

The Economic Impact of Aviation in Arizona 2012

Technical Report



Prepared for:



Arizona Department of Transportation
Multimodal Planning Division
Aeronautics Group

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1.0 Introduction

1.1 Aviation in Arizona

Aviation is an important industry in Arizona. The assets of the industry encompass the State's excellent commercial service, its aerospace manufacturing base, and its vibrant general aviation businesses. Some of the important findings of this study include:

- Aviation-related employment in the State totals nearly 409,000 jobs, accounting for **16.8%** of all employment in Arizona.
- Phoenix Sky Harbor International Airport (PHX) is an important airline hub in the Southwest U.S. In 2011, it ranked as the sixth busiest airport in the country for air carrier operations, ninth busiest for enplanements with 19.7 million passengers, and ninth busiest for total operations.
- An estimated 9.9 million out-of-state visitors came to Arizona in 2011 by air transportation, 74% of whom arrived by commercial airlines.
- Arizona ranks fifth in the U.S. in the number of active general aviation aircraft, and its general aviation airports are among the most active in the country. Five airports are ranked by the FAA in the top 25 in the country for operations and three of those airports are listed in the top ten. In 2011, Phoenix Deer Valley Airport was ranked as the busiest general aviation airport in the country with over 300,000 operations.
- Arizona is a leader in flight training. Arizona has the fourth highest number of flight instructors in the country and the second highest number of flight instructors per capita.
- Aerospace manufacturing is one of Arizona's most important base industries. The State has the eighth highest level of aerospace employment in the U.S. and the concentration of aerospace employment in Arizona is 2.5 times greater than aerospace employment found in the U.S. economy.
- The State's excellent flying conditions and test ranges have led to a strong military presence with more than 92,000 jobs supported by the air bases. Luke Air Force Base is the largest F-16 training base in the world.

1.2 Benefits of Aviation

An efficient and well-maintained aviation system is a critical competitive advantage in today's global marketplace. Arizona's aviation system is well-developed and facilitates business and leisure travel and cargo shipments to the State and all parts of the globe. Continued investment in Arizona's aviation infrastructure is essential to continued economic growth.

- Aviation enhances business investment: Large and small businesses alike rely on Arizona's airports for the transport of personnel, supplies and products. A survey of



Arizona businesses conducted for this study indicates that the ability to conduct business is often dependent on access to an airport.

- Aviation creates jobs and tax revenue: Aviation and aviation-related enterprises are a significant source of employment in Arizona, accounting for 16.8% of all jobs in the State. The revenue generated from airports and the employees in the industry provide significant revenue to the State and its cities and counties.
- Aviation supports tourism: The majority of visitors to Arizona arrive by air transportation. An efficient aviation system is necessary to continue to support the millions of visitors who come to enjoy the natural beauty of the State, its resorts, golf courses, conventions and major sporting events.
- Aviation supports economic growth and development: As Arizona strives to expand its employment base and diversify its economy, aviation stands out as a critical component that can assist in the recruitment of new businesses. As a major airline hub, Phoenix Sky Harbor International Airport's commercial service is exceptional, offering competitive fares and service to all parts of the globe.

1.3 Economic Impact Methodology

Economic impact analysis examines the economic implications of an activity in terms of three measures:

- Economic Output or Activity – The gross receipts for goods or services generated by aviation business operations including budgets of governmental agencies and spending by tourists who use air travel to visit Arizona.
- Employment– the total number of full-time equivalent jobs supported directly or indirectly by the aviation industry.
- Earnings – the personal income, earnings or wages, of the employees supported directly or indirectly by the aviation industry. Earnings include benefits of health and life insurance, retirement payments and any other non-cash compensation.

Multipliers have been developed to estimate the total impact of an industry on a region (the Minnesota IMPLAN Group developed the multipliers used in this study). The different types of economic impacts are known as **direct**, **indirect**, and **induced**, according to the manner in which the impacts are generated. **Direct** employment consists of permanent jobs held by persons directly employed in the industry. **Indirect** employment is those jobs created by businesses that provide goods and services essential to operations of the industry. These businesses range from manufacturers (who make goods) to wholesalers (who deliver goods) to janitorial firms (who clean the buildings). Finally, **induced** employment is created by the spending of wages and salaries by **direct** and **indirect** employees on items such as food, housing, transportation and medical services that circulate throughout all sectors of the economy.

In order to estimate the impact of aviation in Arizona, a survey was distributed to airport managers throughout the State. The survey is included in the Appendix to this report along with a technical explanation of the methodology used for the study.



1.4 Arizona Airport System

The 2008 Arizona State Airports System Plan (SASP) identifies 83 airports in Arizona categorized into five different roles, depending on the level of activity and services provided. The roles are:

- **Commercial Service Airports:** Publicly-owned airports which enplane 2,500 or more passenger annually and receive scheduled passenger air service. In Arizona, there are twelve commercial service airports.
- **Reliever Airports:** FAA-designated airports that relieve congestion at a commercial service airport. There are eight reliever airports in Arizona.
- **General Aviation (GA) - Community Airports:** Airports that serve regional economies (defined as multiple communities), connecting to state and national economies, and serve all types of general aviation aircraft. There are 29 GA-community airports in Arizona.
- **General Aviation (GA) - Rural Airports:** Airports that serve a supplemental role in local economies (defined as a single community or largely rural area), primarily serving smaller business, recreational and personal flying. There are 24 GA-rural airports in Arizona.
- **General Aviation (GA) - Basic Airports:** Airports that serve a limited role in the local economy, primarily serving recreational and personal flying. There are 10 GA-basic airports in Arizona.

Airports must be included in the National Plan of Integrated Airport System (NPIAS) in order to be eligible for federal funding from the Airport Improvement Program. The State of Arizona, through ADOT, provides funding for certain airports not included in the NPIAS.

Arizona Airports By SASP Role					
Airport	County	Airport	County	Airport	County
Commercial Service		General Aviation - Community (cont.)		General Aviation - Rural (cont.)	
Ernest A. Love Field	Yavapai	Cottonwood	Yavapai	Gila Bend Municipal	Maricopa
Flagstaff Pulliam	Coconino	Douglas Municipal	Cochise	Grand Canyon Caverns	Coconino
Grand Canyon National Park	Coconino	Eloy Municipal	Pinal	Greenlee County	Greenlee
Grand Canyon West	Mohave	Grand Canyon Valle	Coconino	Kayenta	Navajo
Kingman	Mohave	H. A. Clark Memorial Field	Coconino	Kearny Municipal	Pinal
Laughlin/Bullhead International	Mohave	Holbrook Municipal	Navajo	La Cholla Airpark	Pima
Page Municipal	Coconino	Lake Havasu City Municipal	Mohave	Marble Canyon	Coconino
Phoenix Mesa Gateway	Maricopa	Gila River Memorial Airfield	Maricopa	Phoenix Regional	Maricopa
Phoenix Sky Harbor International	Maricopa	Nogales International	Santa Cruz	Polacca	Navajo
Show Low Regional	Navajo	Payson	Gila	Rolle Field	Yuma
Tucson International	Pima	Pinal Airpark	Pinal	San Carlos Apache	Gila
Yuma International	Yuma	Pleasant Valley	Maricopa	San Manuel	Pinal
Reliever		Safford Regional	Graham	Seligman	Yavapai
Chandler Municipal	Maricopa	Sedona	Yavapai	Temple Bar	Mohave
Falcon Field	Maricopa	Sierra Vista Municipal	Cochise	Tuba City	Coconino
Glendale Municipal	Maricopa	Sky Ranch at Carefree	Maricopa	Sun Valley	Mohave
Marana Regional	Pima	Springerville Municipal	Apache	Whiteriver	Navajo
Phoenix Deer Valley	Maricopa	St. Johns Industrial Air Park	Apache	Window Rock	Apache
Phoenix Goodyear	Maricopa	Stellar Airpark	Maricopa	General Aviation - Basic	
Ryan Field	Pima	Taylor Municipal	Navajo	Bagdad	Yavapai
Scottsdale	Maricopa	Wickenburg Municipal	Maricopa	Cibecue	Navajo
General Aviation - Community		Winslow-Lindbergh Regional	Navajo	Eagle Roost Airpark	Maricopa
Avi Sequilla	La Paz	General Aviation - Rural		Grand Canyon Bar 10	Mohave
Benson Municipal	Cochise	Bisbee Douglas International	Cochise	Hualapai	Coconino
Buckeye Municipal	Maricopa	Bisbee Municipal	Cochise	Pearce Ferry	Mohave
Casa Grande Municipal	Pinal	Chinle Municipal	Apache	Rimrock	Yavapai
Cochise County	Cochise	Cochise College	Cochise	Sells	Pima
Colorado City Municipal	Mohave	Eric Marcus Municipal	Pima	Superior Municipal	Pinal
Coolidge Municipal	Pinal	Estrella Sailport	Pinal	Tombstone Municipal	Cochise

Source: Arizona State Airports System Plan



1.5 Components of Aviation Economic Impact

The seven primary components of the aviation industry as outlined in this study are:

- **Commercial Aviation**

Commercial aviation is comprised of passenger and cargo flights, airport operators, air couriers and support businesses that include concessions, parking ground transportation, aircraft fuel and maintenance and airport security. The twelve commercial service airports in the state represent one of the largest economic impacts in the aviation industry and serve as the gateway for tourist traveling to Arizona.

- **General Aviation**

General aviation includes all aviation activity that occurs at all airports in the state except scheduled airline operations.

- **Off-Airport Aviation**

This category is related to direct aviation employment that is not captured at an airport or within other industry categories. It is specifically aimed at the US Airways headquarters in Tempe, Arizona and related operations and call centers located in Maricopa County. This component only affects Maricopa County.

- **Aerospace Manufacturing**

Aerospace manufacturing is one of Arizona's most important base industries, providing high paying jobs and contributing to the state's economy through the export of manufactured products.

- **Military Aviation**

Arizona has a long history with military aviation due to the state's excellent flying conditions and large test ranges. Military bases in Arizona include:

- Air National Guard 161st in Phoenix
- Air National Guard 162nd in Tucson
- Davis-Monthan Air Force Base in Tucson
- Libby Army Airfield in Sierra Vista
- Luke Air Force Base in Glendale
- Marine Corps Air Station in Yuma
- Papago Park Military Reservation in Phoenix
- Silverbell Army Heliport in Marana

- **Aviation Education**

Arizona is among the elite in private sector aviation education and flight instruction in the United States.

- **Tourism**

An indirect benefit of the aviation industry is the ability of travelers to visit Arizona for both business and leisure purposes. Arizona's tourism industry is a significant economic engine, with more than 9.9 million out-of-state visitors travelling to the State by air.



2.0 Economic Impact of the Aviation Industry

Aviation is a significant economic catalyst. In total, including spin-off effects, more than 408,000 jobs are directly or indirectly related to the industry, generating over \$21 billion in wages. Total economic activity is estimated at nearly \$58.0 billion across Arizona. Direct employment in aviation is estimated at 185,000 jobs with economic activity of nearly \$32.0 billion. The spin-off or multiplier effects of this employment create another 223,000 jobs in the Arizona economy.

Tourism is included in the overall impact of aviation. The economic impact of tourism is calculated based on the spending of tourists who arrive in Arizona by air. This impact is considered secondary to the primary components of the aviation industry, but is included in the analysis to demonstrate overall effects.

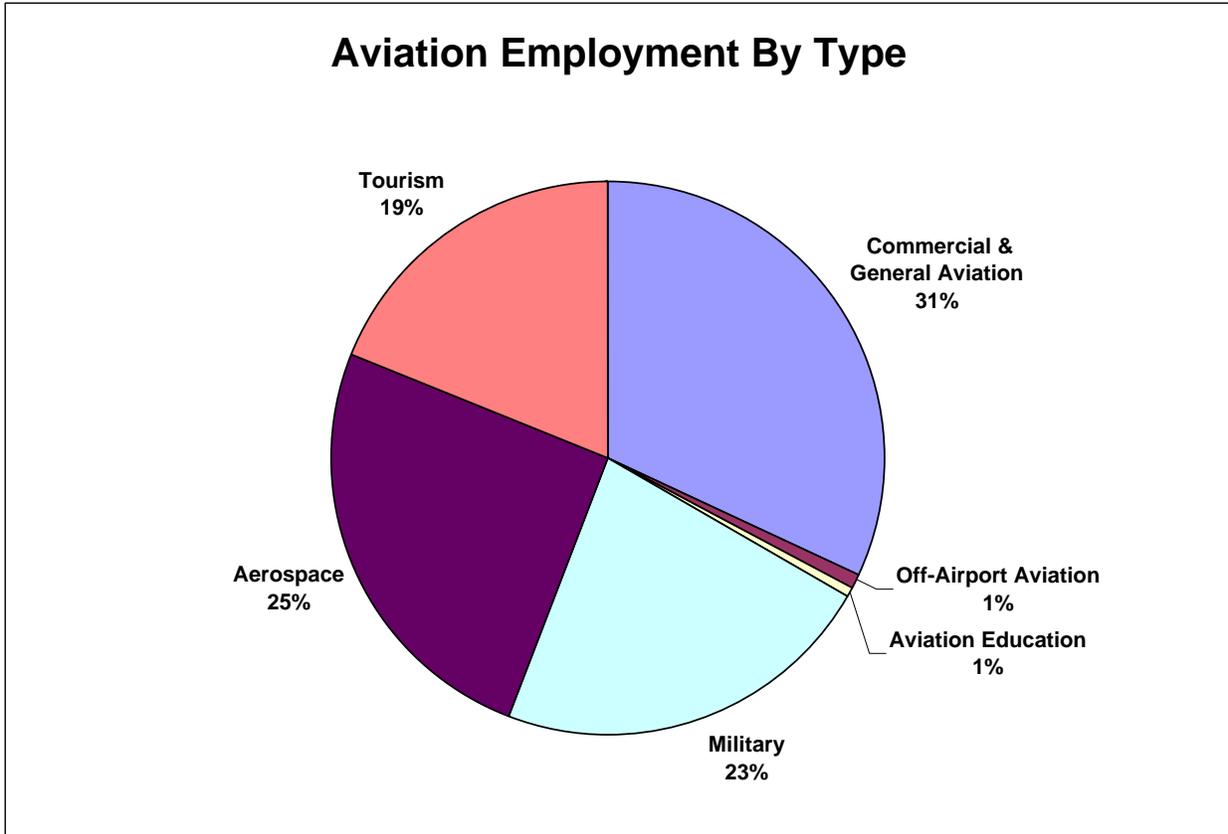
Total Economic Impacts of Aviation Industry							
Arizona							
	Commercial & GA Aviation	Off-Airport Aviation	Aviation Education	Military	Aerospace	Tourism	Total
Employment	130,225	4,112	2,166	92,103	103,181	76,838	408,625
Payroll (mil.)	\$7,155.3	\$384.9	\$84.1	\$3,778.0	\$7,072.0	\$2,684.6	\$21,158.8
Economic Activity (mil.)	\$21,102.7	\$466.8	\$174.0	\$7,631.3	\$20,389.8	\$8,168.4	\$57,993.1

1/ The total may not equal the sum of the impacts due to rounding. All dollar figures are in constant dollars. Inflation has not been included in these figures.

Source: Elliott D. Pollack & Company; IMPLAN

The commercial and general aviation components of the industry account for the largest share of the employment impact followed by aerospace. Military aviation and tourism account for most of the remainder of industry employment.



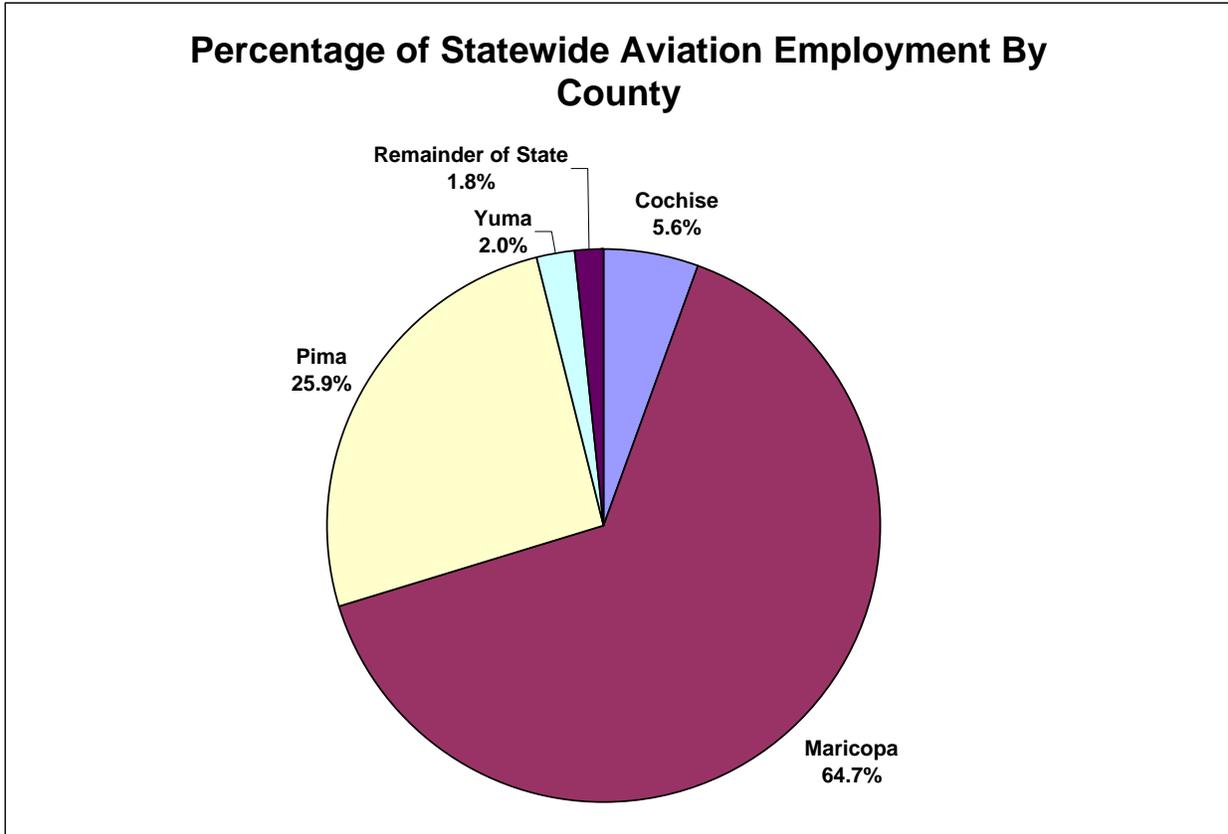


The following table summarizes the impact of aviation in Arizona by county. As noted in the table, approximately two-thirds of the State-wide impact occurs in Maricopa County, with another 25% occurring in Pima County. The less-populated counties that stand out among the others are Cochise County and Yuma County. Both of these counties are highly impacted by the presence of military bases. In the case of Cochise County, Libby Army Airfield in Sierra Vista supports over 23,000 direct, indirect and induced jobs in the region, creating an impact of over \$1.9 billion in economic activity. The Marine Corps Air Station in Yuma has a smaller, but still impressive impact in Yuma County. In total, the four counties mentioned above account for 98% of the impact of aviation in the State.



Summary of Aviation Economic Impacts By County								
County	Commercial & General Aviation	Off-Airport Aviation	Aviation Education	Military	Aerospace	Tourism	Total	Percent of Total
Apache								
Employment	70	-	-	6	-	14	90	0.02%
Wages	\$2,639,000	-	-	\$228,000	-	\$270,000	\$3,137,000	0.01%
Economic Activity	\$8,012,000	-	-	\$558,000	-	\$955,000	\$9,525,000	0.02%
Cochise								
Employment	202	-	19	22,784	22	37	23,063	5.64%
Wages	\$9,135,000	-	\$580,000	\$973,273,000	\$1,651,000	\$821,000	\$985,460,000	4.66%
Economic Activity	\$24,978,000	-	\$1,214,000	\$1,926,403,000	\$9,753,000	\$2,723,000	\$1,965,071,000	3.39%
Coconino								
Employment	1,015	-	4	39	31	1,017	2,107	0.52%
Wages	\$38,994,000	-	\$58,000	\$1,470,000	\$1,499,000	\$26,456,000	\$68,477,000	0.32%
Economic Activity	\$114,243,000	-	\$176,000	\$4,085,000	\$10,119,000	\$96,611,000	\$225,234,000	0.39%
Gila								
Employment	48	-	4	18	26	17	112	0.03%
Wages	\$1,564,000	-	\$56,000	\$653,000	\$2,022,000	\$447,000	\$4,742,000	0.02%
Economic Activity	\$4,116,000	-	\$171,000	\$1,770,000	\$5,967,000	\$1,358,000	\$13,382,000	0.02%
Graham								
Employment	27	-	-	131	25	7	189	0.05%
Wages	\$928,000	-	-	\$6,481,000	\$1,370,000	\$94,000	\$8,873,000	0.04%
Economic Activity	\$2,660,000	-	-	\$10,700,000	\$7,762,000	\$336,000	\$21,457,461	0.04%
Greenlee								
Employment	6	-	-	9	-	0.5	16	0.00%
Wages	\$539,000	-	-	\$281,000	-	\$11,900	\$831,800	0.00%
Economic Activity	\$911,000	-	-	\$828,000	-	\$30,000	\$1,769,000	0.00%
La Paz								
Employment	16	-	2	10	-	6	35	0.01%
Wages	\$1,028,000	-	\$76,000	\$361,000	-	\$165,000	\$1,630,000	0.01%
Economic Activity	\$1,869,000	-	\$158,000	\$984,000	-	\$447,000	\$3,458,000	0.01%
Maricopa								
Employment	99,420	4,112	1,304	29,777	61,210	68,542	264,366	64.70%
Wages	\$5,754,590,000	\$384,900,000	\$58,100,000	\$1,221,089,000	\$4,375,998,000	\$2,456,782,000	\$14,251,459,000	67.35%
Economic Activity	\$16,517,650,000	\$466,760,000	\$116,546,000	\$2,692,018,000	\$12,113,863,000	\$7,367,252,000	\$39,274,089,000	67.79%
Mohave								
Employment	1,030	-	29	23	277	424	1,781	0.44%
Wages	\$57,622,000	-	\$1,267,000	\$911,000	\$19,768,000	\$15,256,000	\$94,824,000	0.45%
Economic Activity	\$144,249,000	-	\$2,547,000	\$2,203,000	\$54,835,000	\$46,189,000	\$250,023,000	0.43%
Navajo								
Employment	147	-	4	41	-	28	219	0.05%
Wages	\$4,813,000	-	\$79,000	\$2,676,000	-	\$623,000	\$8,191,000	0.04%
Economic Activity	\$22,579,000	-	\$201,000	\$4,178,000	-	\$2,248,000	\$29,206,000	0.05%
Pima								
Employment	26,319	-	295	31,730	41,196	6,268	105,808	25.89%
Wages	\$1,186,333,000	-	\$8,912,000	\$1,314,425,000	\$2,647,882,000	\$172,302,000	\$5,329,854,000	25.19%
Economic Activity	\$4,033,590,000	-	\$19,973,000	\$2,484,288,000	\$8,101,813,000	\$609,058,000	\$15,299,400,000	26.41%
Pinal								
Employment	866	-	6	122	-	99	1,093	0.27%
Wages	\$51,927,000	-	\$181,000	\$5,580,000	-	\$2,469,000	\$60,157,000	0.28%
Economic Activity	\$99,900,000	-	\$367,000	\$12,533,000	-	\$8,119,000	\$120,919,000	0.21%
Santa Cruz								
Employment	18	-	2	120	23	6	169	0.04%
Wages	\$743,000	-	\$55,000	\$5,438,000	\$1,457,000	\$214,000	\$7,907,000	0.04%
Economic Activity	\$1,845,000	-	\$126,000	\$10,977,000	\$4,787,000	\$524,000	\$18,255,000	0.03%
Yavapai								
Employment	381	-	486	51	348	115	1,381	0.34%
Wages	\$13,186,000	-	\$14,328,000	\$1,700,000	\$18,277,000	\$2,689,000	\$50,180,000	0.24%
Economic Activity	\$41,566,000	-	\$31,758,000	\$5,304,000	\$70,582,000	\$9,264,000	\$158,474,000	0.27%
Yuma								
Employment	662	-	12	7,242	25	257	8,198	2.01%
Wages	\$31,249,000	-	\$370,000	\$243,405,000	\$2,078,000	\$6,023,000	\$283,125,000	1.34%
Economic Activity	\$84,553,000	-	\$785,000	\$474,496,000	\$10,303,000	\$23,334,000	\$593,471,000	1.02%
ARIZONA								
Employment	130,225	4,112	2,166	92,103	103,181	76,838	408,625	100.00%
Wages	\$7,155,290,000	\$384,900,000	\$84,062,000	\$3,777,971,000	\$7,072,002,000	\$2,684,622,900	\$21,158,847,800	100.00%
Economic Activity	\$21,102,721,000	\$466,760,000	\$174,022,000	\$7,631,325,000	\$20,389,784,000	\$8,168,448,000	\$57,933,060,000	100.00%
1/ Totals may not equal the sum of the impacts due to rounding.								
Sources: IMPLAN, Elliott D. Pollack & Co.								





2.1 Commercial Aviation and Airports

The twelve commercial service airports in Arizona serve as the gateway for most of the tourists traveling to the State and represent one of the largest economic impacts of the aviation industry. Phoenix Sky Harbor International Airport and Tucson International Airport represent the largest economic impacts among the commercial service airports. As a major hub for two airlines, Southwest Airlines and US Airways, Phoenix Sky Harbor International Airport provides excellent service to national and international locations as well as competitive fares.

The recent recession, high gas prices and consolidation among the major commercial air carriers have had a significant impact on aircraft operations. While there is limited history available on operations at many airports in the State, the FAA Air Traffic Activity Data System (ATADS) provides historical operations data for eight of the twelve commercial service airports in the State. That database shows that total operations at these eight airports has declined by 22.5% since 2002 and by 19.9% since 2007 at the height of the economic boom. Most of that decline, however, has been in general aviation operations at these airports. Overall, air carrier and air taxi operations have declined by only 6.4% since 2002 at the eight airports. Phoenix Sky Harbor International Airport commercial operations are down 10.2% since 2002 and Tucson International Airport operations have increased slightly by 0.1% over the same timeframe. Phoenix-Mesa Gateway Airport has shown significant growth and will become a major commercial service airport in its own right.



Total Airport Operations at Arizona Commercial Airports											
Airports	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	% Change 2002-2011
Ernest A. Love Field	338,990	320,228	272,855	236,797	234,358	227,351	272,215	240,443	231,668	242,321	-28.5%
Flagstaff Pulliam Airport	53,593	51,353	50,254	44,127	44,589	40,580	41,818	34,265	32,118	37,955	-29.2%
Grand Canyon National Park Airport	97,406	108,773	116,418	116,736	112,447	100,930	106,336	91,462	97,091	101,708	4.4%
Laughlin/Bullhead International Airport	29,688	29,785	32,755	27,562	27,126	23,733	21,824	20,384	21,031	22,997	-22.5%
Phoenix-Mesa Gateway	178,489	182,009	240,486	276,489	280,719	296,676	227,426	185,872	177,874	171,200	-4.1%
Phoenix-Sky Harbor International Airport	590,329	591,092	586,535	563,536	546,510	539,211	502,499	457,207	449,351	461,989	-21.7%
Tucson International Airport	272,568	247,813	253,295	284,555	270,473	257,703	211,144	178,632	164,859	154,360	-43.4%
Yuma International Airport	100,895	117,455	172,203	151,902	147,305	121,518	106,589	86,860	101,220	94,900	-5.9%
Total	1,661,958	1,648,508	1,724,801	1,701,704	1,663,527	1,607,702	1,489,851	1,295,125	1,275,212	1,287,430	-22.5%
% Change		-0.8%	4.6%	-1.3%	-2.2%	-3.4%	-7.3%	-13.1%	-1.5%	1.0%	

Source: Air Traffic Activity System (ATADS)

Total Air Carrier and Air Taxi Operations at Arizona Commercial Airports											
Airports	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	% Change 2002-2011
Ernest A. Love Field	2,187	3,529	5,417	5,394	5,970	5,166	4,615	5,417	3,807	3,926	79.5%
Flagstaff Pulliam Airport	9,289	9,494	8,934	8,110	8,792	9,471	9,563	8,385	8,307	11,154	20.1%
Grand Canyon National Park Airport	89,012	100,787	108,484	110,280	106,402	95,184	100,973	86,335	92,227	86,829	-2.5%
Laughlin/Bullhead International Airport	3,443	2,675	4,373	4,887	4,579	4,832	5,670	5,086	4,167	3,285	-4.6%
Phoenix-Mesa Gateway	7,049	7,257	7,663	8,694	10,292	10,292	9,813	11,075	14,542	16,958	140.6%
Phoenix-Sky Harbor International Airport	488,910	484,578	488,307	505,946	499,280	494,938	468,872	432,403	424,901	438,901	-10.2%
Tucson International Airport	57,590	53,393	58,605	73,811	71,716	73,632	69,052	57,469	58,424	57,648	0.1%
Yuma International Airport	12,394	9,086	8,771	8,320	8,899	9,641	9,258	7,500	8,294	8,606	-30.6%
Total	669,874	670,799	690,554	725,442	715,930	703,156	677,816	613,670	614,669	627,307	-6.4%
% Change		0.1%	2.9%	5.1%	-1.3%	-1.8%	-3.6%	-9.5%	0.2%	2.1%	

Source: Air Traffic Activity System (ATADS)

In spite of the decline in commercial operations, enplanements in Arizona have increased by 15.6% since 2002, similar to the trend across the country. This phenomenon is the result of consolidation in the airline industry, the reduction in the number of flights and more efficient scheduling by the major airlines. Over the past ten years, 88% of all enplanements in the State have occurred at Phoenix Sky Harbor with 8% occurring at Tucson International Airport.

Commercial aviation and airports generate over 57,000 direct jobs in the Arizona economy with a payroll of \$3.8 billion and economic activity of \$12.1 billion. Total economic impact, including indirect and induced employment, is over 125,000 jobs and \$20.5 billion in economic activity. The major air carriers generate approximately 40% of all the jobs in the commercial aviation sector and 48% of the economic activity. Air cargo and couriers follow with 22% of all jobs.

Economic Impacts of Commercial Airports									
Arizona									
	Air Carriers	Air Cargo & Couriers	Airport Business	Ground Transport	Govt. Services	Airport Admin.	Airport Construction	Other	Total
Direct Impact									
Employment	19,458	10,739	6,127	5,714	4,765	1,732	620	8,487	57,641
Payroll (mil.)	\$1,640.7	\$906.8	\$236.7	\$224.8	\$274.4	\$100.0	\$29.5	\$398.4	\$3,811.3
Economic Activity (mil.)	\$5,958.7	\$3,289.9	\$452.9	\$602.8	\$596.3	\$183.7	\$81.1	\$894.6	\$12,060.1
Total Impact									
Employment	49,521	27,349	9,433	9,107	9,809	3,282	1,040	15,795	125,335
Payroll (mil.)	\$3,019.4	\$1,668.9	\$385.9	\$382.3	\$500.6	\$170.5	\$48.4	\$717.8	\$6,893.8
Economic Activity (mil.)	\$9,759.7	\$5,390.7	\$854.9	\$1,040.0	\$1,177.9	\$366.0	\$133.7	\$1,771.2	\$20,494.0

1/ The total may not equal the sum of the impacts due to rounding. All dollar figures are in constant dollars. Inflation has not been included in these figures.
Source: Elliott D. Pollack & Company; IMPLAN



2.2 General Aviation and Airports

General aviation is a significant part of Arizona's aviation industry. According to FAA data, the state ranks fifth in the U.S. in active aircraft and twelfth in the number of aircraft per capita. Its general aviation airports are also among the most active in the country. Five airports are ranked by the FAA in the top 25 in the country for operations and three of those airports are listed in the top ten (Phoenix Deer Valley, Ernest A. Love Field and Falcon Field). In 2011, Phoenix Deer Valley was ranked as the busiest general aviation airport in the country with over 300,000 operations.

The network of public use GA airports provides for the recreational needs of aircraft owners as well as the needs of businesses throughout all parts of the state. The table on the following page shows an estimated total of 6,561 based aircraft in the state in 2011 (based on data from ADOT aircraft registrations and AirNav), down from 8,251 based aircraft in 2007 according to the SASP. Estimated GA operations were 2.77 million in 2011, a decrease of 27.9% from 2007. Similar trends are found throughout the country and reflect the impact of the recession on active aircraft numbers and operations. With high gas prices and the loss of wealth by many Americans, general aviation operations have slowed dramatically.



2011 Arizona General Aviation Based Aircraft and Operations							
	County	Based Aircraft	GA Operations		County	Based Aircraft	GA Operations
Primary Commercial Service				General Aviation Community (continued)			
Ernest A. Love Field	Yavapai	296	237,892	Sky Ranch at Carefree	Maricopa	75	4,171
Flagstaff Pulliam	Coconino	128	25,658	Springville Municipal	Apache	22	4,395
Grand Canyon National Park	Coconino	36	3,859	St Johns Industrial Air Park	Apache	12	15,381
Grand Canyon West	Mohave	-	652	Stellar Airpark	Maricopa	148	39,055
Kingman	Mohave	190	44,165	Taylor Municipal	Navajo	23	3,806
Laughlin/Bullhead International	Mohave	33	19,059	Wickenburg Municipal	Maricopa	48	50,370
Page Municipal	Coconino	71	24,572	Winslow-Lindbergh Regional	Navajo	9	19,152
Phoenix Mesa Gateway	Maricopa	132	147,597	General Aviation - Rural			
Phoenix Sky Harbor International	Maricopa	88	20,582	Bisbee Douglas International	Cochise	10	13,994
Show Low Regional	Navajo	54	12,647	Bisbee Municipal	Cochise	19	4,901
Tucson International	Pima	280	69,393	Chinle Municipal	Apache	3	7,665
Yuma International (Non Military)	Yuma	157	36,311	Cochise College	Cochise	16	46,614
Reliever				Eric Marcus Municipal	Pima	5	304
Chandler Municipal	Maricopa	390	158,959	Estrella Sailport	Pinal	33	20,075
Falcon Field	Maricopa	690	214,486	Gila Bend Municipal	Maricopa	8	3,510
Glendale Municipal	Maricopa	262	85,998	Grand Canyon Caverns	Coconino	-	50
Marana Regional	Pima	228	109,814	Greenlee County	Greenlee	3	1,095
Phoenix Deer Valley	Maricopa	1,050	313,362	Kayenta	Navajo	2	1,981
Phoenix Goodyear	Maricopa	224	132,565	Kearny Municipal	Pinal	3	2,399
Ryan Field	Pima	232	110,664	La Cholla Airpark	Pima	69	4,000
Scottsdale	Maricopa	390	127,924	Marble Canyon	Coconino	2	2,346
General Aviation- Community				Phoenix Regional	Maricopa	14	-
Avi Suquilla	La Paz	30	10,220	Polacca	Navajo	1	200
Benson Municipal	Cochise	34	7,205	Rolle Field	Yuma	0	2,984
Buckeye Municipal	Maricopa	64	52,396	San Carlos Apache	Gila	8	1,877
Casa Grande Municipal	Pinal	99	118,523	San Manuel	Pinal	31	13,870
Cochise County	Cochise	29	7,891	Seligman	Yavapai	2	1,095
Colorado City Municipal	Mohave	8	4,594	Temple Bar	Mohave	-	961
Coolidge Municipal	Pinal	36	4,181	Tuba City	Coconino	1	256
Cottonwood	Yavapai	55	18,429	Sun Valley	Mohave	20	24,820
Douglas Municipal	Cochise	19	10,862	Whiteriver	Navajo	0	3,833
Eloy Municipal	Pinal	38	19,513	Window Rock	Apache	5	5,006
Grand Canyon Valle	Coconino	8	6,570	General Aviation - Rural			
H. A. Clark Memorial Field	Coconino	11	8,030	Bagdad	Yavapai	5	1,010
Holbrook Municipal	Navajo	12	3,650	Cibecue	Navajo	-	20
Lake Havasu City Municipal	Mohave	152	33,244	Eagle Roost Airpark	Maricopa	49	-
Gila River Memorial Airfield	Maricopa	32	25,039	Grand Canyon Bar 10	Mohave	-	1,773
Nogales International	Santa Cruz	22	24,039	Hualapai	Coconino	-	-
Payson	Gila	65	41,555	Pearce Ferry	Mohave	-	304
Pinal Airpark	Pinal	32	10,267	Rimrock	Yavapai	39	608
Pleasant Valley	Maricopa	28	74,825	Sells	Pima	-	711
Safford Regional	Graham	35	8,147	Superior Municipal	Pinal	1	200
Sedona	Yavapai	68	48,005	Tombstone Municipal	Cochise	4	341
Sierra Vista Municipal	Cochise	68	31,974	Totals		6,561	2,770,452

Sources: AirNav, ADOT Aircraft Registration Records, ATADS

Even with this slowdown, the impact of general aviation and the associated airports is still very positive. Direct employment is estimated at 4,763 jobs with \$166.0 million in wages and \$353.0 million in economic activity. Total employment in the sector is 6,890 jobs with \$609.0 million in total economic activity.



Economic Impact General Aviation Airports Arizona			
Impact Type	Jobs	Wages (Mil.)	Economic Output (Mil.)
Direct	4,763	\$166.0	\$353.0
Indirect & Induced	2,127	\$96.0	\$256.0
Total Impact	6,890	\$262.0	\$609.0

1/ The total may not equal the sum of the impacts due to rounding. All dollar figures are in constant dollars. Inflation has not been included in these figures.
Source: Elliott D. Pollack & Company; IMPLAN

2.3 Aerospace Manufacturing

Aerospace manufacturing is one of Arizona’s most important base industries, building upon the state’s skilled labor force. The aerospace industry provides high paying jobs and contributes to the state’s economy through the export of manufactured products. Arizona has the eighth highest level of aerospace employment in the U.S., with salaries 52% higher than the average Arizona wage. The concentration of aerospace employment in Arizona is 2.5 times greater than aerospace employment found in the U.S. economy. Some of the largest aerospace companies include Raytheon, Honeywell, Boeing, General Dynamics and Orbital Sciences.

The aerospace manufacturing sector employs 26,400 Arizonans with an annual payroll of more than \$3.6 billion. These companies and high paying jobs create additional economic impacts in the economy through purchases and employee spending. The sector has a large supplier network in Arizona that provides goods and services to the primary aerospace companies, creating additional employment across the state. In total, aerospace supports a total of nearly 103,200 jobs in Arizona with an annual payroll of \$7.1 billion and total economic activity of \$20.4 billion.

Economic Impact Aerospace Arizona			
Impact Type	Jobs	Wages (Mil.)	Economic Output (Mil.)
Direct	26,433	\$3,643.6	\$11,364.0
Indirect	36,041	\$1,717.2	\$4,061.2
Induced	40,708	\$1,711.2	\$4,964.6
Total	103,181	\$7,072.0	\$20,389.8

1/ The total may not equal the sum of the impacts due to rounding. All dollar figures are in constant dollars. Inflation has not been included in these figures.
Source: Elliott D. Pollack & Company; IMPLAN



2.4 Aviation Education

Arizona has an extensive private sector aviation education and flight instruction industry. In 2009, four states, California, Texas, Florida and Arizona, accounted for more than 50% of all flight instructors in the country. Arizona has the second highest number of flight instructors per capita in the U.S., in large part directly attributable to the State’s excellent flying conditions. In addition, the state offers undergraduate and graduate degree programs in aeronautics, aerospace engineering, aviation business management and other related programs. Embry-Riddle Aeronautical University in Prescott is a world-renown institution that offers undergraduate and graduate degree programs that span the operation, engineering, research, manufacturing, marketing, and management of modern aircraft and the systems that support them.

In total, aviation education in Arizona accounts for 1,453 direct full-time jobs with another 713 indirect and induced jobs. The industry generates more than \$174 million in total economic activity for the State.

Economic Impact Aviation Education Arizona			
Impact Type	Jobs	Wages (Mil.)	Economic Output (Mil.)
Direct	1,453	\$53.8	\$86.7
Indirect	241	\$10.3	\$29.4
Induced	472	\$19.9	\$58.0
Total	2,166	\$84.1	\$174.0

1/ The total may not equal the sum of the impacts due to rounding. All dollar figures are in constant dollars. Inflation has not been included in these figures.
Source: Elliott D. Pollack & Company; IMPLAN

2.5 Military Aviation

Arizona’s military aviation installations are some of the most critical components of the nation’s air defense system. The State’s excellent flying conditions and test ranges makes it ideal for training. There are eight military aviation operations in Arizona, the largest being active military training operations at Davis-Monthan Air Force Base, Luke Air Force Base, Libby Army Airfield and Marine Corps Air Station Yuma. All the bases are located in just four of the State’s 15 counties.



Arizona's Military Air Bases		
Military Base	City	County
Air National Guard 161st	Phoenix	Maricopa
Air National Guard 162nd	Tucson	Pima
Davis-Monthan Air Force Base	Tucson	Pima
Libby Army Airfield	Sierra Vista	Cochise
Luke Air Force Base	Glendale	Maricopa
Marine Corp Air Station	Yuma	Yuma
Papago Park Military Reservation	Phoenix	Maricopa
Silverbell Army Heliport	Marana	Pinal

Due to a lack of public employment information at military aviation bases, the report “Economic Impact of Arizona’s Principal Military Operations 2008” produced by The Maguire Company and ESI was used as a reference for employment at the State’s bases. The following table illustrates the direct, indirect and induced employment within each county.

Military Employment By Type and County					
Employment Impact Type	County				Total
	Pima	Maricopa	Yuma	Cochise	
Direct	17,874	11,238	5,067	9,537	43,716
Indirect	9,425	10,392	2,259	15,369	37,446
Induced	3,162	3,588	513	3,678	10,941
Total	30,460	25,219	7,840	28,584	92,103

Source: Economic Impact of Arizona's Principal Military Operations 2008 produced by the Maguire Company and ESI, Elliott D. Pollack & Company

The State’s eight military aviation bases directly employ 43,700 uniformed personnel and contractors with an annual payroll of nearly \$1.8 billion. Another 48,400 persons are indirectly supported by the military operations for a total employment impact of 92,100. Total annual payroll is nearly \$3.8 billion with total economic activity of \$7.6 billion.



Economic Impact Military Aviation Arizona			
Impact Type	Jobs	Wages (Mil.)	Economic Output (Mil.)
Direct	43,716	\$1,762.7	\$3,044.5
Indirect	37,446	\$1,623.5	\$3,650.5
Induced	10,941	\$391.8	\$936.3
Total	92,103	\$3,778.0	\$7,631.3

1/ The total may not equal the sum of the impacts due to rounding. All dollar figures are in constant dollars. Inflation has not been included in these figures.
Source: Elliott D. Pollack & Company, IMPLAN

The impact of military aviation activities in Arizona is felt across every county in the State. The largest economic impacts are found in Maricopa County (Luke AFB), Pima County (Davis-Monthan AFB) and Cochise County (Libby Army Airfield) with a smaller impact found in Yuma County related to the Marine Corps Air Station.

Military Aviation Impact By County			
County	Impact Type	Total Impact	% of State
Cochise	Employment	22,784	24.7%
	Wages	\$973,273,000	25.8%
	Economic Activity	\$1,926,403,000	25.2%
Maricopa	Employment	29,777	32.3%
	Wages	\$1,221,089,000	32.3%
	Economic Activity	\$2,692,018,000	35.3%
Pima	Employment	31,730	34.5%
	Wages	\$1,314,425,000	34.8%
	Economic Activity	\$2,484,288,000	32.6%
Yuma	Employment	7,242	7.9%
	Wages	\$243,405,000	6.4%
	Economic Activity	\$474,496,000	6.2%
Remaining Counties	Employment	570	0.6%
	Wages	\$25,779,000	0.7%
	Economic Activity	\$54,120,000	0.7%
ARIZONA	Employment	92,103	100.0%
	Wages	\$3,777,971,000	100.0%
	Economic Activity	\$7,631,325,000	100.0%

Sources: IMPLAN, Elliott D. Pollack & Co.



2.6 Tourism – The Impact of Aviation Visitors

Each year, millions of visitors come to Arizona for business or to enjoy the natural beauty of the state, its resorts, golf courses and amenities. In 2011, more than 9.9 million out-of-state visitors traveled to Arizona by commercial or general aviation aircraft. Approximately 74% of those visitors traveled by commercial airlines, with the remaining traveling by smaller general aviation airplanes. The impact of these visitors on the Arizona tourism economy is substantial.

Commercial Aviation-Related Tourism

Out of the more than 13.3 million passengers who traveled to Arizona via the State’s 12 commercial airports, approximately 7.4 million were from out-of-state. During these visitors’ stays, approximately \$4.8 billion was spent directly on lodging, dining, transportation, entertainment, and retail purchases. Aviation-related visitor spending supported 50,400 direct jobs with spin-off effects of an additional 25,100 jobs. The employees supported by commercial air travel earned over \$2.6 billion in wages and total economic activity associated with visitors traveling by commercial air service is nearly \$8.1 billion.

Economic Impact Commercial Aviation-Related Tourism Arizona			
Impact Type	Jobs	Wages (Mil.)	Economic Output (Mil.)
Direct	50,418	\$1,457.4	\$4,793.0
Indirect	9,843	\$497.2	\$1,313.5
Induced	15,296	\$688.8	\$1,944.3
Total	75,557	\$2,643.4	\$8,050.8

1/ The total may not equal the sum of the impacts due to rounding. All dollar figures are in constant dollars. Inflation has not been included in these figures.

Source: Elliott D. Pollack & Company; IMPLAN

General Aviation-Related Tourism

There were over 2.77 million general aviation flight operations in Arizona in 2011. Across the State, approximately 46% of all GA operations were considered transient, meaning that the aircraft is based at an airport other than the one at which it landed. However, transient operations vary widely from airport to airport. For instance, airports that serve the Grand Canyon (Grand Canyon West and Grand Canyon National Park) have virtually no transient GA operations. On the other hand, smaller, more rural airports typically have high levels of transient operations. The estimation of transient operations for each airport was determined from data collected from AirNav or the FAA Air Traffic Activity Data System (ATADS).

These transient operations bring in visitors from outside of the local area, some of whom will stay overnight and spend money in the region. Based on previous surveys of flight data and



visitor spending, it is estimated that approximately \$72.4 million was spent by transient GA visitors in the economy in 2011. This tourist spending supported 923 direct jobs with spin-off effects of an additional 357 jobs. Approximately \$41.3 million in wages were earned from this tourist-supported employment and the state benefited by a total of \$117.6 million in economic activity during the year.

Economic Impact General Aviation-Related Tourism Arizona			
Impact Type	Jobs	Wages (Mil.)	Economic Output (Mil.)
Direct	923	\$25.3	\$72.4
Indirect	134	\$9.6	\$17.3
Induced	223	\$6.4	\$27.9
Total	1,280	\$41.3	\$117.6

1/ The total may not equal the sum of the impacts due to rounding. All dollar figures are in constant dollars. Inflation has not been included in these figures.
Source: Elliott D. Pollack & Company; IMPLAN

Total Impact of Aviation Visitors

Aviation is an important form of transportation for visitors to major national and international events held in Arizona. Some of the more well-known events include:

- **Phoenix International Raceway (PIR):** PIR hosts two NASCAR Sprint Cup races attended by more than 300,000 race fans. Local general aviation airports are typically at capacity during the events.
- **Barrett-Jackson Collector Car Auction:** Held in mid-January, the auction is known worldwide for its unique, one-of-a-kind vehicles. Enthusiasts come from across the country to Scottsdale to bid on the cars.
- **Super Bowl:** Glendale will host Super Bowl XLII in 2015, the second time in the last eight years.
- **Waste Management Phoenix Open:** The TPC Scottsdale is the home of this PGA Tour tournament. The event hosts the largest galleries on the tour and is known for the stadium seating arrangement on the 16th hole.

The total impact of visitors who came to Arizona by air in 2011 is estimated at 76,800 jobs, nearly \$2.7 billion in earnings and \$8.1 billion in total economic output.



Economic Impact of Tourism Arizona			
Impact Type	Jobs	Wages (Mil.)	Economic Output (Mil.)
Direct	51,341	\$1,482.7	\$4,865.4
Indirect	9,978	\$503.6	\$1,330.9
Induced	15,519	\$698.4	\$1,972.2
Total	76,838	\$2,684.6	\$8,168.4

1/ The total may not equal the sum of the impacts due to rounding. All dollar figures are in constant dollars. Inflation has not been included in these figures.
Source: Elliott D. Pollack & Company; IMPLAN

2.7 Arizona’s World Class Aviation Facilities

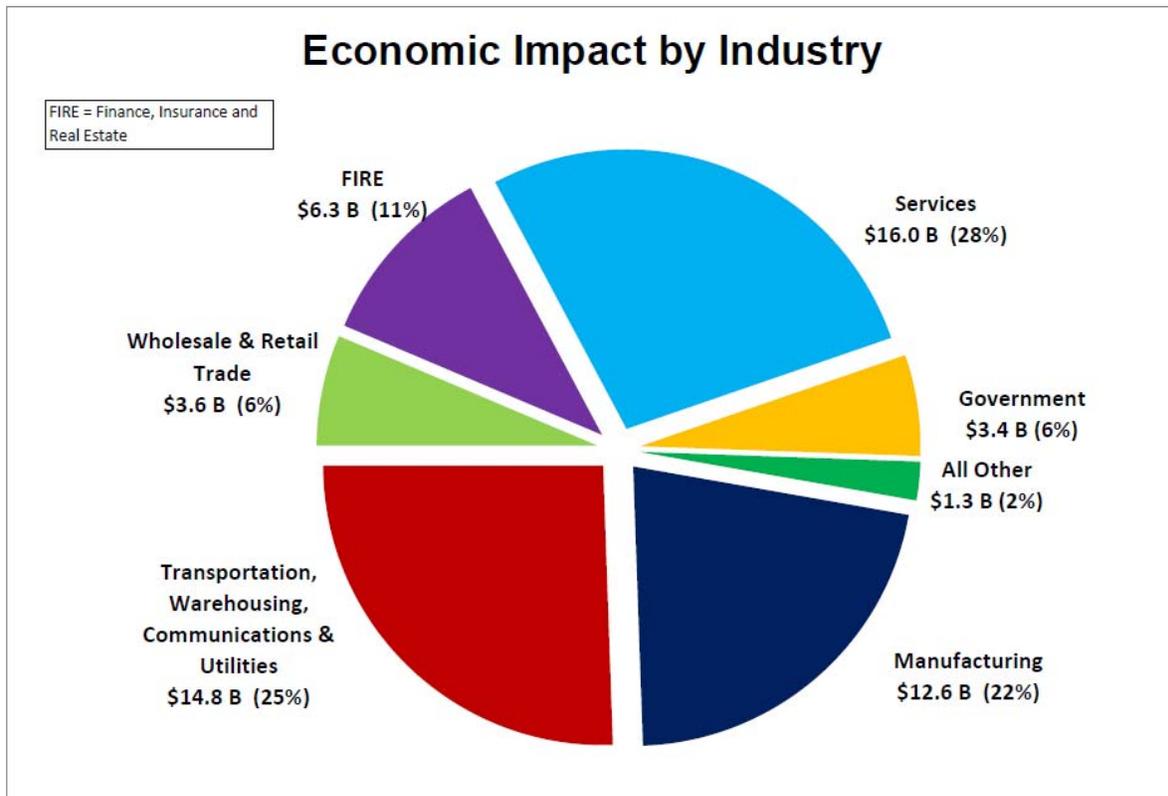
Arizona’s weather provides excellent conditions for aviation. As a result, Arizona is home to several world-class aviation business operations including skydiving, glider soaring, Grand Canyon tours and flight training. Some of the major assets include:

- **Skydiving:** Located at the Eloy Municipal Airport, SkyDive Arizona hosts a wide variety of national and international competitions, including the 2012 National Skydiving Championships. SkyVenture, located at the airport, is a state-of-the-art skydiving wind tunnel that simulates free falling and aerial acrobatics. Other airports in Arizona have skydiving activities and services as well.
- **Soaring:** Glider soaring is available through Arizona Soaring at the Estrella Sailport and Turf Soaring School at the Pleasant Valley Airport. Central Arizona weather creates exceptional opportunities for year-round flights. National competitions are held at Estrella Sailport throughout the year.
- **Grand Canyon Tours:** Tours over the Grand Canyon bring nearly 100,000 flight operations to the Grand Canyon National Park Airport, creating a significant job base for this rural area of the state. Grand Canyon West Airport, operated by the Hualapai Nation, has more than 130,000 tour operations per year to the western part of the canyon. The Grand Canyon Skywalk is a major attraction near the airport. This glass walkway is suspended 4,000 feet above the floor of the canyon.
- **Military Training:** With its excellent flying conditions, restricted military airspace and gunnery/test ranges, Arizona is home to two major Air Force pilot training bases: Luke Air Force Base in Glendale and Davis-Monthan Air Force Base in Tucson. Luke AFB was recently chosen as a training center for the F-35A Joint Strike Fighter. MCAS Yuma supports 80 percent of the Corps’ air-to-ground aviation training.
- **Pilot Training:** Some of the world’s foremost pilot training facilities are located in Arizona, including TransPac Aviation Academy and Oxford Aviation Academy, which trains Lufthansa personnel.



2.8 Aviation's Impact Across the Arizona Economy

The economic impact of the aviation industry spans across most industry categories. The largest impact falls upon the Services (\$16.0 billion) and Transportation (\$14.8 billion) industries. Manufacturing, primarily related to the aerospace industry, also is impacted for a total of \$12.6 billion. The following chart illustrates how aviation's \$57.9 billion in economic activity affects the major industry categories.



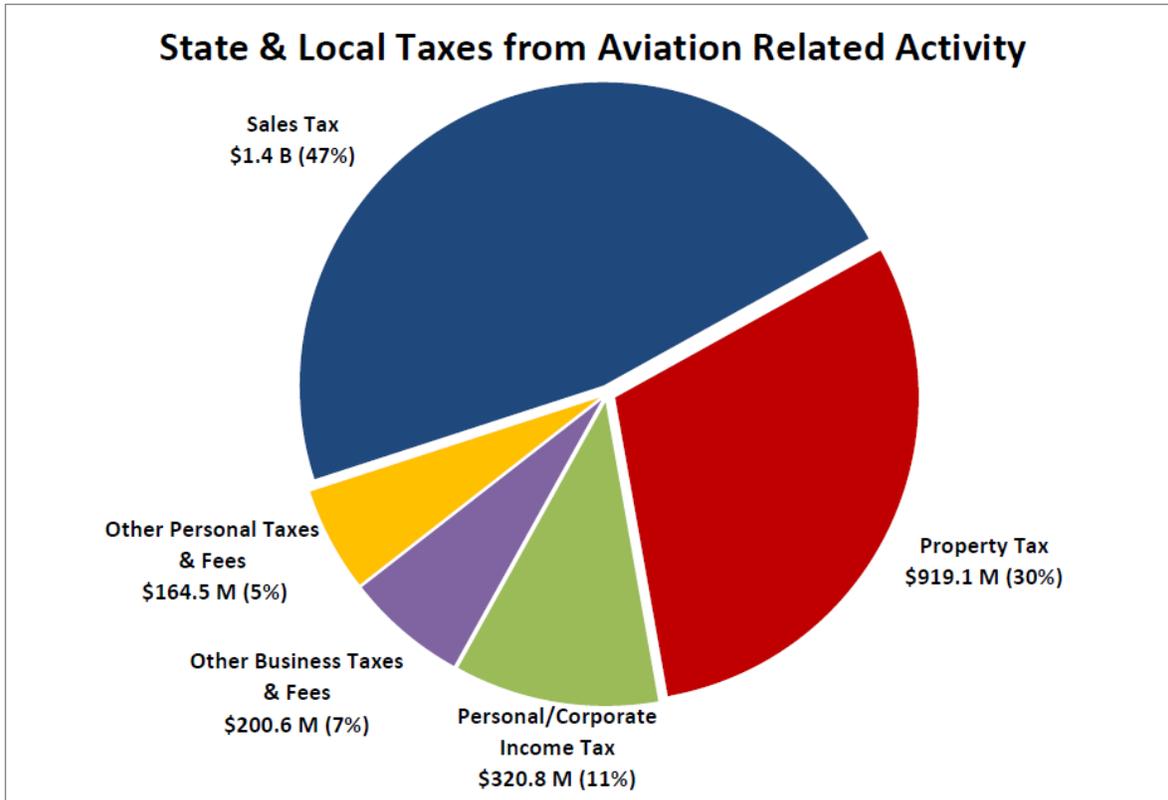
2.9 Aviation's Impact on Tax Revenues

Economic activity associated with the aviation industry produces significant revenue for state and local governments. These tax dollars are derived from:

- Tourist spending,
- Expenditures on aircraft, such as fuel and maintenance,
- Aviation employees who spend their salaries on goods and services, pay property taxes on their homes and pay incomes taxes on their wages,
- Corporations which pay income taxes, sales taxes and user fees on aviation activities.

In 2011, the spending from direct and indirect aviation activities produced an estimated \$3.0 billion in state and local taxes in Arizona. The largest source of revenue is sales taxes at \$1.4 billion followed by property taxes at more than \$919 million. Personal and corporate income taxes account for another \$320.8 million.





2.10 Utilization of Aviation by Private Businesses

As part of this study, a survey of private Arizona businesses was conducted to determine their use of aviation for business trips and cargo shipments. The survey was conducted by Behavior Research Center during April and May of 2012. The results of the survey are based on 1,000 in-depth telephone interviews of a cross-section of businesses across the State. A total of 8,581 businesses were screened to obtain the 1,000 businesses that use aviation for business trips or cargo shipments. The businesses were also cross-referenced to industry type based on NAICS (North American Industrial Classification System) code. A copy of the survey is included in the Appendix to this report.

The survey demonstrates that approximately 11% of all private businesses in Arizona rely on aviation for business travel and 2.3% of businesses use aviation for cargo shipments (excluding shipments by FedEx, UPS, DHL or similar carriers). Based on the median number of trips per business of 3.7 per year and median number of cargo shipments of 10.4 per year, businesses in Arizona generate nearly 58,000 total aviation trips in a year and over 33,000 cargo shipments. Together, the value of the trips and shipments to the aviation industry totals \$49.6 million per year.



Private Business Aviation Utilization Arizona									
General Findings									
Median Number of Trips Per Business Per Year:		3.7							
Median Number of Cargo Shipments Per Business Per Year:		10.4							
Median Spending on Business Trips Per Business Per Year:		\$2,673							
Median Spending on Cargo Shipments Per Business Per Year:		\$2,360							
Industry	Number of Private Businesses	Survey Results Utilization of Aviation		No. of Companies Using Aviation		Number of Bus. Trips	Number of Cargo Shipments	Value of Bus. Trips	Value of Cargo Shipments
		Bus. Trips	Cargo	Bus. Trips	Cargo				
Goods Producing	19,738	9.9%	2.1%	1,958	423	7,246	4,404	\$5,234,900	\$999,500
Natural Resources & Mining	1,307	13.3%	0.0%	174	-	643	-	\$464,800	\$0
Construction	13,724	8.1%	1.2%	1,112	165	4,113	1,713	\$2,971,400	\$388,700
Manufacturing	4,706	14.3%	5.5%	673	259	2,490	2,692	\$1,798,700	\$610,800
Service-Providing	122,309	11.1%	2.3%	13,599	2,792	50,317	29,034	\$36,350,900	\$6,588,400
Trade, Transportation, Utilities	33,238	9.5%	2.9%	3,158	964	11,683	10,025	\$8,440,400	\$2,274,800
Information	2,239	17.0%	2.0%	381	45	1,409	466	\$1,017,600	\$105,700
Financial Activities	15,687	10.9%	1.4%	1,710	220	6,327	2,284	\$4,570,500	\$518,300
Professional & Business Services	30,944	17.2%	3.4%	5,322	1,052	19,693	10,942	\$14,226,800	\$2,483,000
Educational & Health Services	16,009	8.9%	1.0%	1,425	160	5,272	1,665	\$3,808,400	\$377,800
Leisure & Hospitality	11,793	5.1%	0.9%	601	106	2,225	1,104	\$1,607,600	\$250,500
Other Services	11,139	9.0%	2.2%	1,002	245	3,709	2,549	\$2,679,600	\$578,300
Totals	142,047	11.0%	2.3%	15,558	3,215	57,564	33,438	\$41,585,800	\$7,587,900
Average Per Trip/Cargo Shipment								\$722	\$227

Note: Totals may not add due to rounding and suppression of data.
Source: Elliott D. Pollack & Company, IMPLAN

The survey also provided information on the distribution of business use of aviation across the State. Four regions were identified which included:

- Greater Phoenix (Maricopa and Pinal counties),
- Greater Tucson (Pima County),
- Northern Arizona (Apache, Coconino, Gila, Navajo, Mohave and Yavapai counties),
- Southern Arizona (Cochise, Graham, Greenlee, La Paz, Santa Cruz and Yuma counties).

Greater Phoenix accounted for 70% of both business trips and cargo shipments in the State, followed by Greater Tucson with 17.5% of business trips and 21.7% of cargo shipments. The northern and southern parts of Arizona accounted for 11.8% of business trips and 8.3% of cargo shipments.

Private Business Aviation Utilization Arizona									
Region	Number of Private Businesses	No. of Companies Using Aviation		Number of Bus. Trips	Number of Cargo Shipments	Value of Bus. Trips	Value of Cargo Shipments	Percent of Total	
		Bus. Trips	Cargo					Business Trips %	Cargo Shipments %
Greater Phoenix	99,873	11,006	2,249	40,722	23,393	\$29,418,700	\$5,308,400	70.7%	70.0%
Greater Tucson (Pima)	19,340	2,716	698	10,050	7,261	\$7,260,500	\$1,647,700	17.5%	21.7%
Northern Arizona	15,397	1,097	165	4,057	1,715	\$2,931,200	\$389,100	7.0%	5.1%
Southern Arizona	7,436	739	103	2,734	1,070	\$1,975,400	\$242,700	4.8%	3.2%
Totals	142,047	15,558	3,215	57,564	33,438	\$41,585,800	\$7,587,900	100.0%	100.0%

Note: Totals may not add due to rounding and suppression of data.
Source: Elliott D. Pollack & Company, IMPLAN



The survey also revealed some important statistics regarding the importance of airports and aviation to Arizona businesses, including the following:

- Twenty percent of businesses surveyed indicated that 50% or more of their business activity is dependent upon the existence of an airport. Also, 30% of aviation-utilizing businesses believed their sales would decrease if the airport did not exist. In comparison, only 1% said their sales would increase without an airport while 69% said sales would remain unaffected if the airport was not available.
- Aviation-utilizing businesses were asked what actions they would take if the airport was no longer available or if commercial service was decreased. Most indicated they would use the next closest airport, make fewer trips or use other modes of transportation. However, a noteworthy 17% of businesses said they would relocate if the airport was not available. Another 12% said they would likely go out of business with 11% saying they would lay off employees.
- Arizona businesses rely on aviation for a variety of activities. In particular, 37% of all aviation-utilizing businesses indicated they had customers, suppliers and vendors who rely on aviation to travel to the State to do business with them. For larger businesses with 10 to 99 employees, this figure reaches 50% and for those employers with more than 100 employees, 60% indicate air travel is important for their customers, suppliers and vendors.

2.11 Comparison of 2002 and 2012 Aviation Economic Impacts

The economic impact of aviation in Arizona increased from \$38.5 billion in 2002 to \$57.9 billion in 2012, an increase of 50%. Over that time frame, inflation accounted for approximately one-half of the increase in economic activity, leaving a real increase of 25% over ten years. While differences in methodology of the economic impact studies could affect the comparison of the two analyses, clearly the economic impact aviation in Arizona has grown. However, a number of factors have contributed to slower than anticipated growth over the last five years including the recession of 2007 through 2009, rising gasoline prices, and the bursting of the real estate bubble which has reduced the perceived wealth of citizens across the country.

Overall, payroll and economic activity related to aviation have grown at rates well above inflation. However, employment in the aviation industry has declined by approximately 13%. The decline could be attributed to a number of factors including consolidation in the airline industry, fewer commercial aircraft in the air and fewer active general aviation aircraft and operations due to the higher cost of flying and owning an aircraft.

Comparison of Aviation Economic Impacts 2002 and 2012 State of Arizona			
Impact Type	2002	2012	% Change
Employment	470,600	408,600	-13.2%
Payroll (mil.)	\$14.7	\$21.2	43.9%
Economic Activity (mil.)	\$38.5	\$57.9	50.5%

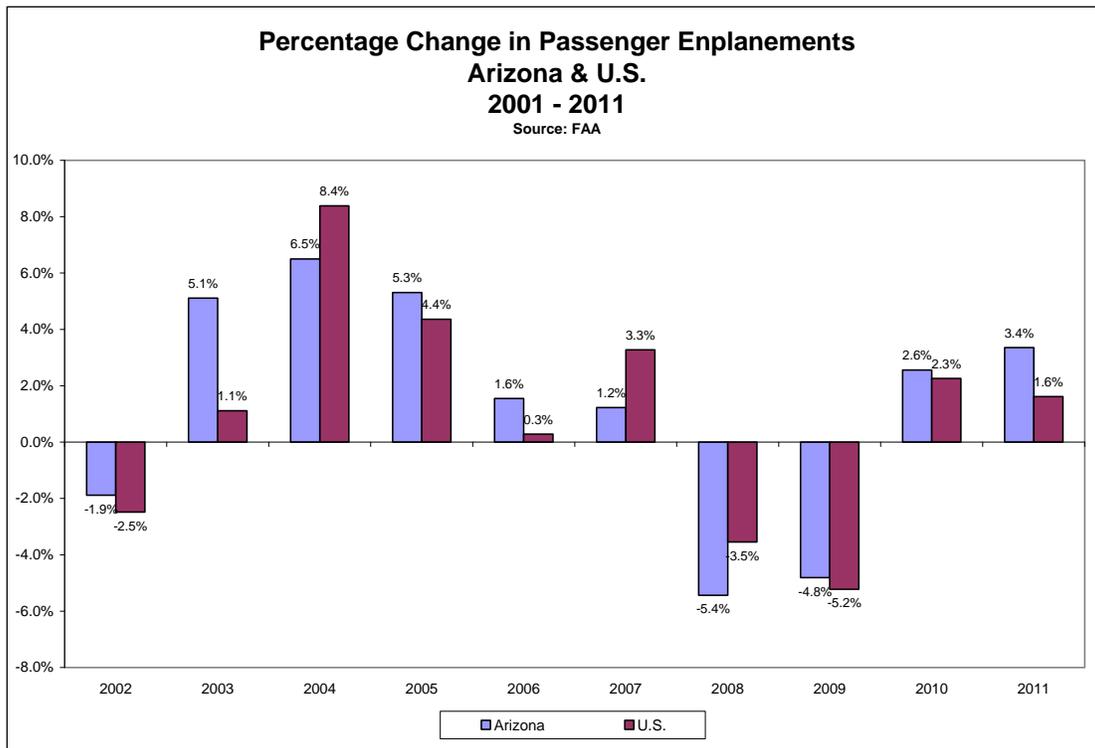
Source: Elliott D. Pollack & Company; IMPLAN; The Economic Impact of Aviation in Arizona 2002.



3.0 Arizona Aviation Forecast

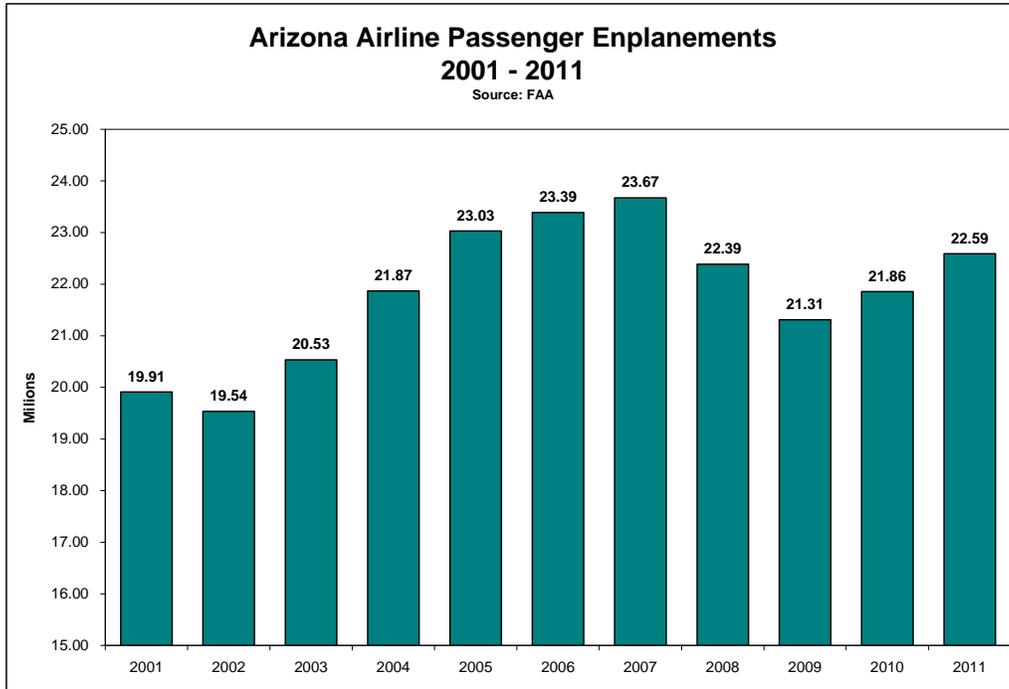
Similar to most industries in the U.S., the last recession has had a significant impact on aviation economic activity and employment. The impact of the recession has been felt in both the commercial as well as general aviation segments of the industry.

Passenger enplanements in Arizona generally follow the national trend. Enplanements peaked in 2004 at the height of the economic boom, and then slowed with decreases in enplanements occurring in 2008 and 2009. Since then, modest growth has occurred in enplanements in both the U.S. and Arizona.

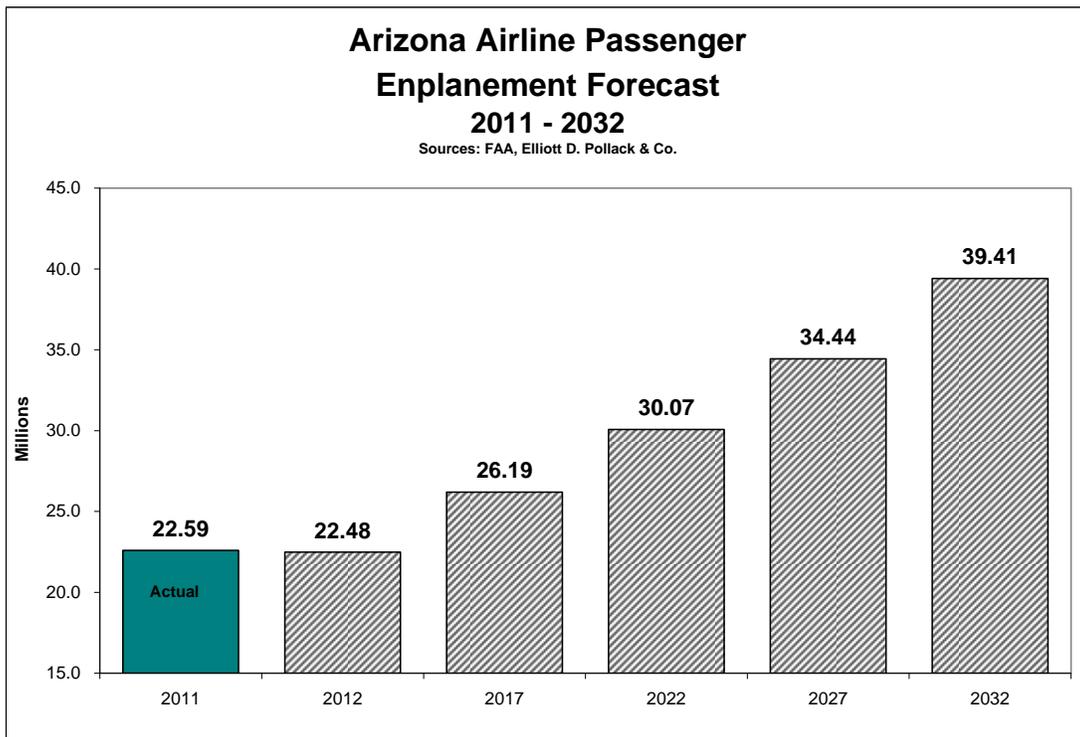


Enplanements in Arizona are 13% higher than in 2001, but still below the heights reached in 2005 through 2007. With uncertainty in the economy, enplanements will likely be flat or growing slowly for the next few years.





The FAA has forecasted enplanements in the U.S. over the next twenty years. The strong correlation between U.S. and Arizona enplanements allows for the forecasting of activity in Arizona. Based on FAA forecasts, the following chart illustrates the enplanement forecast for Arizona. While 2012 is expected to be flat, the State should see growth thereafter. Over the next 20 years, enplanements are expected to grow at an annual rate of 2.8%.



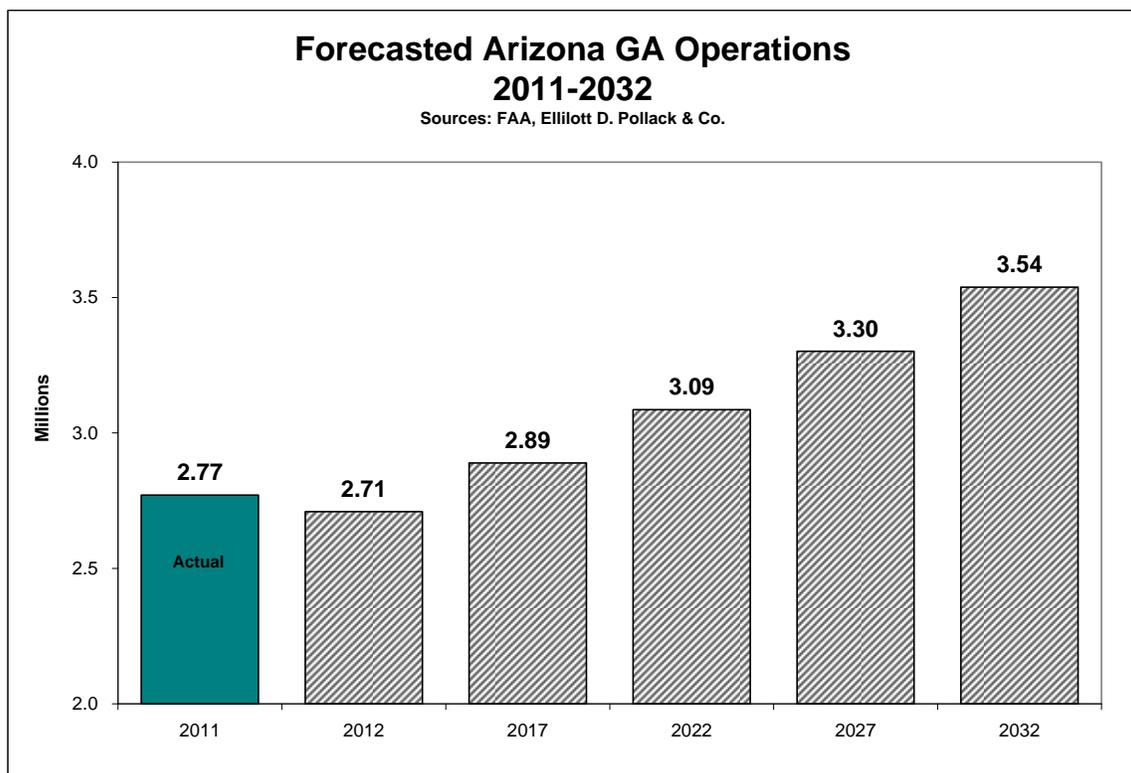
Similar trends are found in the general aviation field. Based on ADOT aircraft registration data, it appears that the number of general aviation based aircraft has declined since 2002. Total GA based aircraft in 2002 totaled 7,157 aircraft. The Arizona State Airport System Plan (SASP) reported 8,043 based GA aircraft in 2007. A compilation of 2011 AirNav data, ADOT registrations and ADOT based aircraft data provides an estimate of 6,561 based aircraft for the current year, a decline of 20.5% since 2007.

GA operations have experienced a similar decline. GA operations at all airports, including commercial service airports, have declined from 3.84 million in 2007 to 2.77 million in 2011, a decrease of 27.9%.

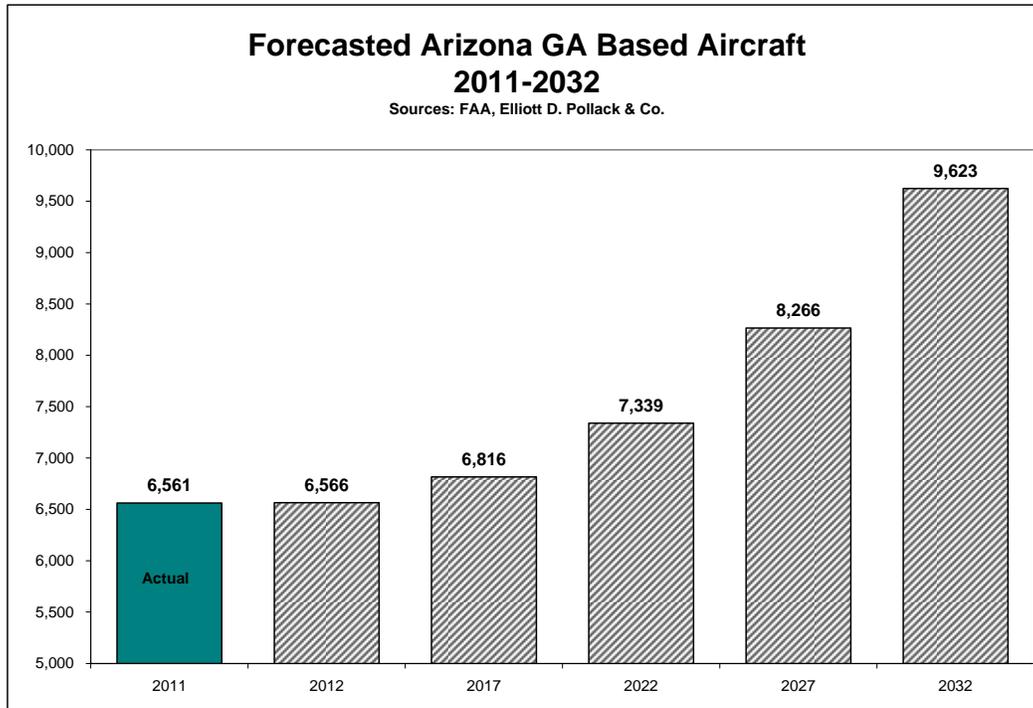
The FAA has produced some very conservative forecasts for GA operations and active aircraft. Taking into account Arizona's forecasted population growth relative to the U.S., the forecasts of GA based aircraft and operations for the State are conservative.

Based on the above data, the following forecasts have been prepared for GA operations and based aircraft. Given the uncertainty in the U.S. and global economies, over the next few years, Arizona will likely experience moderate employment growth by historic standards. Current forecasts from the University of Arizona Forecasting Project indicate that employment in Arizona will not reach its pre-recession level until 2015.

GA operations are expected to increase by 27.7% between 2011 and 2032, or a compounded annual rate of only 1.34%. By 2032, GA operations should reach more than 3.5 million.



GA based aircraft are expected to grow faster than operations. Registered aircraft should increase by 46.7% by 2032 for an compounded annual growth rate of 1.93%. GA aircraft in the State could exceed 9,600 based on the forecast from 6,561 aircraft in 2011.



Following is the forecast for the economic impact of aviation from 2012 to 2032. The aviation, or the airport component of the industry, and tourism are expected to expand the most based on future forecasted enplanements and operations. Tourism employment growth is forecasted at an average annual rate of 2.85% over the next 20 years while aviation is forecasted at 2.17% annual growth. Aviation education is expected to expand at a slower rate consistent with historical trends of 1.40% annually. Off-airport aviation, which represents airline headquarters and reservation centers in Arizona, is forecasted to remain flat over the next 20 years as is the military impact. Aerospace employment, as forecasted by the University of Arizona, is expected to expand in the future, but very slowly at an average annual rate of only 0.9%. Overall, employment in the aviation industry is expected to grow at an average annual rate of 1.56%.



Forecasted Economic Impacts of Aviation Industry Arizona 2012 - 2032							
	Commercial & GA Aviation	Off-Airport Aviation	Aviation Education	Military	Aerospace	Tourism	Total
Employment							
2012	130,225	4,112	2,166	92,103	103,181	76,838	408,625
2017	156,347	4,112	2,322	92,103	109,168	89,512	453,565
2022	172,853	4,112	2,489	92,103	109,284	102,752	483,594
2027	186,422	4,112	2,669	92,103	114,415	117,709	517,430
2032	200,064	4,112	2,861	92,103	123,135	134,693	556,967
Wages (Mil.)							
2012	\$7,155.3	\$222.0	\$84.1	\$3,778.0	\$7,072.0	\$2,684.6	\$21,158.8
2017	\$9,424.4	\$243.5	\$98.9	\$4,144.7	\$8,208.6	\$3,431.0	\$25,551.0
2022	\$11,430.7	\$267.1	\$116.3	\$4,547.0	\$9,014.9	\$4,320.8	\$29,696.8
2027	\$13,524.6	\$293.1	\$136.7	\$4,988.3	\$10,354.2	\$5,430.2	\$34,727.1
2032	\$15,923.1	\$321.5	\$160.8	\$5,472.5	\$12,225.0	\$6,816.8	\$40,919.7
Economic Activity (Mil.)							
2012	\$21,102.7	\$466.8	\$174.0	\$7,631.3	\$20,389.8	\$8,168.4	\$57,933.0
2017	\$27,794.9	\$512.1	\$204.7	\$8,372.0	\$23,666.8	\$10,439.5	\$70,989.9
2022	\$33,711.9	\$561.8	\$240.7	\$9,184.7	\$25,991.6	\$13,146.8	\$82,837.4
2027	\$39,887.4	\$616.3	\$283.1	\$10,076.1	\$29,853.0	\$16,522.3	\$97,238.2
2032	\$46,961.2	\$676.1	\$332.9	\$11,054.2	\$35,426.7	\$20,741.3	\$115,012.3

1/ The total may not equal the sum of the impacts due to rounding. All dollar figures are in constant dollars. Inflation has not been included in these figures.
Source: Elliott D. Pollack & Company; IMPLAN

Over the next 20 years, the aviation component of the industry is expected to account for a larger share of employment, increasing from 31.9% of employment and 36.4% of economic activity in 2012 to 35.9% of jobs and 40.9% of activity. By 2032, aerospace will still account for a large share of employment and economic activity, but its share will decline over time. Tourism is expected to show significant growth in both employment as well as economic activity.

Composition of Statewide Economic Impact By Type Arizona 2012 - 2032							
	Commercial & GA Aviation	Off-Airport Aviation	Aviation Education	Military	Aerospace	Tourism	Total
Employment							
2012	31.9%	1.0%	0.5%	22.5%	25.3%	18.8%	100.0%
2032	35.9%	0.7%	0.5%	16.5%	22.1%	24.2%	100.0%
Economic Activity							
2012	36.4%	0.8%	0.3%	13.2%	35.2%	14.1%	100.0%
2032	40.8%	0.6%	0.3%	9.6%	30.6%	18.0%	100.0%

Source: Elliott D. Pollack & Company; IMPLAN



4.0 Impact of Aviation Fund

Each year, ADOT prepares a Five-Year Airport Capital Improvement Program (ACIP) with the objective of maximizing the use of State and FAA funding for Arizona airports. State funds primarily come from flight property tax, aircraft lieu tax and the aviation fuel tax while FAA monies are derived from taxes on airline tickets. ADOT allocates money from the State Aviation Fund and distributes the funds in the three following categories of airport development assistance.

- Airport Development Grants Program
- Airport Pavement Management System (APMS)
- Airport Loan Program.

The needs of the 66 public airports greatly exceed available resources. The FY 2012 – 2016 ACIP has programmed nearly \$980 million in improvements and planning activities over the next five years with Arizona’s funding proposed at \$104.7 million of the total amount. These expenditures create significant economic impacts for the cities and counties where the airports are located. In FY 2012, the State funded \$28.2 million out of the total of \$140.0 million in improvements, land acquisition, design and planning activities. These CIP projects created nearly 1,700 jobs in the State in 2011, producing wages of \$79.1 million and total economic activity of \$217.6 million. The State’s contribution to these projects was approximately 18% of the total or 301 jobs, \$13.6 million in wages and \$38.3 million in economic activity. (Note: Land acquisition is excluded from the economic impact analysis since it does not produce an economic impact or create employment).



Economic Impact Capital Improvement Projects Arizona

Impact Type	Jobs	Wages	Economic Output
Federal and Locally-Funded Capital Improvements			
Direct	820	\$39,624,000	\$107,956,000
Indirect	202	\$10,679,000	\$27,266,000
Induced	360	\$15,134,000	\$44,084,000
Total	1,382	\$65,437,000	\$179,306,000
ADOT Funded Capital Improvements			
Direct	187	\$8,519,000	\$24,090,000
Indirect	42	\$2,179,000	\$5,552,000
Induced	72	\$2,928,000	\$8,675,000
Total	301	\$13,626,000	\$38,317,000
Total			
Direct	1,007	\$48,143,000	\$132,046,000
Indirect	244	\$12,858,000	\$32,818,000
Induced	432	\$18,062,000	\$52,759,000
Total	1,683	\$79,063,000	\$217,623,000

1/ The total may not equal the sum of the impacts due to rounding. All dollar figures are in constant dollars. Inflation has not been included in these figures.

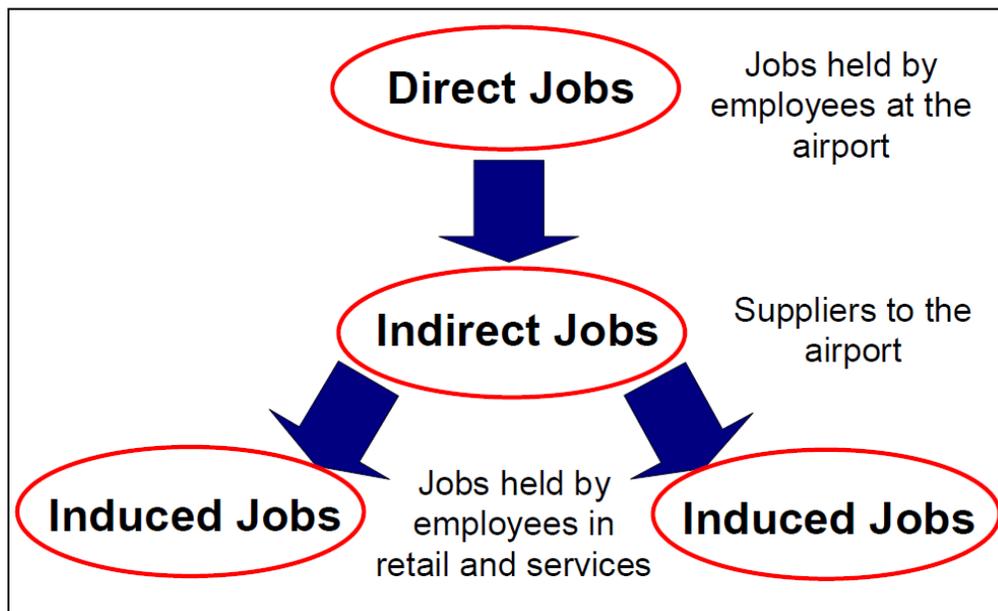
Source: Elliott D. Pollack & Company; IMPLAN



Appendix

Appendix 1: Study Methodology

Economic impact analysis examines the economic implications of an activity in terms of output, earnings, and employment. The different types of economic impacts are known as direct, indirect, and induced, according to the manner in which the impacts are generated as shown on the following chart. For instance, direct employment consists of permanent jobs held by employees either at the airports or in the aviation industry. Indirect employment is those jobs created by businesses that provide goods and services essential to the operation of the airports or aviation industry. These businesses range from manufacturers (who make goods) to wholesalers (who deliver goods) to janitorial firms (who clean the buildings). Finally, the spending of the wages and salaries of the direct and indirect employees on items such as food, housing, transportation and medical services creates induced employment in all sectors of the economy, throughout the State. These secondary effects are captured in the analysis conducted in this study.



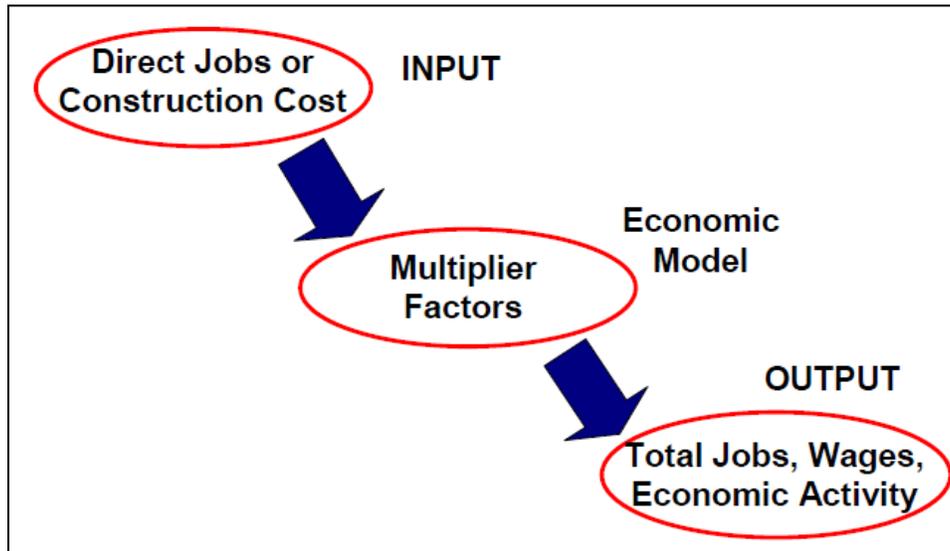
Multipliers have been developed to estimate the indirect and induced impacts of various direct economic activities. The Minnesota IMPLAN Group developed the multipliers used in this study. The economic impact is categorized into three types of impacts:

- (1) **Employment Impact** – the total wage and salary and self-employed jobs in a region. Jobs include both part time and full time workers.
- (2) **Earnings Impact** – the personal income, earnings or wages, of the direct, indirect and induced employees. Earnings include total wage and salary payments as well as benefits of health and life insurance, retirement payments and any other non-cash compensation.



- (3) **Economic Output** – also referred to economic activity, relates to the gross receipts for goods or services generated by the company’s operations.

The methodology for estimating the economic impact of an activity starts with an input to an economic model. The input could be employment, construction cost (if the construction of a facility is involved) or gross revenue of a company. Multiplier factors are then applied to the input and the output is expressed in total jobs, wages and economic activity.



Economic impacts are by their nature regional in character. The impact of each airport was calculated using the county-wide multipliers for the county within which the airport is located. Such impacts are best illustrated when not assigned to a specific city or locality, although clearly the primary impact of job creation would be on the city where the activity is located.

Multipliers are also not equal from industry to industry or county to county. Those industries with high wages typically have higher multipliers because of the additional spending power of the high wage earners. Industries that produce a product that is sold outside the region also have higher multipliers because the exporting of the good brings wealth into the region. Following are examples of the multiplier effects of several aviation industries in Maricopa and Yavapai counties.

Employment Multiplier Examples		
Aviation Industry	Maricopa County	Yavapai County
Aviation (Commercial & GA)	2.25	1.58
Aviation Education	1.59	1.34
Aerospace & Defense	4.26	1.83
Tourism	1.51	1.28
Total Impact	2.24	1.57



For this study, the analysis focused on seven separate components of the aviation industry:

1. Commercial airports
2. General aviation airports
3. Aerospace manufacturing
4. Military aviation
5. Aviation education
6. Tourism spending of travelers using
7. Capital improvement projects at airports

The sources of information used to calculate the economic impact of each component is different and, in some cases, existing information was used when available. Following is a summary of the methodology for each component of the study.

Commercial and General Aviation Airports

An economic impact model was developed for the State, its counties and the individual airports. The primary input to the model is jobs - both public and private employment associated directly with the airport. From this jobs estimate, the total economic impact of the airport can be estimated based on IMPLAN multipliers.

In order to calculate the impact of the airports, data was initially collected primarily through a survey distributed to airport managers by this firm and the Arizona Department of Transportation. The survey focused on obtaining data regarding employment, spending at the airports, the number of based aircraft and identification of aviation-related businesses at the airport. A copy of the survey can be found in the Appendix 2 to this report.

Unfortunately, there was a low initial response rate from airport managers. In order to obtain employment data, follow-up phone calls were made to airport managers and aviation-related businesses. Internet searches were also conducted to identify FBOs and other businesses on the airport premises. Based on the initial survey and follow-up phone calls, enough data was collected to calculate the economic impact for each airport.

During the course of the study, it was determined that several airports in the Phoenix area had recently conducted economic impact studies or were in the process of preparing them. Phoenix Mesa Gateway Airport had a study completed in 2011 by ASU. The City of Phoenix had also contracted with ASU for economic impact studies of Phoenix Sky Harbor International Airport, Phoenix Deer Valley Airport and Phoenix Goodyear Airport during 2012. The University of Arizona completed an economic impact study of Tucson International Airport in 2012 as well. In order to avoid duplication of effort and conflicting results due to different methodologies, the economic impact reports for these five airports were incorporated into this study.

From follow-up phone calls and survey data, total direct employment for each airport was estimated by type of job. Employment estimates were inputted to an economic model developed for the study. The resulting output represents the total multiplier effect of the direct employment, including indirect and induced jobs, wages and economic activity.



Aerospace Manufacturing

The economic impact of aerospace manufacturing was based on U.S. Bureau of Labor Statistics data for aviation and aerospace manufacturing employment in each of the counties as well as statewide. As noted previously, the primary input to the economic model was employment as identified in the BLS database. IMPLAN multipliers were used to estimate the economic impact for each county in the State.

Military Aviation

Due to a lack of public employment information at military aviation bases, the report “Economic Impact of Arizona’s Principal Military Operations 2008” produced by The Maguire Company and ESI was used as a reference for employment at the various military aviation bases. This reference was used on the assumption that direct employment at the bases did not appreciably change between 2008 and when this study was initiated in 2012. IMPLAN multipliers were used to evaluate the impact of the bases on each county in the state. The following table describes the military bases included in the analysis.

Arizona's Military Air Bases		
Military Base	City	County
Air National Guard 161st	Phoenix	Maricopa
Air National Guard 162nd	Tucson	Pima
Davis-Monthan Air Force Base	Tucson	Pima
Libby Army Airfield	Sierra Vista	Cochise
Luke Air Force Base	Glendale	Maricopa
Marine Corp Air Station	Yuma	Yuma
Papago Park Military Reservation	Phoenix	Maricopa
Silverbell Army Heliport	Marana	Pinal

Aviation Education

The economic impact of aviation education was calculated using several data sources. The survey distributed to airport managers solicited information regarding aviation education, primarily flight schools, at each airport. However, due to the lack of survey responses, flight schools were contacted directly by phone. Some schools did not respond to the phone calls and data was therefore not collected. ADOT provided a list of operational flight schools within the state. Employment data was also collected on flight training employment from the U.S. Bureau of Labor Statistics (BLS).

Based on the collection of data from BLS and ADOT, it was determined that there were 1,453 direct aviation education jobs in the state. This data was then used to estimate the overall impact of education based on IMPLAN multipliers.



Tourism Impact

The impact of tourism is considered a secondary impact of aviation. Tourists do not come to Arizona because of our aviation assets; they come because of the climate, natural beauty, resorts and other attractions. Aviation assists in bringing tourists to Arizona. Hence, the tourism impact is considered secondary to the normal operations of airports, the military and flight schools.

Information on the tourism impact came from several different sources. Some of the larger airports had recently completed economic impact studies and had conducted surveys of passenger spending patterns. Those airports included:

- Tucson International Airport Economic Impact Study 2012 (May 2012) produced by the Eller MBA Team.
- Economic Impact of the Phoenix Airport System produced by ASU (Including Phoenix Sky Harbor International, Phoenix Deer Valley and Phoenix Goodyear Airport).
- Phoenix-Mesa Gateway Economic Benefit Study FY2010 produced by ASU.

A number of recent tourism studies were also collected to assist in estimating tourism spending patterns for various regions of the State. Those studies include the following.

- Flagstaff Tourism Study (April 2009) prepared by Arizona Hospitality Research & Resource Center Center for Business Outreach, The W. A. Franke College of Business, Northern Arizona University
- Globe-Miami Area Tourism Study 2008-2009 (Dec 2009) prepared by Arizona Hospitality Research & Resource Center Center for Business Outreach, The W. A. Franke College of Business, Northern Arizona University
- Kingman Area and Grand Canyon West/Hualapai Tourism Study, 2010 (April 2011); same author
- Lake Havasu City Tourism Survey (April 2008)
- Prescott Area Tourism Study 2008-2009 (Oct 2009)
- Verde Valley Tourism Survey
- Wickenburg Visitor Study (Nov 2011)
- Yuma Area Tourism Study (Feb 2011)

Two methodologies were used to determine the impact of tourists arriving to Arizona by air. The methodologies depended upon the manner in which they flew to the State – either by commercial service or by general aviation aircraft. A description of each methodology follows.

Visitors Arriving at Commercial Service Airports

For the commercial service airports, it was assumed that 50% of all deplanements were visitors to the area unless a study determined otherwise. This assumption primarily came from the Tucson International Airport study. However, ASU's survey of Phoenix Sky Harbor International Airport showed that 54.6% of deplanements were visitors to the area. Phoenix Mesa Gateway's study showed that 62% of deplanements were visitors. Grand Canyon National Park and Grand Canyon West airport deplanements were determined to be 90% visitors.



Visitation was also divided between leisure and business trips. Business visitors generally spend more per day, but do not stay as long as leisure visitors. The tourism studies cited above were used to estimate the proportion of leisure and business visitors and length of stay.

Unless a specific study was available for a county, city or airport, spending per person per day was estimated at \$69.11 for leisure visitors and \$144.84 for business travelers (source is the Tucson International Airport Economic Impact Study 2012). Spending included lodging, food and beverage, entertainment, transportation and retail.

Visitors Arriving at General Aviation Airports

For general aviation airports, visitation was based on the number of transient operations as determined by data from AirNav or ATADS. The count of total visitors was estimated at two persons per transient operation. Based on surveys conducted for studies in other states, 10% of all visitors to rural airports were assumed to stay overnight; 15% of all visitors to urban airports were assumed to stay overnight. Thirty percent (30%) of all visitors were assumed to be day visitors who left the airport for a local trip. Of the remaining transient operations, it was assumed the visitors did not leave the airport premises.

Spending for overnight visitors was assumed at \$100 per visit for an urban airport and \$90 per visit for a rural airport. Spending for daytime visitors was assumed at \$50 per day for an urban airport and \$40 per day for a rural airport.

Airport Capital Improvements

The economic impact of capital improvement projects at airports was estimated for this study. The data for capital improvement spending was generated from ADOT's Five Year Airport Capital Improvement Program (ACIP) for FY 2012 through FY 2016. The impact estimate was calculated for improvements scheduled to be funded in FY 2012. Out of the total of \$140.0 million in improvements, land acquisition, design and planning activities planned for FY 2012, the State funded \$28.2 million. Land acquisition is excluded from the economic impact analysis since it does not produce an economic impact or create employment. The primary input for analysis was total construction cost. The economic impact model developed for this portion of the study utilized construction multipliers from IMPLAN to determine the number of direct, indirect and induced jobs, wages and output created by capital improvement spending.



Appendix 2: Airport Managers Survey





IMPACT OF AVIATION IN ARIZONA STUDY

February 16, 2012

Dear Airport Manager or Executive,

As you may be aware, the Arizona Department of Transportation - Multimodal Planning Division – Aeronautics Group (ADOT) has retained Elliott D. Pollack & Company of Scottsdale, Arizona to conduct an Economic Impact Study of Aviation in the State of Arizona. The purpose of the study is to support ADOT's on-going efforts to understand the benefits of aviation from the standpoint of jobs, wages and revenues to cities and counties across the State. The final report will be available to the public and will provide an estimate of economic impact for each of the State's airports.

We need your assistance to ensure a successful study. Please find attached an Airport Managers Survey, which is designed to collect factual information about your airport including its economic contribution to the local and state economies and its contribution to the welfare, safety, and recreation of Arizona residents. *Your answers to these questions will be held in strict confidence.* Any sensitive data that you provide will only be published in an aggregate form that will not reveal individual airport or firm-specific information.

In order to expedite the survey process and make it as painless as possible, we forwarded the survey to available e-mail addresses. Unfortunately, we did not have your email address and are forwarding the survey by mail. You may fill out and submit the survey by two methods:

1. Fill out the survey by hand and fax it to me at 480-423-5942. If you prefer, you may also scan the survey and email it to me at info@edpco.com.
2. You may go to the following website <http://www.fiscalimpacts.com/airportsurvey/> and fill out the survey on line. The **User Name is: ADOT** and the **Password is: aviation** (both are case sensitive). Be sure to click "Submit Survey" at the bottom of the web page to send your response.

Whichever method you choose, please return your completed survey by March 2, 2012. With your cooperation, we hope to have results for the statewide economic impacts completed in July 2012.

If you have a recent economic impact study for your airport, please forward a copy of the report to us, either electronically or by mail. If the study has been conducted in the last two to three years, you do not need to fill out the survey, we will use the results of your study.

We appreciate your time to fill out the survey. The results will assist in promoting continued investment in the State's aviation infrastructure.

Sincerely

A handwritten signature in black ink that reads "Richard Merritt". The signature is written in a cursive, flowing style.

Richard Merritt
Elliott D. Pollack & Company
7505 E. 6th Avenue, Suite 100
Scottsdale, AZ 85251
Tel: 480-423-9200
Fax: 480-423-5942
Email: merritt@edpco.com



AIRPORT MANAGERS SURVEY

Thank you for your participation in this important study.
 If available, please forward a copy of your most recent annual report and copies of any previous economic impact studies conducted of your airport.

You may also fill out this survey online at www.fiscalimpacts.com/airportsurvey

User name: ADOT Password: aviation (User name and password are case sensitive)

Please answer questions as completely as possible. We do not intend for you to conduct an exhaustive audit of your records. Use your best judgment and answer questions to the best of your knowledge.

- Airport Name: _____
 Location: _____
 Manager (Contact): _____
 Phone Number: _____

2. Please provide the following **activity data** for your airport:

TOTAL OPERATIONS	2009	2010	2011
Commercial Operations			
Commercial Enplanements			
General Aviation Local Operations			
General Aviation Itinerant Operations			
Percent Transient Operations (non-local visitors)			
Average No. of Persons Per Transient Operation			
Military Operations			
Total Based Aircraft			
Tons of Cargo Shipped			

3. Please estimate the percentage of 2011 general aviation transient aircraft parked for one day and overnight.

% One Day	% Overnight

4. How many people were employed by the airport administration in 2011?

	Full time	Part time	Total Wages
Tower			
ARFF			
Security			
Administration			
Maintenance			
Total			

5. What was the airport's total operating budget in 2011 (excluding capital expenditures)?

Expenditure Category	\$
Personal Services	
Contractual Services	
Materials & Equipment	
Other (please specify)	
Total	

6. Please report your total capital expenditures, including all funding sources (i.e., federal, state, and local) over the last 3 years.

	2009	2010	2011
Capital Expenditures			

7. If this is a privately owned airport, please indicate the amount of real estate taxes paid in 2011.

\$ _____

8. Airports often provide their communities with **quality-of-life benefits** that are often not measurable in dollar terms. Please indicate the **principal activities** that occur at your airport.

- | | |
|---------------------------------------------------------------------------------------|--------------------------------------------------------------|
| <input type="checkbox"/> Recreational flying and/or parachuting | <input type="checkbox"/> Shipping of perishable goods |
| <input type="checkbox"/> Ballooning | <input type="checkbox"/> Model aircraft flying |
| <input type="checkbox"/> Preservation of open space/wetlands/
woodlands | <input type="checkbox"/> Agricultural spraying |
| <input type="checkbox"/> Career training / Education | <input type="checkbox"/> Freight / Cargo activity |
| <input type="checkbox"/> Search & Rescue | <input type="checkbox"/> Traffic / News reporting |
| <input type="checkbox"/> Flight training | <input type="checkbox"/> Corporate / Business activity |
| <input type="checkbox"/> Emergency medical aviation | <input type="checkbox"/> Environmental patrol |
| <input type="checkbox"/> Gateway for VIP / High profile visitors | <input type="checkbox"/> Aerial photography / Surveying |
| <input type="checkbox"/> Staging area for community events | <input type="checkbox"/> Museums |
| <input type="checkbox"/> Aerial inspections | <input type="checkbox"/> Police / Law enforcement |
| <input type="checkbox"/> Aerial advertising / Banner towing | <input type="checkbox"/> Location for community facil./util. |
| <input type="checkbox"/> Promotional activities i.e., open houses,
air shows, etc. | <input type="checkbox"/> Public charters |
| <input type="checkbox"/> Other activities/attributes (please describe) | |

9. Please provide very **brief descriptions regarding the above checked activities** (ex., “Channel 8 news helicopter” or “Annual June Air Show”). Also, please discuss any special attributes of your airport or ways in which it is important to the community.

For Questions 10 through 12, you may list the information on the following tables or optionally in an Excel file that is attached.

15. Please provide any other financial or economic information that would assist in estimating the economic impact of your airport.

Please fax, email, or mail your completed survey by March 2, 2012 to:

Rick Merritt
Elliott D. Pollack & Company
7505 E. 6th Avenue, Suite 100
Scottsdale, AZ 85251

Fax: 480-423-5942
Email: merritt@edpco.com
Tel: 480-423-9200

**Once again, you may also fill out this survey online at www.fiscalimpacts.com/airportsurvey
User name: **ADOT** Password: **aviation** (User name and password are case sensitive)**

Electronic files, such as the Excel spreadsheet for questions 10 through 12, should be emailed to the address above.

If you have any questions or comments regarding this survey or the [Impacts of Aviation in Arizona Study](#), please direct them to.

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Thank you for your time and assistance.

Your participation is crucial to the success of this study.



Appendix 3: Survey of Utilization of Aviation by Private Businesses

Through a survey of private businesses, data was also collected from the Arizona business community regarding air travel and use of air cargo. The information is based on 1,000 in-depth telephone interviews conducted with a cross-section of Arizona businesses that either make airline trips for business purposes or make air cargo shipments in a typical year. A total of 8,581 businesses were screened to obtain the 1,000 businesses that use aviation for business trips or cargo shipments. The selection of businesses for the survey was based on a random sample of companies across Arizona in proportion to the size of their specific industry by NAICS code.

All of the interviewing on this project was conducted during April and May 2012 at the Behavior Research Center (BRC) of Phoenix. BRC's central location telephone facility was used where each interviewer worked under the direct supervision of BRC supervisory personnel. All of the interviewers who worked on this project were professional interviewers of the Center. Each had prior experience with BRC and received a thorough briefing on the particulars of this study. During the briefing, the interviewers were trained on (a) the purpose of the study; (b) sampling procedures; (c) administration of the questionnaire; and d) other project-related factors. In addition, each interviewer completed a set of practice interviews to ensure that all procedures were understood and followed.

Interviewing on this study was conducted during normal business hours. During the interviewing segment of this study, up to eight separate attempts on different days and during different times of day were made to contact qualified businesses. A total of 8,581 businesses were screened to obtain the 1,000 required user interviews.

When analyzing the results of this survey, it should be kept in mind that all surveys are subject to sampling error. Sampling error, stated simply, is the difference between the results obtained from a sample and those which would be obtained by surveying the entire population under consideration. The size of sampling error varies, to some extent, with the number of interviews completed and with the division of opinion on a particular question. The sampling error for this study is estimated to be approximately +/- 3.2 percent based on a 95 percent confidence level. The final report on the utilization of aviation by Arizona private businesses follows.



ARIZONA PRIVATE BUSINESS AVIATION UTILIZATION SURVEY

June 2012

Prepared for

Arizona Department of Transportation
Multi Modal Planning Division
Aeronautics Group

Prepared by

Behavior Research Center, Inc.
45 East Monterey Way
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(602) 258-4554

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INTRODUCTION

This study was commissioned by the Aeronautics Group of the Arizona Department of Transportation's Multi Modal Planning Division. The primary purpose of this effort was to gather data from the Arizona business community regarding their business air travel and use of air cargo.

The information contained in this report is based on 1,000 in-depth telephone interviews conducted with a cross-section of Arizona businesses that either make airline trips for business purposes or make air cargo shipments in a typical year. Business selection on this project was based on a sample of Arizona businesses selected by NAICS code.

All of the interviewing on this project was conducted during April and May 2012 at the Center's central location telephone facility where each interviewer worked under the direct supervision of BRC supervisory personnel. All of the interviewers who worked on this project were professional interviewers of the Center. Each had prior experience with BRC and received a thorough briefing on the particulars of this study. During the briefing, the interviewers were trained on (a) the purpose of the study; (b) sampling procedures; (c) administration of the questionnaire; and (d) other project-related factors. In addition, each interviewer completed a set of practice interviews to ensure that all procedures were understood and followed.

Interviewing on this study was conducted during normal business hours. During the interviewing segment of this study, up to eight separate attempts on different days and during different times of day were made to contact qualified businesses. A total of 8,581 businesses were screened to obtain the 1,000 required user interviews.

When analyzing the results of this survey, it should be kept in mind that all surveys are subject to sampling error. Sampling error, stated simply, is the difference between the results obtained from a sample and those which would be obtained by surveying the entire population under consideration. The size of sampling error varies, to some extent, with the number of interviews completed and with the division of opinion on a particular question. The sampling error for this study is estimated to be approximately +/- 3.2 percent based on a 95 percent confidence level.

SAMPLE PROFILE

<u>INDUSTRY</u>	
<u>GOODS PRODUCING (NET)</u>	10.8%
Natural Resources & Mining	.2
Construction	5.3
Manufacturing	5.3

(CONTINUED)

(CONT.) SAMPLE PROFILE

<u>PRIVATE SERVICE-PROVIDING (NET)</u>	89.2%
Trade, Transportation, Utilities	16.2
Information	2.6
Financial Activities	9.9
Professional & Business Services	37.9
Educational & Health Services	9.8
Leisure & Hospitality	3.6
Other services	<u>9.2</u>
	100.0%
 <u>LOCATION</u>	
Maricopa	58.4%
Pima	18.8
Rural North	10.5
Rural South	<u>12.3</u>
	100.0%
 <u>NUMBER OF EMPLOYEES</u>	
1 to 2	39.9%
3 to 9	34.4
10 to 99	20.9
100 or over	<u>4.8</u>
	100.0%
 <u>ARIZONA HEADQUARTERED</u>	
Yes	88.8%
No	<u>11.2</u>
	100.0%

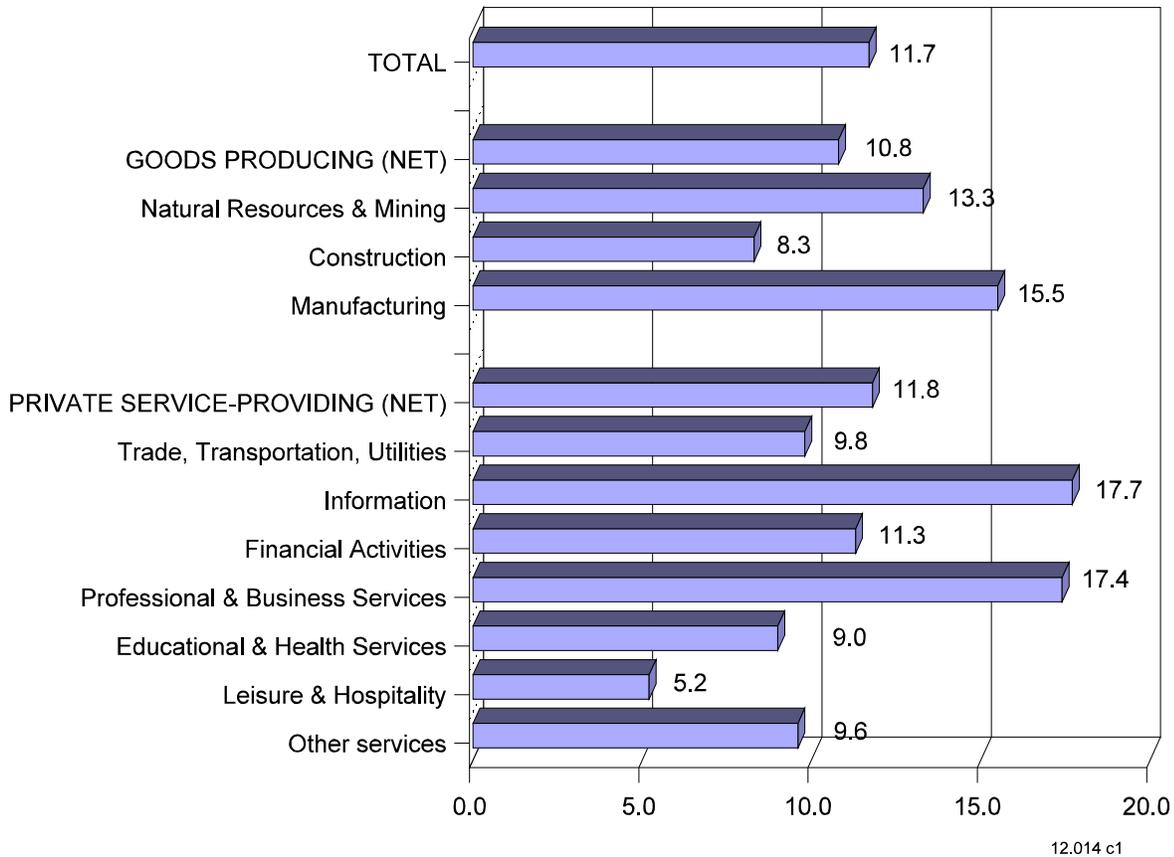
The Behavior Research Center has presented all of the data germane to the basic research objectives of the project. However, if ADOT Management requires additional data retrieval or interpretation, we stand ready to provide such input.

BEHAVIOR RESEARCH CENTER, INC.

KEY FINDINGS

- 11.7 percent of Arizona businesses make either airline trips for business purposes (11.3%) or make air cargo shipments (2.4%) in a typical year. Those industries which reveal the highest overall utilization of aviation are information (17.7%), professional/business services (17.4%), and finance (11.3%). The lowest utilization rate is found in the leisure/hospitality industry (5.2%).

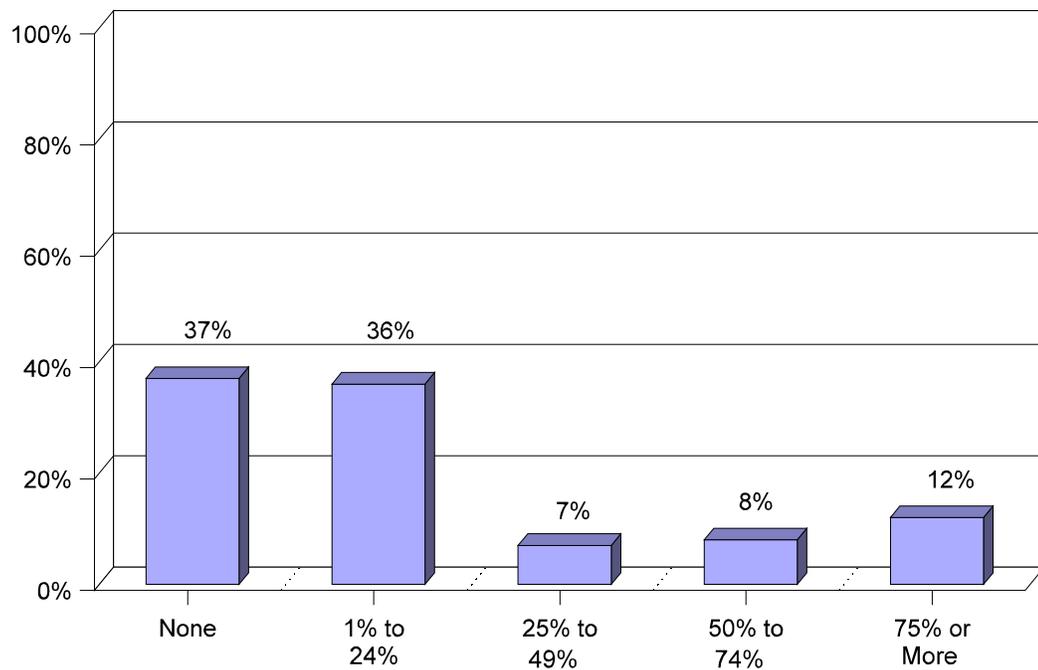
UTILIZATION OF AVIATION BY PRIVATE ARIZONA BUSINESSES – FOR BUSINESS TRIPS OR AIR CARGO



- Forty-four percent of aviation-utilizing businesses indicate that proximity to an airport was either a very (25%) or somewhat (19%) important factor in their company’s decision in selecting their current location. Airport proximity receives a particularly high importance reading of 58 percent from businesses with 100 or more employees.

- Over one-third of aviation-utilizing businesses (37%) indicate that none of their business is dependent upon the existence of the airport. A nearly equal volume (36%) indicate that less than 25 percent of their business is dependent and 20 percent indicate that 50 percent or more of their business is dependent. The study also reveals that 30 percent of aviation-utilizing businesses believe their sales would decrease if the airport was not available. In comparison, only one percent say their sales would increase, while 69 percent say it would remain the same.

**% OF BUSINESS DEPENDENT ON
EXISTENCE OF AIRPORT**

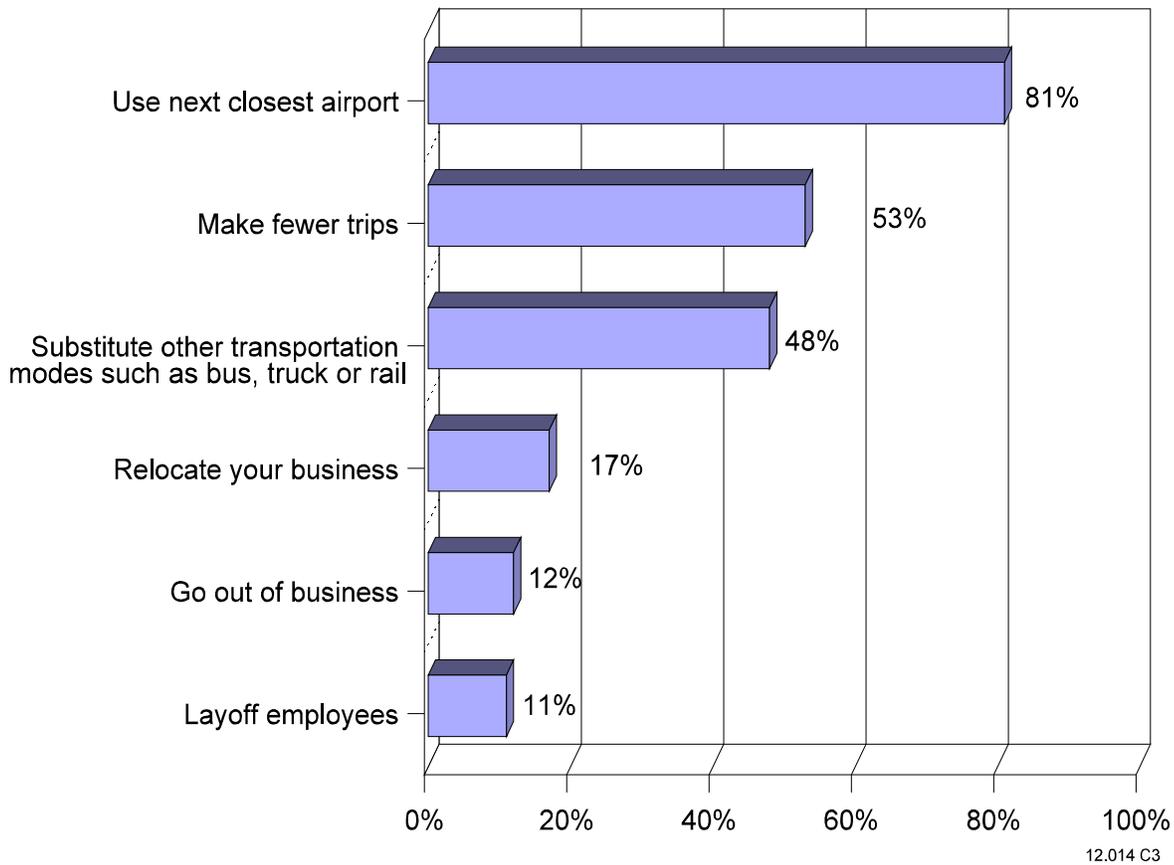


12.014 C2

- When aviation-utilizing businesses are asked the likelihood that they would take each of six steps if the airport was no longer available, or if commercial passenger service was decreased, we find that roughly a majority of businesses or more would be either very or somewhat likely to take three of the steps tested: 1) use the next closest airport (81%); 2) make fewer trips (53%), or; 3) substitute with other transportation modes (48%). Far fewer, although still noteworthy, numbers of businesses would be likely to relocate (17%), go out of business (12%) or lay off employees (11%).

**IMPACT OF REDUCED AIRPORT SERVICES -
AIRPORT NOT AVAILABLE/SERVICE DECREASED**

Very/Somewhat Likely to Do

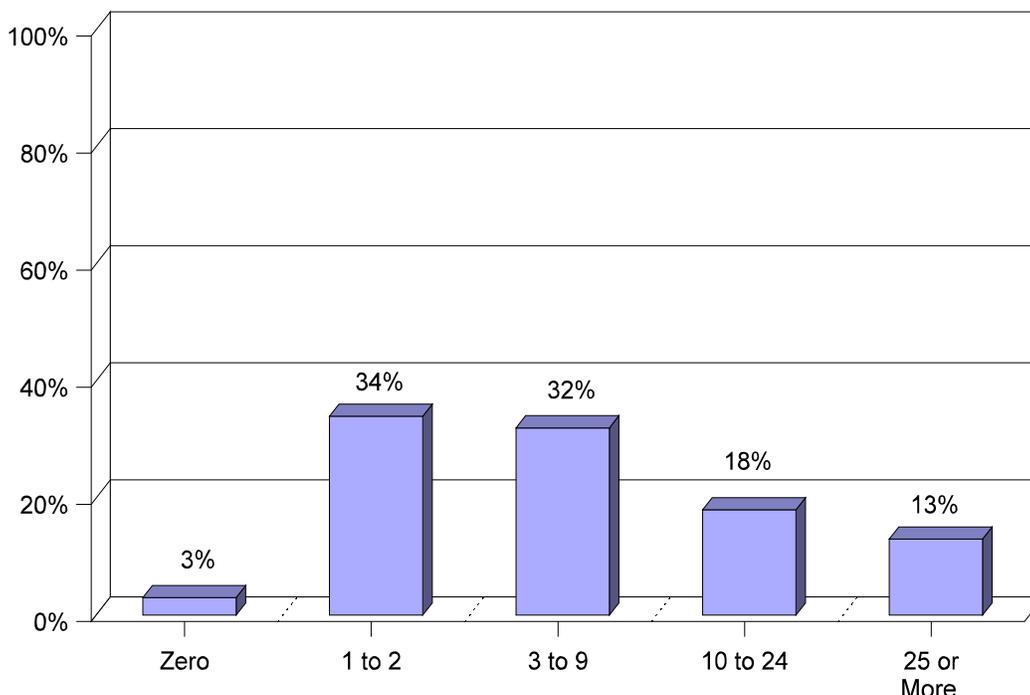


- Thirty-seven percent of aviation-utilizing businesses in Arizona have customers, suppliers or vendors who rely on commercial or general aviation to travel to Arizona to do business with them. This figure reaches 50 percent among businesses with 10 to 99 employees and 60 percent among those with 100 or more employees.

- The typical aviation-utilizing business in Arizona makes 3.7 airline business trips a year with 31 percent making ten or more trips a year. As might be expected, the frequency of business trips increases in direct correlation to increased business size with 50 percent of 100 employee plus businesses making 50 or more business trips per year.

ANNUAL BUSINESS AIRLINE TRIPS

Median: 3.7



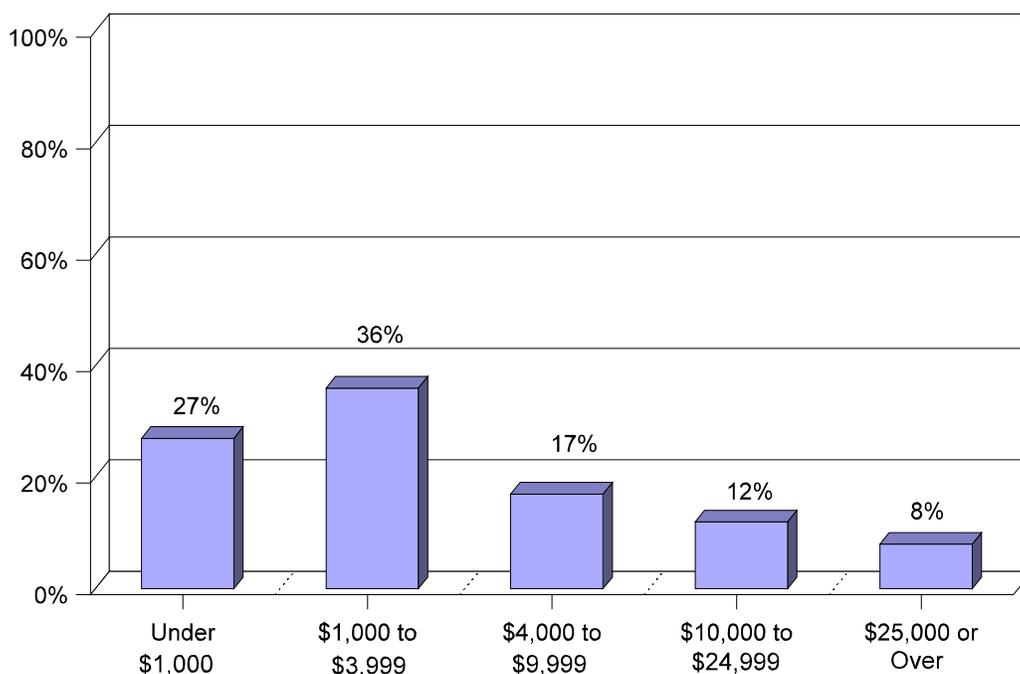
12.014 C4

- Ninety-seven percent of aviation-utilizing businesses in Arizona use only commercial airlines on their business trips.
- The top business destination region among aviation-utilizing businesses is the West (64%), followed by the South (36%), Midwest (24%) and Northeast (16%). By far and away, the most frequently visited state is California with a reading of 42 percent.
- Sky Harbor International Airport is the most frequently used Arizona airport for business travel with a reading of 81 percent statewide. The Sky Harbor reading reaches 97 percent among Maricopa County businesses and 83 percent and 73 percent among rural north and rural south businesses, respectively. Even among Pima County businesses, the Sky Harbor reading reaches 33 percent.

- The typical aviation-utilizing business in Arizona spends an estimated \$2,679 per year on business air travel. Business travel spending reaches its highest levels among urban companies (\$2,960) and companies with 100 or more employees (\$16,000).

ANNUAL BUSINESS TRAVEL SPENDING

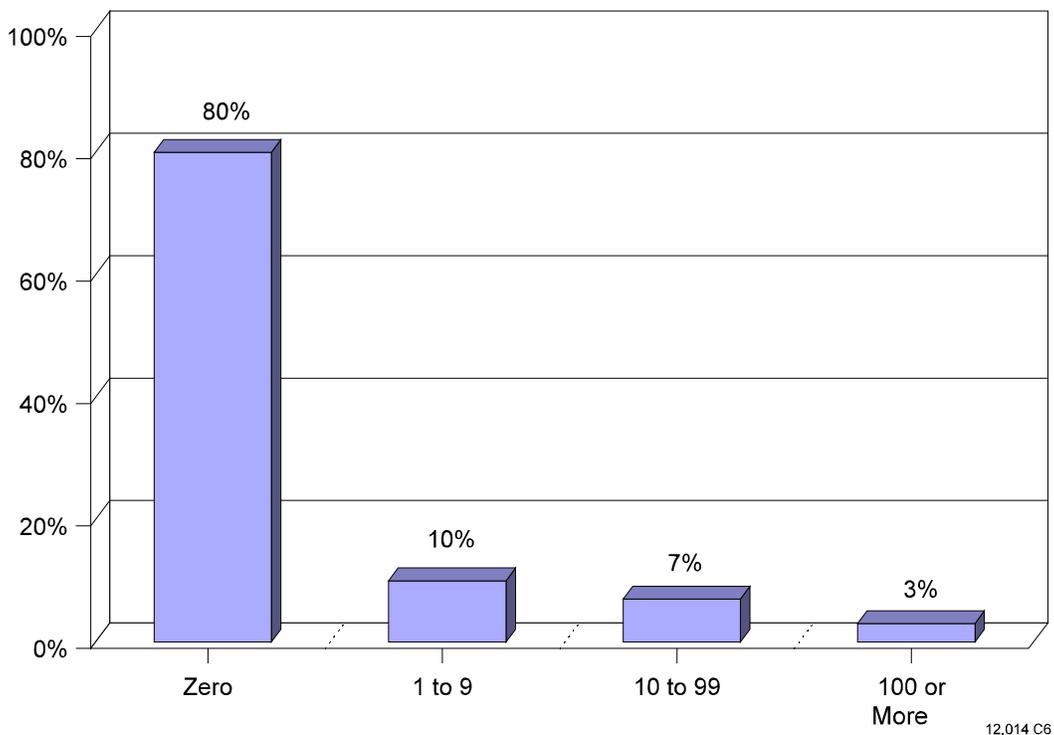
Median: \$2,679



12.014 C5

- Eighty percent of aviation-utilizing businesses in Arizona do not make any air cargo shipments in a typical year. Among those businesses that do make shipments, the average annual volume is 10.4 shipments.

ANNUAL AIR CARGO SHIPMENTS



- The typical aviation-utilizing business in Arizona that makes air cargo shipments spends an estimated \$2,360 annually. Spending is highest among urban companies (\$2,674) and companies with 100 or more employees (\$27,500).

SUMMARY OF THE FINDINGS

UTILIZATION OF AVIATION BY PRIVATE ARIZONA BUSINESSES

11.7 percent of Arizona businesses make either airline trips for business purposes (11.3%) or make air cargo shipments (2.4%) in a typical year. Those industries which reveal the highest overall utilization of aviation are information (17.7%), professional/business services (17.4%), and finance (11.3%). The lowest utilization rate is found in the leisure/hospitality industry (5.2%).

TABLE 1: SUMMARY – UTILIZATION OF AVIATION
BY PRIVATE ARIZONA BUSINESSES

<u>INDUSTRY</u>	<u>FOR ANY USE</u>	<u>FOR BUSINESS TRIPS</u>	<u>FOR AIR CARGO</u>
<u>TOTAL</u>	11.7%	11.3%	2.4%
<u>GOODS PRODUCING (NET)</u>	10.8	10.3	2.7
Natural Resources & Mining	13.3	13.3	0
Construction	8.3	8.1	1.2
Manufacturing	15.5	14.3	5.5
<u>PRIVATE SERVICE-PROVIDING (NET)</u>	11.8	11.5	2.3
Trade, Transportation, Utilities	9.8	9.5	2.9
Information	17.7	17.0	2.0
Financial Activities	11.3	10.9	1.4
Professional & Business Services	17.4	17.2	3.4
Educational & Health Services	9.0	8.9	1.0
Leisure & Hospitality	5.2	5.1	.9
Other services	9.6	9.0	2.2

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## IMPORTANCE OF AIRPORT PROXIMITY TO CURRENT LOCATION

Forty-four percent of aviation-utilizing businesses indicate that proximity to an airport was either a very (25%) or somewhat (19%) important factor in their company's decision in selecting their current location. Airport proximity receives a particularly high importance reading of 58 percent from businesses with 100 or more employees.

TABLE 2: IMPORTANCE OF AIRPORT PROXIMITY  
TO COMPANY'S CURRENT LOCATION

"Was the proximity to an airport a very important, somewhat important or not an important factor in your company's decision in selecting its current location?"

|                            | Very | Some-<br>what | Not |
|----------------------------|------|---------------|-----|
| <u>TOTAL</u>               | 25%  | 19%           | 56% |
| <u>INDUSTRY</u>            |      |               |     |
| Goods Producing            | 18   | 21            | 61  |
| Private Service Providers  | 25   | 19            | 56  |
| <u>LOCATION</u>            |      |               |     |
| Maricopa                   | 23   | 20            | 57  |
| Pima                       | 28   | 19            | 53  |
| Rural North                | 27   | 13            | 60  |
| Rural South                | 23   | 20            | 57  |
| <u>NUMBER OF EMPLOYEES</u> |      |               |     |
| 1 to 2                     | 24   | 19            | 57  |
| 3 to 9                     | 23   | 18            | 59  |
| 10 to 99                   | 24   | 21            | 55  |
| 100 or over                | 35   | 23            | 42  |

~~~~~

DEPENDENCE ON AIRPORT

Over one-third of aviation-utilizing businesses (37%) indicate that none of their business is dependent upon the existence of the airport. A nearly equal volume (36%) indicate that less than 25 percent of their business is dependent and 20 percent indicate that 50 percent or more of their business is dependent. As might be expected, larger businesses with 100 or more employees reveal the greatest dependence on the airport with 36 percent recording a dependence level of 50 percent or more.

The study also reveals that 30 percent of aviation-utilizing businesses believe their sales would decrease if the airport was not available. In comparison, only one percent say their sales would increase, while 69 percent say it would remain the same.

TABLE 3: DEPENDENCE ON AIRPORT

“What percentage of your business is dependent upon the existence of the airport for either staff travel or cargo shipments?”

	INDUSTRY			LOCATION		EMPLOYEES			
	TOTAL	Goods Producing	Private Service Providing	Urban	Rural	1-2	3-9	10-99	100+
None	37%	38%	37%	38%	25%	42%	36%	35%	19%
1 to 24	36	39	35	35	38	30	42	35	37
25 to 49	7	6	7	7	7	8	6	6	8
50 to 74	8	5	8	7	9	7	6	10	15
75 or over	<u>12</u>	<u>11</u>	<u>13</u>	<u>12</u>	<u>11</u>	<u>13</u>	<u>10</u>	<u>14</u>	<u>21</u>
	100%	100%	100%	100%	100%	100%	100%	100%	100%
MEAN %	20.5	17.4	20.9	20.9	19.4	22.9	17.5	22.1	32.7

“Would your sales increase, remain the same or decrease if the airport was no longer available?”

Increase	1%	0%	1%	1%	0%	2%	1%	*%	0%
Remain same	69	76	68	66	79	69	70	68	69
Decrease	<u>30</u>	<u>24</u>	<u>31</u>	<u>33</u>	<u>21</u>	<u>29</u>	<u>29</u>	<u>32</u>	<u>31</u>
	100%	100%	100%	100%	100%	100%	100%	100%	100%

*Indicates % less than .5

~~~~~

Continuing with the line of questioning, aviation-utilizing businesses were asked the likelihood that they would take each of six steps if the airport was no longer available, or if commercial passenger service was decreased. Here we find that roughly a majority of businesses or more would be either very or somewhat likely to take three of the steps tested: 1) use the next closest airport (81%); 2) make fewer trips (53%), or; 3) substitute with other transportation modes (48%). Far fewer, although still noteworthy, numbers of businesses would be likely to relocate (17%), go out of business (12%) or lay off employees (11%).

TABLE 4: IMPACT OF REDUCED AIRPORT SERVICE

“Would your organization be very likely, somewhat likely or not very likely to take each of the following steps if the airport was no longer available, or if commercial passenger service was decreased?”

|                                                                          | Very | Some-<br>what | Not<br>Very | Not<br>Sure | TOTAL<br>LIKELY <sup>1</sup> |
|--------------------------------------------------------------------------|------|---------------|-------------|-------------|------------------------------|
| Use the next closest airport                                             | 58%  | 23%           | 17%         | 2%          | 81%                          |
| Make fewer trips                                                         | 27   | 26            | 43          | 4           | 53                           |
| Substitute with other transportation<br>modes such as bus, truck or rail | 28   | 20            | 49          | 3           | 48                           |
| Relocate your business                                                   | 8    | 9             | 81          | 2           | 17                           |
| Go out of business                                                       | 5    | 7             | 86          | 2           | 12                           |
| Layoff employees                                                         | 6    | 5             | 86          | 3           | 11                           |

<sup>1</sup>Very + Somewhat  
~~~~~

Demographically, larger aviation-utilizing businesses (100+ employees) are the most likely businesses to use the next closest airport (94%), make fewer trips (67%) and use substitute transportation modes (58%).

TABLE 5: IMPACT OF REDUCED AIRPORT SERVICE – DETAIL

	<u>TOTAL LIKELY</u>								
	<u>INDUSTRY</u>			<u>LOCATION</u>		<u>EMPLOYEES</u>			
	<u>TOTAL</u>	<u>Goods Producing</u>	<u>Private Service Providing</u>	<u>Urban</u>	<u>Rural</u>	<u>1-2</u>	<u>3-9</u>	<u>10-99</u>	<u>100+</u>
Use the next closest airport	81%	86%	81%	81%	82%	80%	80%	84%	94%
Make fewer trips	53	50	54	53	53	52	50	58	67
Substitute with other transpor- tation modes	48	53	48	47	54	44	50	52	58
Relocate your business	17	15	17	18	10	19	17	12	12
Go out of business	12	7	12	12	10	12	12	8	8
Layoff employees	11	6	11	11	11	8	13	11	12
~~~~~									

**CUSTOMER AIR TRAVEL TO ARIZONA**

Thirty-seven percent of aviation-utilizing businesses in Arizona have customers, suppliers or vendors who rely on commercial or general aviation to travel to Arizona to do business with them. This figure reaches 50 percent among businesses with 10 to 99 employees and 60 percent among those with 100 or more employees.

TABLE 6: CUSTOMER AIR TRAVEL TO ARIZONA

“Do you have customers, suppliers or vendors who travel to Arizona to do business with your organization and rely on commercial or general aviation to do so?”

	% YES
<u>TOTAL</u>	37%
<u>INDUSTRY</u>	
Goods Producing	40
Private Service Providers	37
<u>LOCATION</u>	
Maricopa	38
Pima	40
Rural North	34
Rural South	31
<u>NUMBER OF EMPLOYEES</u>	
1 to 2	28
3 to 9	36
10 to 99	50
100 or over	60

~~~~~

BUSINESS TRAVEL PATTERNS

Aviation-utilizing businesses were asked a series of questions on the business airline trips made by their employees. This line of questioning reveals the following findings.

Annual Business Airline Trips

The typical aviation-utilizing business in Arizona makes 3.7 airline business trips a year with 31 percent making ten or more trips a year. As might be expected, the frequency of business trips increases in direct correlation to increased business size with 50 percent of 100 employee plus businesses making 50 or more business trips per year.

TABLE 7: ANNUAL BUSINESS AIRLINE TRIPS

“On average, how many TOTAL business airline trips do employees of your organization make in a typical year?”

| | INDUSTRY | | | LOCATION | | EMPLOYEES | | | |
|-------------|----------|--------------------|---------------------------------|----------|----------|-----------|----------|-----------|-----------|
| | TOTAL | Goods
Producing | Private
Service
Providing | Urban | Rural | 1-2 | 3-9 | 10-99 | 100+ |
| Zero | 3% | 5% | 2% | 2% | 3% | 3% | 4% | 0% | 0% |
| 1 to 2 | 34 | 35 | 34 | 31 | 43 | 46 | 31 | 20 | 11 |
| 3 to 4 | 19 | 19 | 18 | 20 | 14 | 21 | 22 | 12 | 6 |
| 5 to 9 | 13 | 15 | 13 | 12 | 16 | 10 | 14 | 18 | 2 |
| 10 to 24 | 18 | 17 | 17 | 20 | 13 | 14 | 19 | 24 | 25 |
| 25 to 49 | 5 | 3 | 6 | 6 | 3 | 3 | 6 | 10 | 6 |
| 50 to 99 | 3 | 2 | 4 | 4 | 3 | 2 | 2 | 5 | 19 |
| 100 or over | <u>5</u> | <u>5</u> | <u>5</u> | <u>5</u> | <u>5</u> | <u>1</u> | <u>2</u> | <u>12</u> | <u>31</u> |
| | 100% | 101% | 100% | 100% | 100% | 100% | 100% | 100% | 100% |
| MEDIAN | 3.7 | 3.5 | 3.7 | 3.8 | 3.2 | 3.0 | 3.6 | 10.0 | 50.0 |

Totals may not equal 100% due to rounding

~~~~~

### Use of Commercial Airlines/Private Aircraft

Ninety-seven percent of aviation-utilizing businesses in Arizona use only commercial airlines on their business trip. This percentage is consistent across industry, location and number of employees.

TABLE 8: USE OF COMMERCIAL AIRLINES/  
PRIVATE AIRCRAFT ON BUSINESS TRIPS

“Are these business trips made on commercial airlines exclusively or are they sometimes or exclusively made on private aircraft your organization either owns, rents or charters?”

	<u>INDUSTRY</u>			<u>LOCATION</u>		<u>EMPLOYEES</u>			
	<u>TOTAL</u>	<u>Goods Producing</u>	<u>Private Service Providing</u>	<u>Urban</u>	<u>Rural</u>	<u>1-2</u>	<u>3-9</u>	<u>10-99</u>	<u>100+</u>
Commercial exclusively	97%	94%	97%	97%	95%	97%	96%	95%	96%
Sometimes private	2	4	2	2	3	2	3	2	4
Private exclusively	<u>1</u>	<u>2</u>	<u>1</u>	<u>1</u>	<u>2</u>	<u>1</u>	<u>1</u>	<u>3</u>	<u>0</u>
	100%	100%	100%	100%	100%	100%	100%	100%	100%

(AMONG PRIVATE AIRCRAFT USERS)

“What percentage of your organization’s business airline travel is on private aircraft your organization owns, rents or charters?”

Under 25%	35%
25% to 49%	12
50% to 74%	21
Over 75%	<u>32</u>
	100%
MEAN	57%
(BASE)	(34)

~~~~~

Top Business Trip Destinations

The top business destination region among aviation-utilizing businesses is the West (64%), followed by the South (36%), Midwest (24%) and Northeast (16%). By far and away, the most frequently visited state is California with a reading of 42 percent.

TABLE 9: TOP BUSINESS TRIP DESTINATIONS

“Next, what are the top five business destinations that employees of your organization fly to annually?”

| | INDUSTRY | | | LOCATION | |
|-------------------------|----------|--------------------|---------------------------------|----------|-------|
| | TOTAL | Goods
Producing | Private
Service
Providing | Urban | Rural |
| West (NET) | 64% | 65% | 64% | 66% | 57% |
| California | 42 | 50 | 41 | 44 | 34 |
| Nevada | 18 | 19 | 18 | 17 | 21 |
| Colorado | 9 | 5 | 9 | 9 | 7 |
| Washington | 6 | 5 | 6 | 6 | 5 |
| New Mexico | 5 | 7 | 5 | 5 | 5 |
| All others | 10 | 6 | 11 | 9 | 13 |
| South (NET) | 36 | 30 | 36 | 35 | 36 |
| Texas | 14 | 12 | 14 | 14 | 11 |
| Florida | 11 | 9 | 11 | 10 | 13 |
| District of
Columbia | 5 | 3 | 5 | 5 | 5 |
| Georgia | 4 | 3 | 4 | 4 | 3 |
| All others | 12 | 12 | 12 | 11 | 15 |
| Midwest (NET) | 24 | 24 | 20 | 22 | 16 |
| Illinois | 11 | 16 | 10 | 12 | 7 |
| All others | 12 | 10 | 12 | 13 | 9 |
| Northeast (NET) | 16 | 17 | 16 | 17 | 13 |
| New York | 10 | 13 | 10 | 12 | 6 |
| All others | 8 | 6 | 8 | 8 | 8 |
| International (NET) | 7 | 5 | 8 | 8 | 7 |

Arizona Airport Used for Business Travel

As one would expect, Sky Harbor International Airport is the most frequently used Arizona airport for business travel with a reading of 81 percent statewide. The Sky Harbor reading reaches 97 percent among Maricopa County businesses and 83 percent and 73 percent among rural north and rural south businesses, respectively. Even among Pima County businesses, the Sky Harbor reading reaches 33 percent.

TABLE 10: ARIZONA AIRPORTS USED FOR BUSINESS TRAVEL

“What Arizona airports do your employees use for business airline travel?”

| | LOCATION | | | | |
|--------------------------|----------|----------|------|-------------|-------------|
| | TOTAL | Maricopa | Pima | Rural North | Rural South |
| Maricopa (NET) | 82% | 99% | 33% | 84% | 75% |
| Sky Harbor International | 81 | 97 | 33 | 83 | 73 |
| Phoenix - Mesa Gateway | 4 | 5 | 1 | 4 | 3 |
| All others | 2 | 3 | 0 | 1 | 0 |
| Pima (NET) | 20 | 1 | 87 | 1 | 26 |
| Tucson International | 20 | 1 | 86 | 1 | 26 |
| Marana Regional | * | 0 | 1 | 0 | 0 |
| Rural North (NET) | 3 | 1 | 0 | 21 | 3 |
| Flagstaff Pulliam | 2 | 0 | 0 | 12 | 3 |
| Show Low Municipal | 1 | * | 0 | 5 | 0 |
| All others | 1 | 1 | 0 | 7 | 0 |
| Rural South (NET) | 1 | * | 0 | 0 | 12 |
| Yuma International | 1 | 0 | 0 | 0 | 12 |
| All others | * | * | 0 | 0 | 0 |

\*Indicates % less than .5

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## Business Travel Spending

The typical aviation-utilizing business in Arizona spends an estimated \$2,679 per year on business air travel. Business travel spending reaches its highest levels among urban companies (\$2,960) and companies with 100 or more employees (\$16,000).

TABLE 11: BUSINESS TRAVEL SPENDING

“How much do you estimate your organization spends annually on business airline travel?”

	<u>INDUSTRY</u>			<u>LOCATION</u>		<u>EMPLOYEES</u>			
	<u>TOTAL</u>	<u>Goods Producing</u>	<u>Private Service Provider</u>	<u>Urban</u>	<u>Rural</u>	<u>1-2</u>	<u>3-9</u>	<u>10-99</u>	<u>100+</u>
Under \$500	15%	13%	15%	13%	22%	14%	12%	19%	15%
\$500 to \$999	12	14	12	10	17	18	11	4	2
\$1,000 to \$1,999	17	19	17	18	15	23	18	8	6
\$2,000 to \$3,999	19	18	19	20	16	20	22	14	6
\$4,000 to \$9,999	17	16	17	18	14	14	18	25	9
\$10,000 to \$24,999	12	10	12	12	10	7	12	16	31
\$25,000 or over	<u>8</u>	<u>10</u>	<u>8</u>	<u>9</u>	<u>6</u>	<u>4</u>	<u>7</u>	<u>14</u>	<u>31</u>
	100%	100%	100%	100%	100%	100%	100%	100%	100%
 MEDIAN ~~~~~	\$2,679	\$2,474	\$2,703	\$2,960	\$1,727	\$1,789	\$2,507	\$5,096	\$16,000

## AIR CARGO UTILIZATION

Information was next collected on aviation-utilizing businesses' use of air cargo shipping.

### Annual Air Cargo Shipments

Eighty percent of aviation-utilizing businesses in Arizona do not make any air cargo shipments in a typical year. Among those who do make shipments, the average annual volume is 10.4 shipments. Among the largest companies, annual volume reaches 112 shipments annually.

TABLE 12: ANNUAL AIR CARGO SHIPMENTS

“On average, how many TOTAL air cargo shipments does your organization make in a typical year?”

	<u>INDUSTRY</u>			<u>LOCATION</u>		<u>EMPLOYEES</u>			
	<u>TOTAL</u>	<u>Goods Producing</u>	<u>Private Service Providing</u>	<u>Urban</u>	<u>Rural</u>	<u>1-2</u>	<u>3-9</u>	<u>10-99</u>	<u>100+</u>
Zero	80%	75%	80%	79%	84%	82%	78%	78%	81%
1 to 4	7	7	7	7	7	7	10	5	0
5 to 9	3	6	3	3	2	2	4	3	2
10 to 24	4	3	4	5	2	4	4	5	2
25 to 99	3	4	3	3	2	2	2	5	4
100 or over	<u>3</u>	<u>6</u>	<u>3</u>	<u>3</u>	<u>3</u>	<u>3</u>	<u>2</u>	<u>4</u>	<u>11</u>
	100%	101%	100%	100%	100%	100%	100%	100%	100%
MEAN AMONG THOSE MAKING SHIPMENTS	10.4	9.6	10.6	11.2	9.0	10.5	6.7	17.5	112.5

Totals may not equal 100% due to rounding

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Use of Commercial Airlines/Private Aircraft

Eighty-two percent of aviation-utilizing businesses use only commercial airlines for air cargo. Interestingly, this percentage is lower than the 97 percent who say they use only commercial airlines for business travel. It is our belief that some respondents may have been thinking of such carriers as UPS or Federal Express as private aircraft when responding to this question – thus the seemingly high private reading.

**TABLE 13: USE OF COMMERCIAL AIRLINES/
PRIVATE AIRCRAFT FOR AIR CARGO SHIPMENTS**

“Are these air cargo shipments made on commercial airlines exclusively or are they sometimes or exclusively made on private aircraft your organization either owns, rents or charters?”

| | <u>INDUSTRY</u> | | | <u>LOCATION</u> | | <u>EMPLOYEES</u> | | | |
|---------------------------|------------------|----------------------------|------------------------------------------|------------------|-----------------|-------------------|------------------|------------------|-------------------|
| | <u>TOTAL</u> | <u>Goods
Producing</u> | <u>Private
Service
Providing</u> | <u>Urban</u> | <u>Rural</u> | <u>1-2</u> | <u>3-9</u> | <u>10-99</u> | <u>100+</u> |
| Commercial
exclusively | 82% | 78% | 82% | 81% | 83% | 76% | 87% | 83% | 78% |
| Sometimes
private | 9 | 15 | 9 | 10 | 8 | 10 | 9 | 9 | 11 |
| Private
exclusively | <u>9</u>
100% | <u>7</u>
100% | <u>9</u>
100% | <u>9</u>
100% | <u>8</u>
99% | <u>14</u>
100% | <u>4</u>
100% | <u>9</u>
100% | <u>11</u>
100% |

Totals may not equal 100% due to rounding

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### Arizona Airports Used for Air Cargo Shipments

Similar to the business travel reading, Sky Harbor International is by far and away the most frequently used Arizona airport for air cargo with a reading of 76 percent.

TABLE 14: ARIZONA AIRPORTS USED FOR AIR CARGO SHIPMENTS

“What Arizona airports do you use for air transportation of cargo?”

	LOCATION				
	TOTAL	Maricopa	Pima	Rural North	Rural South
Maricopa County (NET)	78%	98%	24%	93%	76%
Sky Harbor International	76	96	24	93	71
Phoenix - Mesa Gateway	1	1	0	0	10
All others	2	4	0	0	0
Pima (NET)	21	0	78	0	24
Tucson International	21	0	78	1	24
Rural North (NET)	1	1	0	7	0
Flagstaff Pulliam	*	0	0	7	0
Holbrook Municipal	*	1	0	0	0
Rural South (NET)	2	1	4	7	0
Yuma International	2	1	4	7	0

*Indicates % less than .5

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Air Cargo Spending

The typical aviation-utilizing business in Arizona that makes air cargo shipments spends an estimated \$2,360 annually. Spending is highest among urban companies (\$2,674) and companies with 100 or more employees (\$27,500)

TABLE 15: AIR CARGO SPENDING

“How much do you estimate your organization spends annually on air cargo?”

| | <u>INDUSTRY</u> | | | <u>LOCATION</u> | | <u>EMPLOYEES</u> | | | |
|--------------------|-----------------|----------------------------|-----------------------------------------|-----------------|--------------|------------------|--------------|----------------|-----------------|
| | <u>TOTAL</u> | <u>Goods
Producing</u> | <u>Private
Service
Provider</u> | <u>Urban</u> | <u>Rural</u> | <u>1-2</u> | <u>3-9</u> | <u>10-99</u> | <u>100+</u> |
| Under \$500 | 28% | 26% | 29% | 26% | 42% | 34% | 33% | 19% | 0% |
| \$500 to \$999 | 13 | 4 | 14 | 13 | 11 | 13 | 20 | 2 | 11 |
| \$1,000 to \$4,999 | 25 | 33 | 24 | 26 | 19 | 27 | 17 | 36 | 11 |
| \$5,000 to \$9,999 | 15 | 19 | 14 | 16 | 11 | 18 | 13 | 13 | 11 |
| \$10,000 or over | <u>19</u> | <u>19</u> | <u>19</u> | <u>19</u> | <u>17</u> | <u>8</u> | <u>16</u> | <u>30</u> | <u>67</u> |
| | 100% | 101% | 100% | 100% | 100% | 100% | 99% | 100% | 100% |
| MEDIAN | \$2,360 | \$3,444 | \$2,121 | \$2,674 | \$875 | \$1,526 | \$900 | \$4,176 | \$27,500 |

Totals may not equal 100% due to rounding

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**APPENDIX**

SURVEY QUESTIONNAIRE

**AIR TRAVEL SURVEY**

March 2012

A. Hello, my name is _____ and I'm with the Behavior Research Center of Arizona. We're conducting a study among Arizona businesses for the Arizona Department of Transportation on company's business air travel and their use of air cargo, and I'd like to talk to the person within your organization who is responsible for making air travel decisions.

- IF NO AIR TRAVEL/AIR CARGO: THANK, TALLY AND TERMINATE
- IF RESPONSIBLE PERSON ON THE PHONE: GO TO Q1
- IF RESPONSIBLE PERSON AVAILABLE: GO TO QB WHEN PERSON ON THE PHONE
- IF RESPONSIBLE PERSON NOT AVAILABLE: ARRANGE CALLBACK AND GO TO QB WHEN PERSON ON THE PHONE.

B. Hello, my name is _____ and I'm with the Behavior Research Center of Arizona. We're conducting a study among Arizona businesses for the Arizona Department of Transportation on company's business air travel and their use of air cargo. Are you the person within your organization who is responsible for making air travel and cargo decisions?

- IF YES: GO TO Q1
- IF NO: ASK TO SPEAK WITH RESPONSIBLE PERSON AND GO TO QB. IF NOT AVAILABLE ARRANGE CALLBACK AND GO TO QB WHEN PERSON ON THE PHONE.

1. To begin, any information you provide will be held in strict confidence and no organizations individual responses will ever be released. First, on average, how many TOTAL business airline trips do employees of your organization make in a typical year? (IF RESPONDENT DOES NOT KNOW, ASK THEM FOR THEIR BEST ESTIMATE) TRIPS: / / / /

**(IF NONE, GO TO Q9)**

2. Are these business trips made on commercial airlines exclusively or are they sometimes or exclusively made on private aircraft your organization either owns, rents or charters? (GO TO Q4) Commercial exclusively...1  
(GO TO Q3) Sometimes private...2  
Private exclusively...3

3. What percentage of your organization's business airline travel is on private aircraft your organization owns, rents or charters? PERCENTAGE: / / / /

4. Next, what are the top five business destinations that employees of your organization fly to annually? (LIST BELOW)

4a. And approximately how many trips to (DESTINATION) do employees of your organization make each year? (ROUND TRIP EQUALS ONE TRIP)

	DESTINATION	NUMBER OF TRIPS
1.	_____	_____
2.	_____	_____
3.	_____	_____
4.	_____	_____
5.	_____	_____

5. What Arizona airports do your employees use for business airline travel? (LIST ALL MENTIONED)

6. How much do you estimate your organization spends annually on business airline travel? (IF RESPONDENT DOES NOT KNOW, ASK THEM FOR THEIR BEST ESTIMATE) AMOUNT: / / / / / / / /

7. Do you have customers, suppliers or vendors who travel to Arizona to do business with your organization and rely on commercial or general aviation to do so? Yes...1 No...2

8. Was the proximity to an airport a very important, somewhat important or not an important factor in your company's decision in selecting its current location? Very...1 Somewhat...2 Not...3

9. Next, on average, how many TOTAL air cargo shipments, if any, does your organization make in a typical year? (IF RESPONDENT DOES NOT KNOW, ASK THEM FOR THEIR BEST ESTIMATE) SHIPMENTS: / / / / /

**(IF NONE TO Q1 AND Q9 – TERMINATE, IF NONE TO Q9 ONLY, GO TO Q10)**

9a. Are these air cargo shipments made on commercial airlines exclusively or are they sometimes or exclusively made on private, aircraft your organization either owns, rents or charters? Commercial exclusively...1 Sometime private...2 Private exclusively...3

9b. What Arizona airports do you use for air transportation of cargo? (LIST ALL MENTIONED)

9c. How much do you estimate your organization spends annually on air cargo? (IF RESPONDENT DOES NOT KNOW, ASK THEM FOR THEIR BEST ESTIMATE). AMOUNT: / / / / / / / /

10. What percentage of your business is dependent upon the existence of the airport for either staff travel or cargo shipments? (CODE NONE 000) PERCENT: / / / /

11. Would your organization be very likely, somewhat likely or not very likely to take each of the following steps if the airport was no longer available, or if commercial passenger service was decreased? (ROTATE)

	<u>Very</u>	<u>Some- what</u>	<u>Not Very</u>	<u>Not Sure</u>
A. Make fewer trips	1	2	3	4
B. Layoff employees	1	2	3	4
C. Relocate your business	1	2	3	4
D. Substitute with other transportation modes such as bus, truck or rail	1	2	3	4
E. Go out of business	1	2	3	4
F. Use the next closest airport	1	2	3	4

12. Would your sales increase, remain the same or decrease if the airport was no longer available? Increase...1 Remain same...2 Decrease...3

13. Is your company headquartered in Arizona or some other state? Arizona...1 Other state...2

14. And finally, how many full-time employees does your organization have at your location?

NUMBER:  / / / / / / /

Thank you very much, that completes this interview - we very much appreciate your input on this project. My supervisor may want to call you to verify that I conducted this interview, so may I have your name and job title that they may do so? (VERIFY PHONE NUMBER)

NAME: _____ TITLE: _____  
(GET SPECIFIC TITLE)

FROM SAMPLE: _____ NAICS CODE _____  
COMPANY NAME _____  
COUNTY _____