6 Forecasts of Aviation Activity

Aviation activity forecasts in the Kentucky Statewide Aviation System Plan (SASP) focus on four primary areas: based aircraft, aircraft operations (both general aviation and commercial), passenger enplanements, and air cargo. By showing how these elements of aviation activity are expected to grow in the coming years, forecasts can help to both justify and shape system recommendations made later in the SASP. Additionally, forecasts project when this growth will occur, helping with the planning and prioritization of airport projects and construction.

The Federal Aviation Administration (FAA) stresses that system planning forecasts should focus on requirements of planning the statewide airport system, not individual airports. In addition, it is assumed that forecasts prepared in this chapter are generally unconstrained by existing conditions such as limited aircraft storage or FBO services.

There is no one forecast methodology that can be applied to all of the aviation activity elements being forecasted. There are significant differences between the general aviation (GA) and commercial service sectors of the aviation industry, and as a result these sectors call for different forecasting methodologies. For based aircraft and GA operations forecasts, both top-down and bottom-up methodologies were developed before a preferred forecast was chosen for each. New forecasts were not developed for commercial activity. Rather, growth rates presented in existing sources such as airport master plans and the FAA's Terminal Area Forecast (TAF) were applied to baseline data. All forecasts are projected 20 years from the base year of 2015, and include five-year (2020), 10-year (2025), and 20-year (2035) forecasts.

This chapter details the methodologies and results of each of these aviation forecasts, and includes the following sections:

- **Review of Industry Forecasts** – Summarizes the FAA's two primary published forecasts, the TAF and the FAA Aerospace Forecasts. Includes summaries of TAF results as they apply to Kentucky system airports and applicable growth rates from the current FAA Aerospace Forecasts.
- **Kentucky Baseline Data** – Describes the data sources utilized to establish baseline 2015 data for each of the 59 airports in the Kentucky system. Baseline data for based aircraft and GA operations is presented.
- **Kentucky Population Forecasts** – Future population growth will have an impact on aviation demand. This section summarizes county population forecasts conducted by the Kentucky State Data Center at the University of Louisville.
- **Based Aircraft Forecasts** – Top-down and bottom-up forecasting methodologies are presented. The process and data inputs of each methodology are explained, and a preferred forecast is chosen. This section includes a statewide forecast of Kentucky's based aircraft fleet mix.
- **GA Operations Forecasts** – Like based aircraft forecasts, this includes both top-down and bottom-up forecasting methodologies. The process and data inputs of each methodology are explained, and a preferred forecast is chosen. Also included, is a forecast of each airport's local and itinerant GA operations.
- **Commercial Service Forecasts** – Forecasts for commercial operations and passenger enplanements are presented. Original forecasts were not developed as part of the SASP. Forecasts or established growth rates are included from master plans and other sources.
- **Air Cargo Forecasts** – Forecasts of total air cargo tonnage at three of the Commonwealth's six commercial service airports are presented. Original forecasts were not developed. Growth rates established in existing master plans and other sources were applied to baseline cargo data.

Review of Industry Forecasts

Each year, the FAA develops two sets of forecasts for a variety of aviation activities. For activity at individual airports, the FAA develops the TAF, which forecasts such factors as aircraft operations, based aircraft, and passenger enplanements. The FAA Aerospace Forecast is a comprehensive analysis of the aviation industry as a whole, focusing on many more factors than the TAF, but not at the individual airport level. The following sections describe these forecasts in greater detail while summarizing results that are relevant to the SASP forecasting process.

FAA Terminal Area Forecast

The TAF is the FAA's official forecast of aviation activity at U.S. airports, forecasting activity at all airports in the National Plan of Integrated Airport Systems (NPIAS). The TAF produces demand-driven forecasts that use local and national economic conditions as a data source. The forecast for an airport is developed independent of that airport's capacity to handle forecasted growth; current constraints of possible future activity are not taken into account. However, historic constraints are often reflected in the TAF as they have affected historic activity. Items forecasted in the TAF include commercial passenger enplanements, commercial and GA aircraft operations, military operations, and based aircraft. In very rare cases, the TAF may forecast negative growth, but is more likely to forecast constant numbers at airports. This is especially the case at GA airports without recent master plans or air traffic control towers.

Table 6-1 summarizes the TAF for Kentucky's 55 NPIAS airports for the 20 year period from 2015 to 2035. Note that the 2015 data in this table is forecasted, not actual, as the most recent TAF uses base data from 2014. The TAF projects significant growth in commercial service activity over this period, with enplanements forecasted to grow by 1.75 percent annually from over 5.2 million in 2015 to over 7.4 million in 2035. Commercial operations are forecasted to grow at a rate of 1.87 percent annually from nearly 300,000 in 2015 to nearly 430,000 in 2035.

Table 6-1
Summary of Current TAF for Kentucky NPIAS Airports

Activity or Factor	2015	2020	2025	2035	AAGR 2015-2035
Commercial Service					
Passenger Enplanements	5,251,539	5,791,389	6,361,809	7,428,859	1.75%
Commercial Operations	297,089	332,736	367,946	429,950	1.87%
General Aviation					
Based Aircraft	1,703	1,756	1,816	1,916	0.59%
GA Operations	943,143	898,152	862,643	871,315	-0.40%

Source: FAA TAF (2016).

By contrast, the TAF generally projects very moderate to negative growth for GA activity over this period (Table 6-1). Based aircraft at Kentucky NPIAS airports are forecasted to grow at an average annual growth rate of 0.59 percent from 2015 through 2035. The TAF projects negative growth for GA operations, with an average annual loss of 0.4 percent for 20 years. However, this negative growth rate includes negative growth in GA operations at three of the state's commercial service airports: Cincinnati/Northern Kentucky International Airport, Louisville International Airport-Standiford Field, and Blue Grass Airport in Lexington. When omitting these airports from the statewide calculation, GA operations in Kentucky are forecasted to grow at an average annual rate of 0.06 percent from 2015 to 2035. While this is still a very low growth rate, it is never-the-less positive.

However, the vast majority of this forecasted growth in GA activity takes place at a small number of Kentucky airports. Of the 55 NPIAS airports in the Commonwealth, the TAF only projects based aircraft growth at 17 airports and GA operations growth at seven airports.

FAA Aerospace Forecast

The FAA publishes its comprehensive Aerospace Forecasts each year. The edition available for this analysis is the FAA Aerospace Forecast Fiscal Years 2016-2036. The Aerospace Forecast analyzes far more facets of the aviation industry than does the TAF, and also includes forecasts of international activity. Forecasts of aviation activity are based on economic forecasts derived from U.S. and international gross domestic product, disposable income, and oil prices. The FAA Aerospace Forecast employs a variety of forecasting methodologies where appropriate, including market share analysis, econometric model/regression analysis, trends analysis, time series analysis, and simulation. For each item being forecasted, pessimistic, baseline, and optimistic results are produced.

As stated, the FAA Aerospace Forecast analyzes a vastly larger set of aviation activity data than does the TAF. For commercial activity, the Aerospace Forecast offers future projections of factors such as operations, enplanements, load factors, demand, capacity, revenue, seat miles, trip length, and fleet mix, among others. GA activity forecasted in the Aerospace Forecast includes operations, aircraft manufacturing and shipments, fleet mix and active aircraft, hours flown, pilots, and training. The Aerospace Forecast also projects activity in air cargo, unmanned aircraft systems, and commercial space transportation.

Table 6-2 summarizes active aircraft forecasts from the current Aerospace Forecasts that are most relevant to the SASP. The Aerospace Forecast projects the number of active aircraft nationally, in addition to the national fleet mix. Nationally, the entire GA fleet is expected to experience very low growth at an average annual rate of only 0.14 percent. However, this is largely due to an expected decline in the number of active single-engine and multi-engine prop aircraft. Both the jet and turboprop and helicopter aircraft groups are forecasted to experience substantial growth from 2015 to 2035, both at rates of approximately 2 percent annually. The other aircraft group, which includes experimental aircraft, gliders, and ultralights, is also expected to experience significant growth over the forecast period.

Table 6-2
National Active GA Aircraft Forecasts, 2015-2035 – FAA Aerospace Forecast

Type of Aircraft	2015	2020	2025	2035	AAGR 2015-2035
Single-Engine	125,050	120,485	115,960	107,780	-0.74%
Multi-Engine	13,085	12,810	12,545	11,765	-0.53%
Jet & Turboprop	22,045	22,870	24,940	32,455	1.95%
Helicopter	10,240	11,710	13,080	15,935	2.24%
Other	33,460	35,320	37,220	41,750	1.11%
Total GA Fleet	**203,880**	**203,195**	**203,745**	**209,685**	**0.14%**

Source: FAA Aerospace Forecast Fiscal Years 2016-2035 (2016).

As a result of these forecasted trends, the FAA Aerospace Forecast predicts a different national fleet in 20 years. **Table 6-3** shows how the national active GA aircraft fleet will change over this period, based on the percentage of total aircraft represented by each type. By 2035, it is forecasted that single-engine aircraft will make up a significantly smaller portion (51.4 percent) of the national fleet than they did in 2015 (61.3 percent). By contrast, in 2035, jet and turboprop, helicopter, and the other aircraft category are all forecasted to account for greater portions of the total fleet.

Table 6-3
National Fleet Mix Forecasts, 2015-2035 – FAA Aerospace Forecast

Type of Aircraft	Percentage of National Fleet			
	2015	2020	2025	2035
Single-Engine	61.3%	59.3%	56.9%	51.4%
Multi-Engine	6.4%	6.3%	6.2%	5.6%
Jet & Turboprop	10.8%	11.3%	12.2%	15.5%
Helicopter	5.0%	5.8%	6.4%	7.6%
Other	16.4%	17.4%	18.3%	19.9%
Total GA Fleet	**100.0%**	**100.0%**	**100.0%**	**100.0%**

Source: FAA Aerospace Forecast Fiscal Years 2016-2035 (2016).
Note: Due to rounding, totals may not sum up to 100%.

Table 6-4 summarizes two GA activity forecasts from the FAA Aerospace Forecast. The first is a projection of total GA hours flown nationally, which the FAA Aerospace Forecast predicts will increase at an average annual growth rate of 1.15 percent from 2015 to 2035. The document does not include forecasts for all GA operations, but only GA operations at towered airports. From 2015 to 2035, the FAA Aerospace Forecast expects GA operations at towered airports to increase at an average annual rate of 0.35 percent.

Table 6-4
GA Activity Forecasts, 2015-2035 – FAA Aerospace Forecast

Activity	2015	2020	2025	2035	AAGR 2015-2035
GA Hours Flown	23,196,000	24,201,000	25,513,000	29,152,000	1.15%
GA Operations at Towered Airports	25,578,000	26,026,000	26,473,000	27,416,000	0.35%

Source: FAA Aerospace Forecast Fiscal Years 2016-2035 (2016).

Kentucky Baseline Data

Before forecasting aviation activity in Kentucky, it is necessary to establish the most accurate baseline data possible. For forecasts in the SASP, the base year is 2015, making the forecast years 2020, 2025, and 2035. Several sources were used to gather baseline data, including Form 5010 Airport Master Records, the most recent FAA counts, the Kentucky Department of Aviation (KDA) counts, and the SASP inventory effort. For based aircraft, the FAA's most recent confirmed counts are used as baseline data at NPIAS airports, with 5010 or survey data used at non-NPIAS airports. For GA operations, a combination of 5010 and survey data is used as baseline data. **Table 6-5** details baseline data for based aircraft and GA operations at all 59 SASP airports.

Table 6-5
2015 Baseline Data for SASP Forecasts

FAA ID	Associated City	Airport Name	Based Aircraft	GA Operations
Commercial Service				
BWG	Bowling Green	Bowling Green-Warren County Regional	55	60,136
CVG	Covington	Cincinnati/Northern Kentucky International	8	5,994
LEX	Lexington	Blue Grass	94	35,179
SDF	Louisville	Louisville International-Standiford Field	31	11,806
OWB	Owensboro	Owensboro-Daviess County Regional	53	14,177
PAH	Paducah	Barkley Regional	42	21,715
General Aviation				
DWU	Ashland	Ashland Regional	25	6,650
BRY	Bardstown	Samuels Field	28	15,590
1M9	Cadiz	Lake Barkley State Resort Park	0	7,200
AAS	Campbellsville	Taylor County	13	9,460
I96	Columbia	Columbia-Adair County	15	5,012
0I8	Cynthiana	Cynthiana-Harrison County	29	11,168
DVK	Danville	Stuart Powell Field	31	21,000
8M7	Dawson Springs	Tradewater	2	730
EKX	Elizabethtown	Addington Field	48	13,600
2I3	Falls of Rough	Rough River State Resort Park	0	8,400
K62	Falmouth	Gene Snyder	27	4,640
FGX	Flemingsburg	Fleming-Mason	27	16,820
FFT	Frankfort	Capital City	75	34,216
1M7	Fulton	Fulton	9	8,697
27K	Georgetown	Georgetown Scott County - Marshall Field	87	16,625
M34	Gilbertsville	Kentucky Dam Village State Resort Park	6	12,980
GLW	Glasgow	Glasgow Municipal	28	12,800
M21	Greenville	Muhlenberg County	22	8,190
I93	Hardinsburg	Breckinridge County	10	1,296
I35	Harlan	Tucker-Guthrie Memorial	10	5,900
JQD	Hartford	Ohio County	10	8,000
CPF	Hazard	Wendell H. Ford Regional	32	9,370
EHR	Henderson	Henderson City-County	41	31,091
HVC	Hopkinsville	Hopkinsville-Christian County	51	35,000
JKL	Jackson	Julian Carroll	1	100
K24	Jamestown	Russell County	21	5,985
M20	Leitchfield	Grayson County	12	6,592

Table 6-5
2015 Baseline Data for SASP Forecasts

FAA ID	Associated City	Airport Name	Based Aircraft	GA Operations
KY8	Lewisport	Hancock Co-Ron Lewis Field	17	8,500
I53	Liberty	Liberty-Casey County	0	350
LOZ	London	London-Corbin-Magee Field	71	11,490
LOU	Louisville	Bowman Field	174	73,310
2I0	Madisonville	Madisonville Regional	20	12,150
5M9	Marion	Marion-Crittenden County	22	4,600
M25	Mayfield	Mayfield Graves County	19	13,962
1A6	Middlesboro	Middlesboro-Bell County	41	18,500
EKQ	Monticello	Wayne County	12	8,460
SYM	Morehead	Morehead-Rowan County Clyde A. Thomas Regional	32	22,990
IOB	Mount Sterling	Mount Sterling-Montgomery County	83	31,710
CEY	Murray	Kyle-Oakley Field	50	15,815
PBX	Pikeville	Pikeville – Pike County Regional	22	8,900
18I	Pine Knot	McCreary County	1	790
SJS	Prestonsburg	Big Sandy Regional	26	7,330
2M0	Princeton	Princeton-Caldwell County	11	5,871
8M9	Providence	Providence-Webster County	5	5,700
RGA	Richmond	Central Kentucky Regional	39	41,020
4M7	Russellville	Russellville-Logan County	14	14,120
SME	Somerset	Lake Cumberland Regional	34	36,128
6I2	Springfield	Lebanon-Springfield	21	9,200
I50	Stanton	Stanton-Powell County	11	5,125
TWT	Sturgis	Sturgis Municipal	14	8,600
TZV	Tompkinsville	Tompkinsville-Monroe County	23	10,625
9I3	West Liberty	West Liberty	15	4,300
BYL	Williamsburg	Williamsburg-Whitley County	12	3,600

Source: Airport Inventory and Data Survey, FAA, Kentucky Department of Aviation.

Kentucky Population Forecasts

Based aircraft and operations can be linked to the demand for aviation services. While some amount of air traffic is driven by visitors to the Commonwealth, much of the growth in aviation activity results from its residents and businesses. As population increases, demand for airline travel, air cargo shipments, personal flying, and other aviation-related activities is also anticipated to rise. This section explores how the Kentucky's population is expected to increase over the SASP forecast period.

The Kentucky State Data Center, located at the University of Louisville, conducts demographic forecasts for the Commonwealth. The most recent county population forecasts used a base year of 2010 and contains population forecasts out to 2050. Because the base data used in these forecasts is somewhat out-of-date, growth rates from these forecasts were applied to the most recent population estimates from the U.S. Census Bureau. **Table 6-6** summarizes these population forecasts for Kentucky, showing that as a whole, the Commonwealth's population is expected to grow at an average annual rate of 0.57 percent through 2035.

Table 6-6
Kentucky Population Forecast

Activity	2015	2020	2025	2035	AAGR 2015-2035
Kentucky Population	4,425,100	4,544,400	4,673,300	4,962,700	0.57%

Source: Kentucky State Data Center (2011), U.S. Census Bureau (2016).

However, population growth is not forecasted to be universal throughout the Commonwealth. **Table 6-7** summarizes how population is forecasted to grow across Kentucky's 120 counties, based on cohorts of forecasted average annual growth rates. Fifty of the total 120 counties are expected to experience zero or negative growth over this period, while another 44 are expected to experience population growth at an average annual rate of 0.5 percent or below. Only three counties (Boone, Scott, and Spencer) are projected to experience population growth of over 2 percent annually from 2015 to 2035.

Table 6-7
Summary of Forecasted Population Growth Rates

AAGR Range 2015-2035	Number of Counties
Up to 0%	50
>0% to 0.25%	24
>0.25% to 0.50%	20
>0.50% to 2.00%	23
>2.00%	3

Source: Kentucky State Data Center (2011), U.S. Census Bureau (2016).

General Aviation Forecasts

General aviation (GA) includes all facets of aviation other than scheduled commercial service activity and military activity. Forecasts of GA activity include projections of both based aircraft and GA operations, as defined below:

- **Based Aircraft** – The total number of GA aircraft that are permanently stored at an airport, either in hangars or on apron tie-downs.
- **GA Operations** – A single aircraft operation is defined as either a takeoff or landing. When an aircraft lands at and takes off from an airport, it counts as two aircraft operations. Touch-and-go operations, which also include both a takeoff and landing, also count for two total aircraft operations.

GA activity occurs at all 59 of Kentucky's public-use airports, including the Commonwealth's six commercial service airports. Forecasts of GA based aircraft and GA operations have therefore been prepared for all 59 system airports. In addition, new airports anticipated to be developed in Gallatin County and Letcher County during the planning period were added to the list of system airports beginning operation in 2025.

Top-down and bottom-up forecast methodologies were developed for both based aircraft and GA operations at each of the 59 Kentucky system airports. Data inputs and forecasting resources utilized as part of these methodologies include 2015 baseline data, FAA Aerospace Forecast, and county population forecasts. After top-down and bottom-up methodologies are developed for based aircraft and GA operations, a preferred methodology was chosen for each. The following sections detail GA forecasts for Kentucky's system of 59 public-use airports.

Based Aircraft Forecasts

As stated above, two methodologies were developed to forecast the number of based aircraft at each Kentucky airport for the 20-year forecast period: a top-down methodology and bottom-up methodology. The following sections detail these methodologies and their results, while selecting a preferred based aircraft forecast from these methodologies. Following is an analysis of how the makeup of Kentucky's total GA aircraft fleet is expected to change over the 20-year forecast period.

Based Aircraft Forecasts: Top-Down Methodology

The top-down methodology for based aircraft forecasts treats each of the 59 Kentucky airports equally. As previously discussed, the FAA Aerospace Forecast presents projections of the national GA fleet of active aircraft. From 2015 to 2035, this national fleet is forecasted to grow at an average annual rate of 0.14 percent. For this top-down methodology, that average annual rate of 0.14 percent is applied to each of Kentucky's 59 public-use airports.

Table 6-8 summarizes the results of this methodology. In total, based aircraft in Kentucky are projected to increase from 1,732 in 2015 to 1,779 in 2035, a total change of 2.71 percent over the forecast period. Note that the changes represented in Table 6-8 may not directly reflect an average annual growth rate of 0.14 percent due to rounding to the nearest whole number.

Table 6-8
Summary of Top-Down Based Aircraft Forecast Methodology

Airport Type	2015	2020	2025	2035	Total Change 2015-2035
Commercial Service	283	284	287	292	3.18%
General Aviation	1,449	1,454	1,461	1,487	2.62%
Kentucky Total	**1,732**	**1,738**	**1,748**	**1,779**	**2.71%**

Source: Airport Inventory and Data Survey, FAA Aerospace Forecast Fiscal Years 2016-2035 (2016), Kentucky Department of Aviation.

Based Aircraft Forecasts: Bottom-Up Methodology

The bottom-up forecasting methodology for based aircraft is designed to be a more detailed, airport-specific methodology than the top-down approach. This methodology begins with the same forecasting input as the top-down methodology: the average annual growth rate of 0.14 percent presented in the FAA Aerospace Forecast. However, the bottom-up methodology adjusts this rate for each airport based on the anticipated population growth of each airport's county.

Due to the wide ranges of projected population changes throughout Kentucky, counties and their associated airports were categorized into five growth rate cohorts based on projected annual population growth rates. Growth rate multipliers have been applied to the cohorts discussed previously in Table 6-7, so that the based aircraft growth rate of each airport is increased or decreased in proportion to the projected population growth of its county.

Table 6-9 lists the cohorts based on forecasted population growth, the multiplier applied to airports associated with each cohort, and the resulting average annual growth rate that is used to project based aircraft under this bottom-up methodology. For example, Kyle-Oakley Field is located in Calloway County, which is forecasted to experience population growth at an average annual rate of 0.76 percent from 2015 to 2035, putting it in the >0.50% to 2.00% group for population growth range. As a result, the forecasted average annual growth rate for based aircraft at Kyle-Oakley Field is 0.28 percent, or 2 times the national growth rate of 0.14 percent listed in the FAA Aerospace Forecast. **Table 6-10** details the county, multiplier, and resulting based aircraft average annual growth rate for each Kentucky airport.

Table 6-9
Based Aircraft Bottom-Up Methodology:
Growth Rate Multipliers Based on Projected County Population Growth Rates

Population AAGR Range	Multiplier	Based Aircraft AAGR	Number of Airports
Up to 0%	0.00	0.00%	21
>0% to 0.25%	1.00	0.14%	13
>0.25% to 0.50%	1.50	0.21%	9
>0.50% to 2.00%	2.00	0.28%	14
>2.00%	3.50	0.49%	2

Source: FAA Aerospace Forecast Fiscal Years 2016-2035 (2016), Kentucky State Data Center (2011), U.S. Census Bureau (2016).

Table 6-10
Based Aircraft Bottom-Up Methodology:
Average Annual Growth Rates at All Kentucky Airports

FAA ID	Associated City	Airport Name	County	AAGR Multiplier	Based Aircraft AAGR
Commercial Service					
BWG	Bowling Green	Bowling Green-Warren County Regional	Warren	2.0	0.28%
CVG	Covington	Cincinnati/Northern Kentucky International	Boone	3.5	0.49%
LEX	Lexington	Blue Grass	Fayette	2.0	0.28%
SDF	Louisville	Louisville International-Standiford Field	Jefferson	2.0	0.28%
OWB	Owensboro	Owensboro-Daviess County Regional	Daviess	1.5	0.21%
PAH	Paducah	Barkley Regional	McCracken	0.0	0.00%
General Aviation					
DWU	Ashland	Ashland Regional	Greenup	0.0	0.00%
BRY	Bardstown	Samuels Field	Nelson	2.0	0.28%
1M9	Cadiz	Lake Barkley State Resort Park	Trigg	2.0	0.28%
AAS	Campbellsville	Taylor County	Taylor	1.5	0.21%
I96	Columbia	Columbia-Adair County	Adair	2.0	0.28%
0I8	Cynthiana	Cynthiana-Harrison County	Harrison	1.0	0.14%
DVK	Danville	Stuart Powell Field	Boyle	1.0	0.14%
8M7	Dawson Springs	Tradewater	Hopkins	1.0	0.14%
EKX	Elizabethtown	Addington Field	Hardin	2.0	0.28%
2I3	Falls of Rough	Rough River State Resort Park	Grayson	1.0	0.14%
K62	Falmouth	Gene Snyder	Pendleton	1.0	0.14%
FGX	Flemingsburg	Fleming-Mason	Mason	1.5	0.21%
FFT	Frankfort	Capital City	Franklin	1.0	0.14%
1M7	Fulton	Fulton	Fulton	0.0	0.00%
27K	Georgetown	Georgetown Scott County - Marshall Field	Scott	3.5	0.49%
M34	Gilbertsville	Kentucky Dam Village State Resort Park	Marshall	1.0	0.14%
GLW	Glasgow	Glasgow Municipal	Barren	2.0	0.28%
M21	Greenville	Muhlenberg County	Muhlenberg	0.0	0.00%
I93	Hardinsburg	Breckinridge County	Breckinridge	1.5	0.21%
I35	Harlan	Tucker-Guthrie Memorial	Harlan	0.0	0.00%
JQD	Hartford	Ohio County	Ohio	1.0	0.14%
CPF	Hazard	Wendell H. Ford Regional	Perry	0.0	0.00%
EHR	Henderson	Henderson City-County	Henderson	1.0	0.14%
HVC	Hopkinsville	Hopkinsville-Christian County	Christian	1.5	0.21%
JKL	Jackson	Julian Carroll	Breathitt	0.0	0.00%
K24	Jamestown	Russell County	Russell	1.5	0.21%
M20	Leitchfield	Grayson County	Grayson	1.0	0.14%
KY8	Lewisport	Hancock Co-Ron Lewis Field	Hancock	1.0	0.14%
I53	Liberty	Liberty-Casey County	Casey	1.0	0.14%
LOZ	London	London-Corbin-Magee Field	Laurel	2.0	0.28%
LOU	Louisville	Bowman Field	Jefferson	2.0	0.28%
2I0	Madisonville	Madisonville Regional	Hopkins	1.0	0.14%
5M9	Marion	Marion-Crittenden County	Crittenden	0.0	0.00%
M25	Mayfield	Mayfield Graves County	Graves	0.0	0.00%
1A6	Middlesboro	Middlesboro-Bell County	Bell	0.0	0.00%

Table 6-10
Based Aircraft Bottom-Up Methodology:
Average Annual Growth Rates at All Kentucky Airports

FAA ID	Associated City	Airport Name	County	AAGR Multiplier	Based Aircraft AAGR
EKQ	Monticello	Wayne County	Wayne	1.5	0.21%
SYM	Morehead	Morehead-Rowan County Clyde A. Thomas Regional	Rowan	1.5	0.21%
IOB	Mount Sterling	Mount Sterling-Montgomery County	Montgomery	2.0	0.28%
CEY	Murray	Kyle-Oakley Field	Calloway	2.0	0.28%
PBX	Pikeville	Pikeville – Pike County Regional	Pike	0.0	0.00%
18I	Pine Knot	McCreary County	McCreary	0.0	0.00%
SJS	Prestonsburg	Big Sandy Regional	Martin	0.0	0.00%
2M0	Princeton	Princeton-Caldwell County	Caldwell	0.0	0.00%
8M9	Providence	Providence-Webster County	Webster	0.0	0.00%
RGA	Richmond	Central Kentucky Regional	Madison	2.0	0.28%
4M7	Russellville	Russellville-Logan County	Logan	0.0	0.00%
SME	Somerset	Lake Cumberland Regional	Pulaski	2.0	0.28%
6I2	Springfield	Lebanon-Springfield	Washington	1.5	0.21%
I50	Stanton	Stanton-Powell County	Powell	0.0	0.00%
TWT	Sturgis	Sturgis Municipal	Union	0.0	0.00%
TZV	Tompkinsville	Tompkinsville-Monroe County	Monroe	0.0	0.00%
9I3	West Liberty	West Liberty	Morgan	0.0	0.00%
BYL	Williamsburg	Williamsburg-Whitley County	Whitley	0.0	0.00%

Source: FAA Aerospace Forecast Fiscal Years 2016-2035 (2016), Kentucky State Data Center (2011), U.S. Census Bureau (2016).

In addition to using county population forecasts as a method to adjust the growth rate used in the top-down methodology, the bottom-up methodology also accounts for growth in based aircraft known to be occurring currently or very soon at certain airports in Kentucky. These are not conjectures based on planned development, but expansions of activity and facilities that have already begun or will be happening in the very near future. Airports that meet these criteria are not given a higher growth rate, but rather a larger boost in based aircraft over the five-year forecasting period, before being returned to their respected growth rates designated in Table 6-10 for the 10- and 20-year forecasts. These airports, the justification for this higher growth, and the number of aircraft being added to their totals for the five-year forecast are as follows:

- **Central Kentucky Regional (Richmond)** – Central Kentucky Regional Airport is located near the Richmond Campus of Eastern Kentucky University (EKU), and is home to the EKU fleet. EKU's profile and operations have expanded, both in Richmond and throughout the state, and as a result, the size of their Richmond-based fleet is also expected to increase. For the five-year forecasting period, 10 total based aircraft are added to the baseline number of 39.
- **Henderson City-County (Henderson)** – Due to a recent apron expansion and upcoming runway extension, Henderson City-County Airport is expected to experience significant growth in based aircraft over the short term. For the five-year forecasting period, 10 total based aircraft are added to the current number of 41.
- **Owensboro-Daviess County Regional (Owensboro)** – In late 2016, a major flight training facility is relocating from a California airport to Owensboro-Daviess County Regional Airport.

This facility is expected to have a fleet of approximately 30 aircraft.[1] As a result, 30 aircraft will be added to the current total of 53 for the five-year forecasting period.

The bottom-up methodology for forecasting based aircraft in Kentucky is a combination of the growth rates detailed in Table 6-10 and the special cases mentioned above. **Table 6-11** summarizes the results of this forecast. In total, the bottom-up methodology forecasts statewide based aircraft to grow from 1,732 in 2015 to 1,852 in 2035, a total 20-year change of 6.93 percent. This is more than double the 2.71 percent forecasted in the top-down methodology. On their own, commercial service airports are projected to experience a 15.19 percent increase over the 20-year forecast period. However, much of this can be attributed to the 30 aircraft expected to move to Owensboro-Daviess County Regional within the first five years.

Table 6-11
Summary of Bottom-Up Based Aircraft Forecast Methodology

Airport Type	2015	2020	2025	2035	Total Change 2015-2035
Commercial Service	283	315	320	326	15.19%
General Aviation	1,449	1,479	1,492	1,526	5.31%
Kentucky Total	**1,732**	**1,794**	**1,812**	**1,852**	**6.93%**

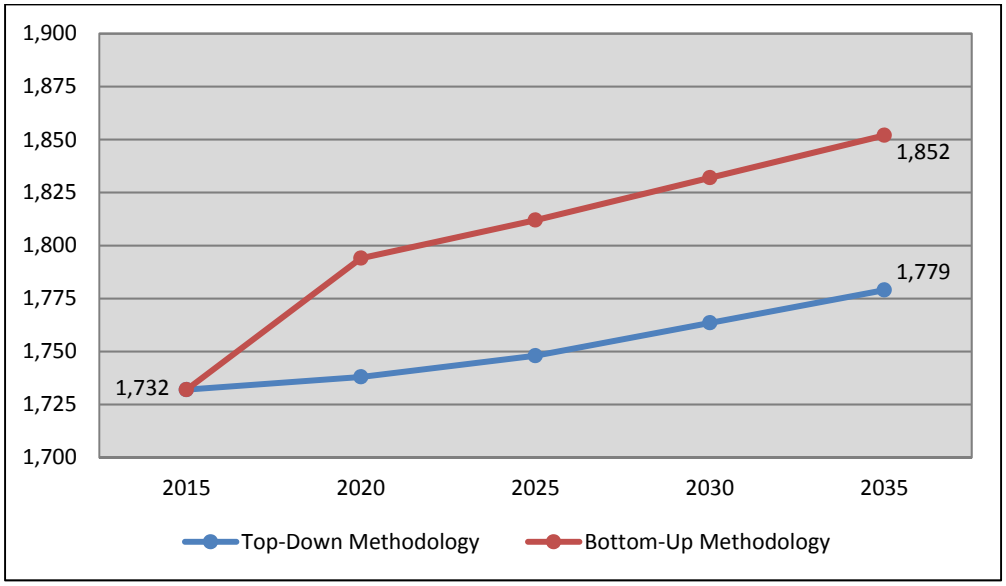
Source: Airport Inventory and Data Survey, FAA Aerospace Forecast Fiscal Years 2016-2035 (2016), Kentucky Department of Aviation, Kentucky State Data Center (2011), U.S. Census Bureau (2016).

[1] Owensboro-Daviess County Regional Airport (2016).

Based Aircraft Forecasts: Preferred Methodology

Figure 6-1 provides a graphical comparison of the top-down and bottom-up methodologies for forecasting based aircraft in Kentucky. The bottom-up methodology has far greater growth over the five-year forecast period due to taking into account increases at specific airports. By 2035, the bottom-up methodology forecasts that Kentucky will have 73 more total based aircraft than does the top-down methodology.

Figure 6-1
Comparison of Based Aircraft Forecast Methodologies



Source: Airport Inventory and Data Survey, FAA Aerospace Forecast Fiscal Years 2016-2035 (2016), Kentucky Department of Aviation, Kentucky State Data Center (2011), U.S. Census Bureau (2016).

The bottom-up methodology is the preferred based aircraft forecast methodology of the SASP. It was chosen for a number of factors. First, like the top-down methodology, the bottom-up methodology begins with defensible forecasts developed by the FAA for its Aerospace Forecasts. Second, the bottom-up methodology adjusts this growth rate for Kentucky airports by taking into account projected population growth rates over the same 20-year forecast period of 2015 to 2035. Finally, the bottom-up methodology also takes into account factors that are highly likely to affect based aircraft numbers at specific airports in the very near future. These data inputs and considerations make the bottom-up methodology a hybrid methodology that best meets the needs of the SASP and the Kentucky airport system. The full results of the bottom-up methodology are detailed in **Table 6-12**. Note that individual airport results may not directly reflect the growth rates detailed in Table 6-10 due to rounding to the nearest whole number.

In addition to the existing system, two new GA airports are in the planning stages for Kentucky. The first is a new GA airport in the Northern Kentucky region, specifically in Gallatin County with a planned associated city of Sparta. This airport is expected to serve a need for the region, as there is not a major GA airport located between the Cincinnati-Northern Kentucky region and Louisville. Businesses in the region, including activity at Kentucky Speedway, have been cited as justification for this new airport. It is expected that the airport will have as many as 100 based aircraft within 10 years.[2] As such, this airport was added to the preferred based aircraft forecast, adding 100 aircraft

[2] Kentucky Department of Aviation (2016).

for the 10-year forecast. The growth rate associated with the population forecasts for Gallatin county was assumed for the final 10-year period.

In Letcher County, a new airport is in the planning stages in Whitesburg, which would fill a current geographic void in the southeast region of the Commonwealth. It is expected that this airport will have up to 20 based aircraft within 10 years. Like the planned airport in Gallatin County, the airport in Whitesburg is added to the preferred based aircraft forecast as an individual item, adding 20 based aircraft for the 10-year forecast. Because Letcher County has a population growth rate multiplier of zero, this airport is forecasted to maintain 20 based aircraft through 2035. This forecast is shown on Table 6-12.

Table 6-12
Detailed Results of Preferred Based Aircraft Forecast

FAA ID	Associated City	Airport Name	Base Year: 2015	5-Year Forecast: 2020	10-Year Forecast: 2025	20-Year Forecast: 2035	AAGR: 2015-2035	Total Change: 2015-2035
Commercial Service								
BWG	Bowling Green	Bowling Green-Warren County Regional	55	56	57	58	0.27%	5.45%
CVG	Covington	Cincinnati/Northern Kentucky International	8	8	8	9	0.59%	12.50%
LEX	Lexington	Blue Grass	94	95	97	99	0.26%	5.32%
SDF	Louisville	Louisville International-Standiford Field	31	31	32	33	0.31%	6.45%
OWB	Owensboro	Owensboro-Daviess County Regional	53	83	84	85	2.39%	60.38%
PAH	Paducah	Barkley Regional	42	42	42	42	0.00%	0.00%
General Aviation								
DWU	Ashland	Ashland Regional	25	25	25	25	0.00%	0.00%
BRY	Bardstown	Samuels Field	28	28	29	30	0.35%	7.14%
1M9	Cadiz	Lake Barkley State Resort Park	0	0	0	0	NA	NA
AAS	Campbellsville	Taylor County	13	13	13	14	0.37%	7.69%
I96	Columbia	Columbia-Adair County	15	15	15	16	0.32%	6.67%
0I8	Cynthiana	Cynthiana-Harrison County	29	29	29	30	0.17%	3.45%
DVK	Danville	Stuart Powell Field	31	31	31	32	0.16%	3.23%
8M7	Dawson Springs	Tradewater	2	2	2	2	0.00%	0.00%
EKX	Elizabethtown	Addington Field	48	49	49	51	0.30%	6.25%
2I3	Falls of Rough	Rough River State Resort Park	0	0	0	0	NA	NA
K62	Falmouth	Gene Snyder	27	27	27	28	0.18%	3.70%
FGX	Flemingsburg	Fleming-Mason	27	27	28	28	0.18%	3.70%
FFT	Frankfort	Capital City	75	76	76	77	0.13%	2.67%
1M7	Fulton	Fulton	9	9	9	9	0.00%	0.00%
27K	Georgetown	Georgetown Scott County - Marshall Field	87	89	91	96	0.49%	10.34%
M34	Gilbertsville	Kentucky Dam Village State Resort Park	6	6	6	6	0.00%	0.00%
GLW	Glasgow	Glasgow Municipal	28	28	29	30	0.35%	7.14%
M21	Greenville	Muhlenberg County	22	22	22	22	0.00%	0.00%
I93	Hardinsburg	Breckinridge County	10	10	10	10	0.00%	0.00%
I35	Harlan	Tucker-Guthrie Memorial	10	10	10	10	0.00%	0.00%
JQD	Hartford	Ohio County	10	10	10	10	0.00%	0.00%

Table 6-12
Detailed Results of Preferred Based Aircraft Forecast

FAA ID	Associated City	Airport Name	Base Year: 2015	5-Year Forecast: 2020	10-Year Forecast: 2025	20-Year Forecast: 2035	AAGR: 2015-2035	Total Change: 2015-2035
CPF	Hazard	Wendell H. Ford Regional	32	32	32	32	0.00%	0.00%
EHR	Henderson	Henderson City-County	41	51	51	52	1.20%	26.83%
HVC	Hopkinsville	Hopkinsville-Christian County	51	52	52	53	0.19%	3.92%
JKL	Jackson	Julian Carroll	1	1	1	1	0.00%	0.00%
K24	Jamestown	Russell County	21	21	21	22	0.23%	4.76%
M20	Leitchfield	Grayson County	12	12	12	12	0.00%	0.00%
KY8	Lewisport	Hancock Co-Ron Lewis Field	17	17	17	17	0.00%	0.00%
I53	Liberty	Liberty-Casey County	0	0	0	0	NA	NA
LOZ	London	London-Corbin-Magee Field	71	72	73	75	0.27%	5.63%
LOU	Louisville	Bowman Field	174	176	179	184	0.28%	5.75%
2I0	Madisonville	Madisonville Regional	20	20	20	21	0.24%	5.00%
5M9	Marion	Marion-Crittenden County	22	22	22	22	0.00%	0.00%
M25	Mayfield	Mayfield Graves County	19	19	19	19	0.00%	0.00%
1A6	Middlesboro	Middlesboro-Bell County	41	41	41	41	0.00%	0.00%
EKQ	Monticello	Wayne County	12	12	12	13	0.40%	8.33%
SYM	Morehead	Morehead-Rowan County Clyde A. Thomas Regional	32	32	33	33	0.15%	3.13%
IOB	Mount Sterling	Mount Sterling-Montgomery County	83	84	85	88	0.29%	6.02%
CEY	Murray	Kyle-Oakley Field	50	51	51	53	0.29%	6.00%
PBX	Pikeville	Pikeville – Pike County Regional	22	22	22	22	0.00%	0.00%
18I	Pine Knot	McCreary County	1	1	1	1	0.00%	0.00%
SJS	Prestonsburg	Big Sandy Regional	26	26	26	26	0.00%	0.00%
2M0	Princeton	Princeton-Caldwell County	11	11	11	11	0.00%	0.00%
8M9	Providence	Providence-Webster County	5	5	5	5	0.00%	0.00%
RGA	Richmond	Central Kentucky Regional	39	49	50	50	1.25%	28.21%
4M7	Russellville	Russellville-Logan County	14	14	14	14	0.00%	0.00%
SME	Somerset	Lake Cumberland Regional	34	34	35	36	0.29%	5.88%
6I2	Springfield	Lebanon-Springfield	21	21	21	22	0.23%	4.76%
I50	Stanton	Stanton-Powell County	11	11	11	11	0.00%	0.00%
TWT	Sturgis	Sturgis Municipal	14	14	14	14	0.00%	0.00%

Table 6-12
Detailed Results of Preferred Based Aircraft Forecast

FAA ID	Associated City	Airport Name	Base Year: 2015	5-Year Forecast: 2020	10-Year Forecast: 2025	20-Year Forecast: 2035	AAGR: 2015-2035	Total Change: 2015-2035
TZV	Tompkinsville	Tompkinsville-Monroe County	23	23	23	23	0.00%	0.00%
9I3	West Liberty	West Liberty	15	15	15	15	0.00%	0.00%
BYL	Williamsburg	Williamsburg-Whitley County	12	12	12	12	0.00%	0.00%
Existing Kentucky System Total			**1,732**	**1,794**	**1,812**	**1,852**	**0.34%**	**6.93%**
New Gallatin County (Sparta) Airport			0	0	100	102	NA	NA
New Letcher County (Whitesburg) Airport			0	0	20	20	NA	NA
Kentucky System Total with New Airports			**1,732**	**1,794**	**1,932**	**1,974**	**0.66%**	**13.97%**

Source: Airport Inventory and Data Survey, FAA Aerospace Forecast Fiscal Years 2016-2035 (2016), Kentucky Department of Aviation (2016), Kentucky State Data Center (2011), U.S. Census Bureau (2016).

Based Aircraft Forecasts: Comparison to TAF

The FAA's guidelines on system planning forecasting state that forecasts of total based aircraft should not differ from the TAF by more than 10 percent in the five-year forecasting period or more than 15 percent in the 10-year forecasting period. This section makes a comparison of five- and 10-year SASP forecasts with those of the TAF to illustrate that SASP forecasts adhere to these guidelines and fall well within the FAA guideline thresholds.

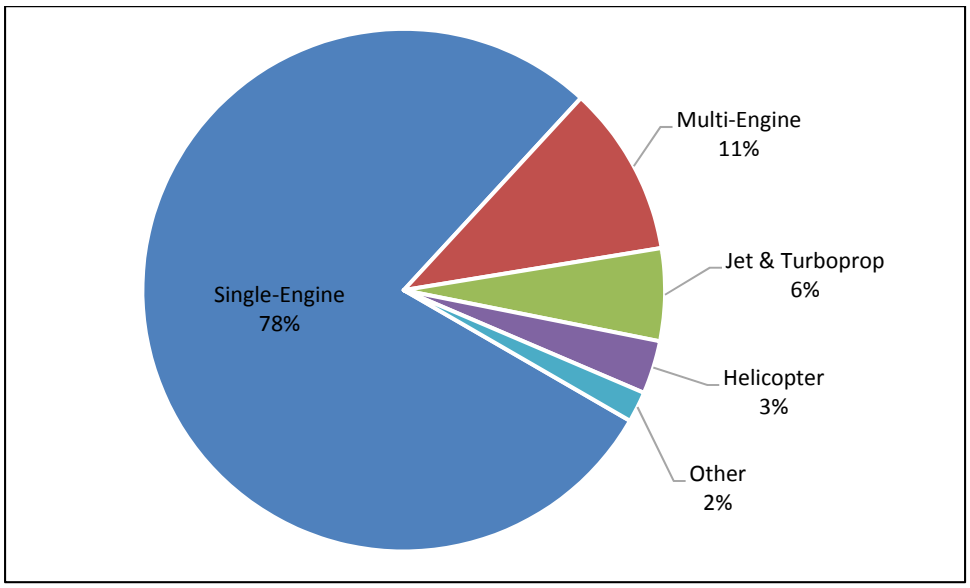
To compare the preferred based aircraft forecast of the SASP with TAF forecasts, it is necessary to first remove non-NPIAS airports from the SASP total, as the TAF does not include non-NPIAS airports. The SASP forecast of based aircraft at Kentucky's NPIAS airports projects a system-wide total of 1,772 aircraft by 2020. The TAF projects a total of 1,756, a difference of only 0.91 percent, well under the threshold of 10 percent.

For the 10-year forecast, the Kentucky total based aircraft at NPIAS airports comes to 1,790. The TAF projects a system-wide total of 1,816 by 2025, a difference of 1.43 percent. This difference is well below the FAA guideline threshold of 15 percent for the 10-year forecast.

Based Aircraft Forecasts: Fleet Mix

The fleet mix of an airport – the types and number of aircraft making up total based aircraft – help to indicate operational role and facility needs. **Figure 6-2** provides a summary of Kentucky's fleet mix as of 2015. Single-engine aircraft make up the vast majority of the Commonwealth's total fleet with 78 percent of the total, followed by multi-engine aircraft with 11 percent of the total. The rest of the fleet is comprised of jet and turboprop aircraft (8 percent), helicopters (3 percent), and other aircraft (2 percent), which include such aircraft types as ultralights and experimental aircraft.

Figure 6-2
Current Based Aircraft Fleet Mix, 2015



Source: Airport Inventory and Data Survey, FAA, Kentucky Department of Aviation.

A forecast of Kentucky's GA fleet mix was conducted utilizing growth rates available from the FAA Aerospace Forecast and the preferred based aircraft forecast in the SASP. As previously discussed, the FAA Aerospace Forecast projects not only total national active aircraft, but active aircraft by type, providing a future profile of the nation's fleet mix. The FAA Aerospace Forecast assumes that different types of aircraft would grow at different rates (Table 6-2). However, it is not the intention

of the SASP to forecast a negative growth for any type of aircraft. Additionally, the national active aircraft fleet currently has a different makeup than that of Kentucky (**Table 6-13**). For example, the percentage of Kentucky's total fleet that is jet and turboprop aircraft (5.72 percent) is far less than the national percentage (10.81 percent). Because of these differences, the national forecasted growth rates for each aircraft type would not result in a realistic fleet mix forecast for Kentucky.

Table 6-13
Percentage of Total Fleet by Aircraft Type,
U.S. and Kentucky, 2015

Type of Aircraft	United States	Kentucky
Single-Engine	61.34%	78.52%
Multi-Engine	6.42%	10.57%
Jet & Turboprop	10.81%	5.72%
Helicopter	5.02%	3.29%
Other	16.41%	1.91%

Source: Airport Inventory and Data Survey, FAA Aerospace Forecast Fiscal Years 2016-2035 (2016), Kentucky Department of Aviation.

Table 6-14 summarizes the forecast of Kentucky's based aircraft fleet mix. Using the FAA Aerospace Forecast as a starting point, it was possible to develop average annual growth rates for each aircraft type. As with the nation as a whole, Kentucky is expected to experience the most growth by total percentage in jet and turboprop aircraft (48.48 percent), followed by helicopters (31.58 percent). While only an increase of 3.09 percent over the 20-year forecast period, the Commonwealth is still forecasted to add 42 single-engine aircraft. Note that this forecasted fleet mix does not include the planned airports for Gallatin or Letcher Counties.

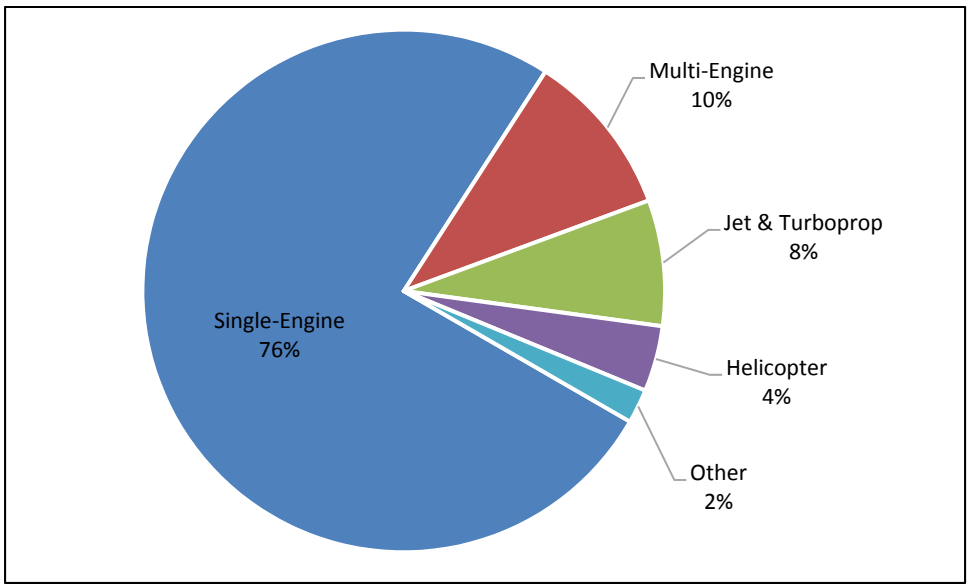
Table 6-14
Forecasted Based Aircraft Fleet Mix

Type of Aircraft	2015	2020	2025	2035	AAGR 2015-2035	Total Change 2015-2035
Single-Engine	1,360	1,388	1,395	1,402	0.15%	3.09%
Multi-Engine	183	187	188	189	0.16%	3.28%
Jet & Turboprop	99	118	124	147	2.00%	48.48%
Helicopter	57	66	69	75	1.38%	31.58%
Other	33	35	36	39	0.84%	18.18%
Total GA Fleet	**1,732**	**1,794**	**1,812**	**1,852**	**0.34%**	**6.93%**

Source: Airport Inventory and Data Survey, FAA Aerospace Forecast Fiscal Years 2016-2035 (2016), Kentucky Department of Aviation, Kentucky State Data Center (2011), U.S. Census Bureau (2016).

Despite these drastic differences in average annual growth rates and total growth between aircraft types, the result is not a drastically different fleet mix, but one that is starting to approach the fleet mix forecasted for the entire United States. **Figure 6-3** summarizes the 2035 forecasted fleet mix for Kentucky. Single-engine aircraft are forecasted to remain by far the largest component of Kentucky's total based aircraft fleet, only decreasing from 78 percent of the total to 76 percent. Jet and turboprop aircraft, meanwhile, are forecasted to increase from 6 percent of the total to 8 percent.

Figure 6-3
Forecasted Based Aircraft Fleet Mix, 2035



Source: Airport Inventory and Data Survey, FAA Aerospace Forecast Fiscal Years 2016-2035 (2016), Kentucky Department of Aviation, Kentucky State Data Center (2011), U.S. Census Bureau (2016).

GA Operations Forecasts

As with based aircraft, two forecast methodologies were prepared for GA operations at Kentucky's system airports: a top-down methodology and bottom-up methodology. The following sections detail these methodologies and their results, while selecting a preferred GA operations forecast from these methodologies. Following is a forecast of the split of local and itinerant operations that occur at each Kentucky airport.

GA Operations Forecasts: Top-Down Methodology

Similarly to the top-down methodology of based aircraft, this GA operations forecast treats all 59 Kentucky system airports in the same way. The FAA Aerospace Forecast is again used as the single input for this methodology, using the forecasted average annual growth rate of GA operations at U.S. towered airports (0.35 percent) as the growth rate for Kentucky airports. This growth rate was chosen over the forecasted rate for GA hours flown (1.15 percent annually) due to the desire to keep the SASP forecasts conservative and realistic.

Table 6-15 summarizes the results of the top-down forecast methodology for GA operations. In total, GA operations in Kentucky are projected to increase from nearly 850,000 in 2015 to over 910,000 in 2035, a total change of 7.19 percent.

Table 6-15
Summary of Top-Down GA Operations Forecast Methodology

Airport Type	2015	2020	2025	2035	Total Change 2015-2035
Commercial Service	149,007	151,615	154,268	159,714	7.19%
General Aviation	700,258	712,512	724,981	750,578	7.19%
Kentucky Total	**849,265**	**864,127**	**879,249**	**910,292**	**7.19%**

Source: Airport Inventory and Data Survey, FAA Aerospace Forecast Fiscal Years 2016-2035 (2016), Kentucky Department of Aviation.

GA Operations Forecasts: Bottom-Up Methodology

The bottom-up forecasting methodology for GA operations is designed to be a more detailed, airport-specific methodology than the top-down approach. This methodology begins with the same forecasting input as the top-down methodology: the average annual growth rate of 0.35 percent for GA operations at towered airports detailed in the FAA Aerospace Forecast. However, similarly to the bottom-up approach for based aircraft, the bottom-up methodology for GA operations adjusts this rate for each airport based on the anticipated population growth of each airport's county.

The bottom-up methodology for GA operations also uses cohorts based on ranges of projected county population. However, in an effort to keep this forecast conservative and realistic, the bottom-up methodology for GA operations uses slightly lower multipliers than the bottom-up methodology for the based aircraft forecast. **Table 6-16** lists the cohorts based on forecasted population growth, the multiplier applied to airports associated with each cohort, and the resulting average annual growth rate that is used to project GA operations under this bottom-up methodology.

Keeping with the example of Kyle-Oakley Field used in the bottom-up based aircraft methodology, the airport is forecasted to experience an average annual growth in GA operations of 0.52 percent over the 20-year period due to its location in Calloway County. Calloway County's projected population growth rate is 0.76 percent, putting it in the >0.50% to 2.00% cohort. Under the bottom-up GA operations methodology, this results in a multiplier of 1.5 times the original growth rate of 0.35 percent, or 0.52 percent annually. **Table 6-17** details the county, multiplier, and resulting GA operations average annual growth rate for each Kentucky airport.

Table 6-16
GA Operations Bottom-Up Methodology:
Growth Rate Multipliers Based on Projected County Population Growth Rates

Population AAGR Range	Multiplier	GA Operations AAGR	Number of Airports
Up to 0%	0.00	0.00%	21
>0% to 0.25%	1.00	0.35%	13
>0.25% to 0.50%	1.25	0.43%	9
>0.50% to 2.00%	1.50	0.52%	14
>2.00%	2.00	0.70%	2

Source: FAA Aerospace Forecast Fiscal Years 2016-2035 (2016), Kentucky State Data Center (2011), U.S. Census Bureau (2016).

Table 6-17
GA Operations Bottom-Up Methodology:
Average Annual Growth Rates at All Kentucky Airports

FAA ID	Associated City	Airport Name	County	AAGR Multiplier	Based Aircraft AAGR
Commercial Service					
BWG	Bowling Green	Bowling Green-Warren County Regional	Warren	1.5	0.52%
CVG	Covington	Cincinnati/Northern Kentucky International	Boone	2.0	0.70%
LEX	Lexington	Blue Grass	Fayette	1.5	0.52%
SDF	Louisville	Louisville International-Standiford Field	Jefferson	1.5	0.52%
OWB	Owensboro	Owensboro-Daviess County Regional	Daviess	1.3	0.43%
PAH	Paducah	Barkley Regional	McCracken	0.0	0.00%
General Aviation					
DWU	Ashland	Ashland Regional	Greenup	0.0	0.00%
BRY	Bardstown	Samuels Field	Nelson	1.5	0.52%
1M9	Cadiz	Lake Barkley State Resort Park	Trigg	1.5	0.52%
AAS	Campbellsville	Taylor County	Taylor	1.3	0.43%
I96	Columbia	Columbia-Adair County	Adair	1.5	0.52%
0I8	Cynthiana	Cynthiana-Harrison County	Harrison	1.0	0.35%
DVK	Danville	Stuart Powell Field	Boyle	1.0	0.35%
8M7	Dawson Springs	Tradewater	Hopkins	1.0	0.35%
EKX	Elizabethtown	Addington Field	Hardin	1.5	0.52%
2I3	Falls of Rough	Rough River State Resort Park	Grayson	1.0	0.35%
K62	Falmouth	Gene Snyder	Pendleton	1.0	0.35%
FGX	Flemingsburg	Fleming-Mason	Mason	1.3	0.43%
FFT	Frankfort	Capital City	Franklin	1.0	0.35%
1M7	Fulton	Fulton	Fulton	0.0	0.00%
27K	Georgetown	Georgetown Scott County - Marshall Field	Scott	2.0	0.70%
M34	Gilbertsville	Kentucky Dam Village State Resort Park	Marshall	1.0	0.35%
GLW	Glasgow	Glasgow Municipal	Barren	1.5	0.52%
M21	Greenville	Muhlenberg County	Muhlenberg	0.0	0.00%
I93	Hardinsburg	Breckinridge County	Breckinridge	1.3	0.43%
I35	Harlan	Tucker-Guthrie Memorial	Harlan	0.0	0.00%
JQD	Hartford	Ohio County	Ohio	1.0	0.35%
CPF	Hazard	Wendell H. Ford Regional	Perry	0.0	0.00%
EHR	Henderson	Henderson City-County	Henderson	1.0	0.35%
HVC	Hopkinsville	Hopkinsville-Christian County	Christian	1.3	0.43%
JKL	Jackson	Julian Carroll	Breathitt	0.0	0.00%
K24	Jamestown	Russell County	Russell	1.3	0.43%
M20	Leitchfield	Grayson County	Grayson	1.0	0.35%
KY8	Lewisport	Hancock Co-Ron Lewis Field	Hancock	1.0	0.35%
I53	Liberty	Liberty-Casey County	Casey	1.0	0.35%
LOZ	London	London-Corbin-Magee Field	Laurel	1.5	0.52%
LOU	Louisville	Bowman Field	Jefferson	1.5	0.52%
2I0	Madisonville	Madisonville Regional	Hopkins	1.0	0.35%
5M9	Marion	Marion-Crittenden County	Crittenden	0.0	0.00%
M25	Mayfield	Mayfield Graves County	Graves	0.0	0.00%
1A6	Middlesboro	Middlesboro-Bell County	Bell	0.0	0.00%

Table 6-17
GA Operations Bottom-Up Methodology:
Average Annual Growth Rates at All Kentucky Airports

FAA ID	Associated City	Airport Name	County	AAGR Multiplier	Based Aircraft AAGR
EKQ	Monticello	Wayne County	Wayne	1.3	0.43%
SYM	Morehead	Morehead-Rowan County Clyde A. Thomas Regional	Rowan	1.3	0.43%
IOB	Mount Sterling	Mount Sterling-Montgomery County	Montgomery	1.5	0.52%
CEY	Murray	Kyle-Oakley Field	Calloway	1.5	0.52%
PBX	Pikeville	Pikeville – Pike County Regional	Pike	0.0	0.00%
18I	Pine Knot	McCreary County	McCreary	0.0	0.00%
SJS	Prestonsburg	Big Sandy Regional	Martin	0.0	0.00%
2M0	Princeton	Princeton-Caldwell County	Caldwell	0.0	0.00%
8M9	Providence	Providence-Webster County	Webster	0.0	0.00%
RGA	Richmond	Central Kentucky Regional	Madison	1.5	0.52%
4M7	Russellville	Russellville-Logan County	Logan	0.0	0.00%
SME	Somerset	Lake Cumberland Regional	Pulaski	1.5	0.52%
6I2	Springfield	Lebanon-Springfield	Washington	1.3	0.43%
I50	Stanton	Stanton-Powell County	Powell	0.0	0.00%
TWT	Sturgis	Sturgis Municipal	Union	0.0	0.00%
TZV	Tompkinsville	Tompkinsville-Monroe County	Monroe	0.0	0.00%
9I3	West Liberty	West Liberty	Morgan	0.0	0.00%
BYL	Williamsburg	Williamsburg-Whitley County	Whitley	0.0	0.00%

Source: FAA Aerospace Forecast Fiscal Years 2016-2035 (2016), Kentucky State Data Center (2011), U.S. Census Bureau (2016).

Like the bottom-up based aircraft forecast, the bottom-up GA operations forecast takes into account specific situations in which airports are known to be experiencing rapid growth. This methodology assumes that rapid growth in based aircraft known to be occurring at three airports (Central Kentucky Regional, Henderson City-County, and Owensboro-Daviess County Regional) will be accompanied by a relative growth in GA operations. As with based aircraft, this higher growth is only forecasted to occur over the five-year forecast period, after which each airport will be forecasted using the growth rates detailed in Table 6-17. To forecast GA operations for these three airports, a direct ratio of operations to based aircraft (OPBA) was utilized, resulting in the following average annual growth rates for each airport over the five-year forecast period:

- Central Kentucky Regional – 4.67 percent.
- Henderson City-County – 4.46 percent.
- Owensboro-Daviess County Regional – 9.39 percent.

The bottom-up methodology for forecasting GA operations in Kentucky is a combination of the growth rates detailed in Table 6-17 and the individual cases mentioned above. **Table 6-18** summarizes the results of this forecast. In total, the bottom-up methodology forecasts statewide GA operations to grow from nearly 850,000 in 2015 to over 940,000 in 2035, a total 20-year change of 10.89 percent. This is a significant, but not overly robust increase over the 7.19 percent forecasted in the top-down methodology. On their own, commercial service airports are projected to experience a 14.86 percent increase over the 20-year forecast period. However, much of this can be attributed to the growth at Owensboro-Daviess County Regional that will result from a major flight training center moving to that airport.

Table 6-18
Summary of Bottom-Up GA Operations Forecast Methodology

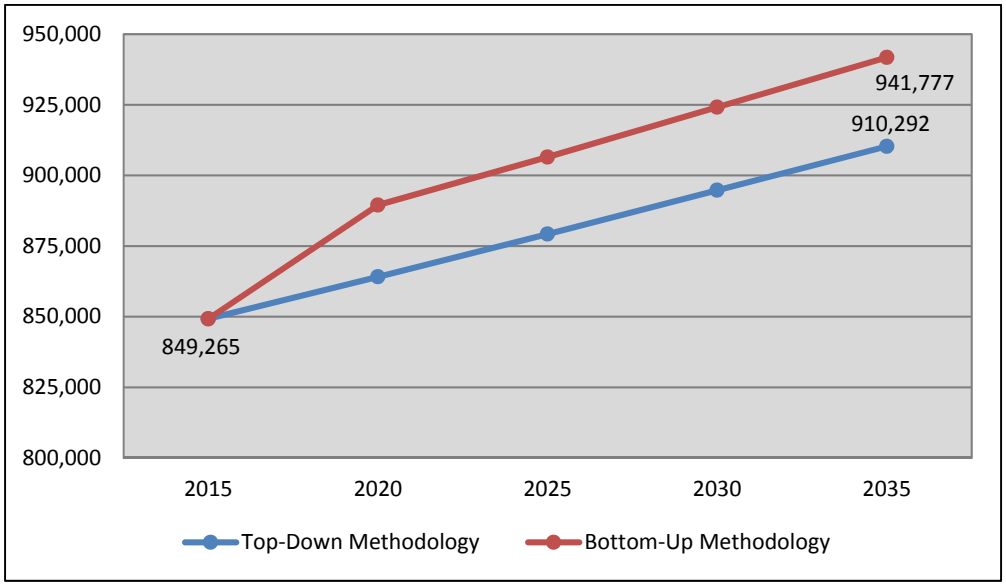
Airport Type	2015	2020	2025	2035	Total Change 2015-2035
Commercial Service	149,007	160,065	163,666	171,155	14.86%
General Aviation	700,258	729,456	742,854	770,622	10.05%
Kentucky Total	**849,265**	**889,521**	**906,520**	**941,777**	**10.89%**

Source: Airport Inventory and Data Survey, FAA Aerospace Forecast Fiscal Years 2016-2035 (2016), Kentucky Department of Aviation, Kentucky State Data Center (2011), U.S. Census Bureau (2016).

GA Operations Forecasts: Preferred Methodology

Figure 6-4 provides a graphical comparison of the top-down and bottom-up methodologies for forecasting GA operations in Kentucky. The bottom-up methodology has far greater growth over the five-year forecast period due to taking into account the cases of specific airports. By 2035, the total GA operations forecasted by the bottom-up methodology forecasts is more than 31,000 greater than the total forecasted by the top-down methodology.

Figure 6-4
Comparison of GA Operations Forecast Methodologies



Source: Airport Inventory and Data Survey, FAA Aerospace Forecast Fiscal Years 2016-2035 (2016), Kentucky Department of Aviation, Kentucky State Data Center (2011), U.S. Census Bureau (2016).

The bottom-up methodology is the preferred methodology for forecasting GA operations in the SASP. This methodology was chosen for a number of factors. First, like the top-down methodology, the bottom-up methodology begins with forecasts developed by the FAA for its Aerospace Forecasts. Second, the bottom-up methodology adjusts this growth rate for Kentucky airports by taking into account projected population growth rates over the same 20-year forecast period of 2015 to 2035. Finally, the bottom-up methodology uses an OPBA ratio to account for the more rapid growth in based aircraft forecasted at three Kentucky airports. This OPBA ratio resulted in more rapid five-year GA operations forecasts for these airports. These data inputs and considerations make the bottom-up methodology a hybrid methodology that best meets the needs of the SASP. The full results of the bottom-up preferred methodology are detailed in **Table 6-19**.

An OPBA ratio was also used to forecast the GA operation activity at the new airports being planned for Gallatin and Letcher Counties. The statewide OPBA of 490 aircraft was applied to the 100 based aircraft estimated at the Gallatin County airport by 2025. This projects the Gallatin County airport to have an estimated 49,000 GA operations by 2025. From 2025 to 2035, GA operations at the airport were forecasted using the growth rate associated with airports in Gallatin County (0.52 percent). The same OPBA of 490 was applied to the Letcher County airport, resulting in 9,800 GA operations by 2025. Because Letcher County's population multiplier is zero, this number of GA operations are forecasted through 2035 at this airport. These forecasts are also shown on Table 6-19.

Table 6-19
Detailed Results of Preferred GA Operations Forecast

FAA ID	Associated City	Airport Name	Base Year: 2015	5-Year Forecast: 2020	10-Year Forecast: 2025	20-Year Forecast: 2035	AAGR: 2015-2035	Total Change: 2015-2035
Commercial Service								
BWG	Bowling Green	Bowling Green-Warren County Regional	60,136	61,720	63,346	66,727	0.52%	10.96%
CVG	Covington	Cincinnati/Northern Kentucky International	5,994	6,205	6,424	6,885	0.70%	14.86%
LEX	Lexington	Blue Grass	35,179	36,106	37,057	39,035	0.52%	10.96%
SDF	Louisville	Louisville International-Standiford Field	11,806	12,117	12,436	13,100	0.52%	10.96%
OWB	Owensboro	Owensboro-Daviess County Regional	14,177	22,202	22,688	23,693	2.60%	67.13%
PAH	Paducah	Barkley Regional	21,715	21,715	21,715	21,715	0.00%	0.00%
General Aviation								
DWU	Ashland	Ashland Regional	6,650	6,650	6,650	6,650	0.00%	0.00%
BRY	Bardstown	Samuels Field	15,590	16,001	16,422	17,299	0.52%	10.96%
1M9	Cadiz	Lake Barkley State Resort Park	7,200	7,390	7,584	7,989	0.52%	10.96%
AAS	Campbellsville	Taylor County	9,460	9,667	9,879	10,317	0.43%	9.06%
I96	Columbia	Columbia-Adair County	5,012	5,144	5,280	5,561	0.52%	10.96%
0I8	Cynthiana	Cynthiana-Harrison County	11,168	11,363	11,562	11,971	0.35%	7.19%
DVK	Danville	Stuart Powell Field	21,000	21,367	21,741	22,509	0.35%	7.19%
8M7	Dawson Springs	Tradewater	730	743	756	782	0.35%	7.19%
EKX	Elizabethtown	Addington Field	13,600	13,958	14,326	15,091	0.52%	10.96%
2I3	Falls of Rough	Rough River State Resort Park	8,400	8,547	8,697	9,004	0.35%	7.19%
K62	Falmouth	Gene Snyder	4,640	4,721	4,804	4,973	0.35%	7.19%
FGX	Flemingsburg	Fleming-Mason	16,820	17,189	17,565	18,343	0.43%	9.06%
FFT	Frankfort	Capital City	34,216	34,815	35,424	36,675	0.35%	7.19%
1M7	Fulton	Fulton	8,697	8,697	8,697	8,697	0.00%	0.00%
27K	Georgetown	Georgetown Scott County - Marshall Field	16,625	17,211	17,818	19,096	0.70%	14.86%
M34	Gilbertsville	Kentucky Dam Village State Resort Park	12,980	13,207	13,438	13,913	0.35%	7.19%
GLW	Glasgow	Glasgow Municipal	12,800	13,137	13,483	14,203	0.52%	10.96%
M21	Greenville	Muhlenberg County	8,190	8,190	8,190	8,190	0.00%	0.00%
I93	Hardinsburg	Breckinridge County	1,296	1,324	1,353	1,413	0.43%	9.06%
I35	Harlan	Tucker-Guthrie Memorial	5,900	5,900	5,900	5,900	0.00%	0.00%
JQD	Hartford	Ohio County	8,000	8,140	8,282	8,575	0.35%	7.19%

Table 6-19
Detailed Results of Preferred GA Operations Forecast

FAA ID	Associated City	Airport Name	Base Year: 2015	5-Year Forecast: 2020	10-Year Forecast: 2025	20-Year Forecast: 2035	AAGR: 2015-2035	Total Change: 2015-2035
CPF	Hazard	Wendell H. Ford Regional	9,370	9,370	9,370	9,370	0.00%	0.00%
EHR	Henderson	Henderson City-County	31,091	38,674	39,351	40,740	1.36%	31.04%
HVC	Hopkinsville	Hopkinsville-Christian County	35,000	35,767	36,551	38,170	0.43%	9.06%
JKL	Jackson	Julian Carroll	100	100	100	100	0.00%	0.00%
K24	Jamestown	Russell County	5,985	6,116	6,250	6,527	0.43%	9.06%
M20	Leitchfield	Grayson County	6,592	6,707	6,825	7,066	0.35%	7.19%
KY8	Lewisport	Hancock Co-Ron Lewis Field	8,500	8,649	8,800	9,111	0.35%	7.19%
I53	Liberty	Liberty-Casey County	350	356	362	375	0.35%	7.19%
LOZ	London	London-Corbin-Magee Field	11,490	11,793	12,103	12,749	0.52%	10.96%
LOU	Louisville	Bowman Field	73,310	75,241	77,223	81,345	0.52%	10.96%
2I0	Madisonville	Madisonville Regional	12,150	12,363	12,579	13,023	0.35%	7.19%
5M9	Marion	Marion-Crittenden County	4,600	4,600	4,600	4,600	0.00%	0.00%
M25	Mayfield	Mayfield Graves County	13,962	13,962	13,962	13,962	0.00%	0.00%
1A6	Middlesboro	Middlesboro-Bell County	18,500	18,500	18,500	18,500	0.00%	0.00%
EKQ	Monticello	Wayne County	8,460	8,645	8,835	9,226	0.43%	9.06%
SYM	Morehead	Morehead-Rowan County Clyde A. Thomas Regional	22,990	23,494	24,009	25,072	0.43%	9.06%
IOB	Mount Sterling	Mount Sterling-Montgomery County	31,710	32,545	33,403	35,185	0.52%	10.96%
CEY	Murray	Kyle-Oakley Field	15,815	16,232	16,659	17,548	0.52%	10.96%
PBX	Pikeville	Pikeville – Pike County Regional	8,900	8,900	8,900	8,900	0.00%	0.00%
18I	Pine Knot	McCreary County	790	790	790	790	0.00%	0.00%
SJS	Prestonsburg	Big Sandy Regional	7,330	7,330	7,330	7,330	0.00%	0.00%
2M0	Princeton	Princeton-Caldwell County	5,871	5,871	5,871	5,871	0.00%	0.00%
8M9	Providence	Providence-Webster County	5,700	5,700	5,700	5,700	0.00%	0.00%
RGA	Richmond	Central Kentucky Regional	41,020	51,538	52,896	55,719	1.54%	35.83%
4M7	Russellville	Russellville-Logan County	14,120	14,120	14,120	14,120	0.00%	0.00%
SME	Somerset	Lake Cumberland Regional	36,128	37,080	38,056	40,088	0.52%	10.96%
6I2	Springfield	Lebanon-Springfield	9,200	9,402	9,608	10,033	0.43%	9.06%
I50	Stanton	Stanton-Powell County	5,125	5,125	5,125	5,125	0.00%	0.00%
TWT	Sturgis	Sturgis Municipal	8,600	8,600	8,600	8,600	0.00%	0.00%

Table 6-19
Detailed Results of Preferred GA Operations Forecast

FAA ID	Associated City	Airport Name	Base Year: 2015	5-Year Forecast: 2020	10-Year Forecast: 2025	20-Year Forecast: 2035	AAGR: 2015-2035	Total Change: 2015-2035
TZV	Tompkinsville	Tompkinsville-Monroe County	10,625	10,625	10,625	10,625	0.00%	0.00%
9I3	West Liberty	West Liberty	4,300	4,300	4,300	4,300	0.00%	0.00%
BYL	Williamsburg	Williamsburg-Whitley County	3,600	3,600	3,600	3,600	0.00%	0.00%
Existing Kentucky System Total			**849,265**	**889,521**	**906,520**	**941,777**	**0.52%**	**10.89%**
New Gallatin County (Sparta) Airport			0	0	49,000	51,615	NA	NA
New Letcher County (Whitesburg) Airport			0	0	9,800	9,800	NA	NA
Kentucky System Total with New Airports			**849,265**	**889,521**	**965,320**	**1,003,192**	**0.84%**	**18.13%**

Source: Airport Inventory and Data Survey, FAA Aerospace Forecast Fiscal Years 2016-2035 (2016), Kentucky Department of Aviation (2016), Kentucky State Data Center (2011), U.S. Census Bureau (2016).

GA Operations Forecasts: Comparison to TAF

As with the based aircraft forecast, it is necessary to compare the results of the preferred GA operations forecast to the results of the most recent FAA TAF. The FAA's guidelines remain the same for GA operations: forecasts of total GA operations should not differ from the TAF by more than 10 percent in the five-year forecasting period or more than 15 percent in the 10-year forecasting period. This section compares five- and 10-year SASP GA operations forecasts with those of the TAF to illustrate that the SASP adheres to these guidelines and falls well within the FAA guideline thresholds.

Similarly to the comparison of the preferred based aircraft forecast to the TAF, it is first necessary to remove the four non-NPIAS system airports from the total, as the TAF does not include non-NPIAS airports. The SASP forecast of GA operations at Kentucky's NPIAS airports projects a system-wide total of just over 877,000 by 2020. By comparison, the TAF projects a total of nearly 900,000 by 2020. This represents a difference of 2.29 percent, which is below the 10 percent threshold.

For the 10-year forecast, the Kentucky total GA operations at NPIAS airports comes to over 894,000. The TAF projects a system-wide total of over 862,000 by 2025, a difference of 3.68 percent. This is well below the FAA's advised threshold of 15 percent for the 10-year forecast.

GA Operations Forecasts: Local/Itinerant Split

After selecting a preferred forecast of GA operations in Kentucky, it is possible to forecast the split between local and itinerant GA aircraft operations. The FAA defines local GA operations as those performed by aircraft that meet any of the following:

- Operate in the local traffic pattern or within sight of an airport,
- Are known to be departing for or arriving from flight in local practice areas within a 20-mile radius of the airport, or
- Are executing practice instrument approaches at the airport.

The FAA considers all other GA aircraft operations to be itinerant operations.

Estimates of the split between local and itinerant operations were gathered through the inventory effort and from sources such as the 5010 Airport Master Record. **Table 6-20** details local and itinerant GA operations at each of the 59 study airports for the base year of 2015, in addition to the percentage of the total that is attributable to itinerant activity. In total, 52.75 percent of all GA operations in Kentucky are itinerant operations.

Table 6-20
Local/Itinerant Split of GA Operations, 2015

FAA ID	Associated City	Airport Name	2015 Local GA Operations	2015 Itinerant GA Operations	Percent Itinerant
Commercial Service					
BWG	Bowling Green	Bowling Green-Warren County Regional	32,500	27,636	45.96%
CVG	Covington	Cincinnati/Northern Kentucky International	5,994	0	0.00%
LEX	Lexington	Blue Grass	5,826	29,353	83.44%
SDF	Louisville	Louisville International-Standiford Field	4,253	7,553	63.98%
OWB	Owensboro	Owensboro-Daviess County Regional	5,698	8,479	59.81%
PAH	Paducah	Barkley Regional	7,228	14,487	66.71%
General Aviation					
DWU	Ashland	Ashland Regional	3,730	2,920	43.90%
BRY	Bardstown	Samuels Field	9,912	5,678	36.42%
1M9	Cadiz	Lake Barkley State Resort Park	1,543	5,657	78.57%
AAS	Campbellsville	Taylor County	3,902	5,558	58.76%
I96	Columbia	Columbia-Adair County	2,333	2,679	53.46%
0I8	Cynthiana	Cynthiana-Harrison County	4,860	6,308	56.48%
DVK	Danville	Stuart Powell Field	7,440	13,560	64.57%
8M7	Dawson Springs	Tradewater	290	440	60.27%
EKX	Elizabethtown	Addington Field	5,812	7,788	57.26%
2I3	Falls of Rough	Rough River State Resort Park	0	8,400	100.00%
K62	Falmouth	Gene Snyder	1,881	2,759	59.46%
FGX	Flemingsburg	Fleming-Mason	6,320	10,500	62.43%
FFT	Frankfort	Capital City	11,667	22,549	65.90%
1M7	Fulton	Fulton	3,135	5,562	63.95%
27K	Georgetown	Georgetown Scott County - Marshall Field	8,876	7,749	46.61%
M34	Gilbertsville	Kentucky Dam Village State Resort Park	1,558	11,422	88.00%
GLW	Glasgow	Glasgow Municipal	4,613	8,187	63.96%
M21	Greenville	Muhlenberg County	3,588	4,602	56.19%
I93	Hardinsburg	Breckinridge County	707	589	45.45%
I35	Harlan	Tucker-Guthrie Memorial	2,294	3,606	61.11%
JQD	Hartford	Ohio County	3,221	4,779	59.74%
CPF	Hazard	Wendell H. Ford Regional	5,692	3,678	39.25%
EHR	Henderson	Henderson City-County	15,166	15,925	51.22%
HVC	Hopkinsville	Hopkinsville-Christian County	20,453	14,547	41.56%
JKL	Jackson	Julian Carroll	0	100	100.00%
K24	Jamestown	Russell County	2,371	3,614	60.38%
M20	Leitchfield	Grayson County	3,292	3,300	50.07%
KY8	Lewisport	Hancock Co-Ron Lewis Field	4,141	4,359	51.28%
I53	Liberty	Liberty-Casey County	50	300	85.71%
LOZ	London	London-Corbin-Magee Field	8,031	3,459	30.11%
LOU	Louisville	Bowman Field	37,993	35,317	48.17%
2I0	Madisonville	Madisonville Regional	9,029	3,121	25.69%
5M9	Marion	Marion-Crittenden County	2,683	1,917	41.67%
M25	Mayfield	Mayfield Graves County	4,438	9,524	68.21%
1A6	Middlesboro	Middlesboro-Bell County	10,266	8,234	44.51%
EKQ	Monticello	Wayne County	3,186	5,274	62.34%

Table 6-20
Local/Itinerant Split of GA Operations, 2015

FAA ID	Associated City	Airport Name	2015 Local GA Operations	2015 Itinerant GA Operations	Percent Itinerant
SYM	Morehead	Morehead-Rowan County Clyde A. Thomas Regional	15,944	7,046	30.65%
IOB	Mount Sterling	Mount Sterling-Montgomery County	16,752	14,958	47.17%
CEY	Murray	Kyle-Oakley Field	7,836	7,979	50.45%
PBX	Pikeville	Pikeville – Pike County Regional	2,781	6,119	68.75%
18I	Pine Knot	McCreary County	556	234	29.58%
SJS	Prestonsburg	Big Sandy Regional	4,138	3,192	43.55%
2M0	Princeton	Princeton-Caldwell County	1,601	4,270	72.73%
8M9	Providence	Providence-Webster County	3,109	2,591	45.45%
RGA	Richmond	Central Kentucky Regional	28,895	12,125	29.56%
4M7	Russellville	Russellville-Logan County	8,890	5,230	37.04%
SME	Somerset	Lake Cumberland Regional	10,816	25,312	70.06%
6I2	Springfield	Lebanon-Springfield	4,182	5,018	54.55%
I50	Stanton	Stanton-Powell County	2,196	2,929	57.14%
TWT	Sturgis	Sturgis Municipal	3,638	4,962	57.69%
TZV	Tompkinsville	Tompkinsville-Monroe County	8,981	1,644	15.47%
9I3	West Liberty	West Liberty	2,252	2,048	47.62%
BYL	Williamsburg	Williamsburg-Whitley County	2,743	857	23.81%

Source: Airport Inventory and Data Survey, Cincinnati/Northern Kentucky International Airport, FAA, Kentucky Department of Aviation.

To forecast the split between local and itinerant GA operations, the following assumptions were made:

- A high amount of flight training activity would decrease the percentage of itinerant operations over time.
- A high amount of business and corporate activity would increase the percentage of itinerant operations over time.

The inventory survey effort asked airports to report the frequency with which they experience flight training activity and corporate/business activity. The change to each airport's local/itinerant operations ratio was determined by the frequency at which they experience flight training and/or corporate/business activity. The result is that an airport's percentage of total operations that are itinerant can increase or decrease by as much as 5 percent for each forecast period. For example, an airport with daily flight training activity but no corporate/business activity would see a 5 percent decrease in its ratio of itinerant to local GA operations. Conversely, an airport with no flight training activity but daily corporate/business activity would see a 5 percent increase in its ratio of itinerant to local GA operations. Ranges of either factor result in lower increases or decreases in the itinerant ratio.

Table 6-21 summarizes these changes over the full 20-year forecasting period. From 2015 to 2035, it is forecasted that the percentage of total GA operations attributable to itinerant activity will change from 52.75 percent to 52.43 percent. **Table 6-22** details forecasts of the local/itinerant split for all 59 Kentucky airports, while **Table 6-23** provides the percentage of total GA operations attributable to itinerant activity for each airport throughout the 20-year forecasting period.

Table 6-21
Forecasts of Local/Itinerant Split of GA Operations

Year	Local	Itinerant	Percent Itinerant
2015	401,282	447,983	52.75%
2020	422,185	467,336	52.54%
2025	430,481	476,039	52.51%
2035	447,989	493,788	52.43%

Source: Airport Inventory and Data Survey, FAA Aerospace Forecast Fiscal Years 2016-2035 (2016), Kentucky Department of Aviation, Kentucky State Data Center (2011), U.S. Census Bureau (2016).

Table 6-22
Forecasts of Local/Itinerant Split of GA Operations by Airport

FAA ID	Associated City	Airport Name	2020 Local	2020 Itinerant	2025 Local	2025 Itinerant	2035 Local	2035 Itinerant
Commercial Service								
BWG	Bowling Green	Bowling Green-Warren County Regional	33,356	28,364	34,235	29,111	36,062	30,665
CVG	Covington	Cincinnati/Northern Kentucky International	6,205	0	6,424	0	6,885	0
LEX	Lexington	Blue Grass	5,980	30,126	6,137	30,920	6,465	32,570
SDF	Louisville	Louisville International-Standiford Field	4,123	7,994	3,982	8,454	3,671	9,429
OWB	Owensboro	Owensboro-Daviess County Regional	12,254	9,948	12,522	10,166	13,076	10,617
PAH	Paducah	Barkley Regional	6,794	14,921	6,359	15,356	5,491	16,224
General Aviation								
DWU	Ashland	Ashland Regional	3,597	3,053	3,464	3,186	3,198	3,452
BRY	Bardstown	Samuels Field	10,173	5,828	10,440	5,982	10,998	6,301
1M9	Cadiz	Lake Barkley State Resort Park	1,584	5,806	1,625	5,959	1,712	6,277
AAS	Campbellsville	Taylor County	3,987	5,680	4,074	5,805	4,255	6,062
I96	Columbia	Columbia-Adair County	2,497	2,647	2,669	2,611	3,033	2,528
0I8	Cynthiana	Cynthiana-Harrison County	4,945	6,418	5,031	6,531	5,210	6,761
DVK	Danville	Stuart Powell Field	7,570	13,797	7,702	14,039	7,975	14,534
8M7	Dawson Springs	Tradewater	295	448	300	456	310	472
EKX	Elizabethtown	Addington Field	5,686	8,272	5,549	8,777	5,242	9,849
2I3	Falls of Rough	Rough River State Resort Park	0	8,547	0	8,697	0	9,004
K62	Falmouth	Gene Snyder	1,914	2,807	1,948	2,856	2,016	2,957
FGX	Flemingsburg	Fleming-Mason	6,459	10,730	6,600	10,965	6,892	11,451
FFT	Frankfort	Capital City	11,872	22,943	12,079	23,345	12,506	24,169
1M7	Fulton	Fulton	2,874	5,823	2,613	6,084	2,091	6,606
27K	Georgetown	Georgetown Scott County - Marshall Field	9,533	7,678	10,225	7,593	11,723	7,373
M34	Gilbertsville	Kentucky Dam Village State Resort Park	1,585	11,622	1,612	11,826	1,670	12,243
GLW	Glasgow	Glasgow Municipal	4,734	8,403	4,859	8,624	5,118	9,085
M21	Greenville	Muhlenberg County	3,342	4,848	3,097	5,093	2,605	5,585
I93	Hardinsburg	Breckinridge County	722	602	738	615	771	642
I35	Harlan	Tucker-Guthrie Memorial	2,294	3,606	2,294	3,606	2,294	3,606
JQD	Hartford	Ohio County	3,196	4,944	3,168	5,114	3,109	5,466

Table 6-22
Forecasts of Local/Itinerant Split of GA Operations by Airport

FAA ID	Associated City	Airport Name	2020 Local	2020 Itinerant	2025 Local	2025 Itinerant	2035 Local	2035 Itinerant
CPF	Hazard	Wendell H. Ford Regional	5,692	3,678	5,692	3,678	5,692	3,678
EHR	Henderson	Henderson City-County	18,865	19,809	19,196	20,155	19,873	20,867
HVC	Hopkinsville	Hopkinsville-Christian County	21,617	14,150	22,822	13,729	25,359	12,811
JKL	Jackson	Julian Carroll	0	100	0	100	0	100
K24	Jamestown	Russell County	2,546	3,570	2,726	3,524	3,108	3,419
M20	Leitchfield	Grayson County	3,349	3,358	3,408	3,417	3,528	3,538
KY8	Lewisport	Hancock Co-Ron Lewis Field	4,387	4,262	4,639	4,161	5,168	3,943
I53	Liberty	Liberty-Casey County	61	295	73	289	98	277
LOZ	London	London-Corbin-Magee Field	8,478	3,315	8,943	3,160	9,930	2,819
LOU	Louisville	Bowman Field	38,994	36,247	40,021	37,202	42,157	39,188
2I0	Madisonville	Madisonville Regional	8,940	3,423	8,844	3,735	8,636	4,387
5M9	Marion	Marion-Crittenden County	2,545	2,055	2,407	2,193	2,131	2,469
M25	Mayfield	Mayfield Graves County	4,718	9,244	4,997	8,965	5,555	8,407
1A6	Middlesboro	Middlesboro-Bell County	10,266	8,234	10,266	8,234	10,266	8,234
EKQ	Monticello	Wayne County	3,515	5,130	3,858	4,977	4,582	4,644
SYM	Morehead	Morehead-Rowan County Clyde A. Thomas Regional	16,294	7,200	16,651	7,358	17,388	7,684
IOB	Mount Sterling	Mount Sterling-Montgomery County	17,193	15,352	17,647	15,756	18,588	16,597
CEY	Murray	Kyle-Oakley Field	8,367	7,865	8,920	7,739	10,098	7,450
PBX	Pikeville	Pikeville – Pike County Regional	2,514	6,386	2,247	6,653	1,713	7,187
18I	Pine Knot	McCreary County	556	234	556	234	556	234
SJS	Prestonsburg	Big Sandy Regional	4,138	3,192	4,138	3,192	4,138	3,192
2M0	Princeton	Princeton-Caldwell County	1,425	4,446	1,249	4,622	897	4,974
8M9	Providence	Providence-Webster County	3,109	2,591	3,109	2,591	3,109	2,591
RGA	Richmond	Central Kentucky Regional	40,169	11,369	42,285	10,611	46,771	8,948
4M7	Russellville	Russellville-Logan County	8,890	5,230	8,890	5,230	8,890	5,230
SME	Somerset	Lake Cumberland Regional	10,359	26,721	9,870	28,186	8,794	31,294
6I2	Springfield	Lebanon-Springfield	4,274	5,128	4,367	5,241	4,560	5,473
I50	Stanton	Stanton-Powell County	2,299	2,826	2,401	2,724	2,606	2,519
TWT	Sturgis	Sturgis Municipal	3,208	5,392	2,778	5,822	1,918	6,682

Table 6-22
Forecasts of Local/Itinerant Split of GA Operations by Airport

FAA ID	Associated City	Airport Name	2020 Local	2020 Itinerant	2025 Local	2025 Itinerant	2035 Local	2035 Itinerant
TZV	Tompkinsville	Tompkinsville-Monroe County	8,981	1,644	8,981	1,644	8,981	1,644
9I3	West Liberty	West Liberty	2,252	2,048	2,252	2,048	2,252	2,048
BYL	Williamsburg	Williamsburg-Whitley County	2,779	821	2,815	785	2,887	713

Source: Airport Inventory and Data Survey, FAA Aerospace Forecast Fiscal Years 2016-2035 (2016), Kentucky Department of Aviation, Kentucky State Data Center (2011), U.S. Census Bureau (2016).

Table 6-23
Forecasts of Itinerant Ratio of Total GA Operations by Airport

FAA ID	Associated City	Airport Name	2020 Percent Itinerant	2025 Percent Itinerant	2035 Percent Itinerant
Commercial Service					
BWG	Bowling Green	Bowling Green-Warren County Regional	45.96%	45.96%	45.96%
CVG	Covington	Cincinnati/Northern Kentucky International	0.00%	0.00%	0.00%
LEX	Lexington	Blue Grass	83.44%	83.44%	83.44%
SDF	Louisville	Louisville International-Standiford Field	65.97%	67.98%	71.98%
OWB	Owensboro	Owensboro-Daviess County Regional	44.81%	44.81%	44.81%
PAH	Paducah	Barkley Regional	68.71%	70.72%	74.71%
General Aviation					
DWU	Ashland	Ashland Regional	45.91%	47.91%	51.91%
BRY	Bardstown	Samuels Field	36.42%	36.43%	36.42%
1M9	Cadiz	Lake Barkley State Resort Park	78.57%	78.57%	78.57%
AAS	Campbellsville	Taylor County	58.75%	58.76%	58.76%
I96	Columbia	Columbia-Adair County	51.46%	49.46%	45.46%
0I8	Cynthiana	Cynthiana-Harrison County	56.48%	56.49%	56.48%
DVK	Danville	Stuart Powell Field	64.57%	64.57%	64.57%
8M7	Dawson Springs	Tradewater	60.31%	60.34%	60.32%
EKX	Elizabethtown	Addington Field	59.26%	61.27%	65.27%
2I3	Falls of Rough	Rough River State Resort Park	100.00%	100.00%	100.00%
K62	Falmouth	Gene Snyder	59.46%	59.45%	59.46%
FGX	Flemingsburg	Fleming-Mason	62.43%	62.42%	62.43%
FFT	Frankfort	Capital City	65.90%	65.90%	65.90%
1M7	Fulton	Fulton	66.95%	69.96%	75.96%
27K	Georgetown	Georgetown Scott County - Marshall Field	44.61%	42.62%	38.61%
M34	Gilbertsville	Kentucky Dam Village State Resort Park	88.00%	88.00%	88.00%
GLW	Glasgow	Glasgow Municipal	63.96%	63.96%	63.97%
M21	Greenville	Muhlenberg County	59.19%	62.19%	68.19%
I93	Hardinsburg	Breckinridge County	45.45%	45.44%	45.42%
I35	Harlan	Tucker-Guthrie Memorial	61.12%	61.12%	61.12%
JQD	Hartford	Ohio County	60.74%	61.75%	63.74%
CPF	Hazard	Wendell H. Ford Regional	39.25%	39.25%	39.25%
EHR	Henderson	Henderson City-County	51.22%	51.22%	51.22%
HVC	Hopkinsville	Hopkinsville-Christian County	39.56%	37.56%	33.56%
JKL	Jackson	Julian Carroll	100.00%	100.00%	100.00%
K24	Jamestown	Russell County	58.37%	56.38%	52.38%
M20	Leitchfield	Grayson County	50.06%	50.07%	50.07%
KY8	Lewisport	Hancock Co-Ron Lewis Field	49.28%	47.28%	43.28%
I53	Liberty	Liberty-Casey County	82.84%	79.76%	73.84%
LOZ	London	London-Corbin-Magee Field	28.11%	26.11%	22.11%
LOU	Louisville	Bowman Field	48.17%	48.17%	48.18%
2I0	Madisonville	Madisonville Regional	27.69%	29.69%	33.69%
5M9	Marion	Marion-Crittenden County	44.67%	47.67%	53.67%
M25	Mayfield	Mayfield Graves County	66.21%	64.21%	60.21%
1A6	Middlesboro	Middlesboro-Bell County	44.51%	44.51%	44.51%
EKQ	Monticello	Wayne County	59.34%	56.33%	50.33%

Table 6-23
Forecasts of Itinerant Ratio of Total GA Operations by Airport

FAA ID	Associated City	Airport Name	2020 Percent Itinerant	2025 Percent Itinerant	2035 Percent Itinerant
SYM	Morehead	Morehead-Rowan County Clyde A. Thomas Regional	30.65%	30.65%	30.65%
IOB	Mount Sterling	Mount Sterling-Montgomery County	47.17%	47.17%	47.17%
CEY	Murray	Kyle-Oakley Field	48.45%	46.45%	42.45%
PBX	Pikeville	Pikeville – Pike County Regional	71.75%	74.75%	80.75%
18I	Pine Knot	McCreary County	29.62%	29.62%	29.62%
SJS	Prestonsburg	Big Sandy Regional	43.55%	43.55%	43.55%
2M0	Princeton	Princeton-Caldwell County	75.73%	78.73%	84.72%
8M9	Providence	Providence-Webster County	45.46%	45.46%	45.46%
RGA	Richmond	Central Kentucky Regional	22.06%	20.06%	16.06%
4M7	Russellville	Russellville-Logan County	37.04%	37.04%	37.04%
SME	Somerset	Lake Cumberland Regional	72.06%	74.06%	78.06%
6I2	Springfield	Lebanon-Springfield	54.54%	54.55%	54.55%
I50	Stanton	Stanton-Powell County	55.14%	53.15%	49.15%
TWT	Sturgis	Sturgis Municipal	62.70%	67.70%	77.70%
TZV	Tompkinsville	Tompkinsville-Monroe County	15.47%	15.47%	15.47%
9I3	West Liberty	West Liberty	47.63%	47.63%	47.63%
BYL	Williamsburg	Williamsburg-Whitley County	22.81%	21.81%	19.81%

Source: Airport Inventory and Data Survey, FAA Aerospace Forecast Fiscal Years 2016-2035 (2016), Kentucky Department of Aviation, Kentucky State Data Center (2011), U.S. Census Bureau (2016).

Commercial Service Activity Forecasts

Commercial service activity forecasts in the SASP include projections of commercial aircraft operations, passenger enplanements, and air cargo tonnages. Like forecasts of GA activity, commercial forecasts utilize the base year of 2015 and forecast for five-year (2020), 10-year, (2025), and 20-year (2035) periods. However, unlike GA forecasts, the SASP does not develop new forecasts for commercial activity. Where available, growth rates from individual airport master plans are applied to current base data. When master planning forecasts are not available, growth rates from the TAF have been applied to base data.

The following section provides a brief discussion of historic trends of commercial operations and forecasts in Kentucky. The subsequent sections discuss the inputs and results of the commercial activity forecasts, including 20-year forecasts of aircraft operations, passenger enplanements, and air cargo tonnages.

Historic Commercial Service Activity

Table 6-24 details historic commercial service operations and passenger enplanements at Kentucky's six commercial service airports from the 10-year period of 2006 through the forecast baseline year of 2015, while **Figures 6-5** and **6-6** graphically depict these trends. Note that Bowling Green-Warren County Regional Airport was not served by a dedicated airline during this 10-year historic period, but began scheduled service through Contour Airlines in 2016, and is therefore not depicted on these exhibits.

From 2006 to 2015, Kentucky experienced a decrease in total commercial operations of over 45 percent, and a decrease in total passenger enplanements of over 48 percent. During this period, all commercial service airports in Kentucky experienced a decline in commercial aircraft operations

and all but two (Blue Grass Airport in Lexington and Owensboro-Daviess County Regional Airport) experienced a decline in passenger enplanements. The state's busiest airport, Cincinnati/Northern Kentucky International Airport, experienced a drastic downsizing of its status as a Delta hub during this period, resulting in an over 60 percent decrease in both operations and passenger enplanements.

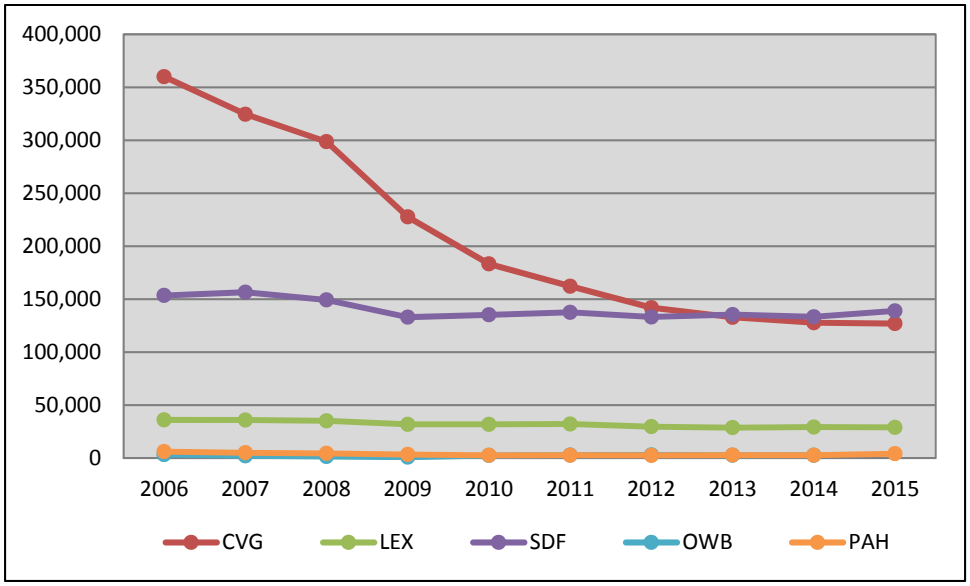
As illustrated in Figure 6-5, as of 2013 Louisville International Airport-Standiford Field surpassed Cincinnati/Northern Kentucky International Airport as the busiest airport in the Commonwealth when measured by commercial operations. However, in terms of passenger enplanements, Cincinnati/Northern Kentucky International Airport remains the busiest airport in Kentucky, having nearly double the enplanements of Louisville International Airport-Standiford Field in 2015 (Figure 6-6). This is due to Cincinnati/Northern Kentucky International Airport flights having a higher number of seats due to the airport offering more hub flights. Louisville International Airport-Standiford Field, by comparison, has a higher number of low cost carrier options on carriers such as Southwest Airlines.

Table 6-24
Historic Commercial Service Activity, 2006 to 2015

FAA ID	Associated City	Airport Name	2006	2015	AAGR 2006-2015	Total Change 2006-2015
Operations						
CVG	Covington	Cincinnati/Northern Kentucky International	359,929	126,939	-10.93%	-64.73%
LEX	Lexington	Blue Grass	36,064	28,987	-2.40%	-19.62%
SDF	Louisville	Louisville International-Standiford Field	153,544	138,968	-1.10%	-9.49%
OWB	Owensboro	Owensboro-Daviess County Regional	3,340	2,677	-2.43%	-19.85%
PAH	Paducah	Barkley Regional	6,113	4,146	-4.22%	-32.18%
Kentucky System Total			**558,990**	**301,717**	**-6.62%**	**-46.02%**
Passenger Enplanements						
CVG	Covington	Cincinnati/Northern Kentucky International	7,984,074	3,160,248	-9.79%	-60.42%
LEX	Lexington	Blue Grass	504,787	623,242	2.37%	23.47%
SDF	Louisville	Louisville International-Standiford Field	1,836,260	1,679,095	-0.99%	-8.56%
OWB	Owensboro	Owensboro-Daviess County Regional	4,680	22,202	18.89%	374.40%
PAH	Paducah	Barkley Regional	26,742	21,027	-2.64%	-21.37%
Kentucky System Total			**10,356,543**	**5,505,814**	**-6.78%**	**-46.84%**

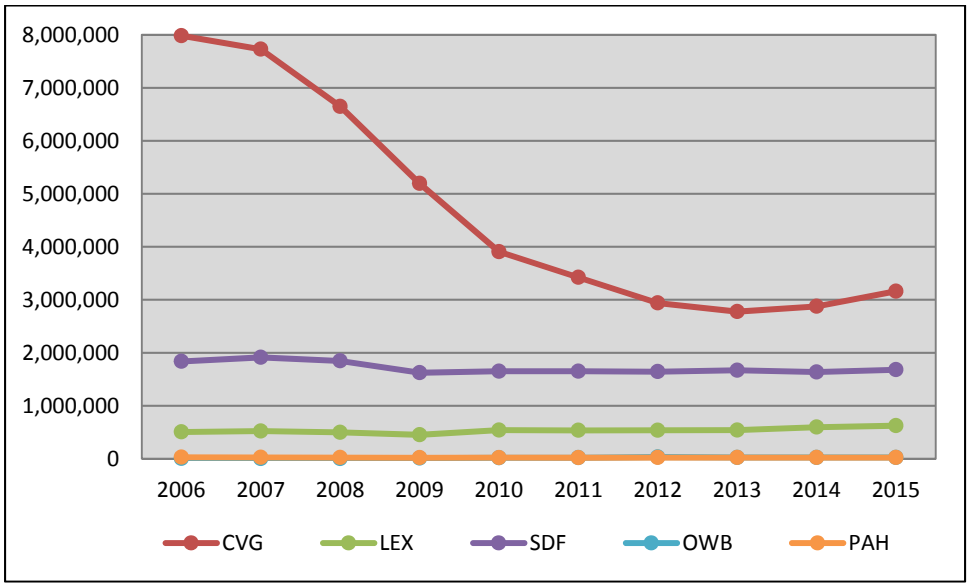
Source: FAA TAF (2016).

Figure 6-5
Commercial Service Operation Trends, 2006 to 2015



Source: FAA TAF (2016).

Figure 6-6
Commercial Service Enplanement Trends, 2006 to 2015



Source: FAA TAF (2016).

Commercial Service Activity Forecasts: Operations

Despite the decline in both commercial operations and passenger enplanements over the last 10 years in Kentucky, these trends are not expected to continue. Existing forecasts from airport master plans and the FAA's TAF predict that most of the Commonwealth's commercial service airports will return to steady growth in both commercial operations and passenger enplanements.

The SASP does not develop a new forecasting methodology for commercial activity. Rather, these forecasts apply existing average annual growth rates – either from airport master plans or the TAF – and apply them to 2015 base year numbers. Due to the currency of master plans, growth rates

from these forecasts were used for Cincinnati/Northern Kentucky International Airport and Blue Grass Airport in Lexington. Growth rates from the TAF were used for Louisville International Airport-Standiford Field, Owensboro-Daviess County Regional Airport, and Barkley Regional Airport in Paducah.

Because Bowling Green-Warren County Regional Airport only began commercial service operations through Contour Airlines in 2016, airport sources were used to determine forecast operations. This forecast assumes the following:

- Two flights per day to Hartsfield-Jackson Atlanta International Airport during the week, and one per day on the weekend.
- Two flights per week to Destin-Ft. Walton Beach Airport during Florida's tourist season (December through April).[3]

Using these assumptions, it is estimated that Bowling Green-Warren County Regional Airport will have 1,320 commercial service operations in 2017, the first full year of service. Because it is unknown whether other flights or destinations will be added in the future, the SASP forecasts this number through to 2035.

Table 6-25 depicts forecasts of commercial aircraft operations in Kentucky from 2015 to 2035. Master planning forecasts for Cincinnati/Northern Kentucky International Airport predict that commercial operations will increase at an average annual rate of 1.37 percent to grow to over 166,000 total by 2035.[4] At Blue Grass Airport, the master plan forecast predicts that operations will grow at an average annual rate of 0.95 percent over the 20-year forecast period, increasing total operations by more than 20 percent.

The TAF predicts varying changes for other commercial airports in Kentucky. Louisville International Airport-Standiford Field is projected to increase operations at a rate of 1.39 percent annually, for a total change of nearly 32 percent. Owensboro-Daviess County Regional Airport (0.34 percent annually) and Barkley Regional Airport (0.78 percent annually) are forecasted to experience more moderate growth.

When combining estimates for Bowling Green-Warren County Regional Airport, master planning forecasts, and TAF forecasts, the SASP estimates that commercial operations in Kentucky will increase from just over 300,000 in 2014 to over 390,000 by 2035, an average annual growth rate of 1.34 percent.

[3] Bowling Green-Warren County Regional Airport (2016).
[4] The 2035 Master Plan for Cincinnati/Northern Kentucky International Airport uses a base year of 2010, with a forecast period of 2010 to 2030. Per the airport's request, the growth rates from 2015 to 2030 were used for the SASP.

Table 6-25
Commercial Service Operations Forecasts

FAA ID	Associated City	Airport Name	Base Year: 2015	5 Year Forecast: 2020	10 Year Forecast: 2025	20 Year Forecast: 2035	AAGR 2015-2035	Total Change 2015-2035	Growth Rate Source
BWG	Bowling Green	Bowling Green-Warren County Regional	0	1,328	1,328	1,328	NA*	NA*	Airline
CVG	Covington	Cincinnati/Northern Kentucky International	126,939	135,907	145,509	166,795	1.37%	31.40%	Master Plan
LEX	Lexington	Blue Grass	28,987	30,395	31,872	35,044	0.95%	20.90%	Master Plan
SDF	Louisville	Louisville International-Standiford Field	138,968	148,916	159,576	183,240	1.39%	31.86%	TAF
OWB	Owensboro	Owensboro-Daviess County Regional	2,677	2,723	2,770	2,865	0.34%	7.04%	TAF
PAH	Paducah	Barkley Regional	4,146	4,311	4,483	4,847	0.78%	16.90%	TAF
Kentucky System Total			**301,717**	**323,580**	**345,537**	**394,120**	**1.34%**	**30.63%**	

Source: Airport Master Plans, Contour Airlines, FAA TAF.
*Commercial service at BWG resumed in 2016.

Commercial Service Activity Forecasts: Passenger Enplanements

Passenger enplanement forecasts were developed using the same resources and inputs as commercial operations forecasts: master plans, the FAA's TAF, and other resources for Bowling Green-Warren County Regional Airport. Master planning and TAF annual growth rates were applied to 2015 baseline data for all airports except Bowling Green-Warren County Regional Airport.

As with the forecast of commercial operations, a forecast of passenger enplanements for Bowling Green-Warren County Regional Airport requires certain assumptions based on expected activity. The following additional assumptions were made to calculate enplanements at Bowling Green-Warren County Regional Airport:

- Departures account for one half of the 1,328 annual operations estimated above.
- 19 seats per aircraft based on Contour Airlines' current fleet.[5]
- Load factors on flights from Bowling Green-Warren County Regional Airport will be approximate to the 2015 national load factor of 85 percent.[6]

Using these assumptions, it is estimated that Bowling Green-Warren County Regional Airport will have 10,721 commercial passenger enplanements in 2017, the first full year of service. Because it is unknown whether other flights or destinations will be added in the future, the SASP forecasts this number through to 2035.

Table 6-26 depicts SASP forecasts of commercial passenger enplanements from 2015 to 2035. The master planning forecasts for Cincinnati/Northern Kentucky International Airport predict higher growth in passenger enplanements than in commercial operations due to other factors such as increasing plane size and load factors. At that airport, passenger enplanements are forecasted to increase from just over 3 million in 2015 to nearly 5.4 million by 2035, an average annual growth rate of 2.70 percent, and total change of nearly 70.32 percent.[7] The master planning forecasts for Blue Grass Airport also forecast significant growth with an increase of over 100,000 enplanements from 2015 to 2035, an average annual growth rate of 0.75 percent.

The TAF only forecasts growth in passenger enplanements for one of the remaining Kentucky commercial service airports: Louisville International Airport-Standiford Field. At this airport, the TAF predicts an increase from over 1.6 million in 2015 to over 2.2 million by 2035, an average annual growth rate of 1.45 percent and total change of over 33 percent.

When combining estimates for Bowling Green-Warren County Regional Airport, master planning forecasts, and TAF forecasts, the SASP estimates that passenger enplanements in Kentucky will increase from over 5.5 million in 2015 to over 8.4 million by 2035, an average annual growth rate of 2.14 percent.

[5] Contour Airlines (2016).
[6] Bureau of Transportation Statistics (2016).
[7] The 2035 Master Plan for Cincinnati/Northern Kentucky International Airport uses a base year of 2010, with a forecast period of 2010 to 2030. Per the airport's request, the growth rates from 2015 to 2030 were used for the SASP.

Table 6-26
Commercial Service Passenger Enplanement Forecasts

FAA ID	Associated City	Airport Name	Base Year: 2015	5 Year Forecast: 2020	10 Year Forecast: 2025	20 Year Forecast: 2035	AAGR 2015-2035	Total Change 2015-2035	Growth Rate Source
BWG	Bowling Green	Bowling Green-Warren County Regional	0	10,721	10,721	10,721	NA*	NA*	Airline
CVG	Covington	Cincinnati/Northern Kentucky International	3,160,248	3,610,200	4,124,300	5,382,400	2.70%	70.32%	Master Plan
LEX	Lexington	Blue Grass	623,242	647,100	671,900	724,300	0.75%	16.21%	Master Plan
SDF	Louisville	Louisville International-Standiford Field	1,679,095	1,804,800	1,939,900	2,241,100	1.45%	33.47%	TAF
OWB	Owensboro	Owensboro-Daviess County Regional	22,202	22,202	22,202	22,202	0.00%	0.00%	TAF
PAH	Paducah	Barkley Regional	21,027	21,027	21,027	21,027	0.00%	0.00%	TAF
Kentucky System Total			**5,505,814**	**6,116,050**	**6,790,050**	**8,401,750**	**2.14%**	**52.60%**	

Source: Airport Master Plans, Contour Airlines, FAA TAF.

Commercial Service Activity Forecasts: Air Cargo Forecasts

As detailed in Chapter 4, Aviation Trends and Issues, only three of Kentucky's six commercial service airports currently handle air cargo activity. However, two of these airports are the sites of major air cargo hubs for international activity. Cincinnati/Northern Kentucky International Airport is home to DHL's international hub, while Louisville International-Standiford Field is the site of UPS's Worldport hub. Together, these two cargo facilities processed nearly 3.4 million tons of cargo in 2015. In addition to this activity, Blue Grass Airport in Lexington also serves air cargo activity on passenger aircraft.

As with other commercial activity forecasts, a new methodology for forecasting air cargo tonnage in Kentucky was not developed. Rather, growth rates from existing forecasts were used and applied to 2015 base data. The following details the sources for air cargo forecast growth rates:

- **Cincinnati/Northern Kentucky International Airport** – The airport's most recent master plan, published in 2013, lists a 2015 to 2030 average annual growth rate for cargo landed weight at 6.06 percent annually. This number will be applied to the 2015 base data in total tonnage for the airport to arrive at SASP forecasts of air cargo.
- **Louisville International-Standiford Field** – The most recent master plan for Louisville International-Standiford Field was published in 2004, rendering it out of date for current forecasting. However, the FAA Aerospace Forecast projects cargo tonnage into the future using revenue ton miles (RTM) data. From 2015 to 2035, the FAA Aerospace Forecast projects that international cargo originating from U.S. airports and carried by dedicated cargo carriers (not passenger aircraft) will grow at an average annual growth rate of 5.2 percent. To forecast air cargo tonnage at Louisville International-Standiford Field, this growth rate is applied to 2015 base data.
- **Blue Grass Airport** – Air cargo at Blue Grass Airport is limited to belly cargo on passenger aircraft as well as dedicated horse transport. From 2015 to 2035, the FAA Aerospace Forecast projects that domestic cargo carried by passenger aircraft will decrease at an average annual growth rate of 0.26 percent. However, because Blue Grass Airport has shown a moderate upward trend in air cargo activity in recent years, the SASP forecast will show a flat projection based on the most recently available tonnage data.

Table 6-27 summarizes air cargo tonnage forecasts at three of Kentucky's commercial service airports. If the rapid growth rates projected by both the FAA Aerospace Forecast and Cincinnati/Northern Kentucky International Airport hold true over the 20-year forecast period, Kentucky will experience a dramatic growth in air cargo of over 187 percent.

Table 6-27
Air Cargo Tonnage Forecasts at Kentucky Commercial Airports

FAA ID	Associated City	Airport Name	Base Year: 2015	5 Year Forecast: 2020	10 Year Forecast: 2025	20 Year Forecast: 2035	AAGR 2015-2035	Total Change 2015-2035
CVG	Covington	Cincinnati/Northern Kentucky International	804,088	1,079,172	1,448,363	2,608,864	6.06%	224.45%
LEX	Lexington	Blue Grass*	138	138	138	138	0.00%	0.00%
SDF	Louisville	Louisville International-Standiford Field	2,591,155	3,338,578	4,301,598	7,141,118	5.20%	175.60%
Kentucky System Total			**3,395,381**	**4,417,888**	**5,750,099**	**9,750,120**	**5.42%**	**187.16%**

Source: Cincinnati/Northern Kentucky International Airport (2016), Cincinnati/Northern Kentucky International Airport 2035 Master Plan Update (2013), FAA Aerospace Forecasts (2016), Louisville International-Standiford Field (2016).
*2015 data is unavailable for Blue Grass Airport. Base data is from 2014.

Summary

Forecasts of aviation activity serve a number of purposes in aviation system planning. Not only do forecasts help to justify and shape system recommendations made in subsequent chapters of the SASP, but they project when growth will occur, helping with the planning and phasing of projects and construction. In the SASP, forecasts were made of both GA and commercial aviation activity. GA forecasts include total based aircraft and operations. Baseline data from 2015 was forecasted for five-year (2020), 10-year (2025), and 20-year (2035) forecasting periods. Forecasts of aviation activity in Kentucky, summarized in **Table 6-28**, project steady growth in many facets of the Commonwealth's aviation industry.

Forecasts of GA activity come from a combination of established growth rates from the FAA Aerospace Forecast and forecasts of population growth in Kentucky's counties. The preferred based aircraft forecast projects that total based aircraft for Kentucky will increase from 1,732 in 2015 to 1,852 by 2035, a total change of nearly 7 percent. Over the same period, the preferred GA operations forecast projects total GA operations to increase from nearly 850,000 in 2015 to over 940,000 by 2035, a total change of nearly 11 percent.

Growth rates used for forecasts of commercial activity come from existing sources such as airport master plans, the TAF, and the FAA Aerospace Forecasts. From 2015 to 2035, it is projected that commercial operations in Kentucky will increase from just over 300,000 to over 394,000, a total increase of over 30 percent. Over the same 20-year forecast period, commercial passenger enplanements are forecasted to increase from over 5.5 million to over 8.4 million, a total change of over 52 percent. Air cargo is forecasted to experience dramatic growth at two Kentucky airports over this period: Cincinnati/Northern Kentucky International Airport and Louisville International Airport-Standiford Field. Cargo growth at these airports is expected to increase from nearly 3.4 million tons in 2015 to over 9.7 million tons by 2035, a total change of over 187 percent.

Table 6-28
Summary of Kentucky Aviation Forecasts

Preferred Forecast	2015	2020	2025	2035	AAGR 2015-2035	Total Change 2015-2035
General Aviation Forecasts						
Based Aircraft	1,732	1,794	1,812	1,852	0.34%	6.93%
GA Operations	849,265	889,521	906,520	941,777	0.52%	10.89%
Commercial Service Forecasts						
Commercial Operations	301,717	323,580	345,537	394,120	1.34%	30.63%
Enplanements	5,505,814	6,116,050	6,790,050	8,401,750	2.14%	52.60%
Air Cargo Tonnage	3,395,381	4,417,888	5,750,099	9,750,120	5.42%	187.16%

Source: Airport Inventory and Data Survey, Cincinnati/Northern Kentucky International Airport (2016), Cincinnati/Northern Kentucky International Airport 2035 Master Plan Update (2013), FAA Aerospace Forecast Fiscal Years 2016-2035 (2016), Kentucky Department of Aviation (2016), Louisville International-Standiford Field (2016), U.S. Census Bureau (2016).