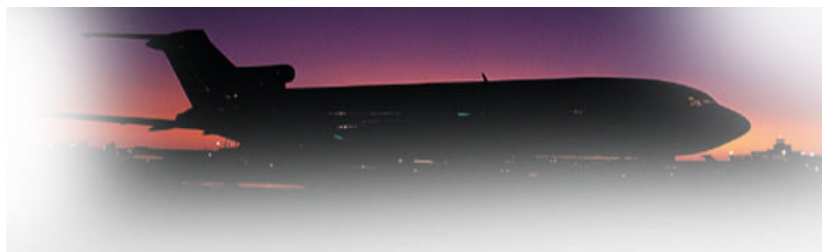
In addition to providing its customers, airline passengers, with numerous destinations to fly to and from, the airport boasts some of the lowest fares in the United States, and certainly the lowest in the region and the surrounding metro areas. In 1999, fares to and from Nashville in 12 of the airport's top 15 markets, were lower than both the regional average and national average fares.

Fare Sensitivity Analysis of Nashville's Top 15 O&D Markets, CY 1999

Rank	Market	Itinerary Miles	BNA Yield	Regional Avg. Yield	BNA vs. Regional Avg.	National Avg. Yield	BNA vs. National Avg.
1	Baltimore	605	12.6	22.1	-43.1%	21.0	-40.1%
2	Detroit	463	21.0	29.8	-29.4%	26.0	-19.3%
3	Orlando	625	13.9	22.1	-36.9%	21.0	-33.7%
4	Chicago, Midway	398	17.8	38.6	-53.8%	27.9	-36.1%
5	Los Angeles	1,850	8.4	11.3	-25.5%	10.8	-22.0%
6	Chicago, O'Hare	420	21.7	29.8	-27.1%	26.0	-16.6%
7	Cleveland	460	13.9	29.8	-53.3%	26.0	-46.6%
8	Tampa	635	15.2	22.1	-31.5%	21.0	-27.9%
9	Dallas/Fort Worth	657	30.7	22.1	39.0%	21.0	46.2%
10	New Orleans	491	12.7	29.8	-57.4%	26.0	-51.3%
11	Atlanta	215	97.4	43.5	123.9%	39.7	145.4%
12	Kansas City	517	11.6	25.0	-53.7%	24.2	-52.2%
13	Las Vegas	1,666	8.3	11.4	-26.9%	11.2	-25.7%
14	New York, LaGuardia	807	27.6	19.2	43.2%	17.6	56.8%
15	Ft. Lauderdale	806	13.3	19.2	-30.7%	17.6	-24.1%

Source: Metropolitan Nashville Airport Authority Air Service Deficiency Study
prepared by GKM Consulting Services, Inc., December 2000

Even today, the characteristic of low fares combined with an excellent level of air service continues, making Nashville an incredibly attractive destination for companies seeking to relocate or expand. These attributes are a powerful selling point for Nashville's economic development efforts.



Methodology

The IMPLAN computer model was used to assess the role and impact of Nashville International Airport as an economic driver in Nashville-Davidson County and the Middle Tennessee region. The IMPLAN computer model generates the economic contributions of U.S. metropolitan areas using multipliers widely accepted throughout the United States. Use of the IMPLAN computer model was necessary because both BNA and the surrounding economy are complex, interrelated organisms.

Indeed, BNA is a multi-faceted facility that brings together dozens of varied functions and airport users. Day-to-day activities at the airport generate business revenues to companies that provide air passenger, air cargo and various support services to both airlines and the airport itself. These companies, in turn, provide jobs and paychecks to individuals who then pay taxes to the State of Tennessee and local cities. The results of this analysis are summarized in terms of numbers of jobs created, income earned and sales revenues.

Analytical Steps

This analysis involved three elements: (1) a review of published data on Nashville and BNA; (2) a survey to collect primary data; and (3) application of a regional economic model.

Published Data on Nashville and BNA. The project team analyzed data on airport statistics from the FAA and the MNAA. The MNAA made available a 1993 study of BNA's economic impact on Nashville and the 1998 Visitor Intercept Survey from the "Music City USA" study done on behalf of the Nashville Chamber of Commerce. U.S. Bureau of Economic Analysis data on labor statistics for Davidson County also was used.

Survey Data Collection. The project team designed and the MNAA conducted interviews and surveys to obtain a profile that was as comprehensive as possible of the current level of airport activities, the participants, and the nature of existing BNA economic links with area businesses. Four different surveys were designed and administered. They were targeted to: (1) airport management, (2) airport travelers, (3) airport tenant businesses, and (4) airport-reliant businesses.

- **Airport Management.** The airport management provided information on key operating statistics, Fixed Base Operators ("FBOs"), airport vendors, and commercial operations at BNA.
- **Airport Travelers.** Air traveler surveys were distributed to 300 outbound passengers using commercial airline services, as well as air taxi and charter services at the airport. Data from 288 survey responses was collected and combined with information from previous Nashville studies to identify the mix of trip purposes, origin, frequency, duration, spending and dependence on BNA.

- **Airport Tenant Businesses.** A survey of airport staff, airline staff, FBOs and other tenants and commercial vendors was conducted. Data on employment and cargo or passenger sector served was the most available information either from the survey, a follow-up phone call, or the "Flight Lines" newsletter. Information on sales volumes, payroll, and state and local taxes paid was provided sporadically.
- **Airport-Reliant Businesses.** A survey was distributed to 23 other nearby businesses for which the airport plays a vital role. The survey elicited data on the degree of dependence on BNA, sales related to the airport, employment data and payroll information. Six responses were received and included in this category.

Regional Economic Model. The project team used the IMPLAN model to calculate the multiplier impacts to develop the regional economic model. The IMPLAN model is a regional economic analysis framework developed specifically on data for Davidson County and Tennessee. The analysis included the effects of on-going airport activity (e.g., aviation services, and commercial airlines) and the effects of those reliant upon the airport -- namely, visitors to the region or area businesses -- as well as an analysis of the capital improvement budget for 1999.

The survey information on jobs associated with the various airport activities was then combined with multiplier factors for jobs, wages and sales for Nashville-Davidson County to identify the subsequent ripple effect for each of these indicators. The IMPLAN multiplier factors are based on 1997 U.S. and region-specific data. The analysis also uses information collected from the surveys that provides qualitative insight into how important the airport is to certain businesses.

Figure 1 provides an organizational representation of how this analysis segments BNA's role in the region's economy.

**FIGURE 1:
Categories of Economic Impacts**

Airport Operations Spending

- Airport Management and Operations Staff
- FAA -- Control Tower
- Air Terminal Vendors
- Commercial Aircraft Services (maintenance, fueling, catering)
- Fixed Base Operators (air charter, flight training, repair)
- Commercial Airlines

Airport Capital Spending

Air Traveler Spending

- Hotels
- Meals
- Retail Purchases
- Entertainment and Recreation

Multiplier Effects

- Suppliers of products and services to airport
- Suppliers of products and services to airport visitors
- Respending of income by employees of the airport, airport-related businesses and suppliers

These categories are defined as follows:

- **Direct Impacts of Airport.** These are impacts that are directly related to airport operations, such as one-time capital outlays, passenger services and air cargo services measured by the numbers of employees or gross sales at BNA. The team assembled the collected data, analyzed it and corrected for both double counting and under-counting in order to calculate the total amount of employment and business activity directly attributable to BNA.
- **Direct Impacts of Airport Users.** These are measurements of the economic activity of visitors who would not be in Nashville but for the presence of BNA. Included also is the economic activity of off-airport businesses that rely on BNA for a portion of their business operations. The direct activity of the air traveler to Nashville (business or leisure) is his or her spending on hotels, restaurants and other items. The direct impact also reflects a portion of sales by airport reliant businesses that derive from BNA's presence.
- **Multiplier Impact.** The multiplier considers the effect of two additional airport related activities on the region's economy. The first activity is the economic activity of local suppliers of goods and services to the airport and to area businesses that host air visitors (hotels, restaurants, entertainment establishments). The second factor is the respending of airport-generated payroll and the payroll of businesses serving air visitors to Nashville. These workers spend a significant portion of their income throughout the local economy. The IMPLAN input-output model was used to identify the extent of these effects.

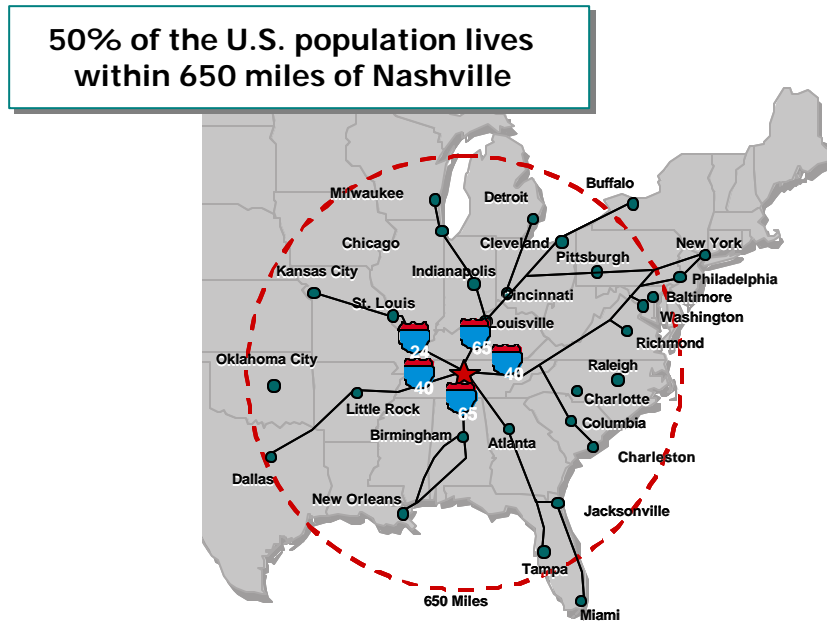


Current Position of MNA

Overview

Nashville International Airport is the gateway to Nashville, Tennessee, and the Middle Tennessee region. The Airport is located within 500 miles of 24 states and 650 miles of half the U.S. population.

**FIGURE 2:
BNA's Location**



Passengers and other visitors to Nashville International are greeted by brightly-lit terminals, and are treated to art displays and on Friday afternoons, live musical performances. The airport supports commerce, culture, business and trade -- in addition to handling more than 400 airline flights per day. BNA facilitates diverse commercial and business transactions, provides access to markets, conveys visitor and other information and -- importantly -- is the gateway for visitors and business people into the area.

There is little question that BNA makes a valuable contribution to the quality of life in Nashville and surrounding areas. In addition to handling 8.5 million passengers in 1999, generating \$47 million in revenues, Nashville was and continues to be committed to community outreach and cultural enrichment for the residents of Middle Tennessee, southern Kentucky and northern Alabama. The airport stimulates the economy, provides personal access to a first-rate airport, and arranges cultural opportunities. Nashville International Airport links a diverse region with businesses, tourists and travelers from around the world.

The Metropolitan Nashville Airport Authority

In 1969, the Tennessee General Assembly passed legislation authorizing a new airport authority to replace the city-run Nashville Aviation Department. The following year, the Metropolitan Government of Nashville-Davidson County approved the formation of the Metropolitan Nashville Airport Authority as a self-supporting public corporation to manage, own and operate the airport. The MNAA completed a Master Plan for long-term growth in 1973 and updated this plan in 1980. Over the years, runways and terminal space have been added to meet accelerating passenger demand. The most recent runway and terminal expansion was in the early 1990s when infrastructure was added to accommodate a hub for American Airlines.

1995 - 2000

American Airlines began phasing out its Nashville hub in 1995 as part of a major consolidation by the airline. American's actions created a severe shortage of air service into and out of Nashville, a deficiency that was short-lived as the MNAA began a vigorous and aggressive campaign to promote Nashville to airlines and attract new air services. The program was extraordinarily successful. Other airlines took up most of the slack, and, overall, passengers benefited from lower fares to most destinations. Ultimately, Nashville was left with only one less nonstop destination: Boston. American finally restored service to Boston in March 2000.

The conversion of Nashville from a hub of American Airlines to an air service point for many U.S. airlines has had four benefits for the airport. First, it resulted in a diversified air service mix at BNA, reducing the risk to Nashville of another air service downturn.

Second, the dissolution of the American hub made it easier for Nashville to attract new service. During the time it was an American hub, Nashville found it difficult to attract new airlines or encourage airlines already providing service at Nashville to expand their operations. Since losing its hub status, Nashville has been able to persuade many airlines to provide new service or to expand existing service with new destinations and frequencies. By the end of 1999, 17 airlines were serving Nashville, including Southwest Airlines (by June 2001, when this report was completed, another two airlines had agreed to serve Nashville, bringing the total number of airlines to 19).

Third, Nashville has been able to convince Southwest to designate Nashville a Southwest "Focus City". Southwest had a small presence at Nashville during American's hub days, but expanded greatly after American closed the hub. As a result, Nashville now enjoys low fares to significantly more destinations at a time when other cities of similar size are complaining of high fares. An Air Service Deficiency Study (Table 1) of service at Nashville, found that 12 of Nashville's top 15 markets had fares that were less than both the national and regional averages for routes of similar distances. This is an impressive achievement, and one that should be of great use and advantage to Nashville's economic development activities.

**TABLE 1:
Fare Sensitivity Analysis of Nashville's Top 15 O&D Markets, CY 1999**

Rank	Market	Itinerary Miles	BNA Yield	Regional Yield	BNA vs. Regional Avg.	National Avg. Yield	BNA vs. National Avg.
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7	Cleveland	460	13.9	29.8	-53.3%	26.0	-46.6%
8	Tampa	635	15.2	22.1	-31.5%	21.0	-27.9%
9	Dallas/Fort Worth	657	30.7	22.1	39.0%	21.0	46.2%
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14	New York, LaGuardia	807	27.6	19.2	43.2%	17.6	56.8%
15	Ft. Lauderdale	806	13.3	19.2	-30.7%	17.6	-24.1%

Source: Metropolitan Nashville Airport Authority Air Service Deficiency Study prepared by PA Consulting Services (Transportation) December 2000

Fourth, Nashville's local traffic improved. A hub operation focuses on connecting traffic over (or through) an airport to and from other cities. This traffic uses the airport facilities, but never "touches" the community as it never leaves the airport. Such was Nashville International's experience as an American hub. Traffic at the airport grew, but it was predominantly connecting traffic, not traffic to or from Nashville. After American closed its hub, the MNAA's efforts to attract other airlines resulted in airlines serving Nashville, not just operating over (or through) the airport. As a result, local traffic -- traffic between Nashville and other cities (called "origin and destination" traffic) -- grew quite impressively (Table 2).

**TABLE 2:
BNA O&D Traffic and Growth, 1992 - 1999**

1992	1993	1994	1995	1996	1997	1998	1999
4,241,150	4,298,270	4,553,600	5,121,810	5,974,540	6,401,040	6,470,120	6,765,580

The MNAA has continued to expand airport facilities over the years. The most recent expansion program began in 1998 and was completed in 2000. That program was designed to improve parking and access to the terminals. Construction focused on the short-term parking garage, the facade of the terminal, and the roadways and bridges in front of the terminal. The size of the parking garage was tripled, eight traffic lanes were added on all three levels of the terminal's roadways, and the first level of the terminal building was widened by 33 feet.

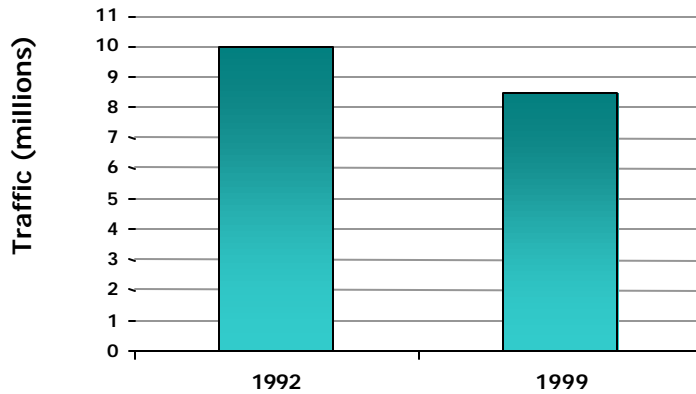
The airport expansion offers a number of new conveniences. Pedestrian bridges provide access between the arrivals and departures levels of the terminal and parking garage. A short-term loading zone for cars picking up passengers and baggage was added on the arrivals level. A valet parking service was opened on the ground transportation level.

In 1999, BNA's 17 carriers operated more than 400 daily flights from 47 gates providing nonstop or single-plane service to 87 cities in the United States, Canada and Mexico. The airport handled nearly 8.5 million passengers that year in what is now 820,000 square feet of terminal space.

As figure 3 shows, since 1992, total enplanements and deplanements are down. The statistics, however, are misleading and reflect the fact that today no passengers are simply passing through the airport on American Airlines' hub connecting flights.

**FIGURE 3:
BNA Enplanements and Deplanements
1992 vs. 1999**

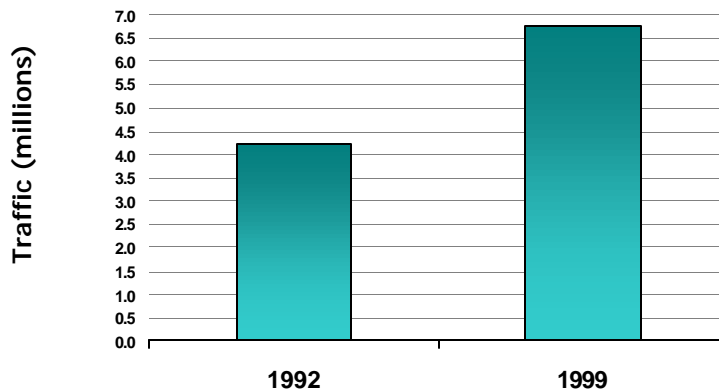
Source: U.S. DOT, T3 reports



More relevant for today's operations at BNA is the fact that origin and destination traffic -- traffic originating in Nashville or destined for Nashville -- has increased substantially, (Figure 4). This traffic provides a substantial economic boost to the region because these passengers spend money in Nashville and environs not just at the airport while changing planes.

**FIGURE 4:
BNA O&D Traffic
1992 vs. 1999**

Source: U.S. DOT Origin-Destination Survey



Current and Projected Passenger Numbers

Nashville has shown impressive traffic growth in the important "Origin and Destination" area:

TABLE 3
Nashville O&D Passengers, 1995 - 1999

	Passengers	Percentage Growth Over Previous Year
1995	5,121,810	12.5%
1996	5,974,540	16.6%
1997	6,401,040	7.1%
1998	6,470,120	1.1%
1999	6,765,580	4.6%
Average Annual Growth:		7.2%

Not only has Nashville's O&D traffic grown faster than any of the other significant airports in Tennessee, it has, in fact, exceeded the growth of all of those airports combined.

TABLE 4:
Nashville's O&D Passenger Growth vs. Other Tennessee Airports

Airport	1995	1996	1997	1998	1999	Total Increase In Passengers	Percentage Increase	
							Total	Average Annual
Nashville	5,121,810	5,974,540	6,401,040	6,470,120	6,765,580	1,643,770	32.1%	7.2%
Chattanooga	515,460	454,500	545,970	540,960	557,190	41,730	8.1%	2.0%
Knoxville	1,222,190	1,278,390	1,295,690	1,466,730	1,595,600	373,410	30.6%	6.9%
Memphis	3,327,450	3,439,780	3,530,340	3,636,200	3,715,600	388,150	11.7%	2.8%

Nashville's growth in O&D passengers has come from every major airline, except American Airlines. American's decline is, of course, the direct result of its closure of its Nashville hub. The fact that every major airline showed increases is a tribute to Nashville's well-balanced air transportation system.

**TABLE 5:
Nashville Enplaned and Deplaned Passengers by Carrier
CY 1995 - 1999**

Carrier	1995	1996	1997	1998	1999
WN	882,706	1,717,944	2,424,490	2,911,844	3,545,989
DL	724,077	1,033,677	1,195,590	1,158,792	1,138,889
AA	2,792,986	1,446,003	1,158,414	1,116,569	1,043,600
NW	556,999	620,719	717,231	648,101	744,389
US	503,197	667,118	731,586	704,014	614,076
UA	206,673	296,572	320,271	333,250	333,580
CO	86,556	329,882	343,974	262,477	277,616
TW	179,590	202,380	219,047	242,959	247,451
RU			11,879	61,945	76,346
MQ	41,645			36,767	46,080
XP	232	825	894	706	1,240
FL	53,061	52,817			804
XJ					9
8N				11,222	
9N	3,773	7,198	6,167	1,224	
EV	8,733				
J7	169,398	66,584			
LF		1,734			
TZ			70		
W7		46,591	8,745		
Total	6,109,626	6,190,044	7,138,358	7,189,870	8,070,069
Commuter Air Lines	1,030,348	1,168,726	1,176,343	1,187,793	1,184,706
Grand Total	7,139,974	7,358,770	8,314,701	8,377,663	9,254,775

Detailed breakdowns of the enplaned/deplaned passengers for Memphis, Chattanooga and Knoxville can be found in the attached Appendix.

The growth in originating O&D passengers at Nashville during the five years ending in 1999 has been larger than any other significant Tennessee airport. In fact, during that period originating O&D growth at Nashville was more than double that of the three other significant Tennessee airports combined.

**TABLE 6:
Local Outbound O&D vs. Enplanements for 1995 - 1999**

	1995		1996		1997		1998		1999	
	O&D	Enplanements	O&D	Enplanements	O&D	Enplanements	O&D	Enplanements	O&D	Enplanements
Nashville	2,563,790	3,670,902	2,982,410	3,437,855	3,199,850	3,732,690	3,236,450	3,914,305	3,384,970	4,204,107
Memphis	1,659,220	4,314,203	1,714,930	4,645,670	1,763,370	4,860,964	1,816,890	4,711,871	1,854,980	5,136,677
Chattanooga	259,060	273,208	227,290	239,037	274,950	277,553	271,650	286,956	279,900	303,337
Knoxville	613,740	671,421	639,890	705,767	650,600	713,832	738,000	803,910	800,200	877,705

In addition, Nashville's future passenger growth is not expected to slow. According to FAA forecasts, between 2000 and 2010, Nashville is expected to add more than 1.8 million new enplanements -- a growth rate of over 40%.

Table 7:
Nashville International Airport
Number of Passengers Forecast for 2000-2010
1997 FAA Terminal Area Forecast: Airport Enplanement Forecast

Year	Air Carrier	Commuter	Total
2000	3,816,348	330,759	4,147,107
2005	4,620,302	421,334	5,041,636
2010	5,424,943	525,429	5,950,372
Total Increase	1,608,595	194,670	1,803,265
Percentage Increase	42.2%	58.9%	43.5%

Table 8:
Chattanooga, Knoxville, Memphis
Number of Passengers Forecast for 2000 – 2010
1997 FAA Terminal Area Forecast: Airport Enplanement Forecast

Chattanooga

Year	Air Carrier	Commuter	Total
2000	80,743	196,562	277,305
2005	80,743	244,076	324,819
2010	80,743	291,589	372,332
Total Increase	-	95,027	95,027
Percentage Increase	0.0%	48.3%	34.3%

Knoxville

Year	Air Carrier	Commuter	Total
2000	687,642	125,758	813,400
2005	828,660	154,308	982,968
2010	998,576	182,859	1,181,435
Total Increase	310,934	57,101	368,035
Percentage Increase	45.2%	45.4%	45.2%

Memphis

Year	Air Carrier	Commuter	Total
2000	4,277,610	867,511	5,145,121
2005	4,735,132	131,410	4,866,542
2010	5,198,118	1,429,328	6,627,446
Total Increase	920,508	561,817	1,482,325
Percentage Increase	21.5%	64.8%	28.8%

Economic Impact

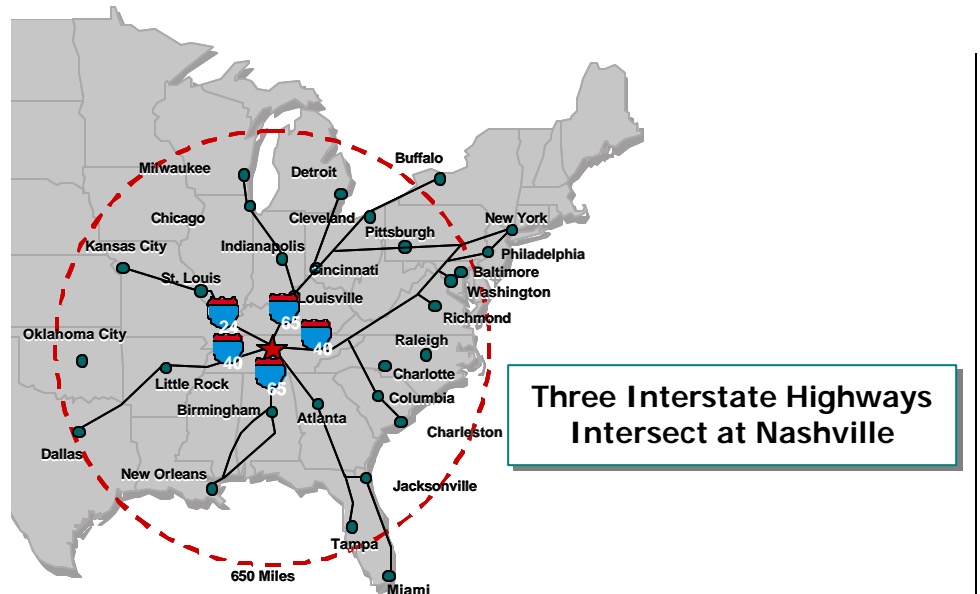
Nashville International Airport’s Air Trade Area comprises 79 counties with a population of nearly three million people within a 100-mile radius of the airport. These include residents of mid-Tennessee, southern Kentucky and northern Alabama. The Nashville metropolitan area, as defined by the U.S. Census, had 1.2 million residents in 1998. By either definition, BNA’s central location eight miles southeast of downtown Nashville serves a populated and diverse area. Dedicated ramps to and from Interstate 40 provide convenient access and egress to and from the airport.

**TABLE 9:
Population Estimates**

Area	Number of Residents
BNA Air Trade Area	3,000,000
Nashville Metropolitan Area (comprised of 8 counties)	1,171,755
Nashville-Davidson County	530,050

Source: www.census.gov/population/estimates

FIGURE 5:



Nearly 8.5 million passengers passed through BNA in 1999. The majority -- 95% -- flew on major commercial airlines. The remainder flew with small regional or charter airlines. In a survey by the MNAA of outbound, non-connecting passengers, 47% of 259 respondents said they were residents of the Nashville area. In another survey of passengers destined for Nashville, 58.5% of respondents reported that they were in the area on leisure, and 41.5% cited business travel.

In addition to passenger travel through BNA, cargo shipments were on the order of 62,500 tons in 1999. Of this, an estimated 70% was air freight, and 30% was designated air mail.

Airport jobs and commerce on the premises create a strong economic stimulus for the area. This airport business activity itself stimulates increased demand for other local goods and services. Not only do the businesses based at BNA pay taxes to the city, county and state, but the off-airport businesses that support the airport-based activities pay taxes as well. This multiplier effect has a strong overall impact on the economy

For example, Nashville and other nearby cities collect property taxes levied on personal, commercial and industrial real estate. The state levies a 6% corporate income tax, as well as an asset-based franchise tax. In addition, a direct sales and use tax, amounting to 6% at the state level and 2.25% at the local level,¹ applies to activities of airport-based firms.

Types of Business Activities

Businesses associated with BNA can be classified as either the on-airport or off-airport. Each sector is described below.

On-Airport Business Activities. These include the airport facility operations, aviation services, and air cargo and on-airport passenger services.

- **Airport Facility Operations.** Included in this category are the 17 major airlines and airline affiliates that served BNA in 1999: Air Canada, American, American Eagle, Continental, Delta, Delta Express, Northwest, Southwest, TWA, TWA Express, United, United Express, US Airways, US Airways Express, Comair, Corporate Airlines, and Skyway. A total of 941 full-time equivalent employees work for these 17 carriers at BNA.

¹ The information on taxes paid in 1999 by businesses based at BNA was not provided on the majority of survey responses. However, it is safe to say that the airport's activities generate various tax revenues for both the state and local area.

Airport facility operations also included the following governmental functions that year:

- Metropolitan Nashville Airport Authority (237 full-time equivalent employees)
- Tennessee Air National Guard (505 full-time equivalent employees)

Another 290 full-time employees worked for the following state and federal agencies at the airport:

- U.S. Department of Transportation
 - U.S. Federal Aviation Administration
 - Tennessee Department of Transportation
 - U.S. Customs Service
 - U.S. Postal Service
 - U.S. Department of Agriculture
- **Aviation Services.** BNA has a well-regarded set of fixed base operators (FBOs). Indeed, the airport's FBOs were ranked in the "Top 20 FBOs" in the United States for five consecutive years by the readers of "Professional Pilot Magazine." According to "Professional Pilot": "With more than 4,000 FBOs in the U.S., earning a top ranking is comparable to being in the top 1% in the country."

Other on-airport businesses include: fueling, for hire services such as air taxi and charter, aircraft parts and maintenance services, air catering kitchens, aircraft rental/sales and flight instruction, hangars and tiedowns. These activities provided another 414 full-time equivalent jobs at BNA.

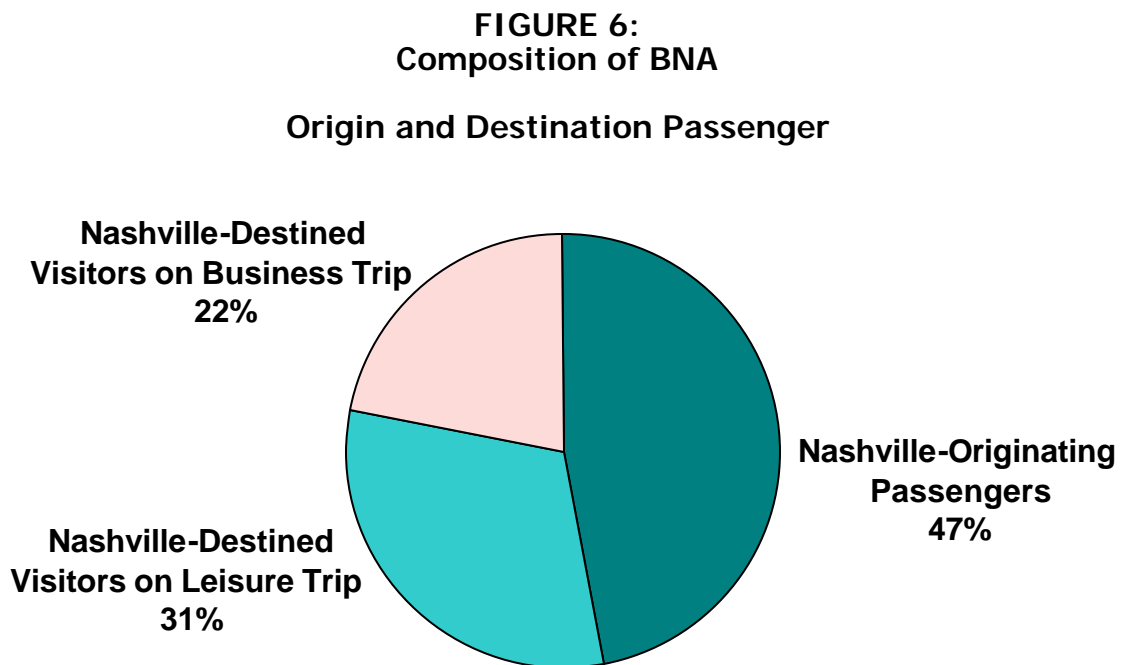
- **Cargo Services.** BNA's on-airport cargo services employed 330 full-time equivalent employees. Combined, there were 14 on-airport cargo services, ranging from ground handling to freight forwarding to warehousing to indirect air carriers.
- **Passenger Services.** BNA had 1,217 full-time equivalent employees in 1999, working for restaurants, retail stores, banks, car rental companies and other assorted services such as shuttles, Sky Cap, parking, baggage cart, the passenger travel center, security and janitorial services.

Off-Airport Business Activities: These businesses are involved predominately with cargo services or customs house brokers. Off-airport activity also refers to businesses that attract visitor (business or leisure) dollars.

- **Cargo Services.** At least 560 full-time equivalent employees were engaged in off-airport cargo services.

- **Passenger Services.** Services used by air visitors once they leave an airport's premises extend to the lodging sector, eating and drinking establishments and other retail and entertainment. These activities are covered in detail in the Economic Contribution section under "visitor spending." Ground transportation is not included since it covered under "on-airport services" because arriving visitors make arrangements for car rentals before leaving the airport premises.

The direct, annual activity for each of these four economic sectors depends on several factors: the number of visitors to Nashville, length of stay, and average daily spending. Figure 6 identifies the composition of the 6.1 million O&D trips in 1999.



This study will demonstrate that air travel visitors to Nashville account for a sizeable portion of sales and jobs in these off-airport businesses.

BNA Is a Major Employer

A summary of BNA's employment requirements is provided in Table 10. The numbers reported for the Off-Airport cargo services sector represent minimum activity and will result in a conservative estimate of the associated impacts.

**TABLE 10:
Allocation of BNA Employment**

	1999 Jobs*	Payroll (Wages million 99\$)
On-Airport Jobs		
Airport Facility Operations	1,973	\$84.1
Aviation Services	414	\$11.25
Air Cargo Service	330	\$10.1
Passenger Service	1,217	\$21.7
Total On-Airport Jobs	3,934	\$127.2
Off-Airport Jobs		
Air Cargo Services	560	\$15.8
Total Off-Airport Jobs	560	\$15.8
Grand Total On-Going Jobs	4,494	\$143.0
<i>Capital Improvements Jobs</i>	160	\$5.5

* Full-time equivalents

Air Visitor Dependent Businesses

As figure 6 notes, 53% of the 6.1 million O&D trips at BNA were business or leisure trips to the Nashville area, a total of 3.2 million visitors in 1999. The average length of stay calculated for this analysis is 3.5 days² with average daily spending of \$185 per person³ -- or approximately \$2.1 billion of spending for such items as lodging, meals, entertainment, and other retail and ground transportation. Table 11 shows how the \$2.1 billion of direct spending by air visitors enters non-airport Nashville businesses. While an allocation is made for ground transportation expenses, which likely includes car rental, the amount already accounted for by On-Airport Passenger Services sales is omitted to avoid a double-counting.

² An average for the combined business/leisure visits was calculated based on the range of values reported in the 1998 Visitor Intercept Survey and the 1993 BNA Economic Impact Study.

³ This estimate is derived from the projected visitor spending for 1997 (\$172) taken from the 1993 BNA Economic Impact Study and adjusted for two years of inflation growth.

**TABLE 11:
Air Visitor Direct Spending in Nashville for 1999***

Visitor Sector	Share	Jobs	Payroll (million 99\$)	Sales (million 99\$)
Lodging	0.30	10,447	\$232	\$628
Meals	0.22	10,584	\$166	\$461
Entertainment	0.23	4,063	\$147	\$481
Other Retail	0.15	9,508	\$152	\$314
Other Ground Transportation*	0.04	1,434	\$37	\$90
Total	0.94	36,036	\$734	\$1,974

* Net of on-airport ground transport activity

Direct Aspects of One-Time Capital Outlays for 1999

Another important economic aspect of BNA is the periodic need for improvements to the airport to provide BNA with the physical capacity to meet the demand for future air traffic passenger and air cargo growth.

These outlays are planned in advance of their start date and vary from year to year with respect to the nature of the improvement, duration and amount to be spent. Table 12 lists the type of capital improvements paid for in 1999.

Funding for the 1999 capital improvements came from several sources: 67% from the MNAA, 10% from the State of Tennessee, 12% from the U.S. Government, and 13% from private sources of financing.



**TABLE 12:
BNA's 1999 Capital Improvement Budget**

Type of Improvement	Amount Spent
Parking Expansion*	\$14,487,156
Terminal Landside Expansion*	6,394,800
Road and Runway Pavement Rehab	1,636,148
Financial System Upgrade	771,531
Storm Water Treatment	708,687
Security System Upgrade	218,474
Land Acquisition	166,284
Multi-User Flight Info System (MUFIDS)	86,590
ARFF Facility Expansion	55,000
Baggage Conveyor System	25,874
All Other (Equipment, Vehicles, etc)	1,918,722
TOTAL	\$26,469,266

* Projects occurred over 2-year interval 1998-2000.
Source: MNAA Airport Manager Survey, July 2000

Airport Revenues and Expenses

Table 13 presents some of the key operating statistics for BNA in 1999.

**TABLE 13:
Key Operating Statistics for BNA in 1999**

Category	Amount (million 99\$)
Expenditures associated with BNA:	
Payroll to Airport Employees	\$25.73
Purchases of Products and Services	\$14.9
Capital Improvements	\$26.4*

* Includes local, state and federally funded projects.

Sales generated from airport tenants for 1999 were either reported on the survey or estimated for the particular industry using the job counts provided and the sales-per-worker data for Davidson County in the IMPLAN model. Table 14 reports the direct sales estimates by airport segment.

**TABLE 14:
Sales Generated by Airport-Related Businesses**

ON-GOING	Sales (million \$)
<i>On-Airport</i>	
Airport Facility Operations	\$157
Aviation Services	50
Cargo Services	25
Passenger Services	74
Total	\$306
<i>Off-Airport</i>	
Air Cargo	\$33
Grand Total	\$339



Economic Contribution

The Economic Impact section of this report described the direct economic activity associated with the operations and activities of Nashville International Airport. Some of this direct airport activity may occur off airport premises (e.g., freight offices). The Economic Impact section also presented the extent and location of direct air visitor spending and a job count for each major segment of the nexus of airport activities.

This section, Economic Contribution, presents the additional economic activity that was triggered by the direct activities of BNA and air travel visitors to the region in 1999. The economic impacts presented in the report are the measurable increases to the economy of Nashville-Davidson County that result from the airport's purchase of goods and services, airport-related employees spending their wages, and air travel visitor spending. These are presented in terms of additional sales, income, and jobs. We have already isolated the direct economic contribution, and now present the additional multiplier impacts, as well as the total contribution of BNA activities.

It is crucial to keep in mind that BNA activities provided other benefits to the economies of the city and county. Among these were tax revenue generation and, while less easy to measure, the significant role activities at the airport played in the existing, as well as future, corporate landscape of Nashville. These aspects will be discussed in the last section of this report, "The Importance of Nashville International Airport to Nashville Citizens and Businesses and the Nashville Area Economy."

Economic Contribution for Nashville-Davidson County

Additional Multiplier Impacts

As described in the Economic Impact section, airport activity creates economic benefits for off-airport businesses throughout the region's economy. These benefits include sales by local suppliers of goods and services to the airport and to area businesses that host air visitors (hotels, restaurants, entertainment establishments). Benefits also derive from the respending of the airport's payroll and the payrolls of businesses serving air visitors to Nashville. The multiplier effect can also be seen in BNA's capital spending for 1999.

Table 15 reports the additional (multiplier) impacts from the on-going activities of BNA (on and off the airport) on specific industries in Nashville. These impacts reflect the purchases of goods and services by airport-related businesses and the spending of wages by airport employees.

**TABLE 15:
Additional Multiplier Effects from On-Going BNA Activity --
Nashville-Davidson County in 1999**

Industry Affected	Jobs	Sales (million 99\$)	Wages (million 99\$)
Agriculture	10	\$0.2	\$0.1
Mining	1	0.1	0.0
Construction	49	3.6	1.4
Manufacturing	68	11.2	2.8
Transportation, Communications and Public Affairs	264	28.5	9.4
Trade	574	33.2	13.3
Finance, Insurance and Real Estate	247	33.5	6.6
Services	852	54.2	23.9
Government	15	2.9	0.6
Other	18	0.2	0.2
TOTAL	2,097	\$167.6	\$58.3

Source: Results of IMPLAN model for Nashville-Davidson County

Table 16 reports the additional multiplier impacts from air visitor spending on specific industries in Nashville. These impacts reflect spending on goods and services by Nashville businesses that serve air visitors, as well as the spending of wages by those employed in hotels, restaurants, retail and entertainment businesses.



TABLE 16:
Effects from Air Visitor
Nashville-Davidson County in 1999
Additional Multiplier
Spending --

Industry Affected	Jobs	Sales (million 99\$)	Wages (million 99\$)
Agriculture	97	\$2.5	\$0.9
Mining	5	0.4	0.0
Construction	542	39.1	15.9
Manufacturing	414	67.7	16.0
Transportation, Communications and Public Utilities	738	99.4	28.1
Trade	3,068	175.2	70.0
Finance, Insurance and Real Estate	1,674	227.3	39.1
Services	7,237	496.1	201.0
Government	112	22.9	4.4
Other	97	1.1	1.1
TOTAL	13,984	\$1,131.8	\$376.6

Source: Results of IMPLAN model for Nashville-Davidson County

Table 17 provides the multiplier impacts from the airport's capital spending for 1999. This spending includes construction spending, purchases of durable equipment, spending on miscellaneous professional services and the total of wages paid to those employed in the subject industries.

**TABLE 17:
Additional Multiplier Impacts from
Capital Spending -- Nashville**

	Jobs	Sales (million 99\$)	Income (million 99\$)
1999 Capital Spending	113	\$5.8	\$2.4

Total Contribution for Nashville-Davidson County

The total contribution of BNA, as measured in this Report, for Nashville-Davidson County combines the direct jobs, sales and payroll as presented in Tables 10, 11, 15 and 16 above. The results are presented in Table 18.

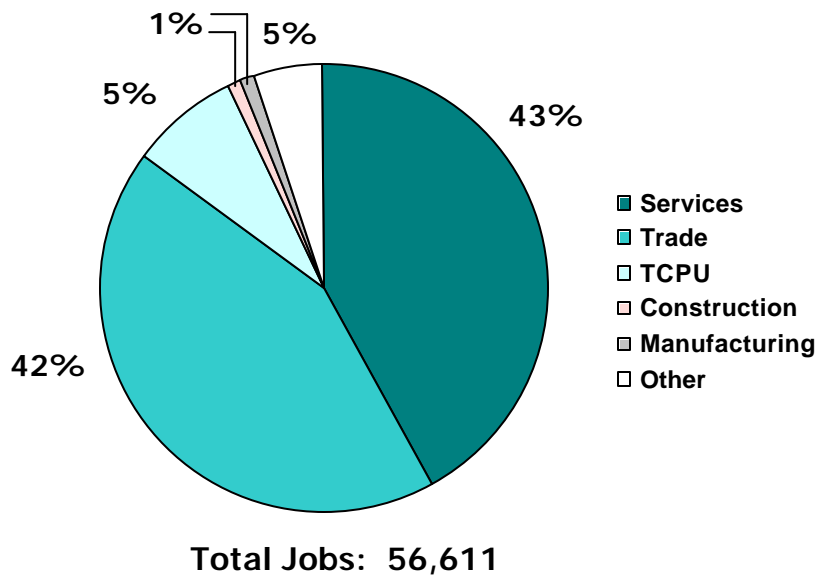
**TABLE 18:
Total Contribution of BNA on Nashville-Davidson County**

	Jobs	Sales (million 99\$)	Wages (million 99\$)
--	-------------	---------------------------------	---------------------------------

BNA On-Going and Air Visitor Contributions	56,611	\$3,612.4	\$1,311.9
Plus Capital Program for 1999	273	\$32.2	\$7.9
Grand Total Contribution of BNA	56,884	\$3,644.6	\$1,319.8

Figure 7 presents the allocation of jobs affected by BNA either directly or through multiplier effects and excludes the capital spending activity of BNA for 1999.

**FIGURE 7:
Total Contribution of BNA on Nashville Area Jobs***

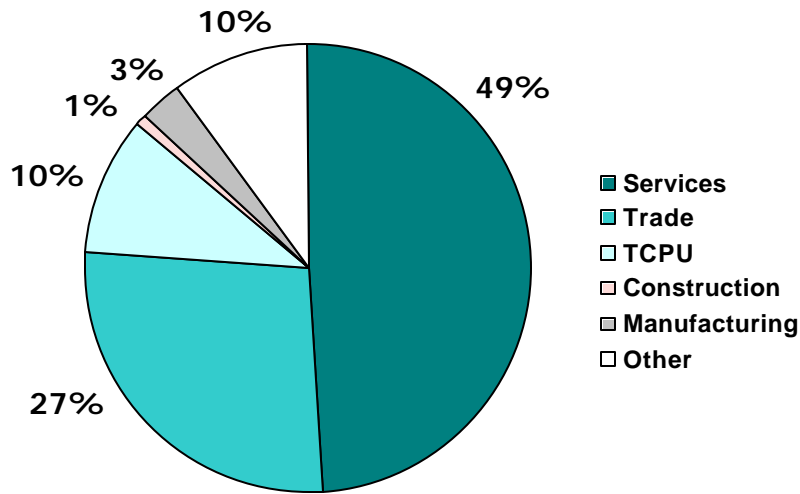


* Excludes Capital Improvement activities.

Of the 56,611 total jobs linked to on-going activities supported by the airport, the largest number, 24,342 or 43% of all jobs, were in service activities, including retail trade businesses such as lodging and restaurants that support visitors to Nashville. Wholesale trade jobs, such as the delivery of goods to both on-airport and visitor-related businesses, were a close second with 42%. Of the total job impact, 8% (or 4,530 jobs) were in the transportation, communications, and public utilities industry (TCPU), and 3,280 of these jobs were from the direct employment of BNA activities.

Figure 8 presents an industry allocation of the total sales for the Nashville area as a result of airport activities, excluding capital spending for 1999.

**FIGURE 8:
Total Contribution of BNA on Nashville Area Sales***



Total Sales of \$3.612 Billion

* Excludes capital spending for 1999.

The service sector by far accounted for the greatest percentage of the \$3.612 billion in sales stimulated by BNA in 1999, again followed by wholesale trade activity at 27%.

Ancillary Benefits of Nashville International Airport

In addition to the measured direct and estimated multiplier impacts of BNA, many employers in the Nashville area business community depend on the airport to fulfill diverse transportation needs. These needs arise from among Nashville's key industries, as well as businesses that commonly cluster around an air facility.

BNA airport management identified a list of 23 area businesses that were reliant on the airport in 1999. Almost all are best described as air cargo businesses that are not airport tenants. A survey of this group provided feedback on six of these businesses. Four are classified as air freight businesses, and two are freight forwarding firms. Table 19 summarizes the responses.

**TABLE 19:
Area Air Transport Reliance**

Response	Use	% Business is Air Transportation Reliant	Without BNA	Loss in Sales (%)	Jobs
1	DAILY	100	Switch - Smyrna; Relocate	99.9	33
2	DAILY	50	Other modes; layoffs	40	125
3	DAILY	90	Switch - Atlanta	no change	19
4	WEEKLY	60	Switch - Memphis, Louisville, Chicago	20	41
5	MONTHLY	90	Go out of business	50	n/a
6	DAILY	85	Relocate; Layoffs	99.9	12

Total Jobs (minimum): 230

Total Sales (minimum): \$21.7 million

Total Payroll (minimum): \$8.1 million

These businesses and their own economic contribution are only part of the ancillary economic contribution that Nashville International Airport makes to the Nashville area and Middle Tennessee. The full picture is much larger.

A growing, active, well-operated airport is also important to Nashville-area and Middle Tennessee citizens and businesses because it greatly enhances the ability to attract new businesses and expand existing businesses. The economic development arena is highly competitive, and having Nashville International Airport as a well managed, friendly, capacity-available facility is a significant advantage.

Summary

This report has identified and quantified the economic contribution of BNA's 1999 activity levels to both Nashville-Davidson County and the Middle Tennessee region: 3.2 million visitors, more than 56,000 jobs, over \$3.6 billion in sales and \$1.3 billion in wages.

These figures not only reflect the direct airport component, but also encompass the increases to area businesses, as suppliers meet airport and air visitor needs, the needs of airport workers who earn and spend their wages in the region, and the subsequent cycles of business and wage spending.

Capital spending for 1999 had a total contribution of \$32.2 million in sales, 273 jobs and \$7.9 million in wages.

These estimates of economic contribution are conservative, acknowledging the presence of other economically vital businesses that are strategically affected by proximity to BNA but not identified for this analysis.

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Appendix

Passenger Numbers for Significant Tennessee Airports Other Than Nashville

Memphis
Total Enplaned and Deplaned Passengers by Carrier,
CY 1995-1999

Carrier	1995	1996	1997	1998	1999
NW	5,788,226	6,110,983	5,378,809	6,046,285	6,547,346
DL	707,224	859,819	922,234	1,007,025	978,512
XJ				284	333,365
US	203,583	223,344	223,806	248,934	216,016
FL				124,958	185,299
AA	302,355	222,936	181,456	201,871	184,371
UA	118,900	134,807	169,367	187,504	160,263
RU		20,909	58,023	75,893	119,158
9N	66,026	53,113	91,885	98,933	76,191
MQ	12,150	6,407	17,759	32,868	74,041
ZW					42,804
JI					16,218
CO	0		0	127	12,769
N5					76
EV				0	1
TW	47,085	66,919	833	0	0
J7	202,120	101,216	110,256	32,479	
XP	135				
Total	7,447,804	7,800,453	8,154,428	8,057,161	8,946,430
Commuter Airlines	1,028,697	1,261,839	1,262,665	1,139,586	1,048,395
Grand Total	8,476,501	9,062,292	9,417,093	9,196,747	9,994,825

Chattanooga
Total Enplaned and Deplaned Passengers by Carrier,
CY 1995-1999

Carrier	1995	1996	1997	1998	1999
EV	37,695	231,794	276,788	237,549	246,637
US	83,313	103,528	111,665	103,336	92,345
9N				29,696	49,297
XJ					29
DL	284,333	0	0	0	0
AA	0	81			
FL		6,328	10,632		
Total	405,341	341,731	399,085	370,581	388,308
Commuter Airlines	136,531	129,870	146,070	194,446	211,259
Grand Total	341,872	471,601	545,155	565,027	599,567

Knoxville
Total Enplaned and Deplaned Passengers by Carrier,
CY 1995-1999

Carrier	1995	1996	1997	1998	1999
DL	637,576	615,470	601,130	653,896	605,426
US	151,279	143,345	130,420	131,780	135,813
UA	112,127	120,379	121,368	128,840	126,281
FL	34,451	58,473	59,480	108,865	123,574
XJ			6,610	22,982	101,617
NW	160,196	166,105	166,299	154,157	98,623
TW	32,584	64,892	73,635	82,399	86,435
MQ					70,797
RU		7,085	14,532	0	34,977
CO		30	0		103
9N	10,207				0
J7				2,103	
Total	1,138,420	1,175,779	1,173,474	1,285,022	1,383,646
Commuter Airlines	150,785	216,731	233,039	298,114	336,656
Grand Total	1,289,205	1,392,510	1,406,513	1,583,136	1,720,302