

Aviation is an integral part of the world’s economy. Countries with robust air transportation systems benefit from the efficiencies that air travel provides. The same is true in the U.S. at the state and regional level – airports and the linkages they provide help to drive economies in those states. The Commonwealth of Kentucky’s system of 59 publicly-owned, public-use airports are essential to the state’s transportation and economic infrastructure, supporting its diversified industries including, but not limited to, manufacturing, distribution, aerospace technology, agriculture, healthcare, and thoroughbred horse racing. Airports connect the Commonwealth’s citizens and businesses to the rest of the state, our nation, and the global economy, and serve as an important link for almost every Kentuckian, regardless of where they live. Airports are the “front door” to communities and provide companies efficient access to their employees and facilities. Airports also provide a gateway for visitors and tourists to the Appalachian Mountains, horse parks and horse farms, world-class golf courses, and the hundreds of historic, recreational, and educational sites in communities throughout the state.

Kentucky’s airports are a major catalyst to the state’s growing economy. In order to better understand the economic benefit of airports statewide, the Kentucky Transportation Cabinet Department of Aviation (KDA) completed this economic evaluation to quantify the on-airport activities found at system airports. It is important to note that unlike a full economic impact analysis, this section of the System Plan only estimates the on-airport employment and payroll generated by Kentucky’s airports and their business and government tenants. No visitor, multiplier, or on-airport construction impacts were included. More specifically, only the employment and payroll impacts directly supported by airport management and aviation-related businesses and public sector tenants located at the airports were considered. Direct economic activity (output) impacts were not calculated. The evaluation did not estimate the spending generated by visitors arriving in the Commonwealth on commercial service or general aviation aircraft. Nor did the evaluation estimate the ripple effects associated with the re-spending of direct impacts within the Commonwealth’s economy. It should be noted that if on-airport construction impacts, visitor impacts, and multiplier impacts were included in this evaluation, the economic impacts of the state’s airport system would be significantly larger than what is reported in this chapter. The KYTC is considering a follow-on study to calculate the complete economic impact of the Commonwealth’s airport system.

Methodology

This analysis follows a proven Federal Aviation Administration (FAA) approved methodology of data collection and estimating impacts that has been used throughout the country. The direct economic impact is quantified in terms of employment and payroll. When a complete economic impact study is completed, output will also be estimated. Output represents spending or economic activity and accounts for the value of aviation-related activities occurring on the study airports.

In a full airport economic impact study, the economic impacts of the airports are calculated using an input-output modeling process, where the model accounts for the relationship of production inputs among various industry segments when modeling the outputs of those industries. The input-output model describes three types of impacts, each of which are estimated separately: direct impacts (inputs to the economic model), multiplier impacts (output of the economic model), and total impacts. As explained previously, however, for this analysis the KDA desired to estimate only the direct impacts of the Kentucky airport system. Therefore, only the input portion of the input-output modeling process, the estimation of direct impacts, was employed in this study.

Direct impacts originate from on-airport activity and account for the initial point where money first starts circulating in the economy. On-airport activity includes the benefits associated with businesses and government agencies located at the airport directly related to the provision of aviation services. These businesses include fixed base operators (FBOs), flight schools, airlines, and aircraft repair facilities and public sector tenants such as airport management, the FAA, law enforcement aviation units, and the Transportation Security Administration (TSA).

Impacts calculated include:

- **Employment** – Employment is based on the total of full-time jobs plus part-time jobs. In this analysis, two part-time positions are the equivalent of a single full-time position.
- **Payroll** – Payroll represents the annual salary, wages, and benefits paid to all employees.

Surveys, Data Collection Methods, and Assumptions

As previously noted, an extensive data collection effort was undertaken to gather information for the system plan. This included data necessary to estimate employment and payroll impacts. Data for on-airport activity was collected, which includes airport tenants that are businesses with employees, such as airlines, FBOs, flight schools, concessionaires, corporate flight departments, and aircraft maintenance providers. Also included in this group are governmental agencies, such as public airport sponsors, air traffic controllers, other FAA units, the TSA, as well as various other local, state, and federal agencies.

The methods used to gather information from these groups are discussed in the ensuing section, along with the assumptions needed to arrive at employment and payroll impacts.

On-Airport Activity

Airport sponsors and managers were contacted via a survey to provide names, mailing addresses, e-mail addresses, and telephone numbers for each on-airport business and public sector tenant. All airport tenants having aviation-related employees on Kentucky airports during 2015 were contacted to collect information regarding their economic activity. Since the purpose of this analysis was to measure the employment and payroll impacts of each Kentucky airport and the activity that relied on the airport, a distinction was made between those on-airport tenants that depended on the airport and those that did not.

For example, a tenant farmer located on an airport would not be designated as aviation-related since farming is not airport related. A survey was provided to each aviation-related tenant and follow-up calls and e-mails were made to obtain responses and to verify information on returned surveys. Airport tenants at each airport were grouped into 28 categories to aid in analysis. These categories consisted of:

- Aerial applicators
- Air ambulances
- Air cargo
- Aircraft maintenance (piston)
- Aircraft maintenance (turbine)
- Airlines (passenger only)
- Airport management (commercial service)
- Airport management (general aviation)



- Airport management (general aviation with three or less full-time employees)
- Air traffic control (public, i.e., FAA)
- Air traffic control (private)
- Charter
- Concessions (commercial service airports)
- Concessions (general aviation airports)
- Corporate flight departments
- FBOs (five or less full-time employees)
- FBOs (large)
- Federal government (not including air traffic control or TSA)
- Flight instruction
- Flight instruction (professional)
- Ground transportation
- Hangar rental and development
- Military
- Nonprofit
- Parking
- Rental Car
- State and local government
- TSA

The survey sent to each airport tenant, including airport sponsors and managers, requested the following information:

- Type of aviation activity conducted by the tenant
- Number of full-time, part-time, and seasonal employees in 2015
- Estimated total annual wages and benefits paid to employees in 2015
- Various other business-related data

A high response rate was desired for the airport management and tenant surveys. Several rounds of follow-up calls and e-mails were therefore made to non-responding entities and airport managers to obtain the greatest response rate possible for on-airport employment. For airport tenants who did not provide complete information on payroll expenditures, estimates were developed using ratios of payroll. These ratios were developed from survey data obtained from those tenants and businesses that did respond to the survey. For those categories of tenants that did not have sufficient Kentucky data to provide reliable averages, additional data was used from the consultant's in-house database compiled from airport economic impact studies conducted throughout the US.

Employment and Payroll Impacts for Kentucky Airports

Kentucky's airports are significant generators of jobs and payroll. This section presents the direct employment and annual payroll supported by on-airport activity at Kentucky's 59 public-use airports. It is important to note that these impacts do not include commercial service or general aviation visitor impacts or multiplier impacts.

Employment Impacts

This analysis found that airports in Kentucky are an important source of jobs. Employment, as defined in this analysis, is based on full-time equivalent (FTE) jobs, which is a sum of full-time jobs and part-time jobs. In this analysis, two part-time positions are the equivalent of one single full-

time position. Employment impacts were calculated for on-airport activity. On-airport activity includes private businesses and government organizations.

Payroll Impacts

The salaries, wages, and benefits paid to the employees described above result in a significant annual payroll benefit to the Kentucky economy. Estimates of the payroll impacts related to the previously identified employment impacts associated with on-airport businesses and their activities are detailed in conjunction with employment impacts below.



Statewide Employment and Payroll from On-Airport Activity

Kentucky's on-airport activity create 792 jobs at general aviation airports and 22,600 jobs at commercial service airports, for a total of 23,392 FTE positions. The majority of these on-airport jobs are related to Kentucky's commercial service airlines (including UPS and DHL air cargo hub activity). The on-airport payroll associated with these jobs is over \$49.1 million at general aviation airports and approximately \$1.39 billion at commercial service airports; a total of over \$1.4 billion. These jobs and the associated pay are not evenly distributed across on-airport business types.



Major Employers

The three largest single employers at Kentucky airports are UPS, DHL, and the Kentucky Air National Guard. UPS' Worldport Hub at Louisville International employs nearly 10,000 with an estimated payroll of over \$682 million, while DHL employs over 2,700 with an estimated payroll of over \$192 million at its North American Hub at Cincinnati/Northern Kentucky International. The presence of these air cargo hubs in Kentucky are a testament to Kentucky's ideal location for logistics and distribution, as 75 percent of the U.S. population is within a two-hour flight of Louisville, and a four-hour flight allows for access to 95 percent of the U.S. population. The steady increase in tonnage throughput at these Kentucky air cargo hubs, coupled with the significant growth in e-commerce distribution facilities surrounding these airports means that the air cargo industry will continue to be a major source of jobs and economic growth for Kentucky well into the future.

The Kentucky Air National Guard's 123rd Airlift Wing, located at Louisville International, employs over 815 with an associated payroll of over \$64 million. Equipped with eight C-130 Hercules aircraft, the Kentucky Air National Guard's 123rd Airlift Wing mission is to provide worldwide theater airlift for U.S. military and humanitarian operations. After these three, there is a significant drop off to the next largest airport employers, which include airlines, terminal concessionaires, TSA, rental car operators, and airport staffing. The largest non-government or military business on a general aviation airport is Summit Aviation at Lake Cumberland Regional, with 40 on-airport employees accounting for an estimated payroll of over \$1.8 million.



Impacts Related to Unique Aspects of Aviation in Kentucky

As highlighted in Chapter 5 of this study, there are several unique aspects of aviation in Kentucky: aviation education, agricultural activity, and aviation in medical care. These aviation aspects represent important services that have presences both on and off-airport, but each positively impact Kentucky aviation in some way.

Aviation educational opportunities are available at the university-level through programs at Eastern Kentucky University, University of Kentucky, and Morehead State University, while 37 Kentucky high schools offer aviation courses or a dedicated aerospace curriculum. Youth education programs are available through the Aviation Museum of Kentucky's camps at Blue Grass Airport, and numerous Young Eagles programs sponsored by local Experimental Aircraft Association (EAA). In addition, 29 of Kentucky's 59 airports have based flight training services and nearly all airports support flight training activities. The results of the inventory effort found that in Kentucky there are 63 on-airport jobs related to flight training with over \$9.4 million in associated payroll.

Aviation has a role in supporting the state's agricultural sector for purposes including aerial application and livestock transport. Each year, aircraft are used for aerial seeding or aerial pesticide application of Kentucky's farmland, which in 2015 produced \$2.8 billion worth of total crop production. Kentucky's airports support enable farmers to address the needs of their crops efficiently and economically through aviation.



The equine industry – one of Kentucky’s most renowned and culturally significant industries – is heavily reliant upon aviation for the transportation of its products. Specialized air transport companies such as H.E. Tex Sutton Forwarding Company, based at Blue Grass Airport, move horses around the world using dedicated aircraft often called “air stables.” Kentucky’s home to 242,000 horses that support a \$1.1 billion industry with more than 40,000 jobs. Two of the top five airports in the U.S. involved in horse transportation are in Kentucky (Louisville International Airport and Blue Grass Airport in Lexington).¹



Aviation is also an essential component of the healthcare industry, often most visibly in the form of helicopter emergency medical evacuations. Furthermore, the medical industry uses aviation in the transfer of medical supplies, tissue samples, and donor organs. Kentucky is currently served by five air medical operators, combining for 31 air medical bases across the state. Fourteen of these bases are located at airports. The speed, reliability, and range afforded by aviation saves lives every day, and all Kentucky airports play a vital role in supporting this critical activity when needed. The inventory identified 229 on-airport jobs related to air ambulance operators with an associated payroll of over \$13.7 million.



¹ Harrington-Snell, Jennifer. *Along for the ride*, Business Airport International, January 2012.

Summary of On-Airport Economic Activities

Airports in Kentucky support the air travel needs of the Commonwealth’s residents, businesses, and visitors, acting as economic engines for regional economies. This chapter highlights the important economic contributions that the Commonwealth realizes from its airports by quantifying direct employment and payroll associated with these airports. The results of this analysis are reported for the state as a whole and for each individual airport. It is also important to note that this economic evaluation provides a “snapshot in time” with respect to airport activity and economic conditions. The data and the state of the economy for this chapter are all specifically related to 2015.

The Kentucky system of airports analyzed in this evaluation consists of six commercial service airports and 53 general aviation airports. These airports range in size from small airstrips, such as Providence-Webster County Airport and Liberty-Casey County Airport, to Bowman Field, a busy corporate general aviation reliever airport, to Cincinnati/Northern Kentucky International Airport, one of the 60 busiest commercial service airports in the U.S. in terms of enplanements.² The KDA supports these airports as part of its mission to provide a safe and secure air transportation system that ensures the mobility of people and goods, enhances economic prosperity, and preserves the quality of the Commonwealth’s environment and communities.

This analysis found that the system of 59 public-use airports in Kentucky generates substantial direct economic impacts throughout the Commonwealth. In brief, the 59 airports:

- Supported more than 23,000 jobs at system airports
- These jobs generated over \$1.44 billion in annual payroll

Table 7-1 lists the employment and payroll for the 59 Kentucky public-use airports. Again, these numbers only include on-airport businesses and government agency activities. On-airport capital improvement projects, visitor impacts, and multiplier impacts are not included. It should be noted that for airports with 3 or fewer on-airport workers, payroll was not listed in the table below to maintain confidentiality and to avoid reporting individual salary estimates. A diverse range of airport-related activity is reflected in these impacts, from UPS’ Worldport air cargo hub at Louisville International Airport-Standiford Field where more than 9,000 workers are employed, to Eagle Flight Academy’s two full-time flight instructors at Hancock County –Ron Lewis Field.

² https://www.faa.gov/airports/planning_capacity/passenger_allcargo_stats/passenger/media/cy15-all-enplanements.pdf

**Table 7-1
Direct Economic Impacts for Kentucky Airports**

	Associated City	Airport Name	Direct On-Airport Employment	Direct On-Airport Payroll
Commercial Service Airports				
BWG	Bowling Green	Bowling Green-Warren County Regional	19	\$681,000
CVG	Covington	Cincinnati/Northern Kentucky International	9,443	\$493,290,000
LEX	Lexington	Blue Grass	520	\$30,335,000
SDF	Louisville	Louisville International-Standiford Field	12,436	\$855,093,000
OWB	Owensboro	Owensboro-Daviess County Regional	62	\$4,004,000
PAH	Paducah	Barkley Regional	120	\$7,552,000
Commercial Service Airports Total			22,600	\$1,390,955,000
General Aviation Airports				
DWU	Ashland	Ashland Regional	6	\$286,000
BRY	Bardstown	Samuels Field	5	\$455,000
1M9	Cadiz	Lake Barkley State Resort Park	-	\$0
AAS	Campbellsville	Taylor County	2	Undisclosed
I96	Columbia	Columbia-Adair County	2	Undisclosed
O18	Cynthiana	Cynthiana-Harrison County	2	Undisclosed
DVK	Danville	Stuart Powell Field	46	\$2,281,000
8M7	Dawson Springs	Tradewater	-	\$0
EKX	Elizabethtown	Addington Field	29	\$1,163,000
213	Falls of Rough	Rough River State Resort Park	1	Undisclosed
K62	Falmouth	Gene Snyder	-	\$0
FGX	Flemingsburg	Fleming-Mason	5	\$362,000
FFT	Frankfort	Capital City	38	\$9,726,000
1M7	Fulton	Fulton	-	\$0
27K	Georgetown	Georgetown Scott County - Marshall Field	8	\$407,000
M34	Gilbertsville	Kentucky Dam Village State Resort Park	-	\$0
GLW	Glasgow	Glasgow Municipal	24	\$1,375,000
M21	Greenville	Muhlenberg County	20	\$1,212,000
I93	Hardinsburg	Breckinridge County	-	\$0
I35	Harlan	Tucker-Guthrie Memorial	-	\$0
JQD	Hartford	Ohio County	3	Undisclosed
CPF	Hazard	Wendell H. Ford Regional	29	\$1,760,000
EHR	Henderson	Henderson City-County	46	\$2,031,000
HVC	Hopkinsville	Hopkinsville-Christian County	4	\$297,000
JKL	Jackson	Julian Carroll	-	\$0
K24	Jamestown	Russell County	2	Undisclosed
M20	Leitchfield	Grayson County	-	\$0
KY8	Lewisport	Hancock Co-Ron Lewis Field	4	\$14,000
I53	Liberty	Liberty-Casey County	-	\$0
LOZ	London	London-Corbin-Magee Field	168	\$10,688,000
LOU	Louisville	Bowman Field	92	\$5,090,000
210	Madisonville	Madisonville Regional	3	Undisclosed
5M9	Marion	Marion-Crittenden County	1	Undisclosed
M25	Mayfield	Mayfield Graves County	2	Undisclosed
1A6	Middlesboro	Middlesboro-Bell County	2	Undisclosed
EKQ	Monticello	Wayne County	16	\$1,355,000
SYM	Morehead	Morehead-Rowan County Clyde A. Thomas Regional	17	\$1,139,000

**Table 7-1
Direct Economic Impacts for Kentucky Airports**

	Associated City	Airport Name	Direct On-Airport Employment	Direct On-Airport Payroll
IOB	Mount Sterling	Mount Sterling-Montgomery County	25	\$1,234,000
CEY	Murray	Kyle-Oakley Field	5	\$87,000
PBX	Pikeville	Pikeville – Pike County Regional	3	Undisclosed
18I	Pine Knot	McCreary County	-	\$0
SJS	Prestonsburg	Big Sandy Regional	36	\$1,462,000
2M0	Princeton	Princeton-Caldwell County	-	\$0
8M9	Providence	Providence-Webster County	-	\$0
RGA	Richmond	Central Kentucky Regional	20	\$1,116,000
4M7	Russellville	Russellville-Logan County	3	Undisclosed
SME	Somerset	Lake Cumberland Regional	83	\$3,968,000
6I2	Springfield	Lebanon-Springfield	18	\$1,093,000
I50	Stanton	Stanton-Powell County	-	\$0
TWT	Sturgis	Sturgis Municipal	4	\$204,000
TZV	Tompkinsville	Tompkinsville-Monroe County	1	Undisclosed
9I3	West Liberty	West Liberty	-	\$0
BYL	Williamsburg	Williamsburg-Whitley County	17	\$918,000
General Aviation Airports Total			792	\$50,916,000
All Airports Total			23,392	\$1,441,871,000

Source: CDM Smith

Note: Payroll for airports with three or fewer direct employees are not disclosed.

