

ECONOMIC IMPACT OF THE PHOENIX AIRPORT SYSTEM

Prepared for

City of Phoenix Aviation Department

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EXECUTIVE SUMMARY

ECONOMIC IMPACT OF THE PHOENIX AIRPORT SYSTEM

The Phoenix Airport System

The Phoenix Airport System consists of Sky Harbor International Airport, Deer Valley Airport, and Goodyear Airport. The direct economic impact of the Airport System is measured by the output, employment, and labor income from aviation operations at the three system airports. In addition, the economic contribution of the Airport System includes activity at the Sky Harbor Center complex, spending by commercial air service visitors, and the value of direct flight international exports departing the Phoenix port. The System is financially self-sufficient. It is funded with Airport revenue and no tax dollars are used to support the airport.

In a regional economy, the initial direct impacts of economic activity are followed by indirect impacts (payments to suppliers) and induced impacts (as workers spend wages in their home communities) that create additional output, jobs and incomes through multiplier or “ripple” effects. The total 2022 economic impact of the Phoenix Airport System is the combined sum of direct, indirect, and induced impacts:

- \$44.3 billion total economic output
- 245,373 total jobs supported in the region,
- \$14.8 billion total income (wages and benefits) to workers and proprietors
- \$2.8 billion state and local tax revenues generated

Phoenix Airport System Economic Impact Summary: 2022			
Impact Sources	Employment	Labor Income	Output
Sky Harbor Airport	47,919	\$3,888,685,000	\$13,325,398,000
Sky Harbor Center	8,502	\$945,353,000	\$2,423,230,000
Deer Valley Airport	789	\$65,297,000	\$151,571,000
Goodyear Airport	667	\$67,384,000	\$241,887,000
Airline Visitor Spending	81,313	\$2,963,531,000	\$7,032,225,000
Direct Flight Exports	1,356	\$175,745,000	\$774,393,000
Direct Economic Impact	140,546	\$8,105,995,000	\$23,948,704,000
Indirect (Supplier) Impact	46,221	\$3,134,214,000	\$9,135,042,000
Induced (Worker) Impact	58,606	\$3,551,491,000	\$11,266,237,000
TOTAL ECONOMIC IMPACT	245,373	\$14,791,700,000	\$44,349,983,000

Phoenix Sky Harbor International Airport and Sky Harbor Center

Phoenix Sky Harbor International Airport provides outbound access to the nation and the globe for metro Phoenix residents and businesses while enabling travel of inbound visitors and transit of goods and services that enhance the economy. The Airport is an “engine of growth” for the entire region. Moreover, the Airport itself is a major locus of commercial activity, with a significant economic footprint, including 47,919 direct jobs supported by Sky Harbor International Airport. The Sky Harbor Center office and facility complex west of Sky Harbor Airport provides employment for an additional 8,502 workers. Sky Harbor Airport produced aviation services with direct output of \$13.3 billion in 2022. Sky Harbor Center direct output was \$2.4 billion. The combined direct output was \$15.8 billion and total output was \$28.4 billion with multiplier effects.

Sky Harbor International Airport/Sky Harbor Center Impacts: 2022			
Economic Impact Sources	Employment	Labor Income (thousands)	Output (thousands)
Sky Harbor Airport	47,919	3,888,685	13,325,398
Sky Harbor Center	8,502	945,353	2,423,230
Direct Economic Impact	56,421	4,834,038	15,748,628
<i>Indirect (Supplier) Impact</i>	<i>30,545</i>	<i>2,064,908</i>	<i>5,789,745</i>
<i>Induced (Worker) Impact</i>	<i>35,869</i>	<i>2,171,550</i>	<i>6,888,806</i>
TOTAL ECONOMIC IMPACT	122,835	\$9,070,496	\$28,427,179

If combined in a single tally, the jobs at Phoenix Sky Harbor International Airport would make the airport the state’s largest employer in 2022:

- Phoenix Sky Harbor International Airport (47,919)
- Banner Health (45,837)
- Walmart (36,995)
- Amazon (32,000)

Enplanements at Sky Harbor Airport declined in 2020 during the pandemic-induced recession, but steadily recovered:

- Enplanements declined to 10,962,000 in 2020, a drop of 53%
- Enplanements were 96% recovered (22,296,000) by 2022
- Enplanements rose to a record 24,493,000 in 2023

Phoenix Sky Harbor Airport operates 24 hours per day, 7 days per week. On a typical day:

- 1,077 commercial aircraft arrive and depart (45 per hour)
- 121,638 passengers move through the terminals
- 1,067 tons of air freight handled
- \$576,000 purchases of food & beverages in the terminals
- 15,400 revenue producing ground trips via rideshare, taxi, vans, and buses
- 4,550 rental contracts issued at the Rental Car Center
- \$19.3 million spending by air visitors in the region

Sky Harbor Center

The Sky Harbor Center office and facility complex west of Sky Harbor Airport provides employment for an additional 8,502 workers in diverse industries:

- Financial sector jobs (6,024)
- Aerospace & electronics jobs (1,470)
- All other private sector jobs (802)
- Public sector jobs (206)
- Sky Harbor Airport plus Sky Harbor Center support 56,421 direct jobs

Sky Harbor Airport/Sky Harbor Center workers live in all parts of the Valley and beyond:

- 41 percent (23,000) live in Phoenix
- 38 percent (21,300) live in the East Valley or Scottsdale
- 14 percent (7,900) live in the West Valley
- 7 percent (4,200) live outside the Valley

Phoenix Deer Valley Airport

With more than 275,000 operations in 2022, Phoenix Deer Valley Airport ranks among the busiest general aviation airports in the nation. The economic impact of the airport included:

- 705 private sector jobs at the airport, including a major industrial park
- 84 public sector jobs, including FAA, City of Phoenix, and State of Arizona
- \$151.6 million direct economic impact and \$309 million total economic impact

Phoenix Goodyear Airport

Phoenix Goodyear Airport is a center for aviation education and flight training, with more than 250 resident students on site. The airport is also known for its major large aircraft overhaul facilities and quality FBO services. The 2022 economic impact of the airport included:

- 667 direct public and private sector jobs on the airport
- \$241.9 million direct economic impact
- \$369.4 million total economic impact

Airline Visitor Spending

According to Origin and Destination data from the U. S. Department of Transportation, visitors accounted for 52.4 percent of enplaning passengers at Sky Harbor International Airport in 2022:

- 7.9 million domestic visitors spent a total of \$6.6 billion during their stay
- Domestic visitors spent \$828 per person per trip
- 399,000 international visitors spent \$459.8 million during their stay
- International visitors spent \$1,152 per person per trip
- Combined commercial airline visitor spending was \$7.0 billion
- Combined visitor spending supported 81,313 hospitality jobs in the region

International Direct Flight Exports

Direct international flights create economic benefits for Arizona firms that produce high value export products such as semiconductors that require rapid and safe delivery, without intermediate handling or circuitous routing. There were 5.8 million pounds of direct flight exports outbound from the Phoenix port in 2022:

- Direct flight air exports from the Phoenix port were valued at \$774.4 million
- Products produced for direct flight exports supported 1,356 local jobs
- Labor income from products for export by direct flights was \$175.5 million
- The total economic impact of output related to air exports was \$1.4 billion.

Projections of Future Growth

Analysts project that the Phoenix region will rank among the fastest growing metro areas in the nation in the decade ahead. According to a recent FAA Terminal Area Forecast, enplanements will rise even more rapidly than employment or population between 2022 and 2032. Current metro Phoenix/Sky Harbor 2022 – 2032 growth projections are shown below.

Metro Phoenix/Sky Harbor Growth Projections: 2022 - 2032				
Indicator	2022	2032	Increase	% Change
Employment	2,466,674	2,871,176	404,502	16.4%
Population	5,040,355	5,946,927	906,572	18.0%
Enplanements	22,296,300	31,237,116	8,940,816	40.1%

Sources: Employment and population (medium series) from Arizona Office of Economic Opportunity. Enplanements from FAA *Terminal Area Forecast*, January 2024.

- Non-farm employment in the Phoenix MSA will grow by 16.4% in the next decade
- Population will increase by 18%, largely driven by in-migration from other states
- Sky Harbor International Airport enplanements will increase by 8.9 million or 40.1%
- The 40.1% projected enplanement growth rate will require continued investments in aviation operational infrastructure and facilities in the years ahead

ECONOMIC IMPACT OF THE PHOENIX AIRPORT SYSTEM

1. THE PHOENIX AIRPORT SYSTEM IS AN ENGINE OF GROWTH

This report provides an analysis of the economic impact of the Phoenix Airport System in 2022. The Phoenix Airport System consists of Phoenix Sky Harbor International Airport (PHX), Phoenix Deer Valley Airport (DVT) and Phoenix Goodyear Airport (GYR).

The Phoenix Airport System provides outbound access to the nation and the globe for residents, businesses, and exported goods and services; simultaneously, the System facilitates inbound transit of domestic and international visitors, as well as air cargo. This outbound/inbound activity flow is an engine of growth for the economy, creating a high volume of employment, labor income and output (revenues) both on and off the airport.

In a regional economy, the initial direct impacts of economic activity are followed by (a) indirect impacts in the form of payments to suppliers of goods and services used to produce output and (b) induced impacts as workers spend wages in their home communities. These secondary impacts support additional output, jobs, and incomes, creating multiplier or “ripple” effects. The 2022 total economic impact of the Phoenix Airport System is the combined sum of direct, indirect, and induced impacts.

The Phoenix Airport System created a total economic impact of \$44.3 billion in 2022. The economic activity generated by system airports supported 245,373 jobs in the regional economy, with income to labor and proprietors of \$14.8 billion (Figure 1).

Figure 1
Total Economic Impact of the Phoenix Airport System: 2022



System economic impact sources are detailed in Table 1. Phoenix Sky Harbor International Airport was the single largest source of direct output (where output refers to business revenues and government budgets), at \$15.7 billion. Economic entries shown for Sky Harbor Airport also include activity at the Sky Harbor Center complex of employers located to the west of the runways, on airport property. Similarly, direct impacts for Deer Valley Airport and Goodyear Airport include all employers within the airport property boundary, whether aviation service providers, industrial facilities, flight training, or government agencies. All three system airports combined (PHX, DVT, GYR) accounted for direct economic activity of \$16.1 billion of output, employment for 57,877 workers, and labor income to workers and proprietors of \$4.9 billion.

Table 1			
Total Economic Impact of the Phoenix Airport System: 2022			
Economic Impact Sources	Employment	Labor Income (thousands)	Output (thousands)
Phoenix Airport System Airports	57,877	\$4,966,719	\$16,142,086
<i>Sky Harbor International</i>	<i>56,421</i>	<i>4,834,038</i>	<i>15,748,628</i>
<i>Phoenix Deer Valley</i>	<i>789</i>	<i>65,297</i>	<i>151,571</i>
<i>Phoenix Goodyear</i>	<i>667</i>	<i>67,384</i>	<i>241,887</i>
Airline Visitor Spending	81,313	2,963,531	7,032,225
Direct International Flight Exports	1,356	175,745	774,393
Direct Economic Impact	140,546	8,105,995	23,948,704
<i>Indirect (Supplier) Impact</i>	<i>46,221</i>	<i>3,134,214</i>	<i>9,135,042</i>
<i>Induced (Worker) Impact</i>	<i>58,606</i>	<i>3,551,491</i>	<i>11,266,237</i>
TOTAL ECONOMIC IMPACT	245,373	\$14,791,700	\$44,349,983

Spending by airline visitors is a major component of the economic impact of a modern metropolitan airport. During their stay, commercial airline visitors spent \$7.0 billion in the regional economy, supporting 81,313 jobs. Economic impact studies of large metropolitan airports vary in their treatment and valuation of air cargo. In general, the direct impact of inbound air cargo is associated with on-site off-loading and transfer to warehousing or final user. The value of output (as well as jobs and labor income) relates to the processing and handling of inbound air cargo, but the value of the product involved is not included, because inbound air cargo was produced elsewhere. Outbound air cargo is often treated differently in airport impact analysis. Outbound air cargo may

be intended for domestic or international destinations. Studies of airport impacts have included the value of exports on direct international flights as a component of the economic contribution of the airport to local industry. The Census Bureau tracks the weight and value of outbound international exports originating at the port level. In the same way that air travel facilitates visitor spending, direct international air transit facilitates the sale of export products to destinations not accessible by overland means. According to the U.S. Census Bureau, Port Level Exports, the value of direct international flight exports originating at Phoenix Sky Harbor, was \$774.4 million in 2022, supporting 1,356 jobs and labor income of \$175.7 million.

The direct economic impact is the sum of all the above sources. The direct output of the Phoenix Airport System in 2022 was \$23.9 billion. Direct economic activity employed 140,546 workers, earning labor income of \$8.1 billion. The total economic impact (output of \$44.3 billion, employment of 245,373, and labor income of \$14.8 billion) is the sum of the direct impact plus the indirect and induced impacts.

The indirect (or supplier) impact represents business-to-business interactions that were generated as a result of the initial direct impacts. For example, when airlines purchase fuel or equipment, the suppliers in turn increase their purchases of inputs, creating additional output, employment, and labor income. The indirect impact of the Phoenix Airport System in 2022 was \$9.1 billion, supporting 46,221 jobs in the region, and labor income of \$3.1 billion.

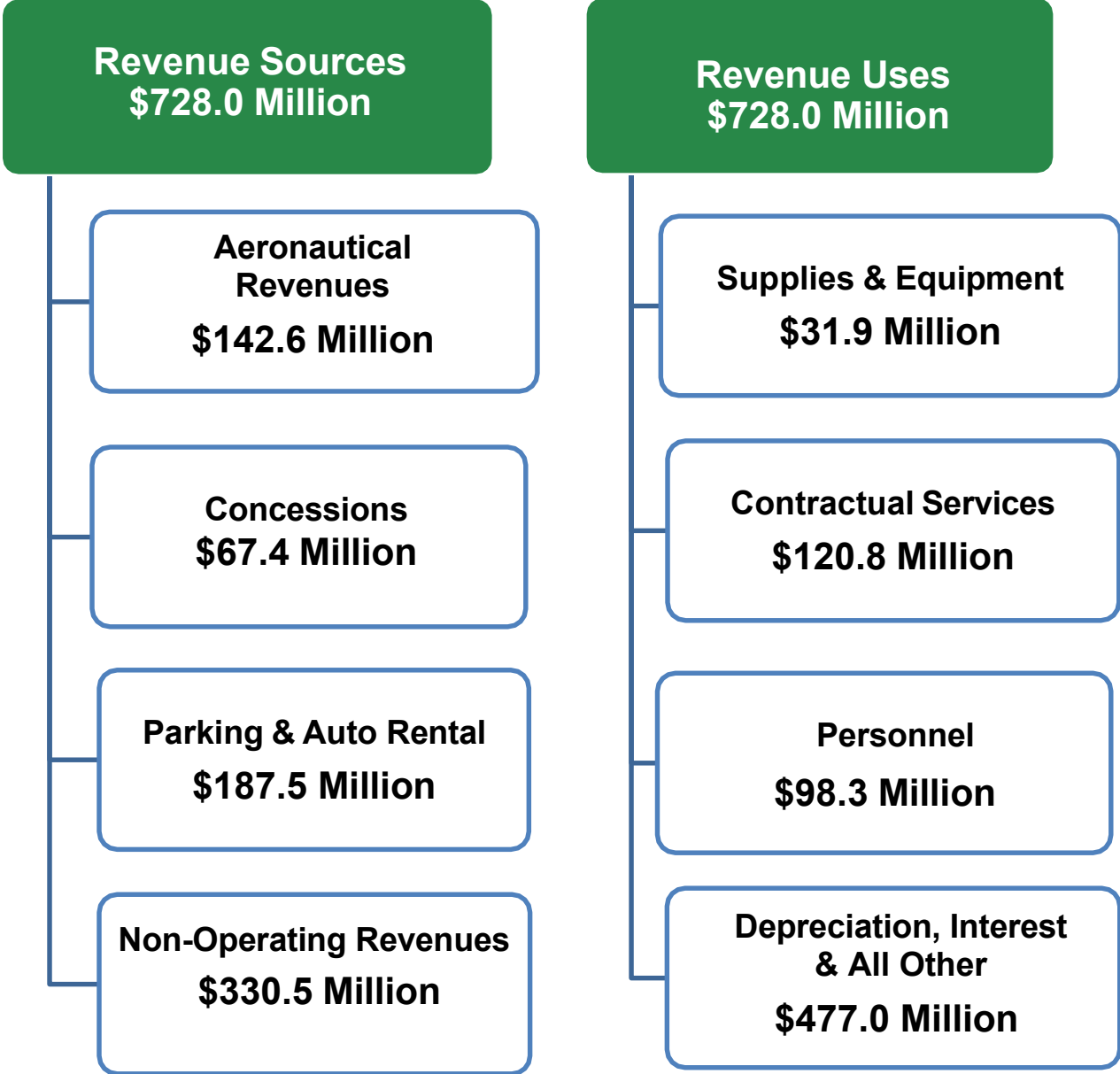
The induced (or worker) impact is associated with household spending of labor income by workers employed by businesses and government agencies that are included in both the direct and indirect impacts. Workers spend in their home communities for consumer goods and services. The induced impact of the Phoenix Airport System in 2022 was \$11.3 billion of household spending, supporting 58,606 jobs and labor income of \$3.5 billion.

The indirect and induced impacts for this report were produced through application of the IMPLAN input/output model, widely regarded by business and government analysts as the most trusted regional impact model. The direct impacts were obtained from (a) on-site employer surveys, (b) records of the City of Phoenix Aviation Department, (c) the 2022 Maricopa Association of Governments Employer Data Base, (d) Arizona Department of Economic Opportunity employment reports, (e) U.S. Bureau of Labor Statistics, and (f) U. S. Bureau of Economic Analysis data for Maricopa and Pinal County.

2. THE PHOENIX AIRPORT SYSTEM IS SELF-SUSTAINING

Figure 2 illustrates the Phoenix Airport System as a self-sustaining enterprise fund of the City of Phoenix. The fund relies on a diversity of revenue sources that summed to \$728 million as reported in the *Annual Comprehensive Financial Report* for fiscal year 2022. Aeronautical revenues, such as terminal and landing fees, were \$142.6 million or 20 percent of revenues. Non-aeronautical revenue sources, including concessions, rental cars, and parking, were 35 percent of revenues, summing to \$254.9 million. Parking revenues alone were \$101 million. Non-operating revenues, such as passenger facility charges and various federal grant programs, were \$330.5 million. Operations expenses such as equipment, personnel, and contractual services accounted for some \$250 million of uses. Depreciation on the extensive system infrastructure was \$178 million.

Figure 2
Phoenix Airport System Revenue Sources and Uses



Source: Entries are for fiscal year 2022, derived from the City of Phoenix Aviation Department, *Annual Comprehensive Financial Report for the Fiscal Year Ended June 30, 2022*, Statement of Revenues, Expenses, and Changes in Net Position, pg. 33, December 8, 2023

3. PHOENIX SKY HARBOR INTERNATIONAL AIRPORT ECONOMIC IMPACT

Phoenix Sky Harbor International Airport is rated among the nation's leading metropolitan airports, as evidenced by the *Wall Street Journal* ranking as the best airport in the country for 2019 and again in 2023. The rating system used was based on 30 factors including flight delays, fares, and overall consumer satisfaction on various indicators such as parking and baggage claim facilities.

Sky Harbor is a critical element of the nation's transport network, as well as a vital contributor to the regional economy. The airport is a major locus of commerce, with a significant economic footprint:

- 47,919 direct jobs supported by Sky Harbor International Airport
- \$3.9 billion direct labor income to Sky Harbor workers and proprietors
- \$13.3 billion direct output of Sky Harbor aviation activity

If combined in a single tally, the jobs at Sky Harbor International Airport would make the airport the state's largest employer in 2022:

- Sky Harbor Airport (47,919)
- Banner Health (45,837)
- Walmart (36,995)
- Amazon (32,000)
- Kroger/Frys (20,323)

A broader measure of the economic impact of Sky Harbor includes Sky Harbor Center, located west of the airport terminals, on airport property. Sky Harbor Center provides employment for some 8,500 workers in various financial, technical, and other commercial industries. With the inclusion of Sky Harbor Center, the direct economic impact increases to:

- 56,421 direct jobs on Sky Harbor International Airport property
- \$3.9 billion direct labor income to Sky Harbor workers and proprietors
- \$13.3 billion direct output generated at Sky Harbor International Airport
-

The individual sources contributing to the economic impact of Sky Harbor International Airport are shown in Table 2. The sum of these components (including Sky Harbor Center) make up the direct impact. When combined with the indirect and induced impacts, the result is the 2022 total economic impact of \$28.4 billion, with 122,835 total jobs supported and total labor income of \$9.1 billion.

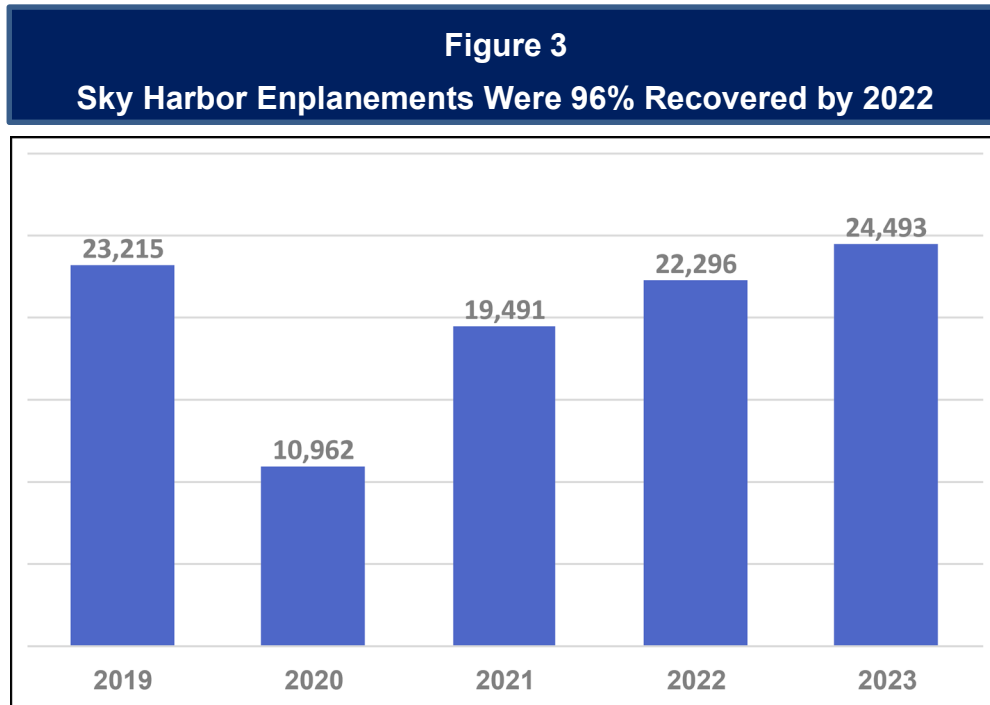
Commercial Airlines

The row entries in Table 2 illustrate the variety of industries that make up the direct economic impact of Sky Harbor. The largest single employer in 2022 was the commercial airline industry, with 13,241 employees. There were 21 passenger airlines serving Sky Harbor travelers bound for domestic and international destinations in 2022. American Airlines and Southwest Airlines combined to account for 75 percent of the 22.3 million enplanements for the year. Total commercial airline output was \$7.8 billion in 2022, the second year of post-pandemic recovery.

Table 2
Phoenix Sky Harbor International Airport Economic Impact: 2022

Economic Impact Sources	Employment	Labor Income (thousands)	Output (thousands)
Commercial Airlines	13,214	\$1,520,994	\$7,781,710
Air Cargo & Logistics Cargo Airlines, Warehousing Couriers & Distribution	11,672	610,945	1,255,405
Passenger Services Retail Shops, Food Services Baggage Services, Security Parking, Car Rental Center	6,933	397,581	1,500,234
Ground Transportation Taxis, Buses, Shuttles, Limousine Vans, Ride Share Network	5,025	182,038	321,912
Fixed Base & Ramp Operations Airline Support Services, Fueling General Aviation Services	3,153	371,559	512,041
Contractor Services Operations & Maintenance, Information Technology, Materials & Services	609	45,152	107,163
Industrial Facilities	1,843	251,126	1,149,111
Government Services FAA, TSA, Air National Guard City of Phoenix Aviation Dept.	3,204	332,785	434,990
Capital Improvement Projects	2,267	176,504	262,832
<i>Sky Harbor Airport Subtotal</i>	<i>47,919</i>	<i>3,888,685</i>	<i>13,325,398</i>
Sky Harbor Center	8,502	945,353	2,423,230
Direct Economic Impact	56,421	4,834,038	15,748,628
<i>Indirect (Supplier) Impact</i>	<i>30,545</i>	<i>2,064,908</i>	<i>5,789,745</i>
<i>Induced (Worker) Impact</i>	<i>35,869</i>	<i>2,171,550</i>	<i>6,888,806</i>
TOTAL ECONOMIC IMPACT	122,835	\$9,070,496	\$28,427,179

Enplanements at U.S. airports and Sky Harbor declined in 2020 during the pandemic-induced recession, but steadily recovered in 2021 and subsequent years, as seen below in Figure 3. Pre-pandemic enplanements were 23.2 million in 2019 and declined by 53% to 11.0 million in 2020. By 2022, enplanements were up to 22.3 million, or 96% recovered to the 2019 level. By 2023, enplanements were up to 24.5 million, or 106% recovered to the 2019 level.



Source: City of Phoenix Aviation Department

Air Cargo & Logistics

The regional economy was served by 10 Sky Harbor carriers specializing in air cargo in 2022. As in previous impact studies of Sky Harbor Airport, the Air Cargo & Logistics component was broadly defined to include cargo on commercial airlines and air freight carriers, as well as associated warehousing and air freight distribution. With the growth of Amazon in recent years, employment in this category increased to 11,672 workers involved in loading and offloading air cargo, transferring air cargo to warehousing, or distributing to users in the region. The estimated output of this activity was \$1.2 billion in 2022.

Passenger Services

Passenger services accounted for the third-largest employment category (6,933) and the second greatest level of output (\$1.5 billion) in 2022. Passenger services include retail shops, food services, skycaps and baggage services, security workers, on site (and off-site) parking, and the Car Rental Center. The revenue (output) for retail shops and food services in all terminals was \$239.4 million in 2022, supporting employment of 2,240 workers. Off-site auto rental firms reported revenues of \$29.5 million, while the on-site Car Rental Center revenues were \$576.3 million. Statistics from the Rental Car Center show the economic effects of (a) the pandemic period of 2020 and (b) the national inflationary price surge that began in 2021 (see Table 3). There were nearly 2 million car rental contracts at the on-site Car Rental Center in 2019, followed by almost 1 million fewer rentals in the pandemic year 2020. The number of car rentals recovered in 2021,

increasing by 40 percent. At the same time, total revenues increased by 92 percent, as average rental rates per day rose from \$53 in 2020 to \$74 in 2021.

Table 3					
Pre- And Post-Pandemic Car Rental Center Activity					
Year	Rentals	Revenues	Rate/Day	Average Days	Average Rental
2019	1,975,942	\$439,525,000	\$52	4.3	\$222
2020	993,618	\$250,318,000	\$53	4.8	\$252
2021	1,388,535	\$480,001,000	\$74	4.7	\$346
2022	1,660,267	\$576,310,000	\$76	4.6	\$347

Source: City of Phoenix Aviation Department

Ground Transportation

According to *Sky Harbor Ground Transportation Reports*, there were 5.5 million revenue producing (paid) ground trips to and from the airport in 2022. Traveler options for ground transportation have changed significantly in recent years, with the increased presence of rideshare network services. Traditional providers of ground transportation include vans, shuttle services, limousines, and taxis.

In 2022, there were 4.2 million rideshare trips, an increase of 78 percent over 2019 levels. Rideshare trips accounted for 77 percent of the 5.5 million ground trips recorded in 2022. Ground transportation output was \$321.9 million in 2022 and employment was 5,025. Ground transportation workers earned labor income of \$182.0 million.

Fixed Base & Ramp Operations

Many airlines rely on private firms to provide ramp support, as well as ticketing and other services. Fixed Base Operators (FBOs) supply fuel, maintenance, cleaning, and other services to commercial airline and general aviation aircraft at Sky Harbor. According to City of Phoenix Aviation Department badge records, there were 46 firms providing various ramp and fixed base support services in 2022. There were 3,153 workers involved in the provision of these services, with output of \$512.0 million in 2022.

Contractor Services

According to records of the City of Phoenix, there were contracts for approximately 150 services provided by regional firms supporting operations at Sky Harbor Airport. The largest contract was \$18.7 million for PHX Sky Train® operations and maintenance. Other major contracts were for parking management and custodial services. Additional contracts ranged from training sessions to security, information technology, and provision of necessary materials and services in support of aviation. The total value (output) was \$107.2 million.

Industrial Facilities

There are several industrial facilities located north of the runway area, anchored by Honeywell, the largest, along with other aerospace firms and light manufacturing. Employment in the industrial area was 1,843 in 2022, with direct output of \$1.1 billion.

Government Services

Of the total 56,421 Sky Harbor Airport jobs, government employment accounted for 5.7 percent. Alternatively, private employment at the airport accounted for 94.3 percent of all workers. The largest government groups include the Air National Guard and Transportation Security Administration (TSA). Other federal employers include the Federal Aviation Administration (FAA) tower and air traffic control, postal services, Border and Customs officials, weather services, and various additional regulatory and security offices. The City of Phoenix employment includes fire, police, and the City of Phoenix Aviation Department. As of year-end 2022, Aviation Department employment remained at approximately 890 full time workers, essentially unchanged over the prior 5 years.

Capital Improvement Projects

Capital improvement projects are critical to maintaining safety, efficiency, and overall passenger convenience at Sky Harbor International Airport, one of the fastest growing airports in the nation. The outlays for these projects are substantial, such as the extension of the PHX Sky Train® service to the Rental Car Center, recently completed at a cost of some \$360 million. The self-sustaining structure of Sky Harbor extends to capital improvement projects, all completed without local tax dollars. Such projects are paid for through grants, various airport revenue sources, facility charges and long term bonding.

Capital improvement projects create jobs and income for workers and involve spending for materials and services across the regional economy. To account for the multi-year nature of major capital projects, economic development analysts calculate average spending over a prior timeline, typically 5 years. The annual average capital outlay at Sky Harbor in the 2018 – 2022 period was \$262.8 million (note this figure is atypical because of reduced activity during and after the 2020 pandemic). This spending level supported 2,267 annual equivalent jobs in construction and design, with labor income of \$176.5 million associated with Sky Harbor capital projects.

Sky Harbor Airport Direct Impact Subtotal

These listed sources combine to provide a tally of the airside/landside direct economic impacts of operations associated with Sky Harbor International Airport in 2022, not including Sky Harbor Center. Direct output was \$13.3 billion, with employment of 47,919 and labor income to workers and proprietors of \$3.9 billion.

Sky Harbor Center

Sky Harbor Center is a commercial complex west of the runway area. Sky Harbor Center was constructed in 1987 on Sky Harbor Airport property to augment the self-sufficiency capabilities of the airport. Historically, there has been a mix of aviation and non-aviation tenants, creating a revenue source for the airport. Airport analysts typically include all sources of output in a complete

economic evaluation of an airport, such as on-site retail sales, food service, and commercial tenants on airport property. Under this comprehensive approach, Sky Harbor Center has been a component of all prior impact studies of Sky Harbor International Airport.

There were 26 separate employers located at Sky Harbor Center in 2022 (Table 4). The largest employment sector was related to financial services and insurance, with employment of 6,024. Financial firms on site included Bank of America and JP Morgan Chase. Honeywell reported the largest aerospace related employment. In total, there were 8,502 workers, earning labor income of \$945.3 million. The direct output of all employers at Sky Harbor Center was valued at \$2.4 billion, dominated by the aerospace and electronics firms, which accounted for \$1.3 billion.

Table 4 Sky Harbor Center Direct Economic Impact: 2022			
Economic Impact Sources	Employment	Labor Income (thousands)	Output (thousands)
Aerospace & Electronics	1,470	\$283,699	\$1,346,523
Financial Services & Insurance	6,024	261,313	485,770
All Other Private Firms	802	85,209	198,027
Public Sector Services	206	23,283	27,238
Direct Economic Impact	8,502	\$945,353	\$2,423,230

Source: Surveys of individual firms and Maricopa Association of Governments Employer Data Base, 2022

Sky Harbor Airport/Sky Harbor Center Direct Impact

The direct economic impact includes the output, employment, and labor income of all private and government organizations located at Sky Harbor International Airport, including Sky Harbor Center, airlines and all related airside providers of aviation services, landside passenger services, air cargo logistics and distribution, service contractors and construction firms, and public sector agencies. Direct output in 2022 was \$15.7 billion, with employment of 56,421 workers and labor income of \$4.8 billion.

Sky Harbor Airport Total Impact

The total economic impact of Sky Harbor International Airport is the sum of the direct impact plus secondary ripple effects of the indirect and induced impacts, as shown in the bottom rows of Table 2. The indirect (supplier) impact of Sky Harbor includes \$5.8 billion of additional output from supplier industries along the commercial supply chain in the region, generated by the initial direct output of \$15.7 billion at the airport. This indirect output supported 30,545 jobs at supplier industries. When workers at the airport and in the supplier industries spend their incomes, they induce an additional output of \$6.9 billion in the general consumer sector, ranging from health care

to retail to housing and recreation. This induced output required additional employment of 35,869 workers earning labor income of \$2.2 billion.

The resulting total economic impact of Sky Harbor International Airport (including Sky Harbor Center) was output of \$28.4 billion, supporting 122,835 workers across the regional economy, earning labor income of \$9.1 billion

4. AN AVERAGE DAY AT SKY HARBOR AIRPORT

Sky Harbor Airport operates around the clock on a 24/7 schedule, producing aviation-related output and providing employment and income for workers every day of the year (Table 5).

There were 393,000 commercial aircraft operations in 2022 at Phoenix Sky Harbor International Airport, resulting in a daily average of 1,077 aircraft arriving and departing. Annual air cargo was 389,533 tons. On an average day, 1,067 tons of inbound and outbound air shipments were handled.

The total passenger tally for 2022 was 44.4 million travelers, including those arriving, departing, or connecting. The daily average was 121,638 passengers moving through the terminals. According to the 2022 U.S. Origin and Destination (O&D) survey data, 54 percent of enplaning (non-connecting) passengers were visitors. During their stay, commercial airline visitors to the region spent \$19.3 million per day. In 2022, the Car Rental Center issued 1.7 million contracts, for a daily average of 4,548 rentals.

The 2022 total Sky Harbor output (including direct, indirect, and induced output) was \$28.4 billion, averaging a daily impact of \$77.9 million for the airport service area. Considering the entire Phoenix Airport System output of \$44.3 billion, the average daily impact was \$121.5 million of output produced in the regional economy. Sky Harbor Airport accounted for approximately two-thirds of the daily Phoenix Airport System impact.

Table 5	
An Average Day at Sky Harbor Airport: 2022	
Activity	Average Day
Commercial Aircraft Operations	1,077 Aircraft Arrive & Depart
Air Cargo	1,067 tons of Air Cargo Handled
Commercial Airline Passengers	121,638 Passengers Arrive & Depart
Airline Visitor Spending	\$19.3 Million Daily Visitor Spending
Rental Car Center	4,548 Rental Car Contracts
Sky Harbor Airport Total Output	\$77.9 Million Daily Impact
Phoenix Airport System Total Output	\$121.5 Million Daily Impact

5. SKY HARBOR WORKERS SPEND INCOMES IN HOME COMMUNITIES

Sky Harbor Airport workers earned income of \$4.8 billion in 2022 that was spent in their home communities, supporting additional jobs, wages, and spending in the region. Table 6 shows the geographical distribution of the induced economic impact of Sky Harbor Airport workers (including Sky Harbor Center employees) across the metropolitan area.

More than one half of Sky Harbor workers (59.1%) live outside the city of Phoenix. Only Phoenix and Mesa account for a double-digit share of employment. Slightly more than one quarter (28.5%) of airport employees live in the East Valley, while 16% of workers live in the West Valley, and just over 4% call Scottsdale home. An additional 7.5% live in other areas, such as Casa Grande, New River, Wickenburg, or Prescott.

Table 6			
Sky Harbor Workers Spend Incomes in Valley Communities			
Home Communities	Distribution (percent)	Sky Harbor Employees	Labor Income (thousands)
Phoenix	40.9	23,076	\$1,977,122
Mesa	10.4	5,868	502,740
Tempe	5.3	2,990	256,204
Glendale	5.0	2,821	241,702
Gilbert	4.7	2,652	227,200
Chandler	4.6	2,595	222,366
Scottsdale	4.1	2,313	198,196
Peoria	2.7	1,523	130,519
Goodyear	1.9	1,072	91,847
Laveen	1.8	1,016	87,013
Maricopa	1.6	903	77,345
Avondale	1.5	846	72,511
Other East Valley	3.6	2,031	174,025
Other West Valley	4.4	2,483	212,698
All Other Areas	7.5	4,232	362,553
TOTAL	100.0	56,421	\$4,834,038

6. SKY HARBOR IMPACTS ARE FELT ACROSS ALL INDUSTRIES

The combined Sky Harbor Airport direct, indirect, and induced impacts across all industries in the regional economy are shown in Table 7. The impacts by industry are felt initially by direct suppliers of intermediate goods and services, such as fuel deliveries to airlines. Indirect impacts begin to ripple across the supply chain when the fuel delivery firm buys insurance, and the insurance firm buys office supplies. Meanwhile, airline workers, the fuel truck driver, and insurance employees spend their income to create induced impacts. Transportation has the largest output impact (\$9.0 billion) on the regional supply chain, but the greatest number of jobs supported are in business services (23,551).

Table 7			
Sky Harbor Creates Economic Impacts Across Industries			
Industries	Employment	Labor Income (thousands)	Output (thousands)
Business Services	23,551	\$1,940,567	\$4,273,578
Transportation	21,956	2,350,728	9,053,185
Warehousing & Distribution	14,982	741,512	1,532,004
Finance & Real Estate	12,200	776,753	4,115,673
Hospitality Services	10,904	376,264	1,037,680
Personal Services	9,988	444,670	790,989
Health Care	6,649	515,962	897,916
Retail Trade	6,006	267,173	767,187
Manufacturing	4,893	645,278	2,963,713
Government	4,039	321,702	540,260
Construction	2,063	151,361	347,128
Wholesale Trade	1,888	219,209	847,902
Arts & Entertainment	1,219	45,801	111,276
Information & Publishing	1,166	167,448	749,056
Education	1,020	58,277	98,174
Agriculture & Mining	310	47,791	301,458
TOTAL ECONOMIC IMPACT	122,835	\$9,070,496	\$28,427,179

7. PHOENIX DEER VALLEY AIRPORT ECONOMIC IMPACT

Deer Valley Airport is consistently among the busiest general aviation airports in the nation, with more than 275,000 operations in 2022. Businesses at the airport and the adjacent business park (with “through-the-fence” access) accounted for 653 private sector jobs in 2022, with labor income of \$53 million and sales/revenues of \$125 million (Table 8). Government employers (including Arizona agencies and City of Phoenix) accounted for an additional 84 jobs. The value of capital improvement projects was \$6.0 million, supporting 52 construction jobs at the airport during the year. The direct impact of Deer Valley Airport summed to employment of 789 workers, labor income of \$65.3 million and output (sales, revenues) of \$151.6 million. As these dollars recirculated within the regional economy, a significant total economic impact for Deer Valley airport was created, yielding 1,574 jobs with labor income of \$115.9 million and total output of \$309 million.

Table 8			
Phoenix Deer Valley Airport Total Economic Impact: 2022			
Economic Impact Sources	Employment	Labor Income (thousands)	Output (thousands)
Airport Businesses <ul style="list-style-type: none"> • Flight Training • FBO Services & Charter • Air Ambulance • Industrial Airpark 	653	\$53,039	\$124,981
Government Services <ul style="list-style-type: none"> • FAA Tower • Arizona Game & Fish • Phoenix Police Dept. • Phoenix Aviation Dept. 	84	8,196	20,542
Capital Improvement Projects	52	4,062	6,048
Direct Economic Impact	789	65,297	151,571
<i>Indirect (Supplier) Impact</i>	<i>325</i>	<i>22,621</i>	<i>68,790</i>
<i>Induced (Worker) Impact</i>	<i>460</i>	<i>27,943</i>	<i>88,639</i>
TOTAL ECONOMIC IMPACT	1,574	\$115,861	\$309,000

8. PHOENIX GOODYEAR AIRPORT ECONOMIC IMPACT

Goodyear Airport is located in the western portion of the Phoenix metropolitan area, within the City of Goodyear. The West Valley region is notable for not only rapid population growth, but also extensive commercial and industrial developments, both recently and in the planning stage.

The airport is a center for aviation education and flight training, with some 250 resident students on site. Goodyear Airport is also known for its major large aircraft overhaul facilities and quality FBO services. Private employers at the airport reported 618 jobs in 2022, with labor income of \$62.7 million and output (revenues) of \$229.7 million (Table 9). Administration (including the contract control tower and City of Phoenix) accounted for an additional 23 jobs. Capital projects totaled \$3.0 million.

The direct impact includes employment of 667, labor income of \$67.4 million and output of \$241.9 million. As these dollars recirculated within the regional economy, the total impact was 1,286 jobs, \$107.6 million labor income, and \$369.4 million output.

Table 9			
Phoenix Goodyear Airport Total Economic Impact: 2022			
Economic Impact Sources	Employment	Labor Income (thousands)	Output (thousands)
Airport Businesses <ul style="list-style-type: none"> • Flight Training • Aviation Education • FBO Services & Charter • Aircraft Modification 	618	\$62,743	\$229,694
Government Services <ul style="list-style-type: none"> • Contract Tower • Phoenix Aviation Dept. 	23	2,632	2,730
Capital Improvement Projects	26	2,009	2,991
Direct Economic Impact	667	67,384	241,887
<i>Indirect (Supplier) Impact</i>	<i>191</i>	<i>14,265</i>	<i>45,159</i>
<i>Induced (Worker) Impact</i>	<i>428</i>	<i>25,959</i>	<i>82,347</i>
TOTAL ECONOMIC IMPACT	1,286	\$107,608	\$369,393

9. AIR VISITOR ECONOMIC IMPACT

Arizona’s natural beauty and diverse recreational and entertainment opportunities have fostered the development of tourism as one of the state’s major industries. Tourists, business travelers, and all those traveling for personal reasons accounted for a total of 8,335,901 commercial domestic and international airline visitor enplanements at Sky Harbor International Airport in 2022, or 52 percent of all 15.9 million non-connecting enplanements (Table 10).

Table 10				
Sky Harbor Domestic and International Visitors: 2022				
	Enplanements	Residents	Visitors	Percent Visitors
Domestic Destinations	14,697,631	6,760,910	7,936,721	54.0%
International Destinations	1,204,322	805,143	399,180	33.1%
TOTAL	15,901,953	7,566,053	8,335,901	52.4%

Source: Sky Harbor International Airport; U. S. Department of Transportation, Origin & Destination Survey; U.S. Department of Transportation, T-100 Segment data (all carriers). Tallies do not include connecting passengers.

Three main sources of enplanements at Sky Harbor International Airport were analyzed to calculate the number of domestic and international visitors set out in Table 10. The City of Phoenix reports monthly and annual enplanements at terminals 3 and 4 and the international terminal. The Bureau of Transportation Statistics (BTS) within the U.S. Department of Transportation Statistics maintains the Origin and Destination (O&D) Survey, which includes passenger counts from U.S. air carriers operating between airports with the United States, as well as counts on direct flights by U.S. carriers between U.S. airports and international destinations, such as Phoenix to London. The T-100 Segment database, also from BTS, combines domestic and international passenger counts reported by U.S. and non-U.S. air carriers, and provides non-stop segment data for flights between U.S. and international airports.

There were 14.7 million non-connecting enplanements of Sky Harbor passengers outbound to domestic destinations in 2022. Enplaning visitors were identified as those returning to airports of trip origination, based on O&D ticketing data. Visitors (54%) outnumbered residents (46%) traveling to domestic destinations. The Top Twenty domestic visitor origination airports are listed in Table 11. There were 1.2 million passengers enplaned for international destinations. U.S. carriers boarded 675,666 international direct flight passengers and non-U.S. carriers accounted for 414,460 international direct flight passengers. The remaining 114,086 international passengers flew on U.S. carriers to domestic airports for connection to final international destinations. Outbound residents (66.9%) outnumbered visitors (33.1%) on international flights. The Top Twenty international visitor originations are listed in Table 12.

Top Twenty Domestic Visitor Originations

Domestic air visitors traveled to Sky Harbor Airport from more than 400 originating airports. The Top Twenty destinations for visitors returning to airports of origin accounted for 54.7% of domestic visitors. Chicago was the leading source of visitors (478,400 in 2022, followed by Denver, Seattle, and Minneapolis, all accounting for more than 300,000 visitor enplanements (Table 11). Las Vegas has the smallest percentage of visitor enplanements (31.2%), indicating that more than two-thirds of passengers enplaning for Las Vegas were outbound residents.

Table 11			
Top Twenty Domestic Visitor Originations: 2022			
Airports/States	Enplanements	Visitors	Percent Visitors
1. Chicago, IL	814,013	487,279	59.9%
2. Denver, CO	715,835	396,750	55.5%
3. Seattle, WA	608,407	348,961	57.4%
4. Minneapolis/St. Paul, MN	505,375	338,658	67.1%
5. Portland, OR	343,453	198,939	58.0%
6. Newark, NJ	324,968	193,794	59.7%
7. Los Angeles, CA	405,181	191,732	47.4%
8. Salt Lake City, UT	364,464	189,882	52.1%
9. Dallas/Ft. Worth, TX	313,410	176,373	56.3%
10. Detroit, MI	266,531	172,098	64.6%
11. New York, NY	320,115	170,636	53.4%
12. San Francisco, CA	328,290	166,173	50.7%
13. Atlanta, GA	275,598	163,351	59.3%
14. Houston, TX	273,840	155,404	56.8%
15. San Diego, CA	342,884	154,625	45.1%
16. Sacramento, CA	251,682	144,607	57.5%
17. Las Vegas, NV	460,304	143,529	31.2%
18. Santa Ana, CA	305,895	139,657	45.7%
19. Boston, MA	238,665	133,891	56.2%
20. Washington, DC	229,695	127,832	55.7%
Top 20 Subtotal	7,688,605	4,194,172	54.7%
All Other Originations	7,009,026	3,742,549	39.6%
Domestic Enplanements	14,697,631	7,936,721	54.0%

Source: U. S. Department of Transportation, BTS, O&D Survey

Top Twenty International Visitor Originations

Passengers from the Top Twenty international originating airports accounted for 95% of international visitor enplanements at Sky Harbor Airport in 2022. The largest number of visitors (72,486) originated at Calgary, Canada, followed by London in the UK. The highest percentage of visitors for any origination was Edmonton, Canada (66.5%). The smallest percentage of enplaning visitors (10.2%) and thus the greatest percentage of residents (89.2%) were bound for San Jose Del Cabo, Mexico.

Table 12
Top Twenty International Visitor Originations: 2022

Airports/Countries	Enplanements	Visitors	Percent Visitors
1. Calgary, Canada	115,057	72,486	63.0%
2. London, United Kingdom	137,130	59,652	43.5%
3. Toronto, Canada	88,136	51,736	58.7%
4. Vancouver, Canada	52,065	28,532	54.8%
5. Edmonton, Canada	35,059	23,314	66.5%
6. Guadalajara, Mexico	72,665	21,146	29.1%
7. San Jose Del Cabo, Mexico	205,691	20,980	10.2%
8. Puerto Vallarta, Mexico	137,186	17,148	12.5%
9. Mexico City, Mexico	47,480	15,336	32.3%
10. Cancun, Mexico	103,253	12,184	11.8%
11. Montreal, Canada	19,467	11,524	59.2%
12. Mazatlán, Mexico	39,073	8,713	22.3%
13. Frankfurt, Germany	16,376	8,270	50.5%
14. Winnipeg, Canada	8,259	5,872	71.1%
15. Hermosillo, Mexico	20,932	5,107	24.4%
16. Amsterdam, Netherlands	10,359	4,662	45.0%
17. Paris, France	14,395	3,656	25.4%
18. Seoul, Republic of Korea	6,506	3,149	48.4%
19. San Jose, Costa Rica	11,317	3,067	27.1%
20. Munich, Germany	6,378	2,570	40.3%
Top Twenty Subtotal	1,146,784	379,104	33.1%
All Other Destinations	57,538	20,076	34.9%
International Enplanements	1,204,322	399,180	33.1%

Source: U. S. Department of Transportation, BTS, T-100 Segment data and O&D Survey

Air Visitor Spending

Domestic and international commercial airline visitors at Sky Harbor International Airport spent a total of \$7.0 billion (direct revenues/output) in the region in 2022. These visitor expenditures supported employment in the hospitality sector of 81,313 workers who earned labor income of \$3.0 billion (Table 13). Domestic visitor spending was \$6.6 billion and international visitor spending was \$459.8 million. Domestic visitors accounted for more than 90% of all air visitor spending in 2022, although per person spending for international visitors was somewhat greater.

Domestic visitors spent an estimated \$828 per person per trip in 2022. Domestic visitor spending estimates were derived from surveys for the Arizona Department of Tourism provided for this report by Runyan Associates, reconciled with inflation-adjusted spending figures obtained through visitor interviews and surveys administered in the terminal waiting areas in prior years. Domestic visitor direct spending supported 74,650 off-airport jobs in the regional hospitality sector. These jobs created direct labor income of \$2.7 billion.

Table 13			
Direct Impact of Domestic and International Air Visitor Spending			
Direct Impact Sources	Domestic	International	All Visitors
Commercial Airline Visitors	7,936,721	399,180	8,335,901
Spending/Person/Trip	\$828	\$1,152	\$844
Direct Employment	74,650	6,663	81,313
Direct Labor Income (\$000)	\$2,719,981	\$243,550	\$2,963,531
Direct Output (\$000)	\$6,572,370	\$459,855	\$7,032,225

Source: Sky Harbor International Airport; U. S. Department of Transportation, BTS, O&D Survey, T-100 Segment data; Arizona Office of Tourism; International Trade Administration, Survey of International Air Travelers, various countries.

International visitors spent an estimated \$1,152 per person per trip during their visit to the region in 2022. International visitor spending estimates were based on data compiled by the U.S. International Trade Administration from the Survey of International Air Travelers (SIAT) administered to outbound international visitors to the U.S. The surveys collect data on traveler demographics, purpose of visit, length of stay, and spending on various categories such as lodging, food, retail goods and services, and entertainment. Survey figures are considered particularly reliable, due to weighting and validation procedures to ensure consistency and completeness of responses. International visitor direct spending supported 6,663 off-airport jobs in the regional hospitality sector, creating worker income of \$243.5 million.

The impact of air visitor spending on each component of the regional hospitality industry and overall is shown in Table 14. Accommodations (hotel & other lodging) account for the greatest spending outlay, \$2.8 billion in 2022. This spending supported 19,847 jobs, with worker income of approximately one billion dollars. The greatest number of jobs due to visitor spending (21,431) were in food and beverage services, resulting from spending of \$2.1 billion. Worker income was \$739.4 million.

The ground transportation figure in Table 14 (\$497.6 million spending) does not include expenditures for auto rental at the Sky Harbor Airport Car Rental Center. The revenues and employment at the Car Rental Center are included in the Passenger Services component for Sky Harbor Airport in Table 2.

The direct visitor spending of \$7.0 billion recirculated in the economy, stimulating indirect impacts (\$2.9 billion) and induced impacts (\$919 million), the total economic impact of air visitor spending accumulated to output of \$13.9 billion, supporting 115,458 jobs in the regional economy, and generating labor income for workers and proprietors of \$5.1 billion in 2022.

Table 14			
Impact of Air Visitor Hospitality Industry Spending			
Hospitality Industry	Employment	Labor Income (thousands)	Output (thousands)
Hotel & Other Lodging	19,847	\$999,282	\$2,794,807
Food & Beverage Services	21,431	739,381	2,143,112
Retail Establishments	10,794	355,052	617,504
Entertainment & Recreation	17,791	697,388	979,162
Ground Transportation	11,450	172,428	497,640
Direct Economic Impact	81,313	2,963,531	7,032,225
<i>Indirect (Supplier) Impact</i>	13,811	918,992	2,910,306
<i>Induced (Worker) Impact</i>	20,334	1,234,089	3,914,759
TOTAL ECONOMIC IMPACT	115,458	\$5,116,612	\$13,857,290

10. DIRECT INTERNATIONAL FLIGHT EXPORTS

As global trade has expanded and evolved in recent years, air transport has become the most preferred means of shipping high-value products safely and rapidly to both domestic and international markets. According to data compiled by the International Air Transport Association (IATA), air cargo accounts for approximately 35% of world trade by value. Air cargo is especially utilized for transport of high technology products, such as electronics or instruments, the product categories widely produced in Arizona for shipment domestically and around the world.

The U. S. Bureau of the Census is the official source of information on the value of exports by state and port of exit. Export values are typically based on “origin of movement,” which refers to the originating state where the products were produced. According to Census figures, Arizona exports in calendar year 2022 were \$27.3 billion (Table 15).

Table 15				
Arizona, Phoenix MSA, and Phoenix Port Exports: 2022				
Arizona		Phoenix MSA		Phoenix Port
Exports (millions)	Air¹ (millions)	Exports (millions)	Air¹ (millions)	Air² (millions)
\$27,293.8	\$13,565.7	\$16,687.0	\$8,594.9	\$774.4

Notes: 1. Includes air/air and truck/air transport 2. Direct international flights only
Source: U. S. Census Bureau, Foreign Trade Statistics, 2022

The Census Bureau also maintains international export records by all modes of export transport (truck, rail, air, sea), at the state level and for port of exit. Arizona air exports were \$13.6 billion in 2022, or 49.7% of the value of all exports. Phoenix metro exports were \$16.7 billion and air exports were \$8.6 billion or 50.4% of exports. According to Census Bureau documentation procedures, exports are categorized as “air” shipments based on “the final mode of transport which takes the merchandise directly out of the country.” Of the \$8.6 billion of Phoenix area air exports, only \$774.4 million of air exports were transported on direct flights from Sky Harbor Airport to international destinations. A major proportion of the \$8.6 billion air exports from the Phoenix MSA were shipped (by air, truck, or rail) to other ports of exit (such as Los Angeles) for final air shipment to final international destinations.

The top five destinations for air exports from Arizona in 2022 were Mexico (\$1.1 billion), China (\$998.9 million), Canada (\$862.2 million), Malaysia (\$835.5 million), and Singapore (\$797.7 million). Of these five nations, direct flights were available from Sky Harbor only to Mexico and Canada. An analysis of Phoenix MSA exports by the U.S. International Trade Administration found that shipments to Asia accounted for \$6.8 billion in 2022, or some 40% of the \$16.7 billion total. Air shipments were estimated as approaching \$4 billion. As of 2022, there were no direct flights from Sky Harbor to destinations in Asia, so these shipments were from airports in other states.

Direct international flights create economic benefits for Arizona firms that produce products that require rapid and safe delivery, without intermediate handling or circuitous routing. The composition of Sky Harbor direct international flight exports is set out in Table 16. The overall listing is dominated by high technology products. Electronics accounted for 31.3% of the value of shipments, followed by aircraft engines and parts (25.9%). The top five products (all technology based) accounted for three-fourths of the total value of direct flight air exports (\$774.4 million).

Table 16
Phoenix Port Direct International Flight Exports: 2022

Export Product	Value (thousands)	Percent Of Total	Cumulative Percentage
Total Phoenix Port Air Exports	\$774,393	100.0	
Electronics & Integrated Circuits	242,102	31.3	31.3
Aircraft Engines & Parts	200,488	25.9	57.2
Medical & Surgical Instruments	59,301	7.7	64.8
Phone Sets & Equipment	40,786	5.3	70.1
Data Processing Machines	34,461	4.5	74.6
Electronic Switches & Boards	30,538	3.9	78.5
Electronic Media Components	24,665	3.2	81.7
Turbines & Motors	22,167	2.9	84.6
Optical Devices & Equipment	18,918	2.4	87.0
Semiconductor Machinery	17,488	2.3	89.3
Electronic Motors, Batteries	17,113	2.2	91.5
Chemicals & Products	13,365	1.7	93.2
Pipe Taps & Valves	12,100	1.6	94.8
Arms & Ammunition	6,587	0.9	95.6
Copper & Metal Articles	6,100	0.8	96.4
Plastic Articles	3,938	0.5	96.9
Pharmaceuticals & Medications	1,303	0.2	97.1
All other Products	\$22,973	2.9	100.0

Source: U. S. Census Bureau, Foreign Trade Statistics, 2022

The economic contribution of the industries that relied on Sky Harbor direct international flights in 2022 is set out in Table 17. The direct employment associated with direct flight export output of \$774.4 million was 1,356 workers with labor income of \$175.7 million. Aircraft engines and parts accounted for the largest employment (342), followed by electronics (272). After accounting for indirect and induced impacts, the total economic impact of the production of direct flight export products was \$1.4 billion within the region, supporting a total of 4,220 jobs and labor income to workers of \$381.1 million.

Table 17
Impact Of Direct International Flight Exports: 2022

Export Product	Employment	Labor Income (thousands)	Output (thousands)
Electronics & Integrated Circuits	272	\$53,955	\$242,102
Aircraft Engines & Parts	342	47,676	200,488
Medical & Surgical Instruments	171	17,048	59,301
Phone Sets & Equipment	69	7,399	40,786
Data Processing Machines	44	4,954	34,461
Electronic Switches & Boards	78	6,615	30,538
Electronic Media Components	29	2,615	24,665
Turbines & Motors	59	5,113	22,167
Optical Devices & Equipment	47	5,508	18,918
Semiconductor Machinery	28	5,160	17,488
Electronic Motors, Batteries	32	3,630	17,113
Chemicals & Products	18	1,551	13,365
Pipe Taps & Valves	29	3,099	12,100
Arms & Ammunition	30	2,237	6,587
Copper & Metal Articles	33	2,325	6,100
Plastic Articles	3	240	3,938
Pharmaceuticals & Medications	2	140	1,303
All other Products	73	6,480	22,973
Direct Economic Impact	1,356	175,745	774,393
<i>Indirect (Supplier) Impact</i>	<i>1,349</i>	<i>113,428</i>	<i>321,041</i>
<i>Induced (Worker) Impact</i>	<i>1,515</i>	<i>91,951</i>	<i>291,686</i>
TOTAL ECONOMIC IMPACT	4,220	\$381,124	\$1,387,120

11. AIRPORT SYSTEM GENERATES LOCAL, STATE AND FEDERAL REVENUES

The economic activity associated with the Phoenix Aviation System contributes to tax revenue collections at the local, state, and federal levels. The direct tax revenue impact results when aviation businesses pay taxes on property, profits, and purchases of supplies and materials, while aviation workers likewise pay income taxes, sales taxes, and local property taxes. Suppliers to the aviation industry also pay business and personal taxes, as indirect impacts are triggered by the initial direct impacts. And, as workers buy goods and services in their home communities, yet another round of state, local and federal taxation occurs.

Table 18
Phoenix Airport System Tax Revenues: 2022

Sources	City/County (thousands)	State (thousands)	Federal (thousands)	Total (thousands)
Sky Harbor International	\$468,911	\$653,046	\$1,113,087	\$2,235,044
Sky Harbor Center	23,088	44,599	201,020	268,707
Direct Flight Exports	3,677	7,846	38,736	50,259
Air Visitor Spending	257,254	355,899	627,530	1,240,684
Phoenix Deer Valley	590	1,835	13,121	15,547
Phoenix Goodyear	1,182	2,920	15,709	19,812
DIRECT TAX IMPACT	\$754,702	\$1,066,147	\$2,009,203	\$3,830,052
<i>Indirect (Supplier) Impact</i>	<i>130,445</i>	<i>216,918</i>	<i>717,796</i>	<i>1,065,159</i>
<i>Induced (Worker) Impact</i>	<i>258,078</i>	<i>385,150</i>	<i>891,652</i>	<i>1,534,880</i>
TOTAL TAX IMPACT	\$1,143,225	\$1,668,215	\$3,618,651	\$6,430,091

Source: Based on Federal, state, and local tax rates, 2022

Economic activity related to Sky Harbor Airport generated the greatest volume of taxes in 2022, including combined state and local taxes of \$1.1 billion, and a similar figure for Federal taxes to total \$2.2 billion overall. Air visitor spending was the second-largest source of tax revenues associated with the Phoenix Airport System. Including indirect taxes from supplier activity and induced spending by employees, total taxes generated were \$6.4 billion, with \$3.6 Federal, \$1.7 state taxes, and \$1.1 billion in city and county taxes.

12. PHOENIX AIRPORT SYSTEM GROWTH PROJECTIONS

The Phoenix metropolitan area surpassed the 5 million resident population mark in 2022, to become one of the top 10 largest metros. The metro economy added 114,000 jobs in 2022, with employment growing by 5.1%. Similar strong growth is projected over the next decade, according to the Arizona Office of Economic Opportunity. Population will grow by 906,572, approaching 6 million residents. As population rises by 18% over the decade, employment will also grow at a double-digit pace (16.4%).

Table 19				
Metro Phoenix Growth Projections: 2022 – 2032				
Indicator	2022	2032	Increase	% Change
Employment	2,466,674	2,871,176	404,502	16.4
Population	5,040,355	5,946,927	906,572	18.0
Sky Harbor Enplanement Growth Projections: 2022 - 2032				
Enplanements	22,296,300	31,233,200	8,936,900	40.1
<i>Domestic</i>	<i>21,240,700</i>	<i>29,266,200</i>	<i>8,025,500</i>	<i>37.8</i>
<i>International</i>	<i>1,055,600</i>	<i>1,967,000</i>	<i>911,400</i>	<i>86.3</i>

Sources: Employment and population (medium series) from Arizona Office of Economic Opportunity; Enplanements from FAA *Terminal Area Forecast*, January 2024 and *ACI World Airport Traffic Forecasts (WATF) 2023 - 2052*

Air Travel Projections

Based on population and employment gains, the Phoenix metropolitan area is projected to rank among the fastest growing metropolitan areas in the nation during the decade ahead. As population and the economy continue to expand, aviation activity is also projected to increase markedly. According to the latest available Terminal Area Forecast (TAF) prepared by the Federal Aviation Administration, domestic enplanements at Sky Harbor Airport will rise to exceed 30 million by 2032, an increase of 37.8%, twice the pace of population growth for the metro area. International travel is expected to increase sharply as well, with enplanements up 86.3 percent within the next 10 years. This rise is consistent with studies from the U.S. Travel Association projecting a doubling of international travel volume before the end of the decade. It should be noted that the City of Phoenix Aviation Department is planning for this growth, and development plans for a new terminal and other enhancements are underway.

Phoenix Airport System Impact Projections

Growth in passengers and overall aviation activity in the Phoenix metropolitan area will bring accompanying increases in the economic impact of the Phoenix Aviation System, as measured by output, employment, and worker incomes (Table 20). The direct output of the System will increase by 38.3%, from the 2022 level of \$23.9 billion to \$33.1 billion. All figures are expressed in constant 2022 dollars. Similarly, holding the underlying structure of the economy stable up and down supply chains at 2022 levels, the associated indirect, induced, and total impacts also increase by 38.3%. The total economic impact of the Phoenix Aviation System is projected to rise to \$61.4 billion in 2032, in constant 2022 dollars.

Sky Harbor Airport output is projected to increase by \$5.3 billion over the period, to a level of \$18.7 billion, driven by strong growth in passenger levels. Sky Harbor employment rises to 59,685, calculated from estimates of output per worker adjusted for productivity gains. Wages are assumed to increase by 2.5% per year and labor income generated by Sky Harbor Airport increases to \$5.0 billion, a \$1 billion gain (28%) in 2022 dollars.

The direct output of Sky Harbor Center is not linked to passenger activity to estimate growth over the period. Instead, the growth of output is driven by estimates of real Gross State Product (GSP) based on projections from the S&P Global Intelligence forecasting model. For the period 2022 – 2032, Phoenix metro GSP is projected to grow by 27%. To produce the projected 2032 output of \$3 billion, Sky Harbor Center employment will rise to 10,789.

Direct flight exports will increase in value from \$774.4 million to \$1.1 billion in 2032, based on the S&P Global forecasting model's projection of 3.2 percent annual growth in export value over the period.

Airline visitor spending is projected to exceed \$10 billion in 2032, supported by hospitality industry employment of 113,838. Worker incomes in the industry will rise to \$4.2 billion. Growth in airline visitor spending is driven by the anticipated 40.1% increase in enplanements at Sky Harbor, as set out in the FAA Terminal Area Forecast.

Direct output at Deer Valley Airport is projected to rise to \$189.4 million, and Goodyear Airport direct out is projected at \$291.1 million. It is very likely these projects are underestimates of actual growth. The projection methodology was tied to growth of based aircraft, estimated as 24.9% over the period for Deer Valley and 20.3% for Goodyear. Both airports have available land for development and are in high-growth areas, so on-site employment could possibly expand more rapidly than projected by the based aircraft growth factors.

The 2032 total economic impact of \$61.4 billion projected for the Phoenix Airport System will support total employment within the region of 328,153, an increase of 33.7%, a figure twice as great as the 16.4% employment growth projected for the Phoenix metro economy overall.

Table 20
Summary And Projections of Phoenix Airport System Economic Impacts
(Labor Income and Output in Thousands of Constant 2022 Dollars)

Impact Sources	2022 Employment	2022 Labor Income	2022 Output	2032 Employment	2032 Labor Income	2032 Output
Sky Harbor International	47,919	\$3,888,685	\$13,325,398	59,685	\$4,964,555	\$18,666,556
Sky Harbor Center	8,502	945,353	2,423,230	10,798	1,230,613	3,077,502
Direct Flight Exports	1,356	175,745	774,393	1,853	246,070	1,057,822
Airline Visitors	81,313	2,963,531	7,032,225	113,838	4,252,667	9,845,115
Deer Valley Airport	789	65,297	151,571	986	83,625	189,380
Goodyear Airport	667	67,384	241,887	802	83,112	291,067
Direct Impact	140,546	8,105,995	23,948,704	187,961	10,860,641	33,127,443
<i>Indirect (Supplier) Impact</i>	46,221	3,134,214	9,135,042	61,814	4,199,308	12,636,199
<i>Induced (Worker) Impact</i>	58,606	3,551,491	11,266,237	78,377	4,758,388	15,584,210
TOTAL IMPACT	245,373	\$14,791,700	\$44,349,983	328,153	\$19,818,337	\$61,347,851

13. DATA SOURCES

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9. Federal Aviation Administration, *Terminal Area Forecasts*, January 2024
10. IMPLAN Company, IMPLAN Model, Huntersville, North Carolina
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APPENDICES

ECONOMIC IMPACT OF THE PHOENIX AIRPORT SYSTEM

DIRECT INTERNATIONAL FLIGHTS

Direct (nonstop) international flights made an important contribution to the economy of the region in 2022, while enhancing options for travelers and exporters. Direct flights have no additional domestic stops after departure from Phoenix Sky Harbor International Airport. Direct flights serve residents and visitors with convenient business and tourism travel and provide producers of export products with secure and efficient transport of goods. Direct international flights served 24 destinations in 2022, including flights to Canada, Germany, Mexico, and the United Kingdom. Direct international flights carried 1,090,236 enplaned passengers and 5.8 million pounds of outbound export goods.

Nonstop international flights at Phoenix Sky Harbor International Airport created a total economic impact of \$3.1 billion within the metropolitan area in 2022 (Table A-1). The \$3.1 billion total economic impact figure is the sum of (a) direct (or initial) impacts of economic activity plus (b) indirect and (c) induced multiplier effects created when dollars related to international flights recirculated in the regional economy.

Table A-1			
Economic Impact of Sky Harbor Direct International Flights: 2022			
Impact Source	Employment	Labor Income (thousands)	Output (thousands)
Airlines & Air Cargo	1,085	\$113,658	\$552,814
Visitor Expenditures	6,005	219,510	414,464
Air Export Products	1,356	175,745	774,392
Direct Economic Impact	8,447	508,913	1,741,670
<i>Indirect (Supplier) Impact</i>	3,385	249,639	671,684
<i>Induced (Worker) Impact</i>	3,971	241,263	705,893
TOTAL ECONOMIC IMPACT	15,803	\$999,815	\$ 3,119,247

The direct impact of nonstop international flights was \$1.7 billion in 2022, supporting 8,447 jobs with worker incomes of \$508.9 million. Airlines and air cargo firms involved in direct international flights produced output estimated as \$552.8 million and employed 1,085 workers with incomes of \$113.6 million.

There were 399,180 international visitor enplanements at Sky Harbor in 2022, and 351,006 or 88% of these were on direct international flights. International visitors arriving on direct international flights spent \$414.5 million on food, lodging, ground transport, retail, and entertainment in the greater metropolitan area. Direct international flight visitor expenditures supported 6,005 jobs in the hospitality sector, with worker incomes of \$219.5 million. The value of Arizona exports transported on nonstop international air routes originating at Sky Harbor Airport was \$774.4 million. Goods transported were primarily in the high technology sector. There were 1,356 jobs related to the production of direct flight exports, with worker income of \$175.7 million.

Combined indirect and induced impacts summed to output of \$1.4 billion, with employment of 7,356 workers and income of \$245.4 million. Adding the multiplier impacts to the direct impacts gives a total economic impact of direct international flights of \$3.1 billion, with 15,803 jobs supported and worker income of \$999.8 million.

Distribution of the total economic impact of \$3.1 billion over 8,736 direct international flight departures yields an arithmetic estimate of the average economic value of each departure of \$357,057 for 2022, based on airline and air cargo output, visitor spending, and value of exports transported. (Note: in 2016 the estimated per departure value for 9,390 departures and total impact of \$3.4 billion was \$364,967 per departure. The difference is due primarily to a greater number of 2016 visitors and higher estimate of visitor expenditures in that year.)

COMPARISON OF 2016 AND 2022 IMPACTS

A complete listing of economic impact components for 2016 and 2022 appears in Table A-2. The total Phoenix Airport System impact for 2022 (\$44.3 billion) is 14.7% greater than the 2016 total impact (\$38.7 billion). The 2022 impact incorporates inflationary increases as well as “real” growth. Although the overall Consumer Price Index (CPI) increased by 22% between 2016 and 2022, much of this was due to the price of shelter, which is weighted in the CPI at more than one third but has little bearing on the impact categories in the table. Meanwhile, the annualized price index for air travel, although exhibiting significant fluctuations over the period, was essentially unchanged between 2016 and 2022.

Perhaps the most useful comparison is the difference in direct impact, which is based on the initial data collected and does not include estimated secondary multiplier effects. Direct output of the System was up by 30.6% in 2022 over 2016, employment was 11.4% greater and labor income increased by 36.2%. While these comparisons are a mix of real and inflationary increases, the increase in employment of 11.4% is not subject to inflation, and therefore provides support for significant real growth across the system.

Table A-2
Comparison of System Economic Impacts: 2022 and 2016

Year	Impact Category	Employment	Labor Income (thousands)	Output (thousands)
2022	Sky Harbor Airport	47,919	\$3,888,685	\$13,325,398
2016	Sky Harbor Airport	46,928	\$3,073,148	\$10,262,912
	Percent Change	2.1	26.5	29.8
2022	Sky Harbor Center	8,502	\$945,353	\$2,423,230
2016	Sky Harbor Center	10,504	\$653,504	\$2,057,558
	Percent Change	-19.1	44.7	17.8
2022	Deer Valley Airport	789	\$65,297	\$151,571
2016	Deer Valley Airport	965	\$72,325	\$196,189
	Percent Change	-18.2	-9.7	-22.7
2022	Goodyear Airport	667	\$67,384	\$241,887
2016	Goodyear Airport	363	\$26,875	\$67,345
	Percent Change	83.7	150.7	259.2
2022	Airline Visitor Spending	81,313	\$2,963,531	\$7,032,225
2016	Airline Visitor Spending	77,259	\$2,433,967	\$6,467,616
	Percent Change	5.2	21.8	8.7
2022	Direct Intl. Flights	8,446	\$508,913	\$1,741,670
2016	Direct Intl. Flights	12806	\$541,378	\$1,899,463
	Percent Change	-34.0	-6.0	-8.3
2022	Direct Impact	140,546	\$8,105,995	\$23,948,704
2016	Direct Impact	126,203	\$5,949,711	\$18,341,880
	Percent Change	11.4	36.2	30.6
2022	Secondary Impact	104,827	\$6,685,705	\$20,401,279
2016	Secondary Impact	143,377	\$7,584,527	\$20,318,985
	Percent Change	-26.9	-11.9	0.4
2022	TOTAL IMPACT	245,373	\$14,791,700	\$44,349,983
2016	TOTAL IMPACT	269,580	\$13,534,238	\$38,660,865
	Percent Change	-9.0	9.3	14.7

ECONOMIC IMPACT ANALYSIS AND THE IMPLAN MODEL

The economic contribution of the Phoenix Airport System was measured by three main indicators: jobs supported (employment), payments to workers and proprietors (labor income) and the dollar volume of output (revenues) produced. The time period for the current study was the calendar year 2022.

The initial revenues or output of the airport system, along with the jobs to produce that output and the payments to labor, are known as direct effects. Direct effects are based on actual available data on jobs, earnings, and output by firms and agencies providing aviation services. In addition to direct effects, there are ripple effects on the regional economy created when dollars recirculate through the economy. When employers pay for supplies and services in business-to-business transactions to support production of output, this spending creates “indirect” effects. Further economic benefits result when workers return to their home communities to spend their earnings to buy consumer goods and services such as food, shelter, transportation, and medical care, creating “induced” effects. The indirect (supplier) and induced (consumer) spending continues to generate successive rounds of economic activity.

The indirect and induced effects were calculated through an input-output model for the greater Phoenix region incorporating supply/demand relationships for production along the entire supply chain. The model used was the latest version (2022) of IMPLAN, widely applied in regional economic impact analysis for corporate and public sector studies. The overall industry structure follows the national input-output Benchmark Tables from the U. S. Bureau of Economic Analysis. Through application of the IMPLAN model, the combined direct, indirect, and induced effects quantify the total economic impact of the Phoenix Airport System.

For this study, a geographic information system database on employment by location and industry classification in the region was obtained under a license from the Maricopa Association of Governments (MAG). The MAG employment database for 2022 was released in October 2023. This data set provided the initial information on direct employment by industry related to the Phoenix Airport System.

Labor Income is the sum of employee compensation (wages and benefits) and proprietor Income. Labor Income represents the total value of all forms of employment income paid throughout a defined area during a specified period. It reflects the combined cost of total payroll paid to employees (e.g. wages and salaries, benefits, payroll taxes). Labor income earned by workers in various industries is reported in detail in the Quarterly Census of Employment and Wages (QCEW) from the U. S. Bureau of Labor Statistics, The QCEW is the primary source for labor income within IMPLAN. Proprietor income for industries is derived from the U.S. Bureau of Economic Analysis regional accounting system.

Output is the value of production, and at the most basic level can be described as revenues plus net inventory change. Output by industry within IMPLAN is taken from the BEA Annual Industry Accounts, along with other sources, such as the U.S. Census of Retail Trade. To “run” the IMPLAN model, employment by industry is entered as a primary input. The model then estimates the labor and proprietor income and the value of industry output for the industry employment level, along with the associated indirect and induced effects by industry, all of which culminate in the calculation of the total economic impact.