3   Kentucky Airport System Inventory

To ensure the success of the Kentucky Statewide Aviation System Plan (SASP), it is important to begin with the most accurate and complete data possible. The purpose of the SASP inventory effort is to collect a wide array of data about Kentucky's 59 public-use airports. The data collected during this inventory effort provide the basis upon which all subsequent steps of the SASP are based, including forecasts, system stratification, system evaluation, and recommendations.

The inventory effort was conducted during the spring and early summer of 2016, and consisted of several steps and utilized multiple resources. The primary source for inventory data was the Airport Inventory and Data Survey, a comprehensive survey form sent to each of Kentucky's 59 public-use airports. These surveys were pre-filled with facility and service data before being sent to airports. Data sources such as the Federal Aviation Administration (FAA) 5010 Airport Master Record and instrument approach procedure charts were used to pre-populate information on runway facilities, navigational aids (NAVAIDs), and fuel availability, among other data. Each airport was then visited by a member of the consultant team to confirm and supplement data collected by the survey effort. Upon completion of inventory surveys and airport visits, the system inventory was also supplemented through additional sources such as satellite imagery, airport master plans, airport layout plans (ALPs), Kentucky Transportation Cabinet (KYTC) records, and airport websites.

This chapter details the results of the inventory effort, including the following data gathered with the Airport Inventory and Data Survey:

- **Airside Facilities** – includes runway facilities, taxiways, airfield lighting, NAVAIDs, instrument approach capabilities, airfield markings, and on-site weather reporting systems.
- **Landside Facilities** – includes hangars and aprons, airport terminal facilities, and automobile parking.
- **Aviation Services** – includes aircraft fueling, flight instruction, aircraft sales and rental, charter, aircraft maintenance, snow removal operations, aircraft deicing, and ground transportation.
- **Aviation Activity** – includes counts of operations and based aircraft in addition to details about the types of activities that occur at each airport.
- **Airport Access, Security, and Safety** – includes information on airport signage, surface access, fencing, access control, and safety concerns.
- **Airport Plans, Studies, and Policies** – includes documents such as airport master plans, airport layout plans (ALPs), minimum standards, security plans, and wildlife management plans.
- **Environmental Compliance** – includes information on airport environmental compliance officers, permit requirements of the Kentucky Division of Water, and planning documents related to environmental issues.

Other data gathered during the inventory effort is detailed in subsequent chapters of the SASP. For example, data on local sponsorship match of airport funding, runway protection zone control, and runway safety area compliance are presented later in Chapter 9: System Evaluation – Stewardship.

Kentucky Airport System

The Kentucky SASP is focused primarily on the 59 public-use airports located in the Commonwealth. Of these 59 airports, 55 are included in the National Plan of Integrated Airport Systems (NPIAS).[1] The NPIAS helps to establish a priority grouping for federal airport funding initiatives, and classifies airports based on the service roles they provide. NPIAS airports are categorized by the type and level of service they provide to a community. These service levels include:

- **Commercial Service** – Defined as airports that enplane 2,500 or more passengers annually and receive scheduled airline service.
  - **Primary Commercial Service** – These airports enplane at least 10,000 passengers annually and are grouped into four sub-categories: large, medium, and small hub, and non-hub. All five commercial service airports in Kentucky are primary commercial service airports, with one medium hub (Cincinnati/Northern Kentucky International Airport), two small hubs (Blue Grass Airport in Lexington and Louisville International-Standiford Field), and two non-hubs (Owensboro-Daviess County Regional Airport and Barkley Regional Airport in Paducah).
  - **Non-Primary Commercial Service** – These airports enplane at least 2,500 but fewer than 10,000 passengers annually, accounting for only 0.1 percent of all enplanements in the United States. There are no non-primary commercial service airports in Kentucky.
- **General Aviation** – Airports that do not receive scheduled commercial service or do not meet the threshold of 2,500 annual passenger enplanements are designated as general aviation (GA) airports.
  - **Reliever** – GA access is often constrained and more expensive at larger, congested commercial service airports located in metropolitan areas. Airports are designated as relievers within the NPIAS to address operational capacity shortfalls in these markets. There is one reliever airport in Kentucky, Bowman Field in Louisville.

At the time of the last NPIAS, Bowling Green-Warren County Regional Airport did not have commercial passenger service, and is therefore a GA airport from the perspective of the NPIAS. From Kentucky's perspective, however, it is a commercial service airport. Therefore, for purposes of the SASP, Kentucky's airport system includes six commercial service airports, one GA reliever airport, 48 other NPIAS GA airports, and four non-NPIAS GA airports. The locations of all 59 public-use airports in Kentucky are shown in **Figure 3-1**.

The following sections summarize data collected during the inventory effort. Detailed tables of airport data can be viewed in **Appendix A**.

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[1] The four non-NPIAS airports are Tradewater Airport in Dawson Springs, Providence-Webster County Airport, Liberty-Casey County Airport, and Columbia-Adair County Airport.

**Figure 3-1
Public-Use Airports in Kentucky**

Source: FAA, KYTC.

Airside Facilities

Airside facilities are airfield pavements and aviation equipment that are directly involved in flight operations. These facilities include runways, taxiways, instrument approaches and other navigational aids (NAVAIDs), and on-site weather reporting equipment. The following sections provide an overview of airside facilities at Kentucky's 59 public-use airports.
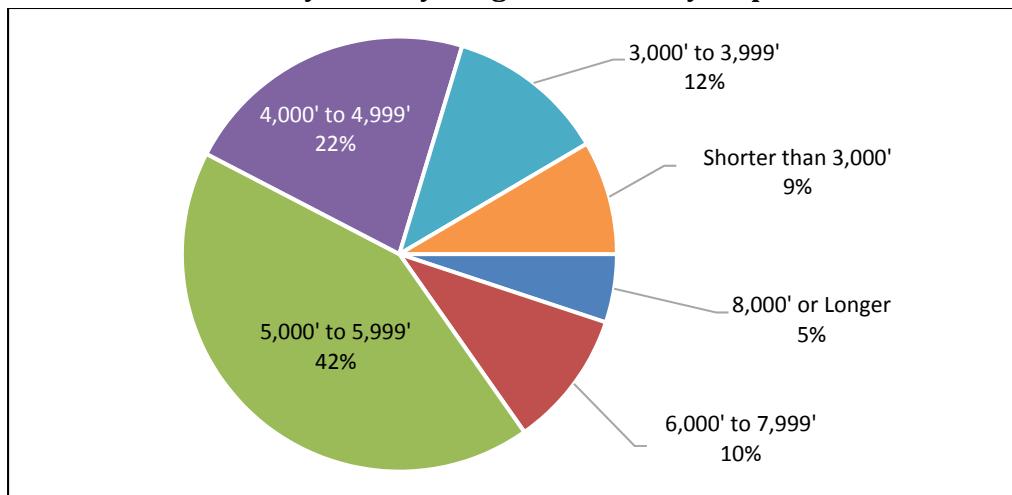
Runway and Taxiway Characteristics

Runway length is directly linked to the types of aircraft that can be accommodated by an airport. In general, the longer the runway, the larger and heavier an aircraft that can land on and takeoff from. Most airports in Kentucky (49) have only one runway, while eight have two runways, one airport (Louisville International-Standiford Field) has three runways, and another (Cincinnati/Northern Kentucky International) has four runways.

Most of the analysis in the SASP will only be concerned with each airport's primary runway, which is typically the longest runway at each airport. The longest primary runways in the Commonwealth are at the Commercial Service Airports, with the Cincinnati/Northern Kentucky International (12,000 feet) and Louisville International-Standiford Field (11,887 feet) having the only runways over 10,000 feet. The longest primary runway at a GA airport is at Kyle-Oakley Field in Murray (6,203 feet).

Figure 3-2 summarizes runway lengths at Kentucky airports. Over 40 percent of all airports have a primary runway between 5,000 and 5,999 feet, with a total of 34 airports having a primary runway of at least 5,000 feet. Another 13 airports have a primary runway of at least 4,000 feet. Only 12 of the 59 total public-use airports in Kentucky have a primary runway shorter than 4,000 feet.

Figure 3-2
Primary Runway Length at Kentucky Airports

Source: Airport Inventory and Data Survey, FAA Form 5010.

The inventory effort also collected data on the runway design code (RDC) of the runways at Kentucky's public-use airports. The RDC is a coding system that relates airport design criteria to the operational and physical characteristics of the primary runways that are intended to operate at an airport. An RDC is represented by aircraft categories (letters A through E), which refer to aircraft approach speed, and airplane design groups (Roman numerals I through VI), which refer to wingspan. Several aspects of airport design are determined by a runway's RDC, including

dimensions of the runway safety area (RSA) and runway protection zone (RPZ), runway width, and runway centerline-to-taxiway centerline separation standards.
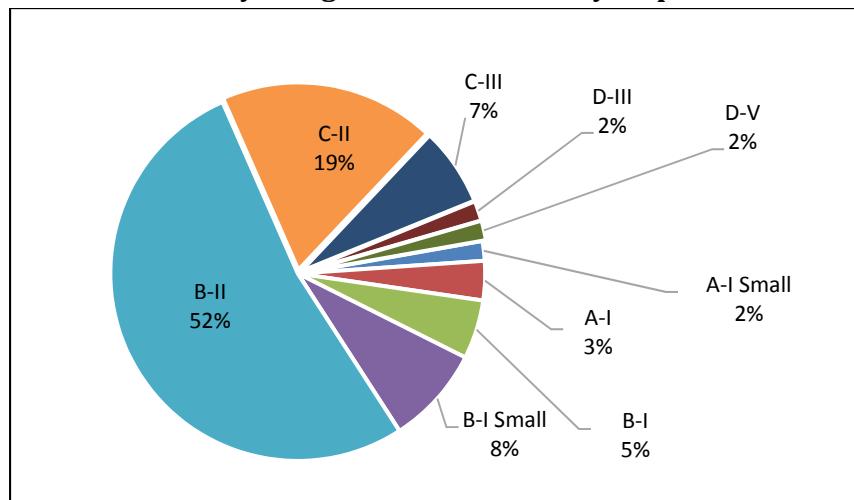
Table 3-1 details the parameters of RDCs and summarizes RDCs at primary runways in Kentucky, while **Figure 3-3** summarizes the frequency of RDCs at primary runways in Kentucky. With 52 percent of all airports, the B-II RDC is the most common, followed by C-II (19 percent).

Table 3-1
Aircraft Category and Airplane Design Group at Kentucky Airports

Aircraft Category	Approach Speed	Number of Airports
A	< 91 knots	3
B	91 to < 121 knots	39
C	121 to < 141 knots	15
D	141 to < 166 knots	2
E	166 knots or more	0
Airplane Design Group	Aircraft Wingspan	Number of Airports
I	< 49 feet	11
II	49 to < 79 feet	42
III	79 to < 118 feet	5
IV	118 to < 171 feet	1
V	171 to < 214 feet	59
VI	214 to < 262 feet	0

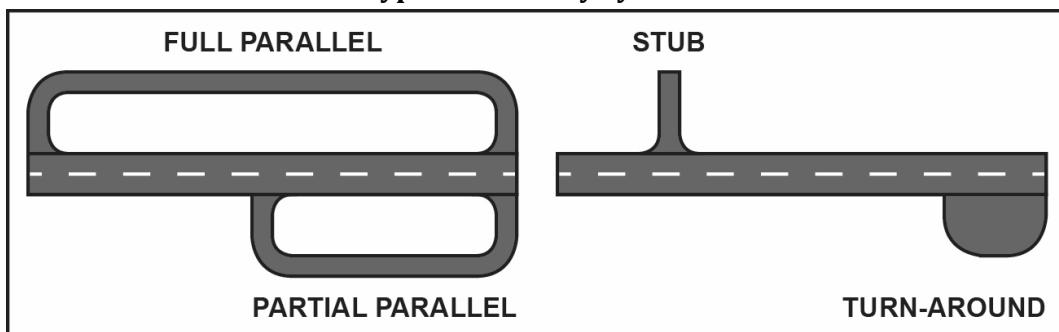Source: Airport Inventory and Data Survey, FAA.

Figure 3-3
Runway Design Codes at Kentucky Airports

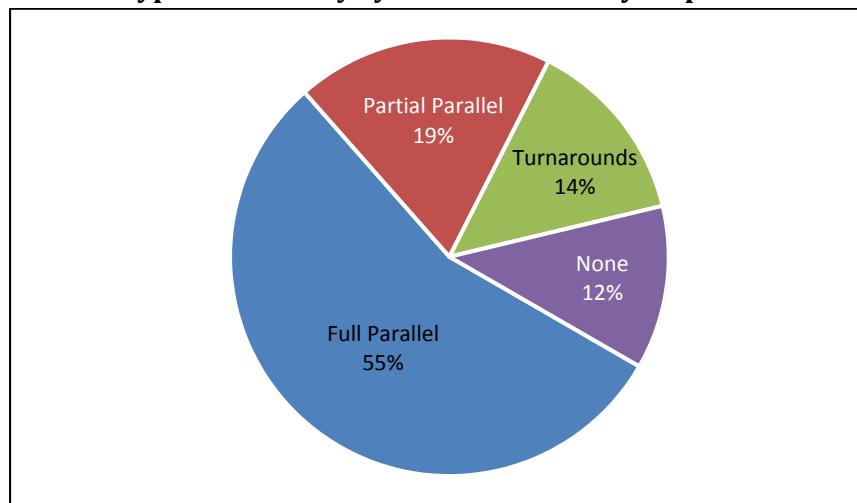Source: Airport Inventory and Data Survey, FAA.

A taxiway system can greatly improve the operational capacity of an airport, in addition to airfield safety. An airport will typically have one of four types of taxiway systems: full parallel, partial parallel, stub, or turnarounds at one or both runway ends. **Figure 3-4** depicts these types of taxiway systems, while **Figure 3-5** details the percentage of Kentucky airports that have each type of taxiway. Over half of the system airports (55 percent) have a full parallel taxiway, with an additional 19 percent having a partial parallel taxiway.

Figure 3-4
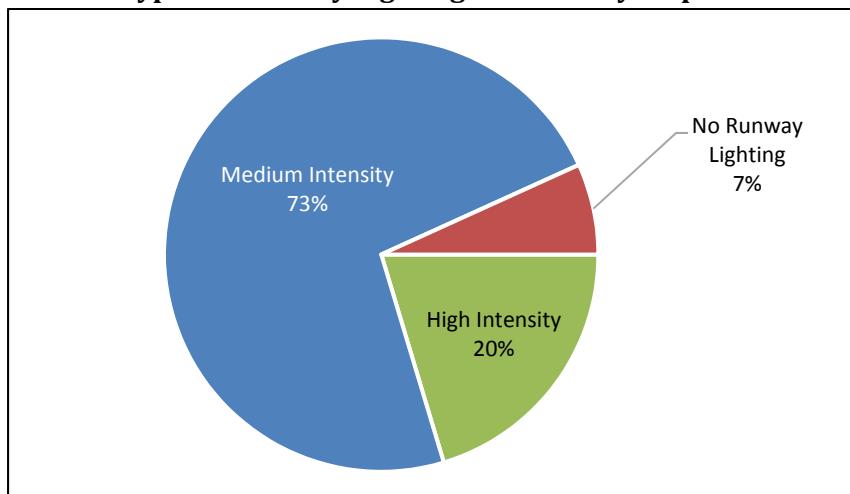**Types of Taxiway Systems**

Source: CDM Smith, FAA.

Figure 3-5
Types of Taxiway Systems at Kentucky Airports

Source: Airport Inventory and Data Survey.

Figure 3-6 provides a summary of airfield lighting at Kentucky airports. Runway and taxiway lighting comes in low, medium, and high intensity forms, and pilot-controlled lighting (PCL) is installed at many airports. A PCL system allows pilots to choose the intensity of airfield lighting depending on visibility, and typically allows the pilot to choose up to high intensity lighting. In total, 12 Kentucky airports have high intensity runway lighting and 43 have medium intensity runway lighting. Only four of the Commonwealth's 59 public-use airports do not have runway edge lighting. Of the 43 airports with a complete or partial parallel taxiway, 31 have a medium intensity taxiway lighting system, while six have high intensity taxiway lighting. Six of these airports do not have taxiway lighting.

Figure 3-6
Types of Runway Lighting at Kentucky Airports

Source: Airport Inventory and Data Survey, FAA.

Navigational Aids

Navigational Aids (NAVAIDs) are types of equipment that provide assistance to pilots during the enroute phase of a flight and on final approach, particularly during times of inclement weather. NAVAIDs allow for visual identification of runways and proper alignment with runway centerlines and approach paths, and also include items such as airport beacons and windsocks. Types of NAVAIDs in use at Kentucky public-use airports include the following:

- **Visual Glideslope Indicator (VGSI)** – Includes the precision approach path indicator (PAPI) and/or visual approach slope indicator (VASI). PAPI and VASI systems define a vertical approach path visually that allows pilots to correct their vertical approach if it is too low or too high for an ideal landing.
- **Runway End Identifier Lights (REILs)** – Allow pilots to identify the end of a runway threshold. REILs consist of high intensity strobe lights installed at each corner of a runway end.
- **Approach Lighting System (ALS)** – An ALS is a lighting system that extends outward from a runway end, consisting of light bars, strobe lights, or a combination of the two. An ALS is typically installed on runways with instrument approach capabilities to allow pilots to visually align with a runway while on approach. Types of ALS installed at Kentucky airports include the medium intensity approach lighting system with runway alignment indicator lights (MALSR), the approach lighting system configuration 2 (ALSF2), and the omni-directional approach lighting system (ODALS).
- **Rotating Beacon** – A rotating airport beacon indicates the location of an airport to pilots at times of decreased visibility, such as night or during inclement weather. Beacons rotate at a constant speed to produce the visual effect of a light flashing at regular intervals. Differing rates of flash and lighting color signify the type of airport or heliport.
- **Wind Indicator** – A wind cone indicates the wind direction and approximate speed at the airport. Many airports install wind cones that are lighted at night.
- **Segmented Circle** – A visual aid that identifies traffic patterns at airports that do not have an air traffic control tower (ATCT). A segmented circle is lighted at night to aid pilots performing under visual flight rules (VFR).
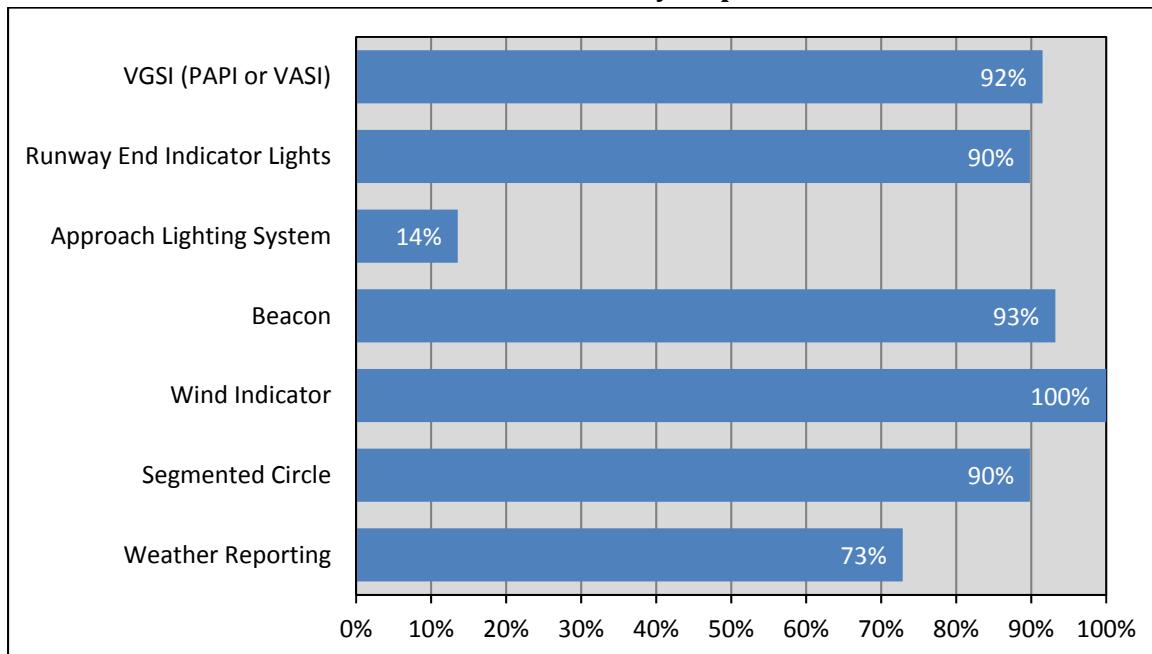
In addition to the above NAVAIDs, airports often install an automated weather reporting system to improve the safety and efficiency of operations. Such systems disseminate current, on-the-ground

weather information to pilots through an automated very high frequency (VHF) airband radio frequency. Types of automated weather reporting systems utilized at Kentucky airports include the following:

- **Automated Weather Observing System (AWOS)** – An AWOS unit typically updates weather condition reports every 20 minutes. Several variations of the AWOS are available, including the following:
  - **AWOS A** – Measures barometric air pressure and reports information required for proper altimeter setting.
  - **AWOS AV** – AWOS A capabilities plus visibility.
  - **AWOS I** – Reports wind speed and direction, wind gust, variable wind direction, temperature, dew point in Celsius, altimeter setting, and density altitude.
  - **AWOS II** – AWOS I capabilities plus visibility, variable visibility, and precipitation.
  - **AWOS III** – AWOS II capabilities plus sky condition and cloud height up to 12,000 feet. Further variations of the AWOS III add conditions such as present weather, precipitation identification, thunderstorm and lightning detection, freezing rain detection, and runway surface condition. Nearly all AWOS systems in Kentucky are a variation of the AWOS III.
- **Automated Surface Observing System (ASOS)** – An ASOS has comparable weather reporting capabilities to those of an AWOS III. Additionally, the ASOS reports dew point in Fahrenheit, present weather conditions, icing, lightning, sea level pressure, and precipitation accumulation.

Figure 3-7 indicates the percentage of airports that have installed each of these NAVAIDs and automated weather reporting systems. All 59 airports in the Kentucky system have a wind cone, while at least 90 percent have either a PAPI or VASI, an airport beacon, REILs, and a segmented circle. Seventy-three percent of the system has automated weather reporting. Specifically, 31 Kentucky airports have a type of AWOS III, 11 have an ASOS, and one airport has an AWOS AV.

Figure 3-7
NAVAIDs at Kentucky Airports

Source: Airport Inventory and Data Survey, FAA Form 5010.

Approach Capabilities

By having a published instrument approach procedure (IAP), an airport can greatly improve its operational safety and efficiency, especially during times of inclement weather and decreased visibility. An IAP enables a pilot to navigate without outside visual reference to a point close enough to the runway that visual contact can be made. IAP minimums are expressed in terms of cloud ceiling (feet) and visibility distance to the runway (miles). The more advanced the IAP technology, the lower these minimums, and the closer the aircraft can come to the runway without having to make visual contact.

The following details several types of instrument approaches in use today:

- **Instrument Landing System (ILS)** – A ground-based instrument approach system that provides precision vertical and horizontal guidance to an aircraft approaching a runway. An ILS uses a combination of radio signals and lighting arrays to enable a safe landing during less than ideal conditions. It is regarded as the best available IAP technology, although other technologies offering both horizontal and vertical guidance are rivalling the ILS in capability. There are three categories of ILS:
  - **CAT I** – Can provide navigational guidance to as low as 200 feet above ground level.
  - **CAT II** – Can provide navigational guidance to as low as 100 feet above ground level.
  - **CAT III** – Can provide navigational guidance to ground level.
- **Global Positioning System (GPS)** – The GPS allows an aircraft pilot to determine location to within a very small margin of error using time signals transmitted from satellites. At least three satellites are required to triangulate an aircraft's location. GPS landings can be corrected and enhanced through use of the Local Area Augmentation System (LAAS) and Wide Area Augmentation System (WAAS).
- **Area Navigation (RNAV)** – A method of navigation that allows an aircraft to choose any course within a network of navigation beacons. In conjunction with GPS and other navigational aids, RNAV commonly achieves capabilities almost in line with an ILS.
- **VHF Omni-directional Range (VOR)** – A type of radio navigation system for aircraft. VORs broadcast a VHF radio composite signal and data that allows the aircraft to determine a magnetic bearing from the station to the aircraft.
- **Distance Measuring Equipment (DME)** – Radio navigation technology that measures distance by measuring the time it takes a radio signal to travel from the DME to the aircraft. DMEs are often installed in conjunction with a VOR .
- **Localizer (LOC)** – One component of an ILS. The localizer provides runway centerline guidance to aircraft.
- **Non-directional Beacon (NDB)** – A radio transmitter at a known location, broadcasting in a non-directional pattern. NDBs are currently being phased out by the FAA in favor of less expensive GPS technology and approaches.
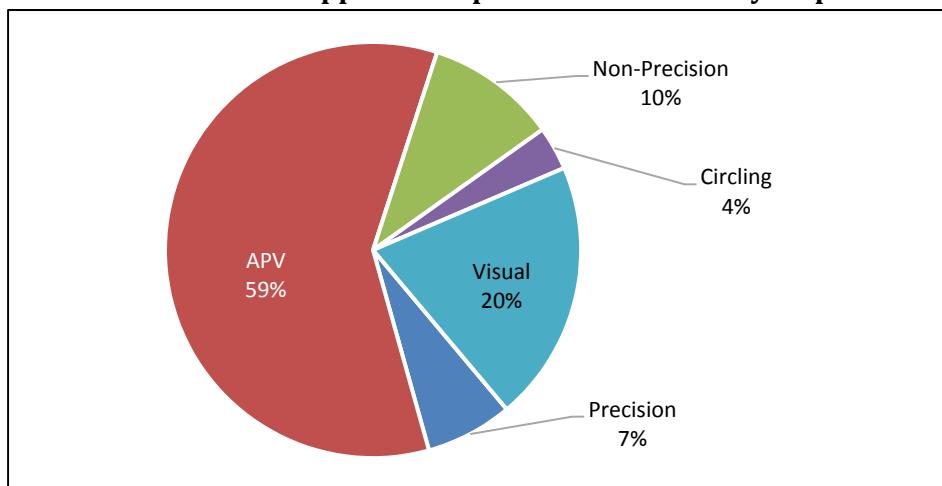
Published IAPs are typically categorized into the following groups: precision, approach with vertical guidance (APV), non-precision, and circling approaches. Airports that do not have an IAP are said to only have a visual approach. The following describes these approach categories in greater detail:

- **Precision Approach** – A precision IAP allows for very precise vertical and horizontal course guidance, allowing approaches and landing to occur during conditions of very low visibility and cloud ceilings. To be categorized as a precision approach, a published IAP must have a cloud ceiling no higher than 200 feet, and a visibility minimum no higher than 0.5 mile. A precision approach is most commonly achieved with an ILS, but it is possible for GPS approaches to achieve precision guidance.

- **Approach with Vertical Guidance (APV)** – Like a precision IAP, an APV has both lateral and vertical navigational assistance. In Kentucky, APVs are RNAV/GPS approaches, or in some cases, an ILS that lacks precision minimums.
- **Non-Precision Approach** – Some IAPs, typically those utilizing older technology, are designed to provide only course guidance to a runway. These non-precision approaches do not provide the vertical guidance provided by a precision approach or APV. A non-precision approach typically makes use of equipment such as a NDB, VOR, or DME.
- **Circling** – A circling IAP is used when a runway is not aligned within 30 degrees of the instrument approach course or the final approach requires at least 400 feet of descent per nautical mile, requiring some visual maneuvering of the aircraft. It is common for a circling approach to be used to land on an alternate runway than the runway having the instrument approach. A circling approach is more difficult and less safe than straight-in landing, requiring a pilot to maintain visual contact with the runway at all times.
- **Visual** – Any aircraft approach conducted without an IAP is a visual approach.

All five of these approach types are used at Kentucky's airports. Many airports have multiple IAPs published for their runway or runways. For the purposes of the SASP, each airport was asked to report the most advanced approach capabilities published for its runways, based on approach minimums. **Figure 3-8** summarizes these IAPs at Kentucky airports, showing the percentage of airports currently using each type of IAP as their most advanced approach. With over half of all airports (59 percent), an APV is the most utilized instrument approach at Kentucky airports, followed by non-precision approaches (10 percent) and precision approaches (7 percent). Currently, 20 percent of the Commonwealth's airports have only visual approach capabilities.

Figure 3-8
Best Instrument Approach Capabilities at Kentucky Airports

Source: Airport Instrument Approach Procedure charts, Airport Inventory and Data Survey.

Ongoing Statewide Obstruction Analysis

The SASP is but one element of a multi-tiered effort by KYTC to assess the performance and condition of the Kentucky airport system. In addition, KYTC is currently conducting the Statewide Airport Obstruction Analysis Report. This report catalogs approach obstructions at GA airports throughout Kentucky so that obstructions can be properly marked or eliminated altogether, improving the safety and efficiency of operations. Any questions concerning the Statewide Airport Obstruction Analysis Report should be directed to KYTC and the Kentucky Department of Aviation.

The Statewide Airport Obstruction Analysis Report is being conducted in three phases. Phases I and II have already been completed, with Phase III forthcoming. **Table 3-2** details airports included in Phases I and II of the Statewide Airport Obstruction Analysis Report.

Table 3-2
Airports Assessed in Phases I and II of the
Statewide Airport Obstruction Analysis Report

FAA ID	Associated City	Airport Name	Obstruction Analysis Phase
		Commercial Service	
BWG	Bowling Green	Bowling Green-Warren County Regional	Phase II
		General Aviation	
DWU	Ashland	Ashland Regional	Phase I
BRY	Bardstown	Samuels Field	Phase II
AAS	Campbellsville	Taylor County	Phase II
I96	Columbia	Columbia-Adair County	Phase II
0I8	Cynthiana	Cynthiana-Harrison County	Phase I
DVK	Danville	Stuart Powell Field	Phase II
EKX	Elizabethtown	Addington Field	Phase II
2I3	Falls of Rough	Rough River State Resort Park	Phase II
K62	Falmouth	Gene Snyder	Phase I
FGX	Flemingsburg	Fleming-Mason	Phase I
FFT	Frankfort	Capital City	Phase II
27K	Georgetown	Georgetown Scott County - Marshall Field	Phase I
GLW	Glasgow	Glasgow Municipal	Phase II
I93	Hardinsburg	Breckinridge County	Phase II
I35	Harlan	Tucker-Guthrie Memorial	Phase I
JQD	Hartford	Ohio County	Phase II
CPF	Hazard	Wendell H. Ford Regional	Phase I
JKL	Jackson	Julian Carroll	Phase I
K24	Jamestown	Russell County	Phase II
M20	Leitchfield	Grayson County	Phase II
LOZ	London	London-Corbin-Magee Field	Phase I
1A6	Middlesboro	Middlesboro-Bell County	Phase I
EKQ	Monticello	Wayne County	Phase II
SYM	Morehead	Morehead-Rowan County Clyde A. Thomas Regional	Phase I
IOB	Mount Sterling	Mount Sterling-Montgomery County	Phase I
PBX	Pikeville	Pikeville – Pike County Regional	Phase I
18I	Pine Knot	McCreary County	Phase II
SJS	Prestonsburg	Big Sandy Regional	Phase I
RGA	Richmond	Central Kentucky Regional	Phase I
4M7	Russellville	Russellville-Logan County	Phase II
SME	Somerset	Lake Cumberland Regional	Phase I
6I2	Springfield	Lebanon-Springfield	Phase II
I50	Stanton	Stanton-Powell County	Phase I
TZV	Tompkinsville	Tompkinsville-Monroe County	Phase II
9I3	West Liberty	West Liberty	Phase I
BYL	Williamsburg	Williamsburg-Whitley County	Phase I

Source: Kentucky Transportation Cabinet.

Landside Facilities

Landside facilities are those airport facilities that support aviation activities but are not directly involved in aircraft operations. Such facilities include all airport buildings such as control towers, terminals, hangars, aircraft aprons, and automobile parking. During the inventory effort, Kentucky airports were asked to provide details on these facilities, particularly providing details on the capacity and current occupancy of hangars and apron spaces.

Air Traffic Control Towers

The goal of air traffic control is to increase the efficiency of aircraft traffic, prevent collisions, and provide support to pilots. Six of Kentucky's 59 public-use airports have an air traffic control tower (ATCT). As shown in **Table 3-3**, these airports are Kentucky's five Commercial Service Airports and its one Reliever airport.

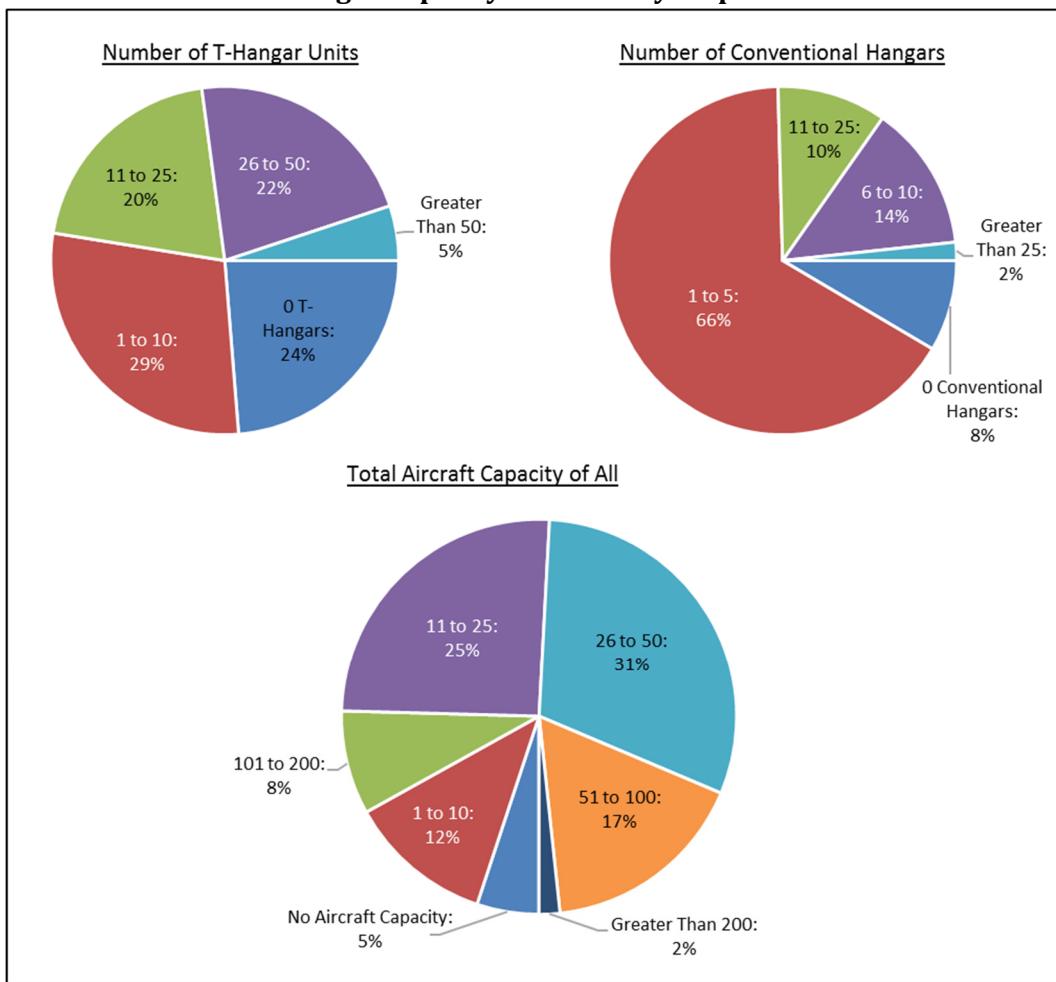**Table 3-3**
Kentucky Airports with an Air Traffic Control Tower

FAA ID	Associated City	Airport Name
Commercial Service		
CVG	Covington	Cincinnati/Northern Kentucky International
LEX	Lexington	Blue Grass
SDF	Louisville	Louisville International-Standiford Field
OWB	Owensboro	Owensboro-Daviess County Regional
PAH	Paducah	Barkley Regional
General Aviation		
LOU	Louisville	Bowman Field

Source: FAA.

Aircraft Hangars

Aircraft hangars are important for both overnight storage of transient aircraft and long-term storage of based aircraft. Airports were asked to report the number of T-hangar units (with each unit equaling space for one aircraft) and conventional (box) hangars that are on site, including an estimate of total aircraft capacity for these hangars. **Figure 3-9** summarizes hangar capacity at Kentucky airports. Nearly 30 percent of all Kentucky airports have between one and 10 T-hangar units, with an additional 20 percent having between 11 and 25. Meanwhile, 66 percent of the system reported having one to five conventional hangars, with an additional 14 percent reporting six to 10. In terms of total aircraft capacity, ranges varied significantly throughout the Commonwealth, with more than half of the Commonwealth's system airports reporting storage capacity for between 10 and 50 aircraft.

Figure 3-9
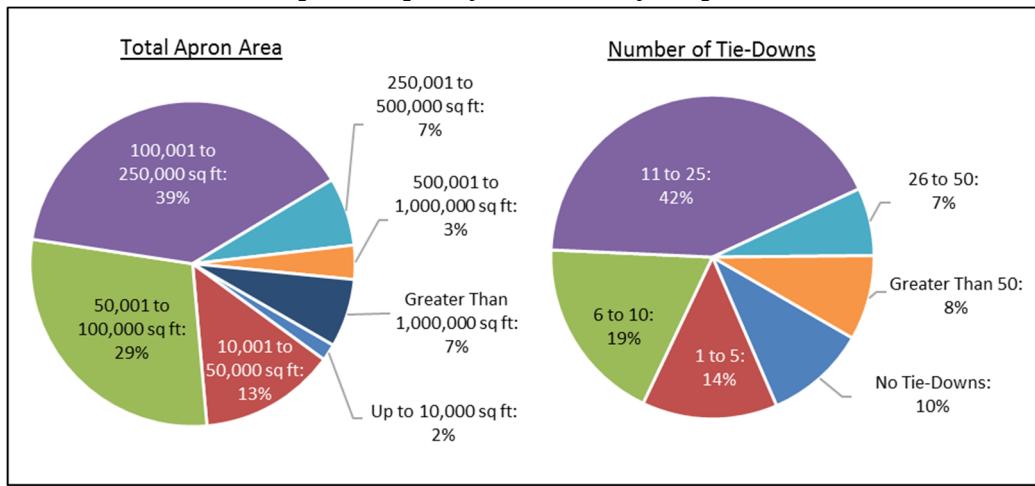**Hangar Capacity at Kentucky Airports**

Source: Airport Inventory and Data Survey, Google Maps.

Aircraft Aprons

An aircraft apron is a large, paved area set aside specifically for the parking of aircraft. Aprons often have tie-downs for securing parked aircraft. As part of the inventory effort, airports reported the total estimated area in square feet of their GA aprons in addition to their total number of tie-downs. **Figure 3-10** summarizes apron parking areas at Kentucky system airports. Nearly all airports in the Commonwealth have over 10,000 square feet of total apron space, with the majority having over 100,000 square feet. Likewise, most Kentucky airports have significant tie-downs for aircraft apron parking, with over half of the system having at least 10 tie-downs.

Figure 3-10
Apron Capacity at Kentucky Airports

Source: Airport Inventory and Data Survey, Google Maps.

GA Terminal

Not to be confused with a commercial passenger terminal, a GA terminal is a building that houses facilities and services catering to GA pilots and passengers. Such facilities and services may include public restrooms, pilot lounges and rest areas, showers, flight planning areas, conference rooms, catering, internet, and telephone. In total, 55 of 59 Kentucky system airports have a GA terminal, with 40 of these 55 airports having a conference room in their terminal building.

Aviation Services

The types and level of pilot and passenger services available at an airport can greatly influence the types of activities and aviation operations that typically occur. Airports that have a greater number and range of aviation services are better prepared to attract activities ranging from recreational flying to high-end business aviation. Many airport services, such as aircraft fueling, are provided by a fixed base operator (FBO), but may be provided by the airport sponsor as well. The following sections provide an overview of the types of pilot and passenger services that are available at Kentucky's public-use airports.
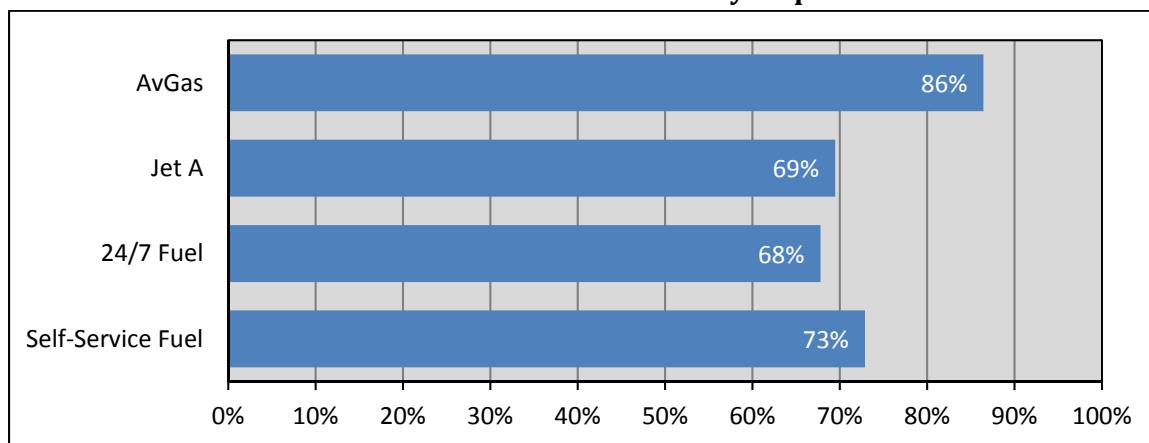
Ground Handling Services

Aircraft ground handling includes services provided to an aircraft or its passengers while the aircraft is parked at an airport. The most common and crucial ground handling service is aircraft fueling. Other services include aircraft deicing, oxygen, and an aircraft washrack.

The availability of aircraft fuel is one of the most basic services that an airport can provide its customers. Aircraft fuel not only helps to attract transient traffic to airports, but is important for the

retention of on-airport businesses. The primary types of fuel used in aircraft include 100LL avgas, used in piston engine aircraft, and Jet A, used in larger turbo-prop and jet aircraft. Fuel sales also represent an important source of revenue for airports, and in many cases the only regular source of revenue.

Figure 3-11 summarizes the percentage of airports in Kentucky that have avgas and/or Jet A fuel. Also included is the percentage of Kentucky airports that provide fuel service 24 hours a day, typically through a self-service credit card reader. With nearly all of the system airports (86 percent) offering avgas, 69 percent offering Jet A fuel, and 68 and 73 percent offering 24/7 and self-service fuel, Kentucky's GA customers have widespread access to fueling services. In addition, all airports that offer Jet A fuel also offer avgas.
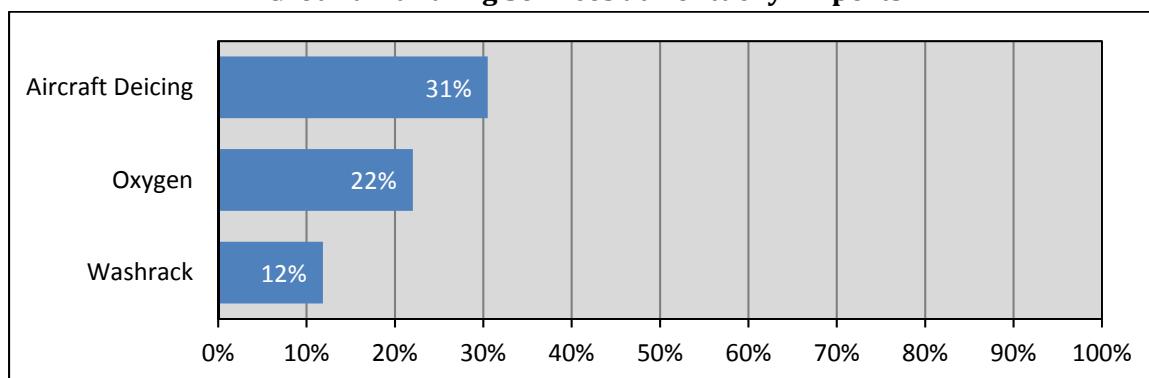
Figure 3-11
Aircraft Fuel Service at Kentucky Airports

Source: Airport Inventory and Data Survey.

Other ground handling services include deicing, aircraft oxygen, and a washrack. Aircraft deicing includes chemical deicing and simple radiant deicing in a heated hangar. **Figure 3-12** summarizes the percentage of Kentucky airports that have other ground handling services. Compared to fueling services, these other ground handling services are not nearly as available at Kentucky airports, with aircraft deicing services available at only 31 percent of the system, oxygen service available at only 22 percent, and an aircraft washrack available at only 10 percent of the system's airports.

Figure 3-12
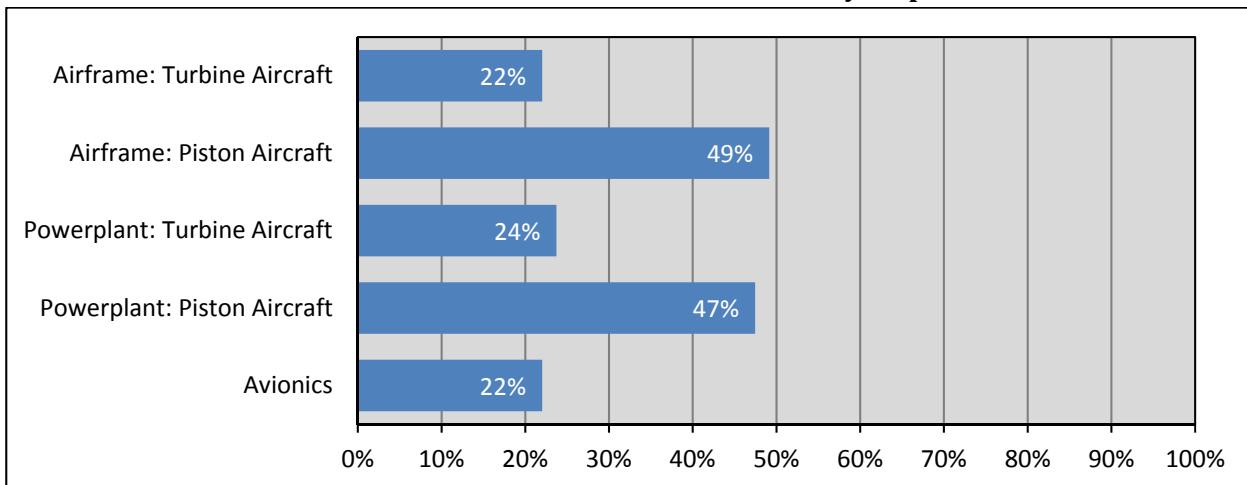**Ground Handling Services at Kentucky Airports**

Source: Airport Inventory and Data Survey.

Aircraft Maintenance

As part of the inventory effort, Kentucky airports were asked to report the presence of aircraft maintenance services at their facilities. Aircraft maintenance services may include powerplant, air frame, and avionics service, while repair shops may specialize in servicing piston or turbine aircraft. Additionally, robust aircraft maintenance services may attract transient activity as pilots search for the best services. **Figure 3-13** presents the percentage of Kentucky airports that offer various aircraft maintenance services. The most widely available aircraft maintenance services are for piston aircraft, with airframe service (49 percent of airports) and powerplant (47 percent) being the most common.

Figure 3-13
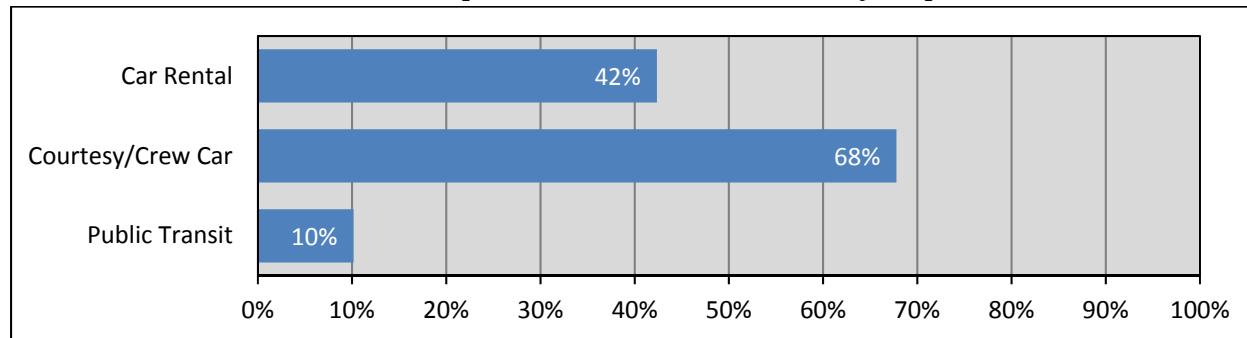**Aircraft Maintenance Services at Kentucky Airports**

Source: Airport Inventory and Data Survey.

Ground Transportation

Providing a link to ground transportation is another important service for an airport to offer. Most commercial service airports have on-site rental car businesses, but these businesses are also important at GA airports that serve large volumes of transient traffic. Many airports also offer courtesy rides to areas near the airport, and some have access to public transit. During the inventory effort, Kentucky airports were asked to report on the availability of these types of ground transportation. Over half of all system airports (68 percent) reported having a courtesy or crew car available, while 42 percent reported on-site rental car services.

Figure 3-14
Ground Transportation Services at Kentucky Airports

Source: Airport Inventory and Data Survey.
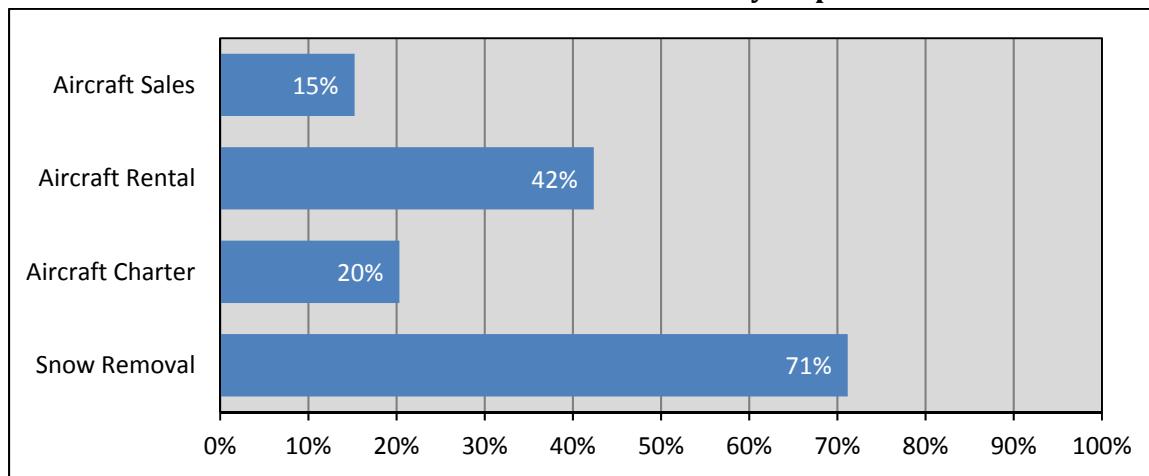
Based Flight Training

Based flight instruction involves a business or individual that is permanently based at an airport, as opposed to transient flight training operations. Based flight training may range from single-engine private pilot courses to courses specifically designed for commercial and specialty aircraft. In addition to training the next generation of pilots, based flight instruction can greatly increase aircraft operational activity, while also being a source of revenue for airports. Currently, 29 of 59 Kentucky airports report having based flight instruction.

Other Aviation Services

Other possible aviation services reported by Kentucky airports include aircraft sales, aircraft rental, and aircraft charter. Sales, rental, and charter of aircraft give pilots and passengers a full range of options when choosing their GA flight services. **Figure 3-15** summarizes the number of Kentucky airports that reported having these services available, with aircraft rental (42 percent) being the most common.

In addition to these services, Kentucky airports were asked to report the reliability of their snow removal services. While not a pilot or passenger service, reliable snow removal helps to ensure that airports stay open during times of inclement winter weather. Currently, 71 percent of Kentucky airports have some form of reliable snow removal service. Of these, 26 airports reported owning their snow removal equipment, while 16 reported having reliable off-site snow removal, such as service provided by the city or county.

Figure 3-15
Other Aviation Services at Kentucky Airports

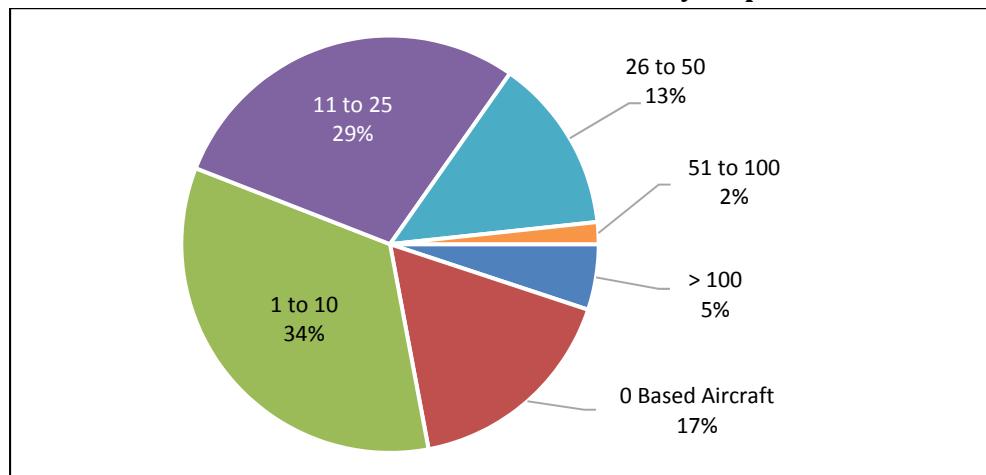Source: Airport Inventory and Data Survey.

Aviation Activity

The following sections provide a summary of aviation activity and based aircraft at Kentucky airports. Data collected from Kentucky airports and other sources includes both commercial and GA aircraft operations, total based aircraft, and commercial passenger enplanements. Note that operational counts at airports that do not have an ATCT are often educated guesses by airport officials. In addition to these statistics, the inventory survey effort asked Kentucky airports to report the frequency with which certain types of aviation activities take place. A summary of this data is also presented.

Based Aircraft

Figure 3-16 summarizes based aircraft in Kentucky. More than half of the system have 10 or fewer based aircraft, with 34 percent having 1 to 10, and 17 percent of the system having no based aircraft. Six system airports have over 100 based aircraft, with Louisville's Bowman Field having the most based aircraft by a wide margin with 290 reported.

Figure 3-16
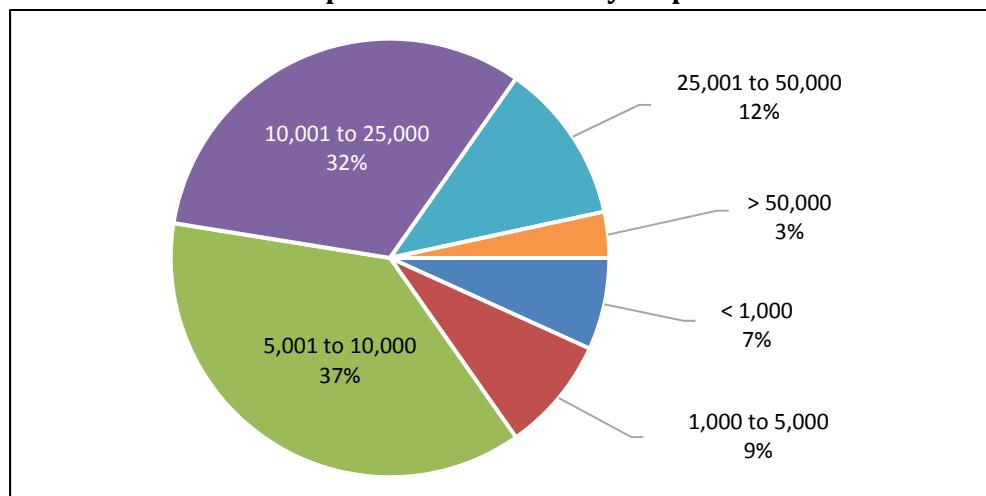**Number of Based Aircraft at Kentucky Airports**

Source: Airport Inventory and Data Survey, FAA Form 5010.

Operations and Enplanements

Figure 3-17 summarizes GA operations at Kentucky's 59 system airports, revealing a wide range of activity levels throughout the Commonwealth. In total, 37 percent of the system experiences between 5,000 and 10,000 annual operations and an additional 32 percent experiences between 10,000 and 25,000 annual operations.

Figure 3-17
GA Operations at Kentucky Airports

Source: Airport Inventory and Data Survey, FAA Form 5010.

Table 3-4 details commercial passenger service activity at Kentucky's five commercial service airports active during 2015. The most active commercial service airports in the state are Cincinnati/Northern Kentucky International Airport (3.1 million enplanements) and Louisville International Airport-Standiford Field (1.6 million enplanements). Because Bowling Green-Warren County Regional Airport did not resume commercial service activities until 2016, it has no activity to report for 2015.

Table 3-4
Commercial Operations and Passenger Enplanements at Kentucky Airports, 2015

FAA ID	Associated City	Airport Name	Passenger Enplanements	Commercial Operations
Commercial Service				
CVG	Covington	Cincinnati/Northern Kentucky International	3,160,248	126,939
LEX	Lexington	Blue Grass	623,242	28,987
SDF	Louisville	Louisville International-Standiford Field	1,679,095	138,968
OWB	Owensboro	Owensboro-Daviess County Regional	22,202	2,677
PAH	Paducah	Barkley Regional	21,027	4,146

Source: Airport Inventory and Data Survey, FAA Form 5010.

Types of Aviation Activity

Another part of the survey effort asked airport representatives to report the frequency with which their airports experience several types of aviation activity. Airports were asked to report if activities such as recreational flying and skydiving occurred daily, weekly, monthly, seasonally, or never. The results of this research reveal an airport system that is quite varied in the types of activities that are experienced. **Table 3-5** summarizes this data, presenting the number of airports that reported each activity and the frequency at which activities are reported. **Figure 3-18** summarizes the data by the total percentage of Kentucky airports that experience each activity, with the most common activities being corporate/business activities and recreational flying (93 and 92 percent of the system each), followed by military operations (86 percent), and emergency medical operations (85 percent).
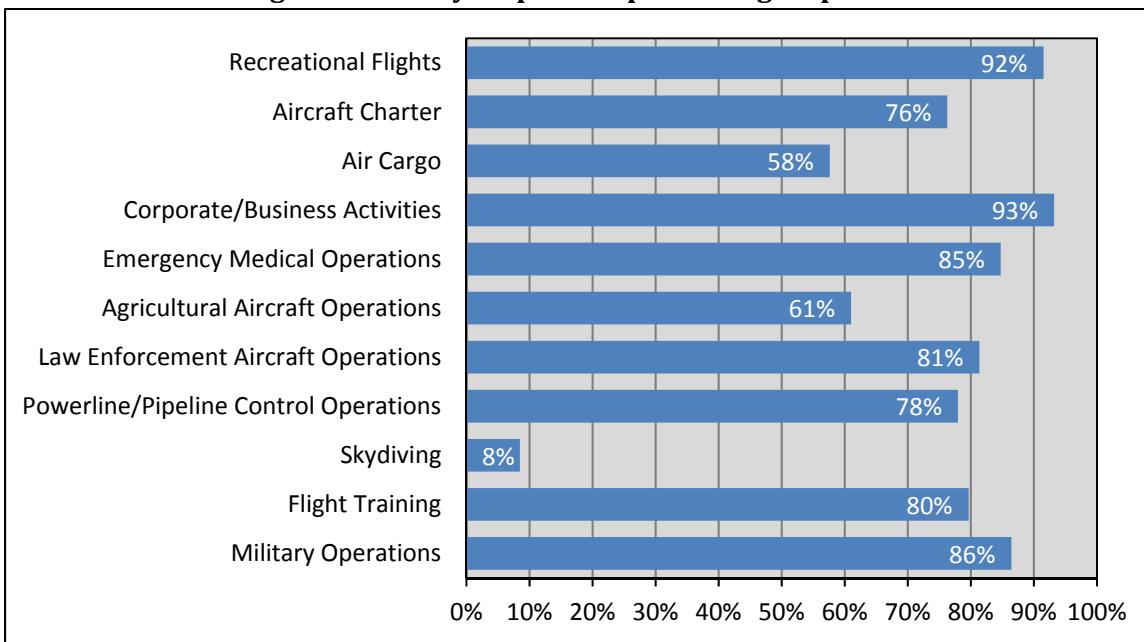
Table 3-5
Frequency of Airport Activities at Kentucky Airports

Aviation Activity	Number of Airports by Frequency				
	Daily	Weekly	Monthly	Seasonal	Never
Recreational Flights	46	7	1	0	3
Aircraft Charter	8	18	11	8	12
Air Cargo	4	3	15	12	23
Corporate/Business Activities	17	28	7	3	2
Emergency Medical Operations	18	10	17	5	7
Agricultural Aircraft Operations	1	0	1	34	21
Law Enforcement Aircraft Operations	5	2	13	28	9
Powerline/Pipeline Control Operations	4	9	15	18	11
Skydiving	1	0	0	4	52
Flight Training	20	21	3	3	10
Military Operations	9	21	9	12	6

Source: Airport Inventory and Data Survey.
Note: Not all airports were responsive to this section of the survey; totals may not sum to 59 airports.

Figure 3-18
Percentage of Kentucky Airports Experiencing Airport Activities
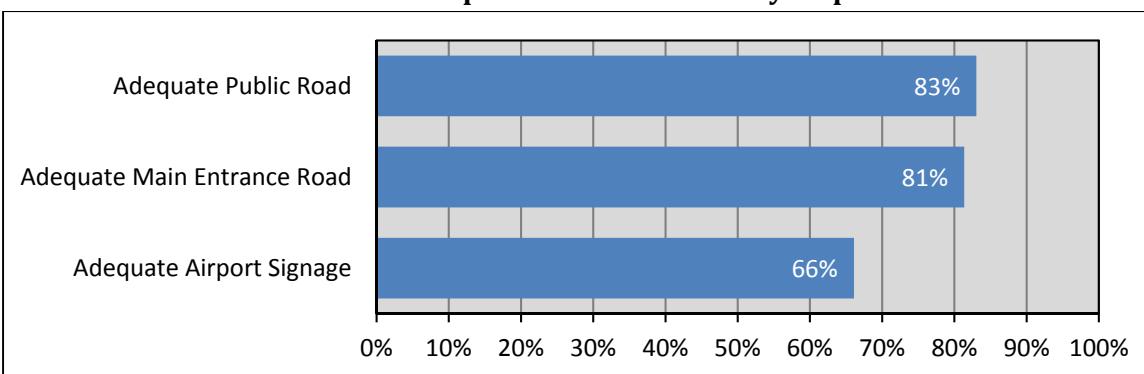

Source: Airport Inventory and Data Survey.

Access, Security, and Safety

Efficient and controlled access to airports is an important element of maintaining security, safety, and operational efficiency. During the inventory effort, airport representatives were asked to report on several elements of airport access, security, and safety. Efficient airport access includes adequate signage and wayfinding, an airport entrance road that is in good condition, and the main public road leading to the airport also being in adequate condition. **Figure 3-19** summarizes the percentage of Kentucky airports that reported having adequate signage and access roads. With 83 percent of system airports reporting that access and nearby public roads are adequate, roadway access to Kentucky airports is found to be largely a positive. In total, 66 percent of system airports reported adequate airport signage, revealing an area for improvement.

Figure 3-19
Elements of Airport Access at Kentucky Airports

Source: Airport Inventory and Data Survey.

One of the most crucial and effective facilities that an airport can install to improve security is access control to operating areas. This may come via keycard or keypad access to the airfield or otherwise locked doors that lead to sensitive areas. Controlled access should apply to all doors or road gates that lead to the airfield and operating areas. In total, 39 of 59 Kentucky system airports reported having some form of access control to airport operating areas.

Perimeter fencing is another important element of airport security, safety, and operational efficiency. Fencing is not only important to the safety and security of the airport itself, but also to the surrounding community and natural environment. Perimeter fencing helps to keep potential intruders from accessing the airport while also preventing wildlife from wandering onto the airfield. In total, 54 of 59 Kentucky system airports have perimeter fencing, with 35 having full perimeter fencing and an additional 19 having partial fencing.

In addition to access, safety, and security measures taken by Kentucky's airports, representatives were asked to report on current safety and security issues experienced at their airports. In total, 27 Kentucky airports reported having some form of safety or security concern, with specific concerns ranging from wildlife strikes by aircraft, wildlife on the airfield, the lack of proper security facilities, and safety risks caused by deteriorating airside facilities such as apron areas. Of these 27 airports, 23 reported that they have mitigation plans in place to combat these safety and security concerns.
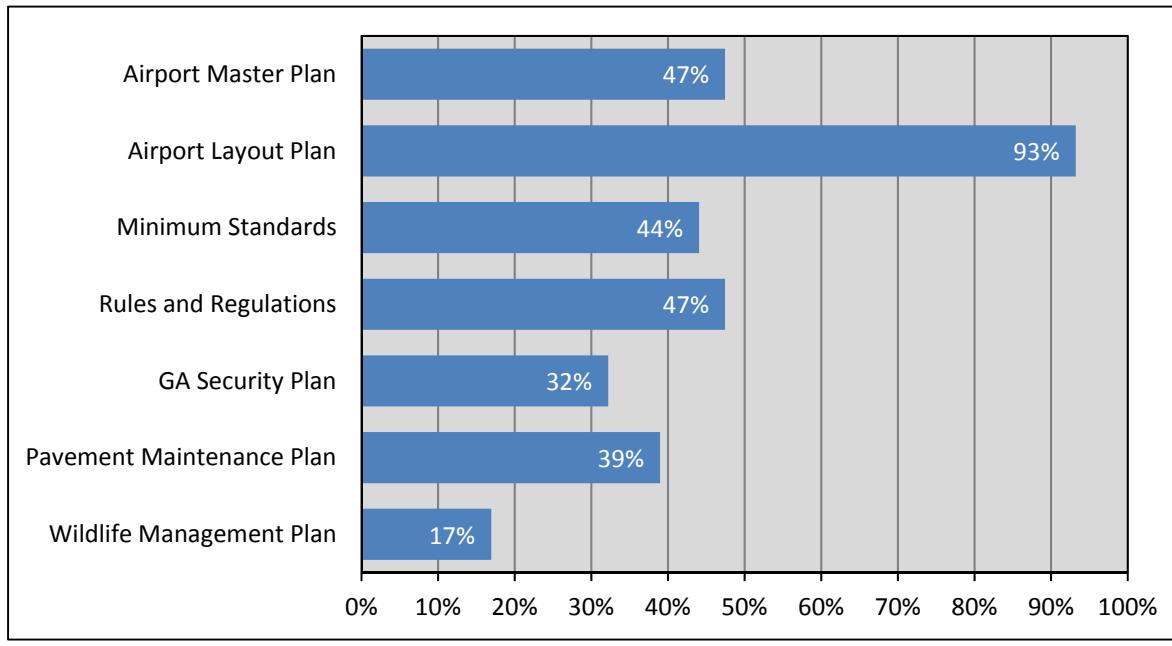
Plans, Studies, and Policies

An additional part of the inventory effort asked Kentucky airport representatives about the completion and adoption of various planning documents and policy manuals. Planning documents outline future development at airports, while policy manuals are written to help ensure operational safety and efficiency in addition to the safety and security of the surrounding community and natural environment. The types of plans and documents inventoried include the following:

- **Airport Master Plan** – A detailed plan specific to one airport, defining plans for long-term development, an airport's master plan aims to address all relevant issues and meet the airport's goals while adhering to all local, state, and federal regulations.
- **Airport Layout Plan (ALP)** – An ALP is a detailed engineer's drawing of the airport's airfield layout, NAVAIDs, buildings, and other facilities. An ALP is typically a component of an airport master plan, but may be updated independent of the master plan. In order for an airport to receive federal funding for a development project, that project must be included on the ALP.
- **Airport Minimum Standards Document** – Established by airport sponsors to create threshold criteria that must be met by any business wanting to provide commercial aeronautical services to the public at the airport. The development, updating, and enforcement of minimum standards can diminish complaints by potential or existing aviation businesses and assist in providing quality services to the airport users.
- **Airport Rules and Regulations Document** – The airport sponsor of a federally obligated airport is responsible for establishing airport rules and regulations for the safe operation of the airport. Airport operators, acting in their government capacity, may exercise their police powers to regulate the operation of their airports in order to protect the public safety, health, and welfare.
- **General Aviation Security Plan** – A plan containing the steps and measures to be taken to protect the airport. Security at airports includes ensuring only authorized access to aircraft operations areas, safeguarding aircraft, and preventing theft of property.
- **Airport Pavement Maintenance Plan** – A document outlining procedures for maintaining the quality and integrity of the airport's pavement, including runways, taxiways, and apron areas.
- **Wildlife Management Plan** – An airport's wildlife management plan identifies wildlife hazards and attractants that exist within the airport, establishes measures and procedures for wildlife

control and dispersal, and details procedures for communicating wildlife conditions between airport operations and pilots.

Figure 3-20 summarizes airport planning and policy documents at Kentucky system airports. The most common document reported was an ALP, which was reported by 93 percent of system airports.

Figure 3-20
Airport Planning and Policy Documents at Kentucky Airports

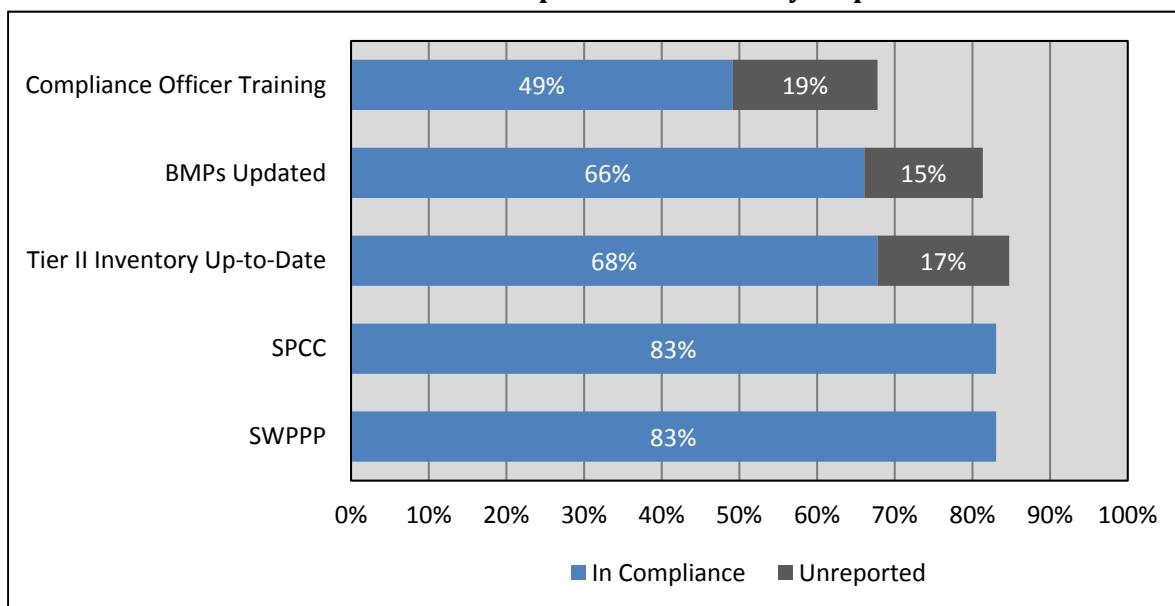Source: Airport Inventory and Data Survey.

Environmental Compliance

The survey effort of the SASP asked managers and sponsors of Kentucky airports about several aspects of environmental compliance. Specifically, representatives were asked to report if their dedicated environmental compliance officer's training was up to date as per the Kentucky Division of Water General Permit guidelines, and if the airport's Tier II inventory was up to date. Representatives were also asked about their airport's environmental Best Management Plans (BMPs), if BMPs had been updated per Division of Water General Permit guidelines. Finally, airports reported if they had adopted the following two types of environment-related planning and policy documents:

- **Spill Prevention, Control, Countermeasure Plan (SPCC)** – Required by the Environmental Protection Agency (EPA) to be implemented at certain facilities with above ground tanks, an SPCC aims to prevent oil discharges into navigable waters and adjoining shorelines.
- **Storm Water Pollution Prevention Plan (SWPPP)** – Also required by the EPA to be implemented at facilities that could potentially pollute storm water runoff, an SWPPP applies to everyday airport activities as well as construction.

Figure 3-21 summarizes the results of this section of the inventory effort. In total, over 80 percent of airports reported adopting a SPCC and SWPP, while over 60 percent reported updating BMPs and environmental compliance officer training to meet Division of Water requirements.

Figure 3-21
Environmental Compliance at Kentucky Airports

Source: Airport Inventory and Data Survey.

Airports were also asked to report the degree to which area wildlife was a concern. Specifically, 13 airport representatives reported that an airport had experienced a wildlife strike at their airport in the past five years, while a total of 22 airports reported that wildlife hazards are a common issue.

Summary

This chapter presented a summary of the results of the inventory effort conducted as part of the SASP. Kentucky's expansive system of public-use airports includes 59 total airports: six commercial service airports and 53 GA airports. Of these 59 system airports, 55 are included in the NPIAS. The following provides an overview of some of the more pertinent characteristics about the Kentucky airport system:

- Of Kentucky's 59 public-use airports, 34 have a primary runway that is at least 5,000 feet in length.
- Forty-three airports have a parallel taxiway, with 31 of these being a full parallel taxiway.
- Forty-six system airports have a published instrument approach procedure, including four airports with a precision approach and 35 with an APV.
- Kentucky's airports are equipped with a robust system of NAVAIDs: 54 airports have either a VASI or PAPI, 53 airports have REILs, eight airports have an approach lighting system, 55 airports have a beacon, and 53 airports have a segmented circle.
- Forty-three system airports have an on-site weather reporting system such as an AWOS or ASOS.
- Jet A fuel is available at 41 system airports, while avgas is available at 51 system airports.
- Kentucky system airports offer a wide variety of pilot and passenger services, including aircraft maintenance (available at 31 airports), car rental, (25 airports), and courtesy/crew car service (40 airports), among others.
- In 2015, Kentucky airports were home to over 1,700 based aircraft and handled nearly 850,000 annual GA operations. In addition, 2015 commercial activity in the state included over 300,000 commercial service operations and over 5.5 million passenger enplanements.

- Kentucky airports experience a wide range of GA activities, with the most frequently reported activities being recreational flying (54 airports), corporate/business activity (54 airports), and military operations (51 airports).

This data will serve as the foundation of all subsequent steps of the SASP, including forecasting, system stratification, benchmark analysis, and recommendations.