Chapter 2
Aviation Demand Forecasts

The definition of demand that may reasonably be expected to occur during the useful life of an airport's key components (e.g., runways, taxiways, terminal buildings, etc.) is an important factor in facility planning. In airport master planning, this involves projecting potential aviation activity for at least a 20-year timeframe. Aviation demand forecasting for Phillipsburg Municipal Airport (PHG) primarily considers based aircraft, aircraft operations, peak activity periods, and critical aircraft.

The Federal Aviation Administration (FAA) has oversight responsibility to review and approve aviation forecasts developed in conjunction with airport planning studies. The FAA reviews individual airport forecasts with the objective of comparing them to its *Terminal Area Forecast* (TAF) and the *National Plan of Integrated Airport Systems* (NPIAS). Even though the TAF is updated annually, there has almost always been a disparity between the TAF and master planning forecasts, primarily because the TAF forecasts are the result of a top-down model that does not consider local conditions or recent trends. While the TAF forecasts are a point of comparison for master plan forecasts, they serve other purposes, such as asset allocation by the FAA.

When reviewing a sponsor's forecast from an airport master plan, the FAA must ensure that the forecast is based on reasonable planning assumptions, uses current data, and is developed using appropriate forecasting methods. According to the FAA, forecasts should be:

- Realistic;
- Based on the latest available data;
- Reflective of current conditions at the airport, as a baseline;
- Supported by information in the study; and
- Able to provide adequate justification for airport planning and development.

The forecasting process for an airport master plan involves a series of basic steps that vary in complexity, depending on the issues to be addressed and the level of effort required. The steps include a review of previous forecasts, determination of data needs, identification of data sources, collection of data, selection of forecast methods, preparation of the forecasts, and documentation and evaluation of the results. FAA Advisory Circular (AC) 150/5070-6B, *Airport Master Plans*, outlines seven standard steps involved in the forecasting process:

1. **Identify Aviation Activity Measures**: Determine the levels and types of aviation activities likely to impact facility needs. For general aviation, these typically include based aircraft and operations.
2. **Review Previous Airport Forecasts**: Sources may include the FAA *Terminal Area Forecast*, state or regional system plans, and previous master plans.
3. **Gather Data**: Determine what data are required to prepare the forecasts, identify data sources, and collect historical and forecast data.
4. **Select Forecast Methods**: Several appropriate methodologies and techniques are available, including regression analysis, trend analysis, market share or ratio analysis, exponential smoothing, econometric modeling, comparison with other airports, survey techniques, cohort analysis, choice and distribution models, range projections, and professional judgment.
5. **Apply Forecast Methods and Evaluate Results**: Prepare the actual forecasts and evaluate them for reasonableness.
6. **Summarize and Document Results**: Provide supporting text and tables, as necessary.
7. **Compare Forecast Results with FAA's TAF**: Based aircraft and total operations forecasts are considered consistent with the TAF if they meet one of the following criteria:
   - The forecasts differ by less than 10 percent in the five-year forecast period and less than 15 percent in the 10-year forecast period, or
   - The forecasts do not affect the timing or scale of an airport project, or
   - The forecasts do not affect the role of the airport, as defined in the current version of FAA Order 5090.5, *Field Formulation of the National Plan of Integrated Airport Systems (NPIAS) and the Airports Capital Improvement Plan (ACIP)*.

Aviation activity can be affected by many influences on the local, regional, and national levels, making it virtually impossible to predict year-to-year fluctuations of activity over 20 years with certainty; therefore, it is important to remember that forecasts are intended to serve only as guidelines, and planning must remain flexible enough to respond to a range of unforeseen developments.

The following forecast analysis for the airport was produced following these basic guidelines. Existing forecasts are examined and compared against current and historical activity. The historical aviation activity is then examined, along with other factors and trends that can affect demand. The intent is to provide an updated set of aviation demand projections for the airport that will enable airport management to make planning adjustments, as necessary, to maintain a viable, efficient, and cost-effective facility.

The forecasts for this master plan will utilize a base year of 2024 with a long-range forecast out to 2044.

NATIONAL AVIATION TRENDS

Each year, the FAA updates and publishes a national aviation forecast. Included in this publication are forecasts for large air carriers, regional/commuter air carriers, general aviation, and FAA workload measures. The forecasts are prepared to meet the budget and planning needs of the FAA and provide information that can be used by state and local authorities, the aviation industry, and the general public. The current edition upon preparation of this chapter was the *FAA Aerospace Forecast – Fiscal Years* (FY) *2024-2044*, which was published in April 2024. The FAA primarily uses the economic performance of the United States as an indicator of future aviation industry growth. Similar economic analyses are applied to the outlook for aviation growth in international markets. The following discussion is summarized from the *FAA Aerospace Forecast*.

The U.S. commercial air carrier industry experienced a decade of relative stability that extended from the end of the great recession in 2009 through the emergence of COVID-19 in 2020. During that period, U.S. airlines revamped their business models to minimize losses by lowering operating costs, eliminating unprofitable routes, and grounding older, less fuel-efficient aircraft. To increase operating revenues, carriers initiated new services that customers were willing to purchase and started charging separately for services that were historically bundled in the price of a ticket. The results of these efforts were impressive: 2019 marked the eleventh consecutive year of profitability for the U.S. airline industry.

The COVID-19 pandemic in 2020 effectively ended those boom years. Airline activity and profitability plummeted almost overnight; in response, airlines cut capacity and costs, and most were able to weather the storm. Some small regional carriers ceased operations as a result of the pandemic, but no mainline carriers did. Some segments of aviation were less impacted: cargo activity surged, boosted by consumer purchases, and general aviation generally maintained pre-pandemic levels of activity. In 2022, demand for leisure travel destinations surged domestically and in the Latin America region. By 2023, a wider array of accessible destinations opened, and travelers responded by seeking flights across the Atlantic and to some Pacific markets, while domestic and Latin America market activity remained consistent. As carriers worked to assess shifting passenger preferences and supply response, the overall level of demand supported the industry's aggregate results. Consumer demand for experiences over goods continued to drive the demand for leisure trips and a willingness to pay higher fares that exceeded 2019 levels; the strong overall demand led to positive financial results. The top eight U.S. passenger carriers posted operating and net profits, proving strong success for the new business models air carriers have utilized while transitioning out of the pandemic years.

The business changes airlines implemented due to the pandemic will shape the industry long after recovery is complete. Airlines have retired older, less fuel-efficient aircraft and encouraged voluntary employee separations. These actions have led to airlines seeking newer aircraft investments while meeting the current demand for the rebuilding of business and international travel, which have lagged behind leisure traffic during the recovery. Furthermore, trade tensions that emerged during the COVID-19 pandemic have slowed some international traffic. There is confidence that U.S. airlines can generate solid returns on capital and sustained profits; however, aviation demand will be driven by economic activity over the long term as the growing U.S. and world economies provide the basis for aviation growth.

ECONOMIC ENVIRONMENT

According to the FAA forecast, the annual gross domestic product (GDP) of the U.S. is expected to increase by 1.7 percent over the next 20 years. U.S. carriers posted profits in 2023, and the FAA expects carriers to remain profitable over the next few years as demand rises, despite higher fares, which offset the raised labor and fuel costs. As yields stabilize and carriers return to levels of capacity consistent with their fixed costs and shed excess debt, consistent profitability should continue. Over the long term, a competitive and profitable aviation industry is anticipated, characterized by increasing demand for air travel and airfares growing more slowly than overall inflation, reflecting growing U.S. and global economies.

Prior to the COVID-19 pandemic, the U.S. economy was recovering from the most serious economic downturn and slow recovery since the Great Depression. Demand for aviation is fundamentally driven by economic activity; as economic growth picks up, so does growth in aviation activity. Overall, the FAA forecast calls for annual passenger growth over the next 20 years to average 2.5 percent. Oil prices surged to $93 per barrel in 2022, largely due to the Russian invasion of Ukraine, after averaging $55 per barrel over the five-year period from 2016 to 2021. Prices are forecast to remain consistent over the next few years before climbing slowly to reach $107 per barrel by 2044.

FAA GENERAL AVIATION FORECASTS

The long-term outlook for general aviation is promising, as growth at the high end of the segment offsets continuing retirements at the traditional low end. The active general aviation fleet is forecast to remain relatively stable, increasing by just 0.4 percent between 2024 and 2044. While steady growth in GDP and corporate profits results in continued growth of the turbine and rotorcraft fleets, the largest segment of the fleet, fixed-wing piston aircraft, continues to shrink over the forecast period.

The FAA forecasts the fleet mix and hours flown for single-engine piston (SEP) aircraft; multi-engine piston (MEP) aircraft; turboprops; business jets; piston and turbine helicopters; and light sport, experimental, and other aircraft (e.g., gliders and balloons). The FAA forecasts active aircraft, not total aircraft; an active aircraft is one that is flown at least one hour during the year. From 2010 through 2013, the FAA undertook an effort to have all aircraft owners re-register their aircraft. This effort resulted in a 10.5 percent decrease in the number of active general aviation aircraft, mostly in the piston category. **Table 2A** shows the primary general aviation demand indicators, as forecasted by the FAA.

TABLE 2A | FAA General Aviation Forecast

Demand Indicator	2024	2044	CAGR
General Aviation Fleet			
Total Fixed-Wing Piston	136,485	130,790	-0.2%
Total Fixed-Wing Turbine	27,905	41,580	2.0%
Total Helicopters	10,090	14,025	1.7%
Total Other (Experimental, Light Sport, etc.)	31,100	37,810	1.0%
Total General Aviation Fleet:	**210,105**	**228,975**	**0.4%**
General Aviation Operations			
Local	15,900,000	17,571,000	0.5%
Itinerant	15,125,000	16,569,000	0.5%
Total General Aviation Operations:	**31,026,000**	**34,140,000**	**0.5%**

CAGR = compound annual growth rate (2024-2044)

Source: FAA Aerospace Forecast – FY 2024-2044

General Aviation Fleet Mix

For 2024, the FAA estimates there are 136,485 piston-powered fixed-wing aircraft in the national fleet. That number is forecast to decline by 0.2 percent by 2044, resulting in 130,790 aircraft. This includes a decline of 0.2 percent in SEP aircraft and a decline of 0.3 percent in MEP aircraft.

Total turbine aircraft are forecast to grow at an annual rate of 2.0 percent through 2044. The FAA estimates there are 27,905 turbine-powered fixed-wing aircraft in the national fleet in 2024 and there will be 41,580 by 2044. Turboprops are forecast to grow by 1.0 percent annually, while business jets are projected to grow by 2.6 percent annually through 2044.

Total helicopters are projected to grow by 1.7 percent annually in the forecast period. There are an estimated 10,090 total helicopters in the national fleet in 2024, and that number is expected to grow to a total of 14,025 by 2044. This includes annual growth rates of 0.8 percent for piston helicopters and 2.0 percent for turbine helicopters.

The FAA also forecasts experimental aircraft, light sport aircraft (LSA), and others. Combined, there are an estimated 31,100 other aircraft in 2024, which are forecast to grow to 37,810 by 2044 at an annual growth rate of 1.0 percent.

General Aviation Operations

The FAA also forecasts total operations, based on activity at airport traffic control towers across the United States. Operations are categorized as air carrier, air taxi/commuter, general aviation, and military. While the fleet size remains relatively level, the number of general aviation operations at towered airports is projected to increase from 31.0 million in 2024 to 34.1 million in 2044, with an average increase of 0.5 percent per year as growth in turbine, rotorcraft, and experimental hours offsets a decline in fixed-wing piston hours. This includes annual growth rates of 0.5 percent for local general aviation operations and 0.5 percent for itinerant general aviation operations. **Exhibit 2A** presents the historical and forecast U.S. active general aviation aircraft and operations.

General Aviation Aircraft Shipments and Revenue

On an annual basis, the General Aviation Manufacturers Association (GAMA) publishes an aviation industry outlook that documents past and current trends and provides an assessment of the future condition of the general aviation industry. **Table 2B** presents historical data related to general aviation aircraft shipments.

Worldwide shipments of general aviation airplanes increased in 2023. A total of 3,050 units were delivered around the globe, compared to 2,813 units in 2022 – the third year in a row to experience an increase after the drop during 2020, when only 2,408 units were delivered. Worldwide general aviation billings were highest in 2014. In 2022, an increase in new aircraft shipments generated more than $23 billion, compared to $22.7 billion in the previous year. North America continues to be the largest market for general aviation aircraft and leads in the manufacturing of piston, turboprop, and jet aircraft. Europe is the second largest market for all aircraft categories, while Latin America follows Europe closely in the turboprop market.

TABLE 2B | Annual General Aviation Airplane Shipments – Manufactured Worldwide and Factory Net Billings

Year	Total	SEP	MEP	TP	J	Net Billings ($ million)
2003	2,686	1,825	71	272	518	9,998
2004	2,962	1,999	52	319	592	12,093
2005	3,590	2,326	139	375	750	15,156
2006	4,054	2,513	242	412	887	18,815
2007	4,277	2,417	258	465	1,137	21,837
2008	3,974	1,943	176	538	1,317	24,846
2009	2,283	893	70	446	874	19,474
2010	2,024	781	108	368	767	19,715
2011	2,120	761	137	526	696	19,042
2012	2,164	817	91	584	672	18,895
2013	2,353	908	122	645	678	23,450
2014	2,454	986	143	603	722	24,499
2015	2,331	946	110	557	718	24,129
2016	2,268	890	129	582	667	21,092
2017	2,324	936	149	563	676	20,197
2018	2,441	952	185	601	703	20,515
2019	2,658	1,111	213	525	809	23,515
2020	2,408	1,164	157	443	644	20,048
2021	2,646	1,261	148	527	710	21,603
2022	2,813	1,361	158	582	712	22,866
2023	3,050	1,508	174	638	730	23,378

SEP = single-engine piston
MEP = multi-engine piston
TP = turboprop
J = jet

Source: General Aviation Manufacturers Association (GAMA) 2023 Quarterly Shipments and Billings

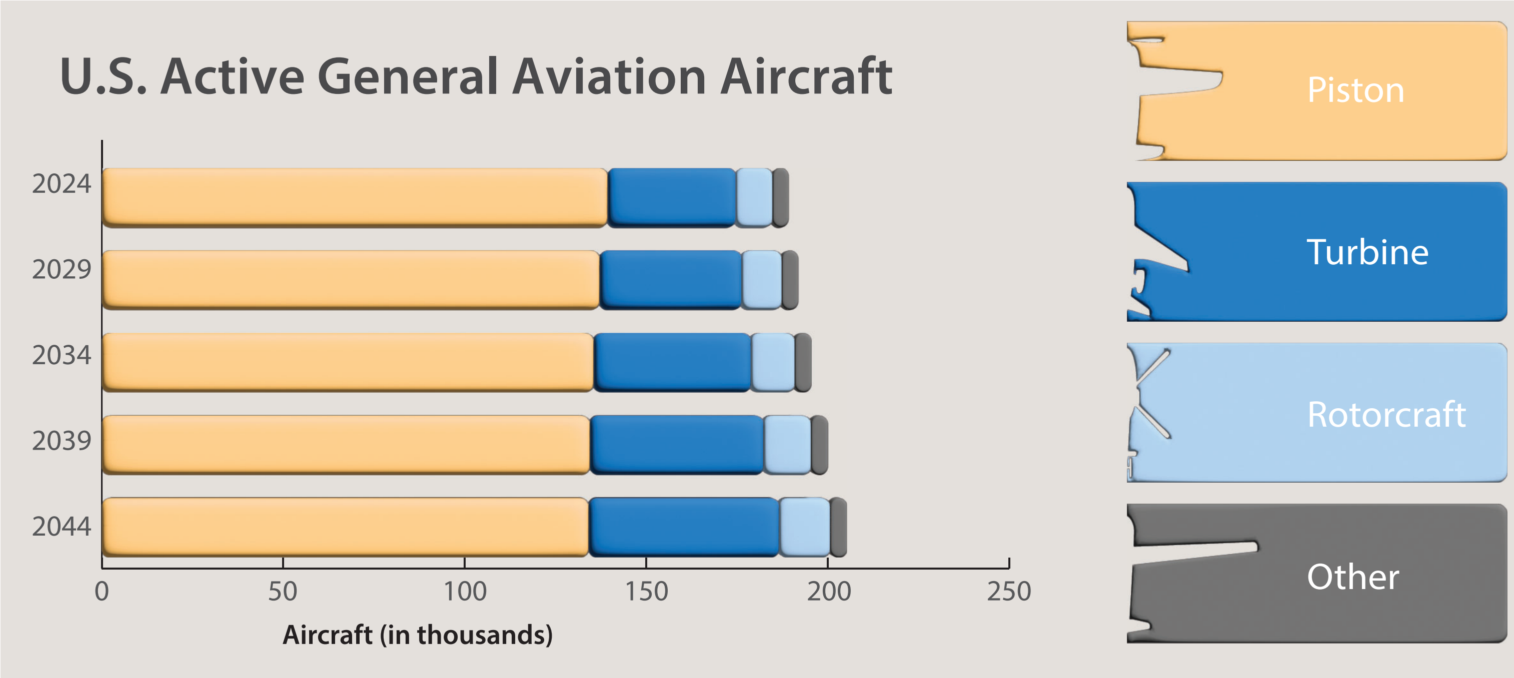
- *Business Jets* | Business jet deliveries increased from 712 units in 2022 to 730 units in 2023. The North America market accounted for 74.9 percent of business jet deliveries, which is a 7.3 percent increase in market share compared to 2022.

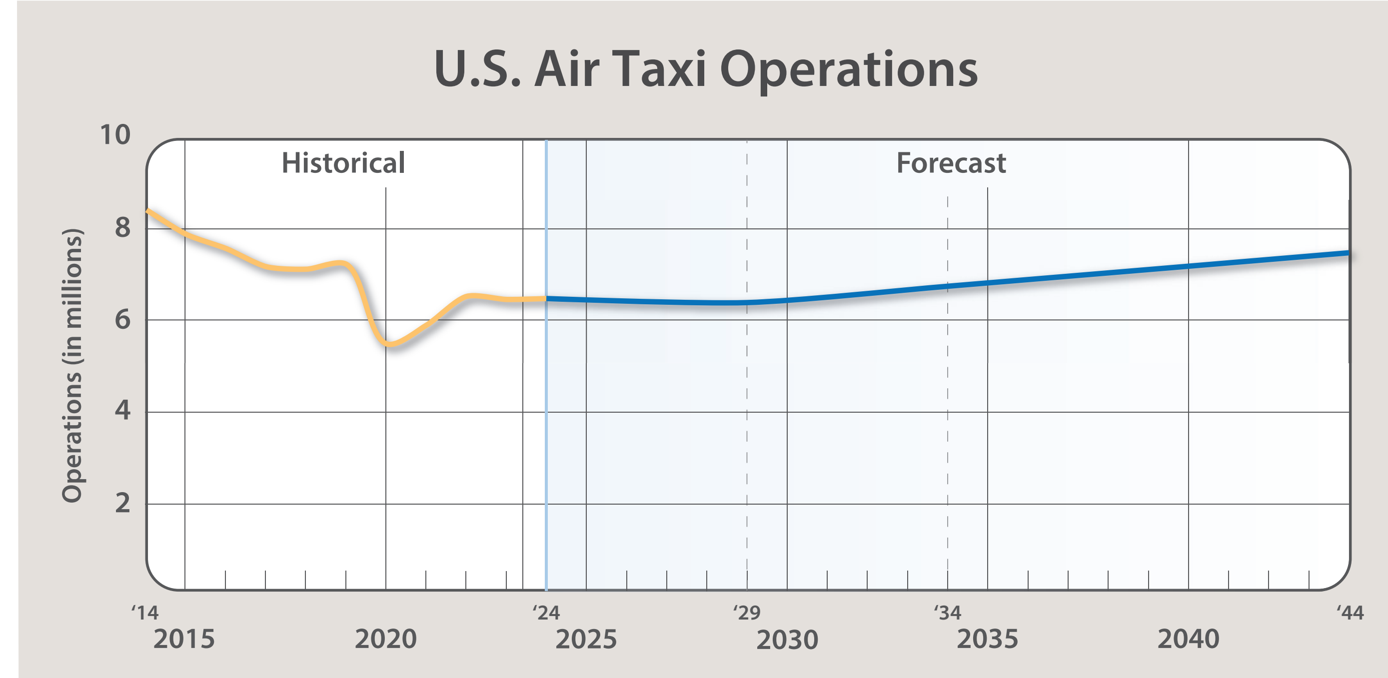
- *Turboprops* | Turboprop shipments increased from 582 in 2022 to 638 in 2023. North America's market share of turboprop aircraft decreased by 2.1 percent in the last year. The Europe, Middle East, and Africa market shares increased, while the Asia-Pacific and Latin America market shares decreased.

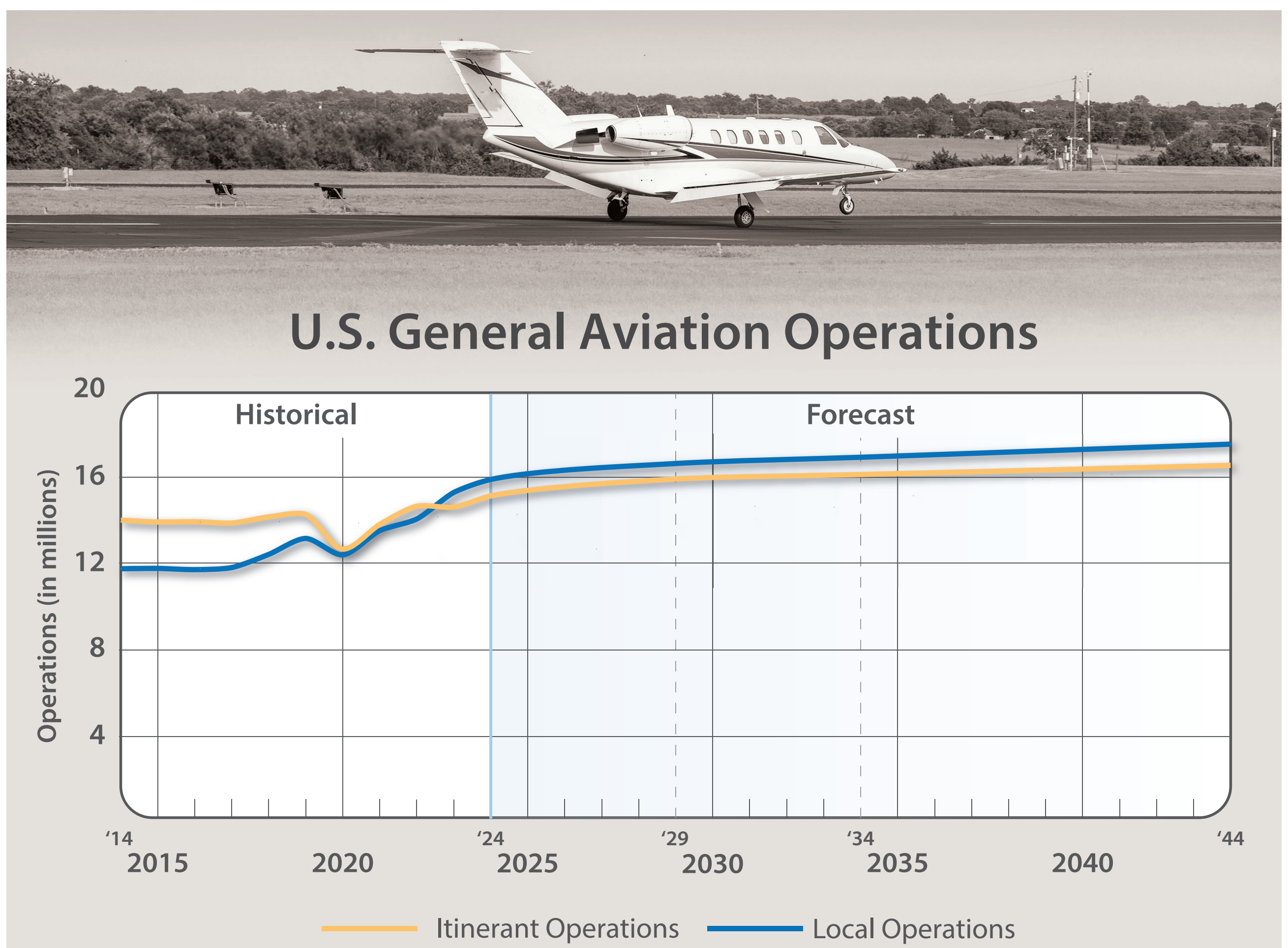
- *Pistons* | In 2023, piston airplane shipments increased to 1,682 units from 1,519 units in the prior year. North America's market share of piston aircraft deliveries rose 7.2 percent from the year 2022. The European, Latin American, Middle East, and Africa regions experienced a positive rate in market shares during the past year, while the Asia-Pacific market saw a decline.

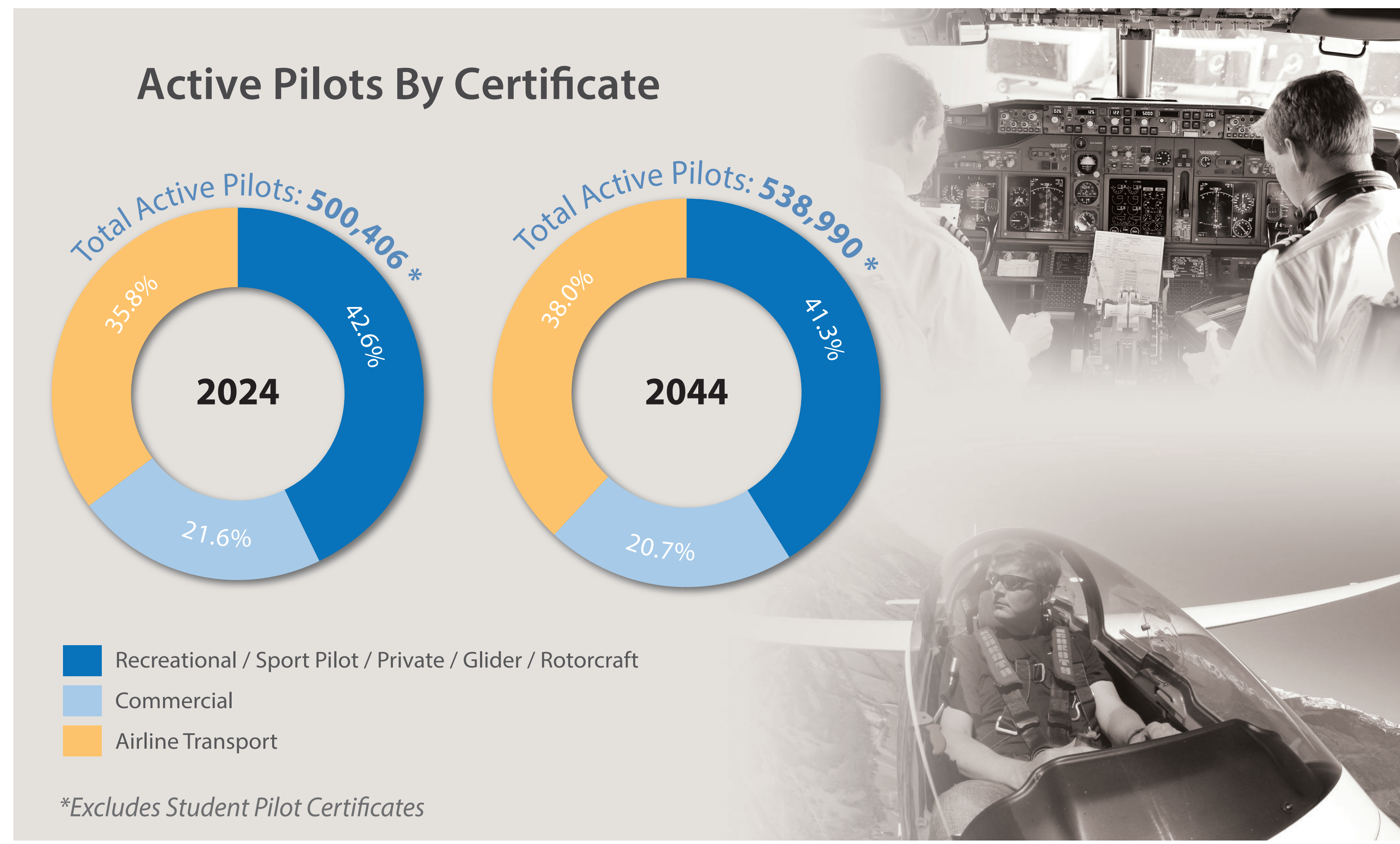
U.S. PILOT POPULATION

There were 490,470 active pilots certificated by the FAA at the end of 2023 and 500,406 active pilots are projected in 2024. All pilot categories, except private and recreational-only certificates, are expected to continue to increase for the forecast length. Excluding student pilots, the number of active pilots is projected to increase by about 38,584 (up 0.4 percent annually) between 2024 and 2044.









Source: FAA Aerospace Forecasts FY2024-2044

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The airline transport pilot (ATP) category is forecast to increase by 25,800 (up 0.7 percent annually). Sport pilots are predicted to increase by 2.4 percent, commercial pilots should remain steady over the forecast period, and private pilot certificates are projected to decrease at an average annual rate of 0.1 percent through 2044. The FAA has currently suspended the student pilot forecast.

RISKS TO THE FORECAST

While the FAA is confident its forecasts for aviation demand and activity can be reached, they are dependent on several factors, including the strength of the global economy, security (including the threat of international terrorism), the changing geopolitical landscape, and oil prices. Higher oil prices could lead to further shifts in consumer spending away from aviation, dampening a recovery in air transport demand. The COVID-19 pandemic introduced a new risk, and although the industry has rebounded, the threat of future global health emergencies and potential economic fallout remains.

AIRPORT SERVICE AREA

The initial step in determining the aviation demand for an airport is to define its generalized service area for various segments of aviation. The service area is determined primarily by evaluating the locations of competing airports and their capabilities, services, and relative attraction and convenience. In determining the aviation demand for an airport, it is necessary to identify the role of the airport, as well as the specific areas of aviation demand the airport is intended to serve. Phillipsburg Municipal Airport is classified as a Basic General Aviation (GA) airport within the NPIAS, which means its primary role is to support GA activity and provide the community with access to local and regional markets. Within the 2016 *Kansas Aviation System Plan*, PHG is classified as a GA Business airport, which means its role is to accommodate local business activities and GA users. General aviation includes all segments of the aviation industry, except commercial air carriers and the military. GA is the largest component of the national aviation system and includes activities such as pilot training, recreational flying, and the use of sophisticated turboprop and jet aircraft for business and corporate use.

The service area for an airport is a geographic region from which an airport can be expected to attract the largest share of its activity. The definition of the service area can then be used to identify other factors (such as socioeconomic and demographic trends) that influence aviation demand at the airport. Aviation demand is impacted by the proximity of competing airports, the surface transportation network, and the strength of general aviation services provided by an airport and competing airports.

As in any business enterprise, the more attractive the facility is in terms of service and capabilities, the more competitive it will be in the market. If an airport's attractiveness increases in relation to nearby airports, so will the size of its service area. If its facilities and services are adequate and/or competitive, some level of aviation activity might be attracted to the airport from more distant locales.

As a Basic GA airport within the NPIAS, Phillipsburg Municipal Airport's service area is driven by aircraft owners/operators and where they choose to base their aircraft. The primary consideration of aircraft owners/operators when choosing where to base their aircraft is convenience (i.e., easy access and proximity to the airport). As a general rule, an airport's service area can extend up to and beyond 30 miles.

The proximity and level of general aviation services are a defining factor when describing the general aviation service area. A description of nearby airports was previously completed in Chapter One, as presented on Exhibit 1F. There are four public-use airports near Phillipsburg Municipal Airport:

- Alma Municipal Airport (4D9)
- Rooks County Regional Airport (RCP)
- Smith Center Municipal Airport (K82)
- Norton Municipal Airport (NRN)

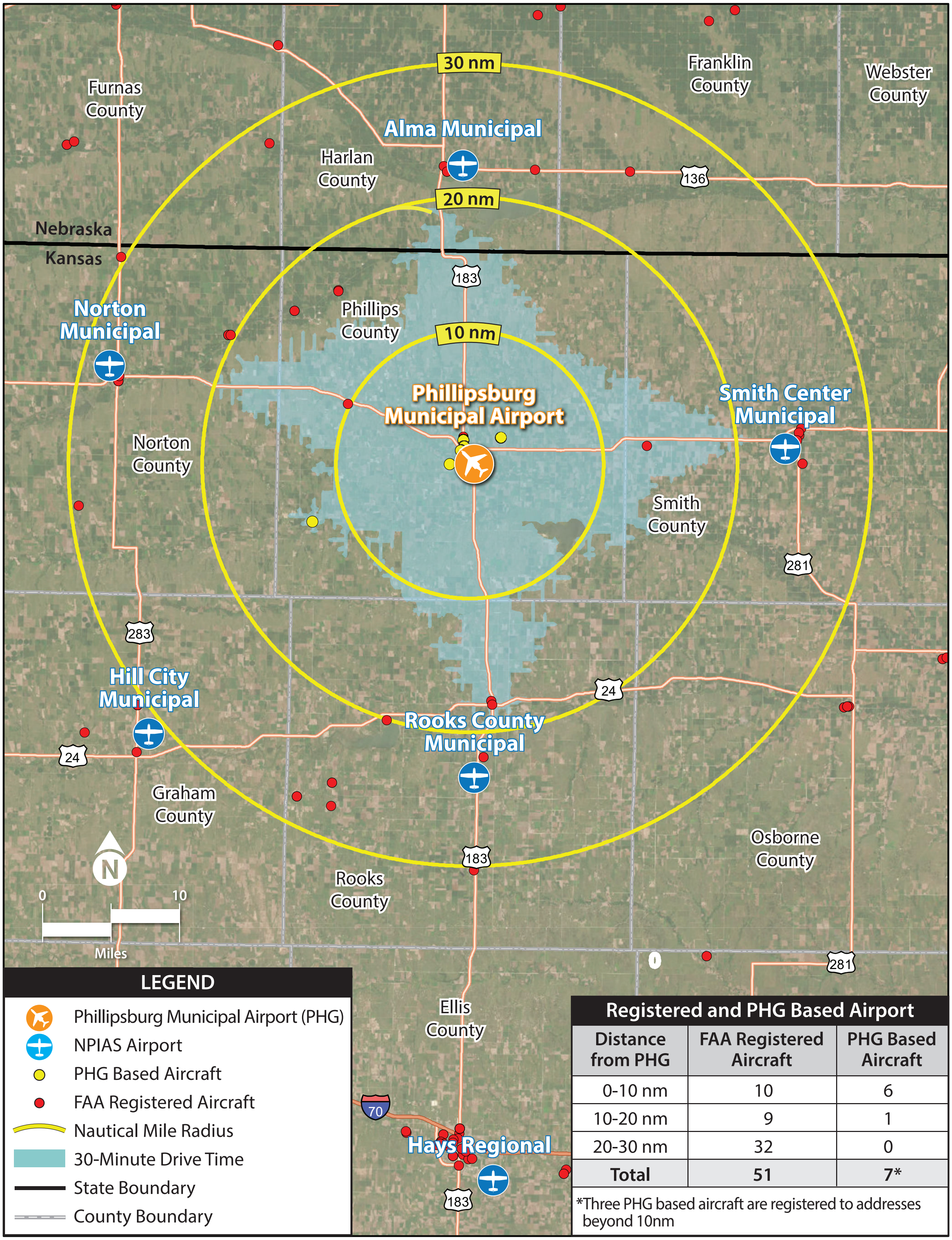
When discussing the general aviation service area, two primary demand segments must be addressed. The first component is the airport's ability to attract based aircraft. Under these circumstances, the most effective method of defining the airport's service area is to examine the number of registered aircraft owners in proximity to the airport. As previously mentioned, aircraft owners typically choose to base at airports near their homes or businesses. Based on the current registered aircraft data, presented on **Exhibit 2B**, there are 51 registered aircraft within 30 nautical miles (nm) of Phillipsburg Municipal Airport. Of these aircraft, 10 (or approximately 20 percent) are based at PHG.

The second demand segment to consider is itinerant aircraft operations. In most instances, pilots opt to utilize airports nearer their intended destinations; however, this is also dependent on the airport's capabilities in accommodating aircraft operators. As a result, airports that offer better services and facilities are more likely to attract itinerant operators in the region.

With several competing airports in the region, Phillipsburg Municipal Airport's primary service area is defined by its convenience to its users and its ability to compete for based aircraft. The airport is centrally located within Phillips County, and the 30-minute drive time isochrone covers the majority of the county, with small portions extending into neighboring Norton, Smith, Rooks, and Alma Counties. Each of these counties is currently served by a public-use airport, two of which offer a similar level of service as PHG. Notably, PHG has the longest runway available, compared to the other airports in the area. Given its central location and convenient drive time within the county, as well as its ability to accommodate larger aircraft due to its runway length, the primary service area for Phillipsburg Municipal Airport is established as Phillips County, with neighboring counties functioning as secondary service areas from which PHG could also attract users.

FORECASTING APPROACH

The development of aviation forecasts proceeds through both analytical and judgmental processes. A series of mathematical relationships is tested to establish statistical logic and rationale for projected growth; however, the judgment of the forecast analyst – based on professional experience, knowledge of the aviation industry, and assessment of the local situation – is important in the final determination of the preferred forecast. The most reliable approach to estimating aviation demand is through the utilization of more than one analytical technique. Methodologies frequently considered include trendline/ time series projections, correlation/regression analysis, and market share analysis. The forecast analyst may elect to not use certain techniques, depending on the reasonableness of the forecasts produced using other techniques.



LEGEND

- Phillipsburg Municipal Airport (PHG)
- NPIAS Airport
- PHG Based Aircraft
- FAA Registered Aircraft
- Nautical Mile Radius
- 30-Minute Drive Time
- State Boundary
- County Boundary

Registered and PHG Based Airport

Distance from PHG	FAA Registered Aircraft	PHG Based Aircraft
0-10 nm	10	6
10-20 nm	9	1
20-30 nm	32	0
Total	**51**	**7***

*Three PHG based aircraft are registered to addresses beyond 10nm

Exhibit 2B
SERVICE AREA

Trendline/time series projections are the simplest and most familiar of the forecasting techniques. By fitting growth curves to historical data and then extending them into the future, a basic trendline projection is produced. A basic assumption of this technique is that outside factors will continue to affect aviation demand in much the same manner as in the past. While this assumption is broad, the trendline projection serves as a reliable benchmark for comparing other projections.

Correlation analysis provides a measure of the direct relationship between two separate sets of historical data. If there is a reasonable correlation between the data sets, further evaluation using regression analysis may be employed.

Regression analysis measures statistical relationships between dependent and independent variables, yielding a correlation coefficient (Pearson's r), which measures association between the changes in the dependent variable and the independent variable(s). If the r^2 value (coefficient determination) is greater than 0.95, it indicates good predictive reliability. A value less than 0.95 may be used, but with the understanding that the predictive reliability is lower.

Market share analysis involves a historical review of the airport activity as a percentage, or share, of a larger regional, state, or national aviation market. A historical market share trend is determined, providing an expected market share for the future. These shares are then multiplied by the forecasts of the larger geographical area to produce a market share projection. This method has the same limitations as trendline projections but can provide a useful check on the validity of other forecasting techniques.

Forecasts age, and the farther a forecast is from the base year, the less reliable it may become, particularly due to changing local and national conditions. Regardless, the FAA requires that a 20-year forecast be developed for long-range airport planning. Facility and financial planning usually require at least a 10-year outlook because it often takes more than five years to complete a major facility development program; however, it is important to use forecasts that do not overestimate revenue-generating capabilities or understate demand for facilities needed to meet public (user) needs.

A wide range of factors is known to influence the aviation industry and can have significant impacts on the extent and nature of aviation activity in both the local and national markets. Historically, the nature and trend of the national economy have had a direct impact on aviation activity levels. Recessionary periods have been closely followed by declines in aviation activity. Nevertheless, trends emerge over time and provide the basis for airport planning.

Future facility requirements, such as hangar, apron, and terminal needs, are derived from projections of various aviation demand indicators. Using a broad spectrum of local, regional, and national socioeconomic and aviation information, and analyzing the most current aviation trends, forecasts are presented for the following aviation demand indicators:

- Based aircraft
- Based aircraft fleet mix
- General aviation operations
- Air taxi and military operations
- Operational peaks

EXISTING FORECASTS

Consideration is given to any forecasts of aviation demand for the airport that have been completed in the recent past. For Phillipsburg Municipal Airport, the previous forecasts reviewed are those in the FAA *Terminal Area Forecast* (TAF), the *2008 Airport Layout Report* for PHG, and the 2016 *Kansas Aviation System Plan*, which used a base year of 2014.

FAA TERMINAL AREA FORECAST

The FAA publishes the TAF for each airport included in the NPIAS on an annual basis. The TAF is a generalized forecast of airport activity used by the FAA for internal planning purposes primarily. It is available to airports and consultants to use as a baseline projection and an important point of comparison while developing local forecasts. The current TAF was published in January 2024 and is based on the federal fiscal year (October-September).

As presented in **Table 2C**, the TAF projects general aviation activity at the airport to remain static over the next 20 years, which is the FAA's common practice for an airport that is not served by an airport traffic control tower (ATCT). Because there is currently no commercial service activity at Phillipsburg Municipal Airport, the TAF does not reflect any existing and/or forecast air carrier operations. Military operations are also estimated at zero, as are air taxi operations. As such, operations at PHG are projected to include only local and itinerant GA operations, which account for 100 percent of the total operations over the planning period. These are forecast to remain static, with an estimated 3,500 itinerant GA operations and 5,500 local GA operations. Based aircraft are also projected to remain flat at 12 based aircraft over the next 20 years.

TABLE 2C | 2024 FAA Terminal Area Forecast – Phillipsburg Municipal Airport

	2024	2029	2034	2044	CAGR 2024-2044
ANNUAL OPERATIONS					
Itinerant					
Air Carrier	0	0	0	0	0.0%
Air Taxi	0	0	0	0	0.0%
General Aviation	3,500	3,500	3,500	3,500	0.0%
Military	0	0	0	0	0
Total Itinerant Operations:	**3,500**	**3,500**	**3,500**	**3,500**	**0.0%**
Local					
General Aviation	5,500	5,500	5,500	5,500	0.0%
Military	0	0	0	0	0.0%
Total Local Operations:	**5,500**	**5,500**	**5,500**	**5,500**	**0.0%**
TOTAL ANNUAL OPERATIONS:	**9,000**	**9,000**	**9,000**	**9,000**	**0.0%**
BASED AIRCRAFT					
Based Aircraft	12	12	12	12	0.0%
TOTAL BASED AIRCRAFT:	**12**	**12**	**12**	**12**	**0.0%**

Source: FAA Terminal Area Forecast, January 2024

PREVIOUS FORECASTS

Forecasts of aviation activity at Phillipsburg Municipal Airport were previously prepared within older, less currently relevant documents, including the 2008 *Airport Layout Plan Report* and the 2016 *Kansas Aviation System Plan*. **Table 2D** summarizes the forecasts of operations and based aircraft at Phillipsburg Municipal Airport that were prepared for these studies.

TABLE 2D | Previous Forecasts – Phillipsburg Municipal Airport

Year	Itinerant Operations	Local Operations	Total Operations	Based Aircraft
Kansas Aviation System Plan Update (2014 Base Year)				
2014	N/A	N/A	9,000	15
2019	N/A	N/A	9,000	15
2024	N/A	N/A	9,000	15
2034	N/A	N/A	9,000	15
Airport Layout Plan Report (2006 Base Year)				
2006	5,520	3,680	9,200	9
2011	5,520	3,680	9,200	9
2016	6,132	4,088	10,220	10
2021	6,745	4,497	11,242	10
2026	6,745	4,497	11,242	11

N/A = not applicable
Note: The *Kansas Aviation System Plan* forecast includes total operations only; separate forecasts were not developed for itinerant and local operations.
Sources: Kansas Aviation System Plan; 2008 Airport Layout Plan Report, BWR

Based on recent activity trends at Phillipsburg Municipal Airport and in the region, and considering the time that has passed since the preparation of these previous forecasts, it is necessary to develop new forecasts utilizing the most recent information available.

GENERAL AVIATION FORECASTS

The following forecast analysis examines each aviation demand category expected at Phillipsburg Municipal Airport over the next 20 years. Each segment will be examined individually, and then collectively, to provide an understanding of the overall aviation activity at the airport through 2044. Forecasts for airport activities include the following:

- Service area registered aircraft
- Based aircraft
- Based aircraft fleet mix
- General aviation operations – local and itinerant
- Air taxi and military operations
- Peaking conditions
- Critical aircraft

The remainder of this chapter will examine historical trends with regard to these areas of general aviation and project future demand for these segments of general aviation activity at the airport. Once approved by the FAA, these forecasts will become the basis for planning future airside and landside facilities.

REGISTERED AIRCRAFT FORECASTS

The most basic indicator of general aviation demand at an airport is the total number of aircraft based at the facility. Before a projection of based aircraft can be developed, it is important to ascertain the number, or pool, of aircraft in the market area from which PHG based aircraft will be generated. The methodology for identifying the market pool is to offer an examination and forecast of registered aircraft in the airport's service area.

Table 2E presents the historical registered aircraft for Phillips County from 2005 through 2024. These figures are derived from the FAA aircraft registration database, which categorizes aircraft registrations by county based on the zip codes of aircraft owners. Although this information generally provides a correlation to based aircraft, it is not uncommon for some aircraft to be registered in the county but be based at an airport outside the county, or vice versa.

TABLE 2E | Historical Registered Aircraft – Phillips County

Year	Single-Engine Piston	Multi-Engine Piston	Turboprop	Jet	Helicopter	Other[1]	Total
2005	5	1	0	0	1	0	7
2006	5	1	0	0	1	0	7
2007	4	1	0	0	1	0	6
2008	4	1	0	0	1	0	6
2009	4	1	0	0	1	0	6
2010	5	0	0	0	1	0	6
2011	7	0	0	0	1	0	8
2012	9	0	1	0	0	0	10
2013	11	1	1	0	0	0	13
2014	11	1	1	0	0	0	13
2015	13	0	2	0	0	0	15
2016	18	2	2	0	0	0	22
2017	18	2	1	0	0	0	21
2018	20	2	1	0	0	0	23
2019	18	2	1	0	0	0	21
2020	21	2	1	0	0	0	24
2021	19	2	1	0	0	0	22
2022	18	2	1	0	0	0	21
2023	17	1	2	0	0	0	20
2024[2]	17	1	2	0	0	0	20

[1]Includes aircraft such as gliders, electric aircraft, balloons, and dirigibles
[2]Data available through September 26, 2024

Source: FAA, Aircraft Registration Database

The registered aircraft in the service area show a generally increasing trend over the last 10 years. The historical high (24 registered aircraft) was recorded in 2020 and the most recent count for 2024 shows 20 reported aircraft registrations in Phillips County.

Although there are no recently prepared forecasts for registered aircraft in Phillips County, one was prepared for this study using market share, ratio, and historical growth rate projection methods. Several regression forecasts were also considered, including single- and multi-variable regressions which examined the correlation of registered aircraft with the service area population, employment, income, and gross regional product, as well as U.S. active general aviation aircraft. **Table 2F** details the results of this analysis, which considered the correlation between registered aircraft (dependent variable) and several independent variables, as described above. Because none of the values are greater than 0.95, they will not be considered for further analysis.

TABLE 2F | Regression Analysis

Independent Variable	r^2
Year	0.06
Population	0.07
Employment	0.27
Income	0.03
Gross Regional Product	0.03
U.S. Active Aircraft	0.07

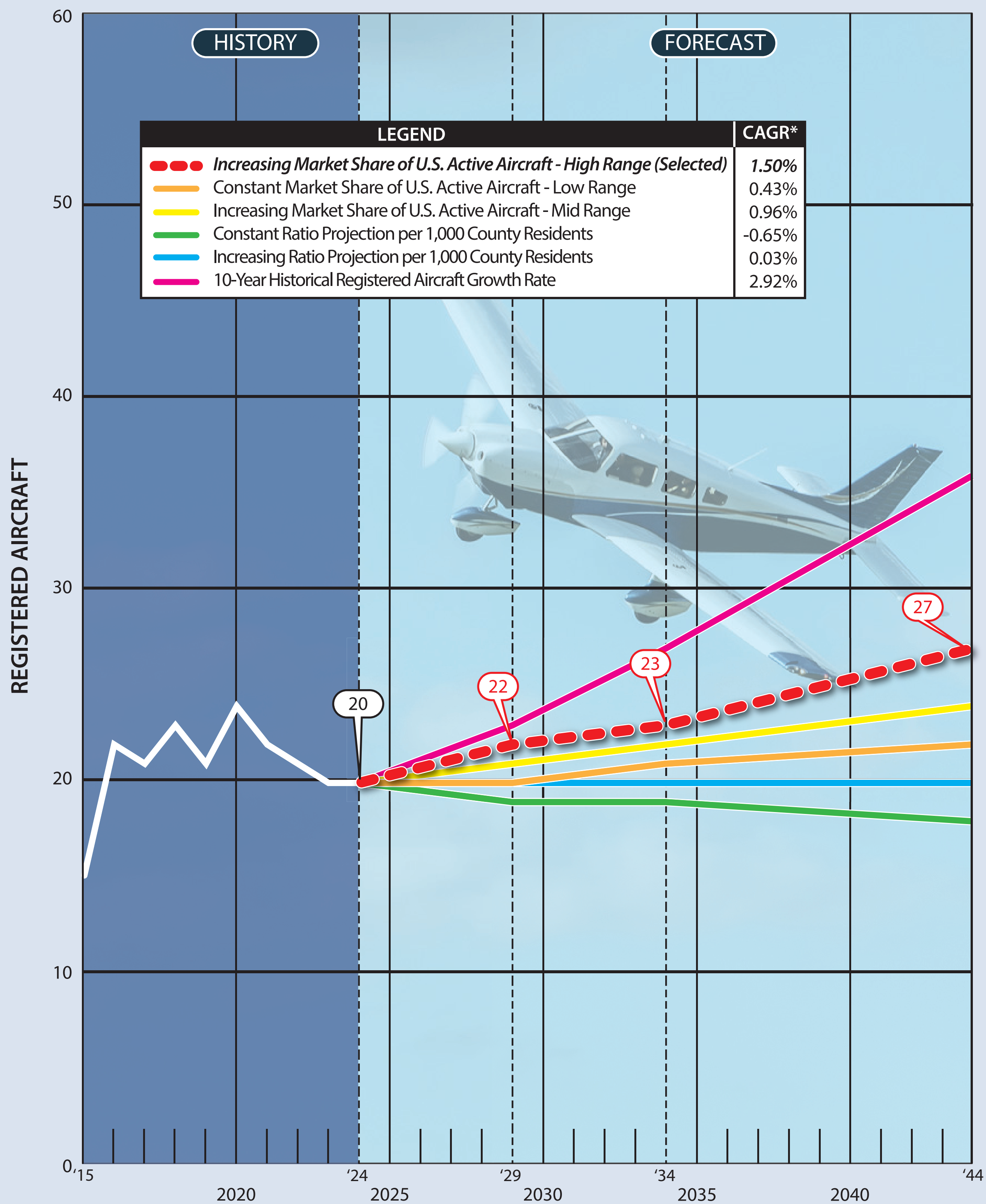
Source: Coffman Associates analysis

Table 2G and **Exhibit 2C** present several other projections of registered aircraft for the service area, with a goal of presenting a planning envelope that shows a range of projections based on historical trends. The first set of forecasts is based on market share, which considers the relationship between registered aircraft located in Phillips County and active aircraft within the United States. The next set of projections is based on a ratio of the number of aircraft per 1,000 county residents. Lastly, a projection was prepared based on the 10-year historical growth rate of county-registered aircraft.

TABLE 2G | Registered Aircraft Projections – Phillips County

Year	Service Area Registrations[1]	U.S. Active Aircraft[2]	Market Share of U.S. Aircraft	Service Area Population[3]	Aircraft Per 1,000 Residents
2015	15	210,031	0.0071%	5,294	2.83
2016	22	211,794	0.0104%	5,224	4.21
2017	21	211,757	0.0099%	5,186	4.05
2018	23	211,749	0.0109%	5,092	4.52
2019	21	210,981	0.0100%	5,043	4.16
2020	24	204,140	0.0118%	4,961	4.84
2021	22	209,194	0.0105%	4,819	4.57
2022	21	209,540	0.0100%	4,783	4.39
2023	20	209,730	0.0095%	4,761	4.20
2024	20	210,105	0.0095%	4,737	4.22
Constant Market Share of U.S. Active Aircraft – Low Range (0.43% CAGR)					
2029	20	213,370	0.0095%	4,609	4.41
2034	21	217,685	0.0095%	4,467	4.64
2044	22	228,975	0.0095%	4,155	5.25
Increasing Market Share of U.S. Active Aircraft – High Range (1.50% CAGR)					
2029	22	213,370	0.0101%	4,609	4.67
2034	23	217,685	0.0106%	4,467	5.18
2044	27	228,975	0.0118%	4,155	6.48
Increasing Market Share of U.S. Active Aircraft – Mid Range (0.96% CAGR)					
2029	21	213,370	0.0098%	4,609	4.55
2034	22	217,685	0.0101%	4,467	4.93
2044	24	228,975	0.0106%	4,155	5.83
Constant Ratio Projection per 1,000 County Residents (-0.65% CAGR)					
2029	19	213,370	0.0091%	4,609	4.22
2034	19	217,685	0.0087%	4,467	4.22
2044	18	228,975	0.0077%	4,155	4.22
Increasing Ratio Projection per 1,000 County Residents (0.03% CAGR)					
2029	20	213,370	0.0095%	4,609	4.38
2034	20	217,685	0.0093%	4,467	4.53
2044	20	228,975	0.0088%	4,155	4.84
10-Year Historical Registered Aircraft Growth Rate (2.92% CAGR)					
2029	23	213,370	0.0108%	4,609	5.01
2044	27	217,685	0.0123%	4,467	5.97
2044	36	228,975	0.0155%	4,155	8.56

Sources: [1]FAA, Aircraft Registration Database; [2]FAA, Aerospace Forecast – FY 2024-2044; [3]Woods & Poole, 2024



*Compound Annual Growth Rate

Market Share Projections

- *Constant Market Share Forecast* | This forecast maintains the 2024 market share of county residents (0.0095%) throughout the planning period. The result is very little growth in aircraft registrations over the 20-year period, with the addition of just two aircraft by the long term, reflective of a 0.43 percent compound annual growth rate (CAGR).

- *Increasing Market Share Forecasts* | Two increasing market share forecasts were also considered. The first evaluated a high-range market share forecast based on a return to the county's record high market share (0.0118%), which occurred in 2020. This produced a CAGR of 1.50 percent, or 27 registered aircraft in the county by 2044. A mid-range scenario was also considered, which resulted in 24 registered aircraft in Phillips County by the end of the planning period.

Ratio Projections

- *Constant Ratio Forecast* | In 2024, there were 4.22 registered aircraft per 1,000 county residents. Carrying this ratio forward through the plan years resulted in a decrease in registrations over the plan years, dropping from 20 registered aircraft in 2024 to 18 in 2044.

- *Historical High Forecast* | An increasing scenario was also evaluated, based on a return to the historical high ratio of 4.84 aircraft per 1,000 county residents. Due to the anticipated decrease in the county's population over the next 20 years, this forecast did not produce a growth scenario and resulted in aircraft registrations remaining stagnant at 20 for each of the plan years.

Growth Rate Projection

The historical growth rate of county-registered aircraft was also examined. Over the last 10 years, Phillips County aircraft registrations have generally increased at a CAGR of 2.92 percent. If this trend is applied to the forecast years, the result is steady growth in aircraft registrations over the plan years, with 36 registered aircraft by 2044. This is reflective of a 2.92 percent CAGR.

Selected Forecast

Each of these forecasts offers a projection of what aircraft registrations in the service area could look like over the next 20 years. The projection based on constant ratio provides the low end and the 10-year historical growth rate comprises the top end of the planning envelope. Although population projections for Phillips County are trending downward, aircraft registrations within the county have generally trended upward over the last 10 years. Combined with the FAA's projected growth in the national fleet of active aircraft, it is not unreasonable to expect some level of growth in aircraft registrations in Phillips County over the next 20 years; therefore, the high-range increasing market share of U.S. active aircraft is considered the most reasonable registered aircraft forecast. At a CAGR of 1.50 percent, this forecast shows slow but steady growth in aircraft registrations in Phillips County, with the addition of two aircraft by 2029, three by 2034, and seven by 2044, for a total of 27 registered aircraft in the service area by 2044.

The registered aircraft projection is one data point used in the development of a based aircraft forecast. The following section presents several potential based aircraft forecasts, as well as the selected based aircraft forecast, to be utilized in this study.

BASED AIRCRAFT FORECAST

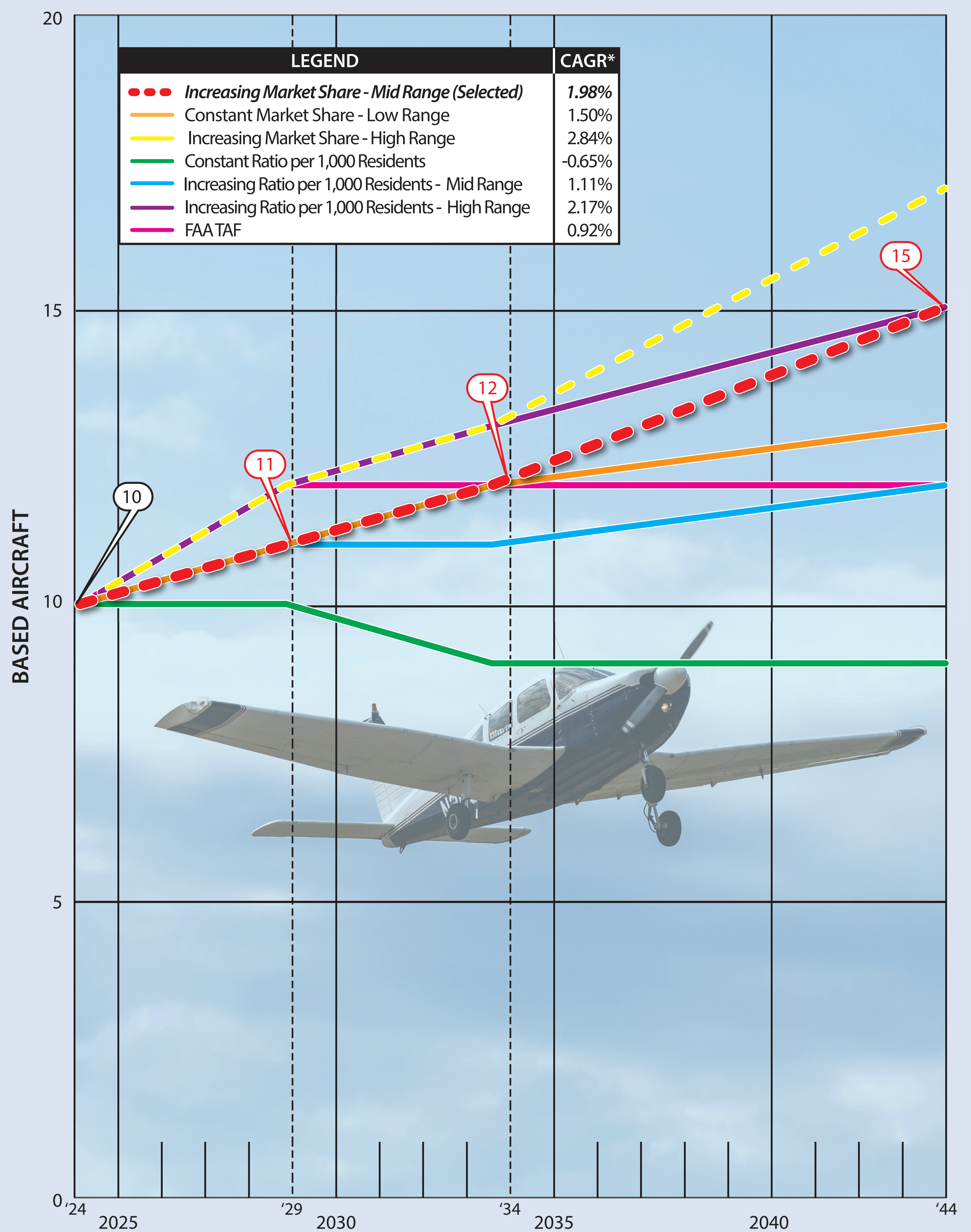
Determining the number of based aircraft at an airport can be a challenging task. Aircraft storage can be somewhat transient in nature; aircraft owners can (and do) move their aircraft. Some aircraft owners may store their aircraft at an airport for only part of the year. For many years, the FAA did not require airports to report their based aircraft counts and did not validate based aircraft at airports; however, this has changed in recent years, and the FAA now mandates that airports report their based aircraft levels. These counts are recorded in the FAA's National Based Aircraft Inventory program and are maintained and validated by the FAA to ensure accuracy. According to the National Based Aircraft Inventory program, PHG has 10 validated based aircraft, of which nine are single-engine piston aircraft and one is a multi-engine piston aircraft.

Like the registered aircraft forecasts, several projections have been made for based aircraft at PHG, including market share, ratio, and growth rate forecasts. The market share is based on the airport's percentage of based aircraft compared to registered aircraft in the service area, while the ratio projection is based on the number of based aircraft per 1,000 county residents. The growth rate projection considers the FAA's TAF projection for the State of Kansas. The results of these analyses are detailed in **Table 2H** and depicted graphically on **Exhibit 2D**.

TABLE 2H | Based Aircraft Forecasts – Phillipsburg Municipal Airport

Year	PHG Based Aircraft	Service Area Registrations	Market Share	Service Area Population	Aircraft Per 1,000 Residents
2024	10	20	50.0%	4,737	2.11
Constant Market Share – Low Range (1.50% CAGR)					
2029	11	22	50.0%	4,609	2.33
2034	12	23	50.0%	4,467	2.59
2044	13	27	50.0%	4,155	3.24
Increasing Market Share – Mid Range (1.98% CAGR)					
2029	11	22	51.3%	4,609	2.39
2034	12	23	52.5%	4,467	2.72
2044	15	27	55.0%	4,155	3.56
Increasing Market Share – High Range (2.84% CAGR)					
2029	12	22	53.8%	4,609	2.51
2034	13	23	57.5%	4,467	2.98
2044	17	27	65.0%	4,155	4.21
Constant Ratio per 1,000 Residents (-0.65% CAGR)					
2029	10	22	45.2%	4,609	2.11
2034	9	23	40.7%	4,467	2.11
2044	9	27	32.6%	4,155	2.11
Increasing Ratio per 1,000 Residents – Mid Range (1.11% CAGR)					
2029	11	22	50.0%	4,609	2.33
2034	11	23	49.3%	4,467	2.56
2044	12	27	46.3%	4,155	3.00
Increasing Ratio per 1,000 Residents – High Range (2.17% CAGR)					
2029	12	22	53.8%	4,609	2.51
2034	13	23	56.0%	4,467	2.91
2044	15	27	57.1%	4,155	3.70
FAA TAF Statewide Growth Rate (0.65% CAGR)					
2029	10	22	48.0%	4,609	2.24
2034	11	23	46.1%	4,467	2.39
2044	11	27	42.3%	4,155	2.74

Sources: basedaircraft.com; 2024 FAA TAF; Woods & Poole CEDDS 2024



*Compound Annual Growth Rate

Exhibit 2D
BASED AIRCRAFT PROJECTIONS

It should be noted that no historical based aircraft data were available; as such, an assumptive analysis was made based on the experience of the forecast preparer and knowledge of regional and national based aircraft trends.

Market Share Projections

- *Constant Market Share* | In 2024, the airport had 10 based aircraft, which equates to 50.0 percent of the market share of registered aircraft in Phillips County. Carrying this percentage through the plan years results in a small increase in based aircraft, reflective of a 1.50 percent CAGR. This projection yielded 13 based aircraft by 2044.

- *Increasing Market Share* | Two increasing market share forecasts were also evaluated. The mid-range scenario considered a 55.0 percent market share by 2044 and resulted in an increase in based aircraft to 15, or a 1.98 percent CAGR, by the end of the planning period. The high-range market share forecast evaluated a stronger growth scenario that considered Phillipsburg Municipal Airport holding 65.0 percent of the market share by the end of the planning period. This resulted in 17 based aircraft by 2044, for a CAGR of 2.84 percent.

Ratio Projections

- *Constant Ratio* | In 2024, the ratio of based aircraft per 1,000 county residents was 2.11. Maintaining this ratio at a constant through 2044 resulted in a reduction in the number of based aircraft due to the anticipated decline in county population over the next 20 years. If the airport were to maintain a constant ratio, the projected number of based aircraft would decrease by one, with nine based aircraft forecast for 2044.

- *Increasing Ratio* | Two growth scenarios based on the ratio of aircraft ownership to population were evaluated. The first considered an increased ratio of 3.00 aircraft per 1,000 residents by 2044, which resulted in 12 aircraft based at the airport by the end of the planning period at a CAGR of 1.11 percent. The high-range scenario considers more aggressive growth, with 3.70 based aircraft per 1,000 residents by the end of the planning period. Applying this ratio produced a forecast of 15 based aircraft by 2044, reflective of a 2.17 percent CAGR.

Growth Rate Projection

The FAA's projection for statewide growth in based aircraft was also examined. The Kansas TAF estimates an increase in based aircraft in Kansas, reflective of a growth rate of 0.65 percent between 2024 and 2044. When this growth rate is applied to PHG's 10 based aircraft, the result is extremely slow growth, with just one additional based aircraft by the end of the 20-year period.

Selected Forecast

The selected forecast for based aircraft at Phillipsburg Municipal Airport is the increasing mid-range market share. This forecast assumes a 1.98 percent growth rate over the 20-year period, with moderate growth in based aircraft at the airport, increasing from 10 based aircraft at PHG in 2024 to 15 by 2044.

While the county population is trending downward, the FAA predicts favorable trends in both local and national aircraft ownership. Additionally, the local economy is strong and recent improvements at the airport (i.e., extension of Runway 13-31 and hangar construction) are solid indicators of additional growth at the airport. As such, it is reasonable to assume an increase in based aircraft at PHG over the next 20 years.

Based Aircraft Fleet Mix Forecast

It is important to understand the current and projected based aircraft fleet mix at an airport to ensure the planning of proper facilities in the future. The forecast mix of based aircraft was determined by comparing existing and forecast U.S. general aviation fleet trends to the fleet mix at the airport. The national trend in general aviation is toward a greater percentage of larger, more sophisticated aircraft as part of the national fleet. Phillipsburg Municipal Airport is capable of accommodating a wide range of general aviation aircraft, from small piston-powered aircraft up to small- and mid-size business jet aircraft.

As indicated in **Table 2J**, single-engine piston aircraft presently comprise the majority of the fleet mix at the airport, representing 90 percent of the aircraft based at the airport, and one multi-engine piston aircraft accounts for the remainder of the fleet mix. The FAA predicts piston-powered aircraft will decline in numbers nationwide as aircraft ownership trends shift to the more sophisticated turboprops and jets; however, piston aircraft are anticipated to continue to comprise the majority of the fleet mix at Phillipsburg Municipal Airport, with slower growth in turbine aircraft. The table details the based aircraft fleet mix projections for the airport over the next 20 years. Single-engine piston aircraft are projected to increase from the nine currently based at the airport to 13 by 2044. The multi-engine piston aircraft is expected to be phased out by the end of the planning period, in line with national trends, while one turboprop and one helicopter are anticipated to be added to the based aircraft fleet mix by 2044.

TABLE 2J | Total Based Aircraft Fleet Mix

	EXISTING		FORECAST					
Aircraft Type	2024	%	2029	%	2034	%	2044	%
Single-Engine Piston	9	90%	10	91%	10	83%	13	87%
Multi-Engine Piston	1	10%	1	9%	1	8%	0	0%
Turboprop	0	0%	0	0%	1	8%	1	7%
Jet	0	0%	0	0%	0	0%	0	0%
Helicopter	0	0%	0	0%	0	0%	1	7%
Totals:	**10**	**100%**	**11**	**100%**	**12**	**100%**	**15**	**100%**

Source: Airport records; Coffman Associates analysis

OPERATIONS FORECASTS

Operations at Phillipsburg Municipal Airport are classified as general aviation, air taxi, or military. General aviation operations include a wide range of activities, from recreational use and flight training to business and corporate uses. Air taxi operations are those conducted by aircraft operating under Title 14 Code of Federal Regulations (CFR) Part 135, otherwise known as for-hire or on-demand activity. Military operations are those conducted by various branches of the U.S. military.

Aircraft operations are further classified as local and itinerant. A local operation is a takeoff or landing performed by an aircraft that operates within sight of an airport or executes simulated approaches or touch-and-go operations at an airport. Generally, local operations are characterized by training activity. Itinerant operations are those performed by aircraft with specific origins or destinations away from an airport. Itinerant operations typically increase with business and commercial use because business aircraft are primarily used to transport passengers from one location to another.

Because Phillipsburg Municipal Airport is not equipped with an ATCT, precise operational (takeoff and landing) counts are not available. Sources for estimated operational activity at the airport include the FAA TAF and the 2016 *Kansas Aviation System Plan*. The 2024 FAA TAF indicates a total of 9,000 operations in 2024; the state system plan assumes 9,000 total operations for each plan year (detailed previously in **Table 2D**). The FAA TAF estimates a split between local and itinerant operations (61.1 percent local and 38.9 percent itinerant). Air taxi and military operations are not included in the total.

Annual operations were also estimated for comparison purposes using Equation 15 in the FAA's *Model for Estimating General Aviation Operations at Non-towered Airports Using Towered and Non-towered Airport Data*. The model factors in regional population and based aircraft data to develop a baseline operational count. When these data points were input into the model, the result was 4,315 annual operations, as shown in **Table 2K**.

Lastly, the FAA's Traffic Flow Management System Counts (TFMSC) database was examined to assist in determining total annual operations at PHG. The TFMSC database captures an operation when a pilot files a flight plan and/or when a flight is detected by the National Airspace System, usually via radar. The database includes documentation of commercial traffic (air carrier and air taxi), general aviation, and military aircraft. Due to factors such as incomplete flight plans, limited radar coverage, and VFR operations, TFMSC data do not account for all aircraft activity at an airport by a given aircraft type. The TFMSC database reports 108 operations at PHG during 2023 (the most recent year with the most complete data), and is considered a limited dataset.

TABLE 2K | FAA Model for Operations Estimates

Inputs		
Population within 25 nm		11,459
Population within 100 nm		222,423
Based Aircraft		10
Based Aircraft at Airports within 100 nm		1,060
Equation 15		
755		775
241 (BA)	+	2,410
0.14 (BA^2)	-	14
31,478 (% in 100 miles)	+	297
5,557 (VITFSnum)	+	0
0.001 (Pop100)	+	222
3,736 (WACAORAK)	-	0
12,121 (Pop25/100)	+	624
Estimate of Total Operations:		**4,315**

775 = constant
BA = based aircraft
VITFSnum = number of FAR 141 pilot schools on airport
WACAORAK = 1 if WA, CA, OR, or AK; 0 otherwise

Source: GRA, Inc., Equation 15, Model for Estimating General Aviation Operations at Non-towered Airports Using Towered and Non-towered Airport Data, 2001

In summary, the following are estimates of annual operations, as derived from various sources:

- 2024 FAA TAF – 9,000 annual operations
- 2016 K*ansas State Aviation System Plan* – 9,000 annual operations
- FAA Equation 15 – 4,315 annual operations
- FAA TFMSC – 108 annual operations

Based on activity levels in the region and at similar airports, the annual operations estimate derived from FAA Equation 15 will establish the baseline of total annual operations at PHG. The local/itinerant split, as estimated in the FAA TAF, will be applied to determine a baseline for each operational category. As such, the following figures will be carried forward as the base year count:

- 1,678 annual itinerant GA operations (38.9 percent of total)
- 2,637 annual local GA operations (61.1 percent of total)

General Aviation Operations Forecast

Market Share Projections

Table 2L presents three market share forecasts for local and itinerant GA operations, based on the airport's current market share of total U.S. itinerant GA operations. In 2024, the airport held a 0.011 percent market share of national itinerant operations and 0.017 percent of the market share for local operations. The first forecast carries this figure forward as a constant through the planning period, resulting in 1,840 itinerant operations (0.46% CAGR) and 2,910 local operations (0.49% CAGR) by 2044. As national growth in both itinerant and local operations is expected, two increasing market share forecasts were also developed. The first considers a slower growth scenario, with an increase to 2,320 itinerant operations (1.63% CAGR) and 3,690 local operations (1.69% CAGR) by 2044. A faster growth scenario evaluated market shares at 0.017 percent for itinerant operations and 0.026 percent for local operations; this resulted in 2,820 itinerant operations at a CAGR of 2.63 percent and 4,570 local operations at a CAGR of 2.79 percent by 2044.

TABLE 2L | Operations Forecasts – Market Share

Year	PHG GA Itinerant	U.S. GA Itinerant	Market %	PHG GA Local	U.S. GA Local	Market %
2024	1,678	15,125,333	0.011%	2,637	15,900,404	0.017%
Constant Market Share – Low Range						
2029	1,770	15,923,540	0.011%	2,760	16,655,425	0.017%
2034	1,790	16,133,058	0.011%	2,810	16,950,476	0.017%
2044	1,840	16,568,634	0.011%	2,910	17,570,920	0.017%
CAGR	**0.46%**	–	–	**0.49%**	–	–
Increasing Market Share – Mid Range						
2029	1,880	15,923,540	0.012%	2,950	16,655,425	0.018%
2034	2,020	16,133,058	0.013%	3,190	16,950,476	0.019%
2044	2,320	16,568,634	0.014%	3,690	17,570,920	0.021%
CAGR	**1.63%**	–	–	**1.69%**	–	–
Increasing Market Share – High Range						
2029	2,000	15,923,540	0.013%	3,150	16,655,425	0.019%
2034	2,270	16,133,058	0.014%	3,610	16,950,476	0.021%
2044	2,820	16,568,634	0.017%	4,570	17,570,920	0.026%
CAGR	**2.63%**	–	–	**2.79%**	–	–

Sources: FAA Aerospace Forecast – FY 2024-2044; Coffman Associates analysis; FAA Equation 15

TAF Growth Rate Projection

Projections derived from the Kansas TAF growth rate for operations were also considered. The statewide TAF growth rate for itinerant operations is estimated at 0.09 percent. When applied to the base year count, this results in 1,710 itinerant operations at Phillipsburg Municipal Airport by 2044. The Kansas TAF growth rate for local operations is estimated at 0.08 percent, which results in 2,678 local operations by 2044 when applied to the base year count.

Selected Forecasts

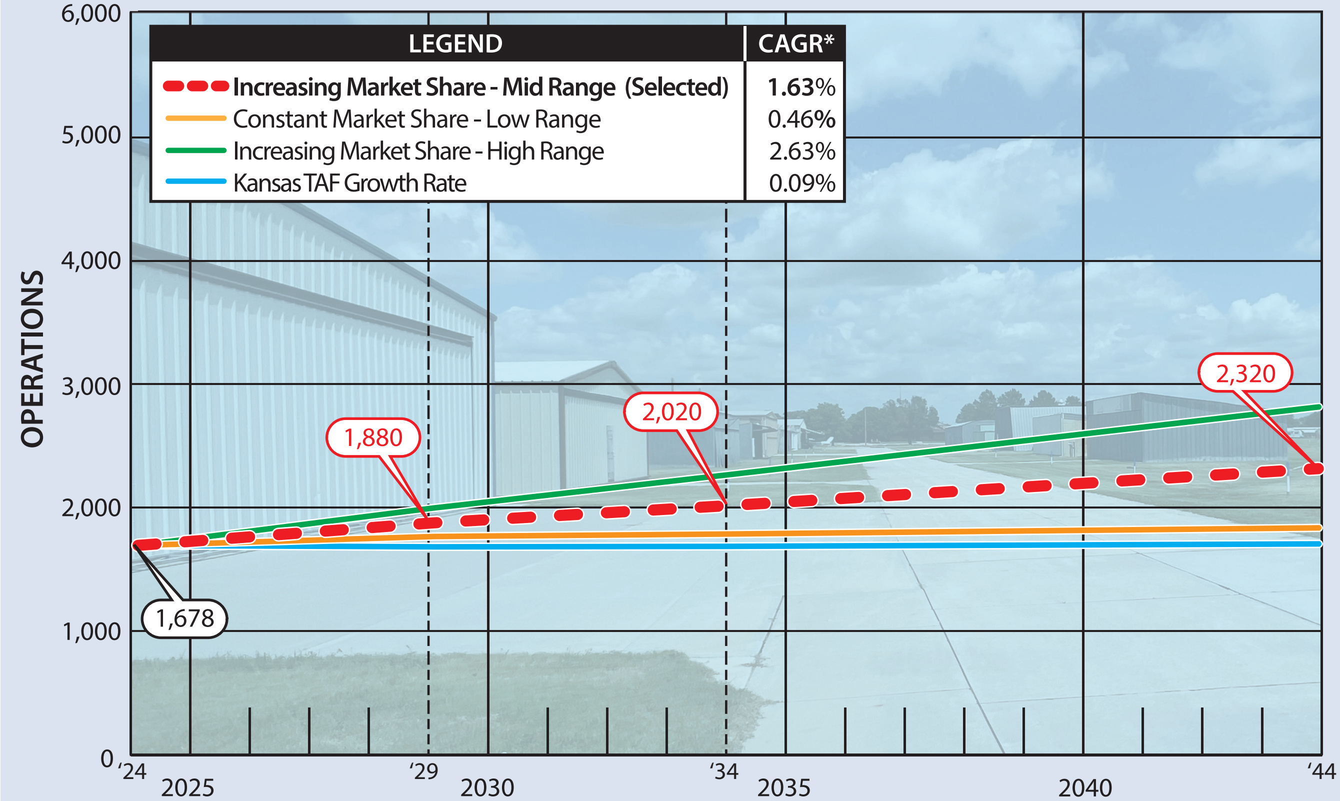
Exhibit 2E presents graphs of the itinerant and local GA operation projections, while **Table 2M** summarizes each forecast. In terms of itinerant operations, the forecasts present a planning envelope that ranges from 1,710 (Kansas TAF growth rate forecast) to 2,820 itinerant operations (high-range market share forecast). The local operations scenario is similar, ranging from 2,678 (Kansas TAF growth rate) to 4,570 (high-range market share forecast) local operations. With both national and regional growth anticipated in itinerant and local operations, it is reasonable to assume a moderate increase in this type of traffic over the next 20 years. As such, the mid-range increasing market share forecast is the selected projection for each operational category. For itinerant operations, this projection is reflective of a 1.63 percent CAGR, or 2,320 operations by the end of the planning period. For local operations, the result is 3,690 operations at a CAGR of 1.69 percent. Overall, this projection represents a somewhat conservative, yet realistic, growth scenario in operations at PHG. Combined, these forecasts illustrate growth from an estimated 4,315 total GA operations in 2024 to 6,030 total operations by 2044 – an increase of about 1,700 annual operations.[1]

TABLE 2M | PHG Operations Forecast Summary

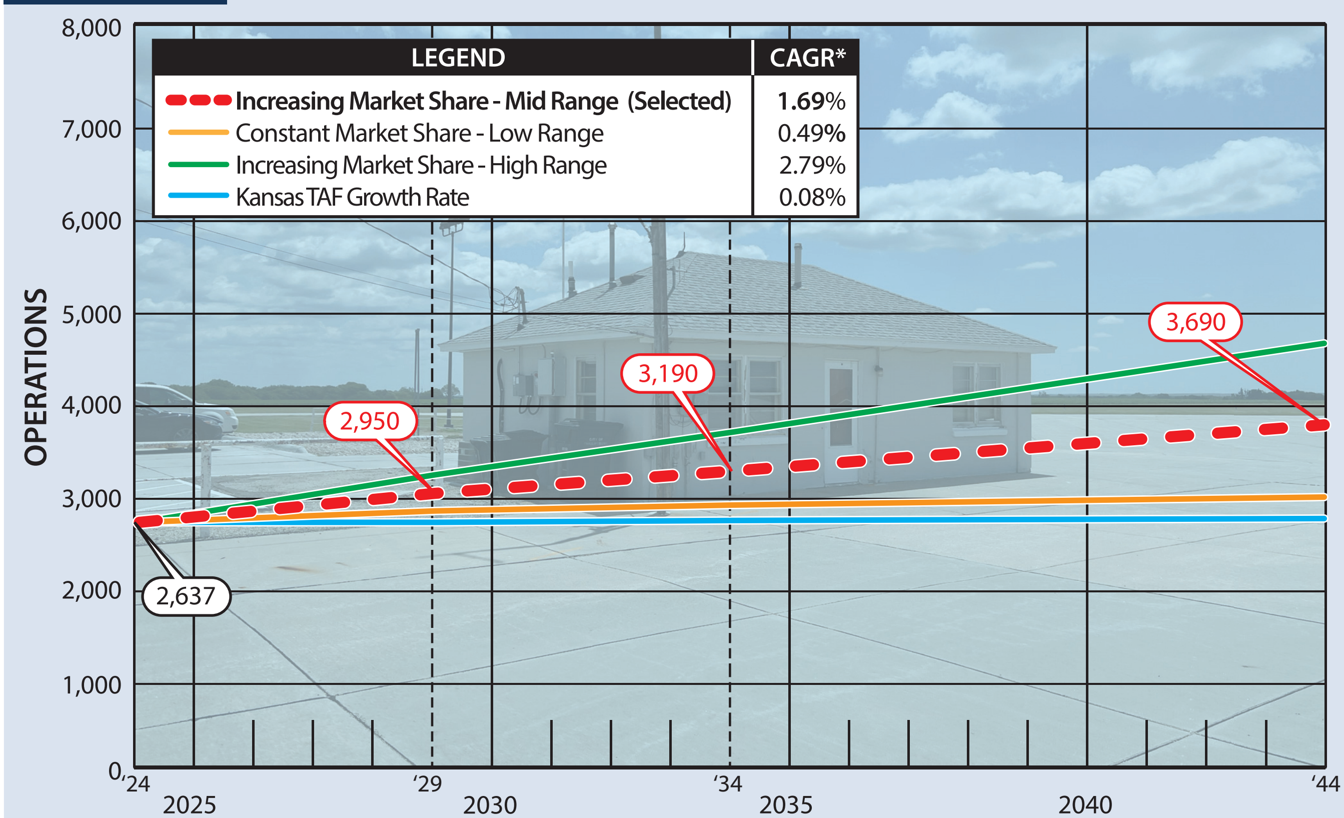
PHG Projections	2029	2034	2044	CAGR
Itinerant GA				
Constant Market – Low Range	1,770	1,790	1,840	0.46%
Increasing Market – Mid Range*	**1,880**	**2,020**	**2,320**	**1.63%**
Increasing Market – High Range	2,000	2,270	2,820	2.63%
KS TAF Growth Rate	1,686	1,694	1,710	0.09%
Local GA				
Constant Market – Low Range	2,760	2,810	2,910	0.49%
Increasing Market – Mid Range*	**2,950**	**3,190**	**3,690**	**1.69%**
Increasing Market – High Range	3,150	3,610	4,570	2.79%
KS TAF Growth Rate	2,647	2,657	2,678	0.08%
*Selected forecast is indicated in **boldface**				

[1] Total includes estimated air taxi operations.

Itinerant GA Forecasts



Local GA Forecasts



*Compound Annual Growth Rate

Exhibit 2E
OPERATIONS FORECASTS

Air Taxi Operations Forecast

The air taxi category is a subset of the itinerant operations category and is comprised of operations that are conducted by aircraft operating under 14 CFR Part 135. Part 135 operations are for-hire or on-demand and include charter and commuter flights, air ambulance, and fractional ownership aircraft operations. The FAA projects a 0.7 percent CAGR increase in total air taxi operations between 2024 and 2044.

The primary reasons for this increase are the technological advancements of electric vertical takeoff and landing aircraft (eVTOL) and the continued national growth in the business jet segment of the air taxi category.

Two sources for historical air taxi operations at PHG were consulted: the FAA TAF and AirportIQ, a company that records Part 135 operations. The FAA TAF for PHG reports zero air taxi operations. Data sourced from AirportIQ indicates limited air taxi activity at PHG, as shown in **Table 2N**. Given the fluctuations in this type of activity at the airport, this master plan will assume 20 air taxi operations for each forecast year.

TABLE 2N | Historical and Projected Air Taxi Operations

Year	Air Taxi Operations
2014	0
2015	0
2016	6
2017	6
2018	10
2019	20
2020	12
2021	12
2022	6
2023	10
2024*	12
Air Taxi Operations Forecast	
2029	20
2033	20
2044	20

*2024 counts are from January 1, 2024, through September 23, 2024

Source: AirportIQ

Military Operations Forecast

Military aircraft can (and do) utilize civilian airports across the country, including Phillipsburg Municipal Airport; however, it is inherently difficult to project future military operations due to their national security nature and the fact that missions can change without notice, so it is typical for the FAA to use a flatline number for military operations. As reported in the FAA TAF, military operations at Phillipsburg Municipal Airport are estimated at zero and are projected to stay constant through the plan years. This figure will be carried forward within the master plan.

Peak Period Forecasts

Peaking characteristics play an important role in determining airport capacity and facility requirements. Because Phillipsburg Municipal Airport does not have an ATCT, the generalized peaking characteristics of other non-towered general aviation airports have been used for the purposes of this study. The peaking periods used to develop the capacity analysis and facility requirements are described below.

- Peak month – the calendar month in which traffic activity is the highest
- Design day – the average day in the peak month, derived by dividing the peak month by the number of days in the month
- Design hour – the average hour within the design day
- Busy day – the busiest day of a typical week in the peak month

For the purposes of this study, the peak month for total operations was estimated at 10 percent of the annual operations. By 2044, the estimated peak month is projected to reach 603 operations. The design day is estimated by dividing the peak month by the number of days in the month (31) and the busy day is calculated at 1.25 times the design day. The design hour is calculated at 15 percent of the design day. These projections are included in **Table 2P**.

TABLE 2P | Peak Period Forecasts

	2024	2029	2034	2044
Annual	4,327	4,850	5,230	6,030
Peak Month	433	485	523	603
Design Day	14	16	17	19
Design Hour	2	2	3	3
Busy Day	17	20	21	24

Source: Coffman Associates analysis

FORECAST SUMMARY

This chapter has outlined the various activity levels that might be reasonably anticipated over the planning period. **Exhibit 2F** presents a summary of the aviation forecasts prepared in this chapter. The base year for these forecasts is 2024, with a 20-year planning horizon to 2044. The primary aviation demand indicators are based aircraft and operations. Based aircraft are forecast to increase from 10 in 2024 to 15 by 2044 (1.98 percent CAGR). Total operations at Phillipsburg Municipal Airport are forecast to increase from 4,315 in 2024 to 6,030 by 2044 (1.67 percent CAGR).

Projections of aviation demand will be influenced by unforeseen factors and events in the future; therefore, it is not reasonable to assume that future demand will follow the exact projection line, but forecasts of aviation demand tend to fall within the planning envelope over time. The forecasts developed for this master planning effort are considered reasonable for planning purposes. The need for additional facilities will be based on these forecasts; however, if demand does not materialize as projected, implementation of facility construction can be slower. Likewise, if demand exceeds these forecasts, the airport may accelerate construction of new facilities.

FORECAST COMPARISON TO THE FAA TAF

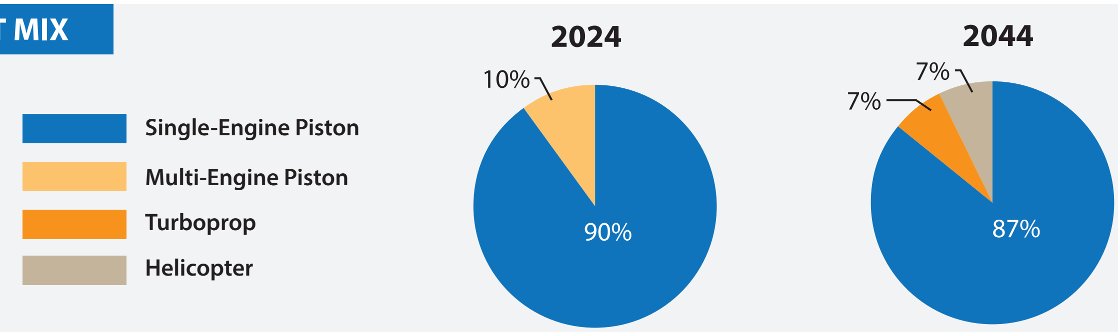
Historically, forecasts have been submitted to the FAA for evaluation and comparison to the TAF. The FAA preferred that forecasts differ by less than 10 percent in the five-year period and less than 15 percent in the 10-year period. Where forecasts differed, supporting documentation was necessary to justify the difference.

Table 2Q presents a summary of the selected forecasts and a comparison to the FAA TAF, including direct comparisons between the master plan forecasts and the TAF.

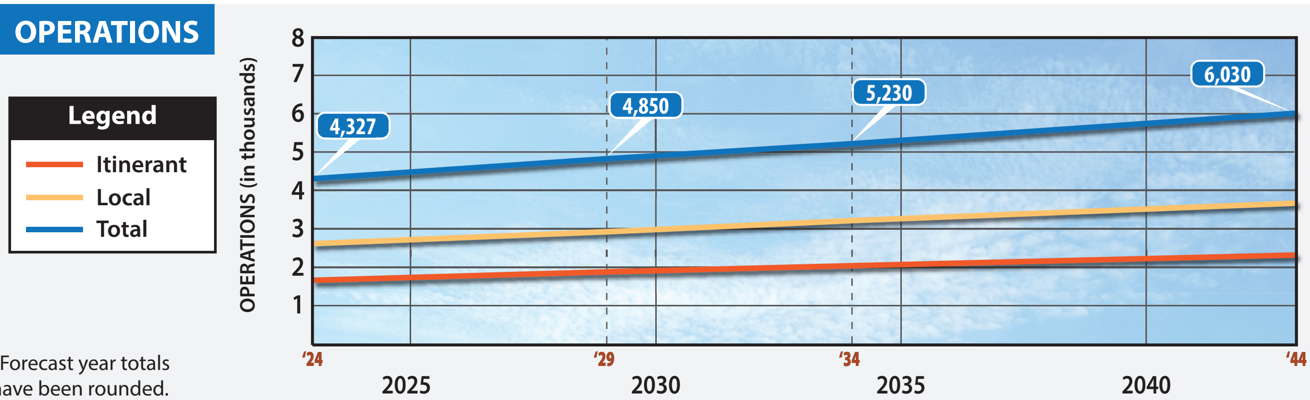
In terms of operations, the master plan forecast is outside the TAF tolerance for both the five- and 10-year periods. This is partially due to the TAF operations count overestimating actual activity at the airport, as well as the flatlined nature of the TAF forecast. For the based aircraft component, the master plan is within the TAF tolerance for both the five- and 10-year periods.

	Base Year	Forecast			
	2024	2029	2034	2044	CAGR
OPERATIONS					
Itinerant					
Air Carrier	0	0	0	0	
Air Taxi	12	20	20	20	
General Aviation	1,678	1,880	2,020	2,320	
Military	0	0	0	0	
Total Itinerant	***1,690***	***1,900***	***2,040***	***2,340***	
Local					
General Aviation	2,637	2,950	3,190	3,690	
Military	0	0	0	0	
Total Local Subtotal	***2,637***	***2,950***	***3,190***	***3,690***	
TOTAL ANNUAL OPERATIONS	4,327	4,850	5,230	6,030	1.67%
BASED AIRCRAFT					
Single-Engine	9	10	10	13	
Multi-Engine	1	1	1	0	
Turboprop	0	0	1	1	
Jet	0	0	0	0	
Helicopter	0	0	0	1	
Other	0	0	0	0	
TOTAL BASED AIRCRAFT	10	11	12	15	1.98%

FLEET MIX



OPERATIONS



*Forecast year totals have been rounded.

TABLE 2Q | Comparison of Master Plan Forecasts to FAA TAF

	2024	2029	2034	2044	CAGR
Total Operations					
Master Plan Forecast	4,327	4,850	5,230	6,030	1.7%
TAF	9,000	9,000	9,000	9,000	0.0%
% Difference:	**70.13%**	**59.93%**	**52.99%**	**39.52%**	**–**
Based Aircraft					
Master Plan Forecast	10	11	12	15	2.0%
TAF	12	12	12	12	0.0%
% Difference:	**18.18%**	**8.70%**	**0.00%**	**22.22%**	**–**

AIRCRAFT/AIRPORT/RUNWAY CLASSIFICATION

The FAA has established several aircraft classification systems that group aircraft types based on their performance (approach speed in landing configuration) and design characteristics (wingspan and landing gear configuration). These classification systems are used to determine the appropriate airport design standards for specific airport elements, such as runways, taxiways, taxilanes, and aprons.

AIRCRAFT CLASSIFICATION

The selection of appropriate FAA design standards for the development and location of airport facilities is based primarily on the characteristics of the aircraft that currently use, or are expected to use, an airport. The critical aircraft is used to define the design parameters for an airport. The critical aircraft may be a single aircraft type or a composite aircraft that represents a collection of aircraft with similar characteristics. The critical aircraft is classified by three parameters: aircraft approach category (AAC), airplane design group (ADG), and taxiway design group (TDG). FAA AC 150/5300-13B, *Airport Design*, Change 1, describes the following airplane classification systems, the parameters of which are presented on **Exhibit 2G**.

Aircraft Approach Category (AAC) | The AAC is a grouping of aircraft based on a reference landing speed (V_{REF}), if specified, or if V_{REF} is not specified, 1.3 times stall speed (V_{SO}) at the maximum certificated landing weight. V_{REF}, V_{SO}, and the maximum certificated landing weight are values established for the aircraft by the certification authority of the country of registry.

The AAC generally refers to the approach speed of an aircraft in landing configuration. The higher the approach speed is, the more restrictive the applicable design standards will be. The AAC is depicted by a letter (A through E) and relates to aircraft approach speed (operational characteristics). The AAC generally applies to runways and runway-related facilities, such as runway width, runway safety area (RSA), runway object free area (ROFA), runway protection zone (RPZ), and separation standards.

Airplane Design Group (ADG) | The ADG is depicted by a Roman numeral (I through VI) and is a classification of aircraft that relates to aircraft wingspan or tail height (physical characteristics). When the aircraft wingspan and tail height fall in different groups, the higher group is used. The ADG influences design standards for taxiway safety area (TSA), taxiway object free area (TOFA), taxilane object free area, apron wingtip clearance, and various separation distances.

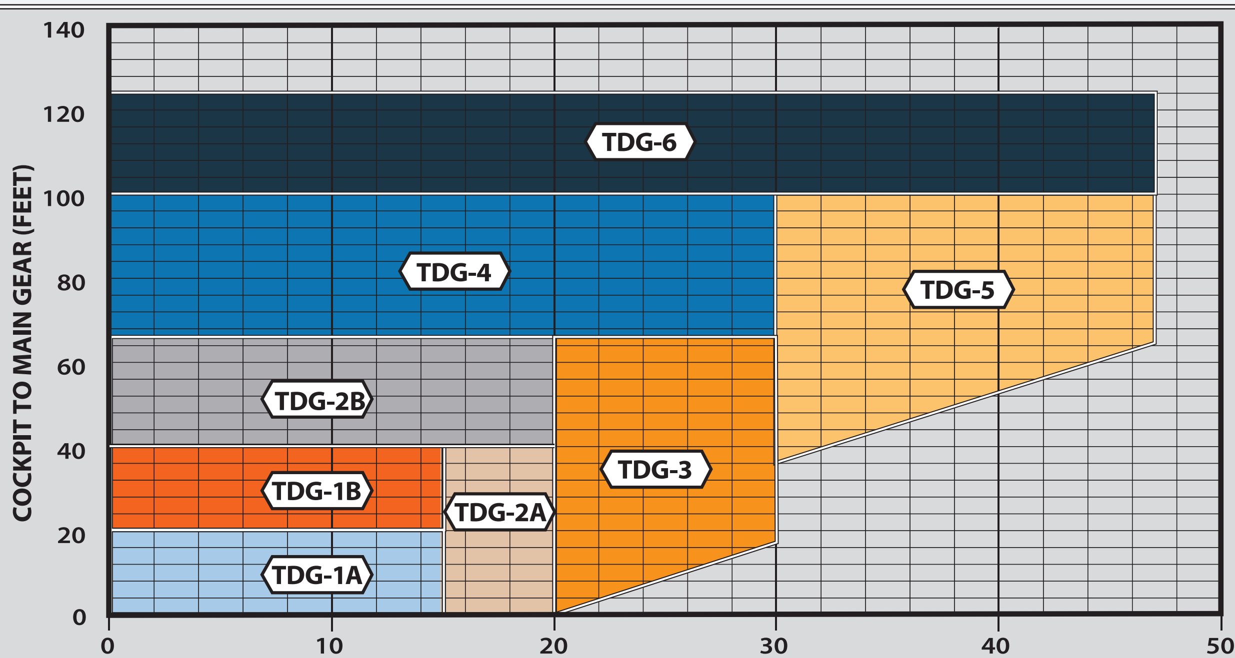
AIRCRAFT APPROACH CATEGORY (AAC)	
Category	**Approach Speed**
A	Less than 91 knots
B	91 knots or more but less than 121 knots
C	121 knots or more but less than 141 knots
D	141 knots or more but less than 166 knots
E	166 knots or more

AIRPLANE DESIGN GROUP (ADG)		
Group #	**Tail Height (ft)**	**Wingspan (ft)**
I	<20	<49
II	20≤30	49≤79
III	30≤45	79≤118
IV	45≤60	118≤171
V	60≤66	171≤214
VI	66≤80	214≤262

VISIBILITY MINIMUMS	
RVR* (ft)	**Flight Visibility Category (statute miles)**
VIS	3-mile or greater visibility minimums
5,000	Not lower than 1-mile
4,000	Lower than 1-mile but not lower than ¾-mile
2,400	Lower than ¾-mile but not lower than ½-mile
1,600	Lower than ½-mile but not lower than ¼-mile
1,200	Lower than ¼-mile

***RVR**: Runway Visual Range

TAXIWAY DESIGN GROUP (TDG)



Source: FAA AC 150/5300-13B, Airport Design

Exhibit 2G
AIRCRAFT CLASSIFICATION PARAMETERS

A-I

Aircraft	TDG
Beech Baron 55	1A
Beech Bonanza	**1A**
Cessna 150, 172	1A
Eclipse 500	1A
Piper Archer, Seneca	1A

B-I

Aircraft	TDG
Beech Baron 58	**1A**
Beech King Air 90	1A
Cessna 421	1A
Cessna Citation CJ1 (525)	1A
Cessna Citation 1(500)	2
Embraer Phenom 100	1B

A/B-II *12,500 lbs. or less*

Aircraft	TDG
Beech Super King Air 200	**2**
Cessna 441 Conquest	1A
Cessna Citation CJ2 (525A)	2
Pilatus PC-12	1A

B-II *over 12,500 lbs.*

Aircraft	TDG
Beech Super King Air 350	2
Cessna Citation CJ3(525B), Bravo (550), V (560)	2
Cessna Citation CJ4 (525C)	**1B**
Cessna Citation Latitude/Longitude	1B
Embraer Phenom 300	1B
Falcon 10, 20, 50	1B
Falcon 900, 2000	2
Hawker 800, 800XP, 850XP, 4000	1B
Pilatus PC-24	1B

A/B-III

Aircraft	TDG
Bombardier Dash 8	3
Bombardier Global 5000, 6000, 7000, 8000	**2**
Falcon 6X, 7X, 8X	2

Note: Aircraft pictured is identified in bold type.

C/D-I

Aircraft	TDG
Lear 25, 31, 45, 55, **60**	**1B**
Learjet 35, 36 (D-I)	1B

C/D-II

Aircraft	TDG
Challenger 600/604/ 800/850	1B
Cessna Citation VII, X+	1B
Embraer Legacy 450/500	1B
Gulfstream IV, 350, 450 (D-II)	**2**
Gulfstream G200/G280	1B
Lear 70, 75	1B

C/D-III *less than 150,000 lbs.*

Aircraft	TDG
Gulfstream V	2
Gulfstream G500, 550, 600, **650 (D-III)**	**2**

C/D-III *over 150,000 lbs.*

Aircraft	TDG
Airbus A319-100, 200	3
Boeing 737 -800, 900, BBJ2 (D-III)	**3**
MD-83, 88 (D-III)	4

C/D-IV

Aircraft	TDG
Airbus A300-100, 200, 600	5
Boeing 757-200	4
Boeing 767-300, **400**	**5**
MD-11	6

D-V

Aircraft	TDG
Airbus A330-200, 300	5
Airbus A340-500, 600	6
Boeing 747-100 - 400	5
Boeing 777-300	6
Boeing 787-8, 9	**5**

Exhibit 2G
AIRCRAFT REFERENCE CODES

Taxiway Design Group (TDG) | The TDG is classification of airplanes based on outer-to-outer main gear width (MGW) and cockpit to main gear (CMG) distance. The TDG relates to the undercarriage dimensions of the critical aircraft and is classified by an alphanumeric system (1A, 1B, 2A, 2B, 3, 4, 5, 6, and 7). The taxiway design elements determined by the application of the TDG include the taxiway width, taxiway edge safety margin, taxiway shoulder width, taxiway fillet dimensions, and, in some cases, the separation distance between parallel taxiways/taxilanes. Other taxiway elements, such as the taxiway safety area (TSA), taxiway/taxilane object free area (TOFA), taxiway/taxilane separation to parallel taxiway/taxilanes or fixed or movable objects, and taxiway/taxilane wingtip clearances, are determined solely based on the wingspan (ADG) of the critical aircraft utilizing those surfaces. It is appropriate for taxiways to be planned and built to different TDG standards, based on expected use.

The reverse side of **Exhibit 2G** summarizes the classifications of the some of the most common aircraft in operation today. Generally, recreational and business piston and turboprop aircraft fall in AAC A and B, and ADG I and II. Business jets typically fall in AAC B and C, while the larger commercial aircraft fall in AAC C and D.

AIRPORT AND RUNWAY CLASSIFICATIONS

Airport and runway classifications, along with the previously defined aircraft classifications, are used to determine the appropriate FAA design standards to which airfield facilities should be designed and built.

Runway Design Code (RDC) | The RDC is a code that signifies the design standards to which the runway should be built. The AAC, ADG, and runway visual range (RVR) are combined to form the RDC of a runway. The RDC provides the information needed to determine certain applicable design standards. The first component, depicted by a letter, is the AAC and relates to aircraft approach speed (operational characteristics). The second component, depicted by a Roman numeral, is the ADG and relates to either the aircraft wingspan or tail height (physical characteristics), whichever is most restrictive. The third component relates to the available instrument approach visibility minimums, expressed by RVR values in feet of 1,200 (⅛-mile), 1,600 (¼-mile), 2,400 (½-mile), 4,000 (¾-mile), and 5,000 (1-mile). The RVR values approximate standard visibility minimums for instrument approaches to the runways. The third component is labeled "VIS" for runways that are designed for visual approach use only.

CRITICAL AIRCRAFT

The selection of appropriate FAA design standards for the development and location of airport facilities is based primarily on the characteristics of the aircraft that currently use, or are expected to use, an airport. The critical aircraft is used to define the design parameters for an airport. The critical aircraft may be a single aircraft or a composite aircraft that represents a collection of aircraft classified by the three parameters: AAC, ADG, and TDG.

The first consideration is the safe operation of aircraft likely to use an airport. Any operation of an aircraft that exceeds the design criteria of an airport may result in a lesser safety margin; however, it is not the usual practice to base the design of an airport on an aircraft that infrequently uses the airport.

The critical aircraft is defined as the most demanding aircraft type, or grouping of aircraft with similar characteristics, that makes regular use of the airport. Regular use is 500 annual operations, excluding touch-and-go operations. Planning for future aircraft use is of importance because the design standards are used to plan separation distances between facilities. These future standards must be considered now to ensure short-term development does not preclude the reasonable long-range potential needs of the airport.

According to FAA AC 150/5300-13B, *Airport Design*, Change 1, "airport designs based only on aircraft currently using the airport can severely limit the airport's ability to accommodate future operations of more demanding aircraft. Conversely, it is not practical or economical to base airport design on aircraft that will not realistically use the airport." Selection of the current and future critical aircraft must be realistic in nature and supported by current data and reasonable projections.

AIRPORT CRITICAL AIRCRAFT

Three elements are used to classify the airport critical aircraft: AAC, ADG, and TDG. The AAC and ADG are examined first, followed by the TDG.

As discussed, the FAA's TFMSC database captures certain operations (i.e., those for which a flight plan is filed and those detected by radar). While the TFMSC does not account for all aircraft activity at an airport by a given aircraft type, it provides an accurate reflection of activity under instrument flight rules (IFR). Operators of high-performance aircraft, such as turboprops and jets, tend to file flight plans at a high rate.

Exhibit 2H presents the TFMSC operational mix at the airport for turbine aircraft operations for the last 10 years. As shown, there has been limited reporting of activity by turboprops and business jets; no single aircraft or family of aircraft has conducted 500 or more operations at PHG over the last 10 years. In 2023, the most recent calendar year available, the greatest number of operations in any single design family was 52 in AAC/ADG B-II, the majority of which were conducted by the Citation CJ2/CJ3/CJ4, followed by the King Air 200/300/350. Turbine aircraft in AAC/ADG B-I are second-most frequent operators according to TFMSC data.

When planning for future facilities at Phillipsburg Municipal Airport, it is necessary to consider the types of aircraft that operate most frequently at the airport to identify the existing and ultimate critical aircraft. The TFMSC is one source to consider, but it is not inclusive of all operations occurring at PHG, particularly operations by piston-powered aircraft. With no one family of aircraft operating more than 500 times per year, according to TFMSC, **it is reasonable to identify B-I as the existing critical aircraft**, with the Citation CJ1 serving as the representative aircraft. In terms of the ultimate critical aircraft, operations by airplanes in the B-II family have comprised the majority of turbine operations at PHG, according to TFMSC data. This trend is expected to continue, and future planning should reflect a transition to a B-II design; therefore, the **ultimate critical aircraft has been determined to fall within B-II**, with the King Air 200/300/350 serving as the representative aircraft. While single-engine piston aircraft will likely continue to lead in terms of operations at the airport over the planning period, planning should also consider the most physically demanding aircraft operating at the airport.

ARC	Aircraft	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
A-I	Cirrus Vision Jet	0	0	0	0	0	0	0	0	4	2
	Kodiak Quest	0	0	0	0	2	6	4	0	0	0
	Piper Malibu/Meridian	0	0	0	0	2	0	4	0	0	0
	Socata TBM 7/850/900	4	2	4	4	2	16	8	0	12	4
	Total	4	2	4	4	6	22	16	0	16	6
A-II	Cessna Caravan	0	0	2	0	0	0	0	0	0	0
	Pilatus PC-12	4	0	2	0	8	6	2	12	18	8
	Total	4	0	4	0	8	6	2	12	18	8
B-I	Beechjet 400	0	0	0	0	0	0	2	14	6	2
	Cessna 425 Corsair	0	0	2	4	2	8	8	6	2	2
	Citation CJ1	0	0	4	2	0	2	2	2	40	20
	Citation M2	0	0	0	0	0	0	0	2	0	0
	Citation Mustang	0	4	2	12	0	0	0	2	14	14
	Mitsubishi MU-2	0	0	0	0	0	0	0	0	4	0
	Phenom 100	0	0	6	2	0	0	0	0	0	0
	Piper Cheyenne	2	0	0	0	0	0	0	0	0	0
	T-6 Texan	0	0	0	2	0	0	0	0	0	0
	Total	2	4	14	22	2	10	12	26	66	38
B-II	Cessna Conquest	20	22	12	2	4	6	10	0	6	2
	Citation CJ2/CJ3/CJ4	0	4	10	8	0	6	0	4	12	22
	Citation II/SP/Latitude	0	0	2	0	0	0	0	0	0	2
	Citation V/Sovereign	6	4	4	2	0	0	2	0	0	0
	Citation XLS	0	0	2	0	2	12	0	4	2	2
	King Air 200/300/350	2	12	6	0	6	10	2	4	20	16
	King Air 90/100	52	32	38	36	34	40	20	12	18	8
	Phenom 300	0	0	0	0	0	0	0	2	0	0
	Swearingen Merlin	0	2	0	0	0	0	0	0	0	0
	Total	80	76	74	48	46	74	34	26	58	52
C-I	Learjet 40 Series	4	0	6	6	4	6	2	2	6	4
	Learjet 50 Series	2	0	0	0	0	0	0	0	0	0
	Learjet 60 Series	2	0	0	0	0	2	0	0	0	0
	Total	8	0	6	6	4	8	2	2	6	4
C-II	Falcon 20/50	0	0	2	0	0	0	0	0	0	0
	Falcon 900	2	0	0	0	0	0	0	0	0	0
	Total	2	0	2	0	0	0	0	0	0	0

AIRPORT REFERENCE CODE (ARC) SUMMARY

ARC CODE	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
A-I	4	2	4	4	6	22	16	0	16	6
A-II	4	0	4	0	8	6	2	12	18	8
B-I	2	4	14	22	2	10	12	26	66	38
B-II	80	76	74	48	46	74	34	26	58	52
C-I	8	0	6	6	4	8	2	2	6	4
C-II	2	0	2	0	0	0	0	0	0	0
Total	100	82	104	80	66	120	66	66	164	108

Approach Category

AC	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
A	8	2	8	4	14	28	18	12	34	14
B	82	80	88	70	48	84	46	52	124	90
C	10	0	8	6	4	8	2	2	6	4
Total	100	82	104	80	66	120	66	66	164	108

Design Group

DG	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
I	14	6	24	32	12	40	30	28	88	48
II	86	76	80	48	54	80	36	38	76	60
Total	100	82	104	80	66	120	66	66	164	108

Source: TFMSC 2014-2023. Data normalized annually.

Exhibit 2H
HISTORICAL TURBOPROP AND JET OPERATIONS

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RUNWAY DESIGN CODE

The RDC relates to specific FAA design standards that should be met in relation to a runway. The RDC takes into consideration the AAC, ADG, and the RVR. In most cases, the critical design aircraft will also be the RDC for the primary runway.

Runway 13-31 | As the primary runway, Runway 13-31 should be designed to accommodate the overall airport design aircraft. This runway is 5,101 feet long, 60 feet wide, and has non-precision instrument approaches with visibility minimums as low as one mile on each runway end. The current critical aircraft falls within B-I and the ultimate critical aircraft is in B-II family; therefore, when factoring in the RVR, the existing RDC for Runway 13-31 is B-I-5000 and the ultimate RDC is B-II-5000.

Runway 3-21 | Turf Runway 3-21 is the airport's crosswind runway. It measures 1,755 feet long by 140 wide and does not offer instrument approach capability. The RDC for Runway 3-21 has historically been classified as A-I-VIS (visual approach capability only). Based on this runway's current and expected usage, the existing/ultimate RDC for turf Runway 3-21 is planned as A-I(Small)-VIS.

Table 2R summarizes the current and future airport and runway classifications.

TABLE 2R | Airport and Runway Classifications

	Primary Runway 13-31		Turf Runway 3-21
	Existing	Ultimate	Existing & Ultimate
Runway Design Code (RDC)	B-I-5000	B-II-5000	A-I(Small)-VIS
Taxiway Design Group (TDG)	1A	2A	N/A
Critical Aircraft (Typ.)	Citation CJ1	King Air 200/300/350	Cessna 182

Source: FAA AC 150/5300-13B, Airport Design; Coffman Associates analysis

SUMMARY

This chapter has outlined the various activity levels that might reasonably be anticipated over the planning period, as well as the critical aircraft for the airport. Total based aircraft are forecast to grow from 10 in 2024 to 15 by 2044. Operations are forecast to grow from an estimated 4,327 in 2024 to 6,030 by 2044. The projected growth is driven primarily by the FAA's positive outlook for general activity nationwide and within the State of Kansas. The health of the local economy also factors into the projected growth in activity at the airport.

The critical aircraft for the airport was determined by examining the FAA TFMSC database of flight plans. The current critical aircraft is described as B-I-1A, represented by the Citation CJ1, and the ultimate critical aircraft is described as B-II-2A and is best represented by the King Air 200/300/350.

The next step in the planning process is to assess the capabilities of the existing facilities to determine what upgrades may be necessary to meet future demands. The range of forecasts developed in this chapter will be carried forward in the next chapter as planning horizon activity levels that will serve as milestones or activity benchmarks in evaluating facility requirements.