# CHAPTER TWO – FORECASTS

An important factor in facility planning is estimating the demand that can reasonably be expected to occur during the useful life of an airport's key components (e.g., runways, taxiways, terminal facilities, etc.). In airport planning, this involves projecting potential aviation activity for at least a 20-year timeframe. Aviation demand forecasting for La Porte Municipal Airport (T41) will primarily consider based aircraft, aircraft operations, and critical aircraft.

The Texas Department of Transportation (TxDOT) Aviation Division has oversight responsibility to review and approve aviation forecasts developed in conjunction with airport planning studies. TxDOT reviews individual airport forecasts with the objective of comparing them to the Federal Aviation Administration (FAA) *Terminal Area Forecast* (TAF) for T41.

When reviewing a sponsor's forecast from a planning study, TxDOT must ensure 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 a planning study includes 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 forecast process:

1. **Identify Aviation Activity Measures** – Determine the levels and types of aviation activities likely to impact facility needs; for general aviation (GA), these typically include based aircraft and operations.

2. **Review Previous Airport Forecasts** – These 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 the FAA's TAF** – As of August 2024, per the FAA's Memorandum entitled *Forecast Review and Approval Instructions,* the FAA no longer requires comparison of this forecast to the FAA's Terminal Area Forecasts (TAF) if the airport currently experiences less than 90,000 operations annually and is not expected to exceed 90,000 operations in the foreseeable future. Total annual operations at T41 are not expected to exceed 90,000 during the planning period. Therefore, the FAA's focus for review of this chapter will be on confirming the existing and ultimate (20 years) critical aircraft. The critical aircraft analysis in this chapter follows the guidance of Advisory Circular 150/5000-17, *Critical Aircraft and Regular Use Determination*. The bulk of this chapter consists of additional, more detailed information that will aid the airport in their future planning.

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 any certainty; therefore, it is important to remember that forecasts are to serve only as guidelines, and planning must remain flexible enough to respond to a range of unforeseen developments.

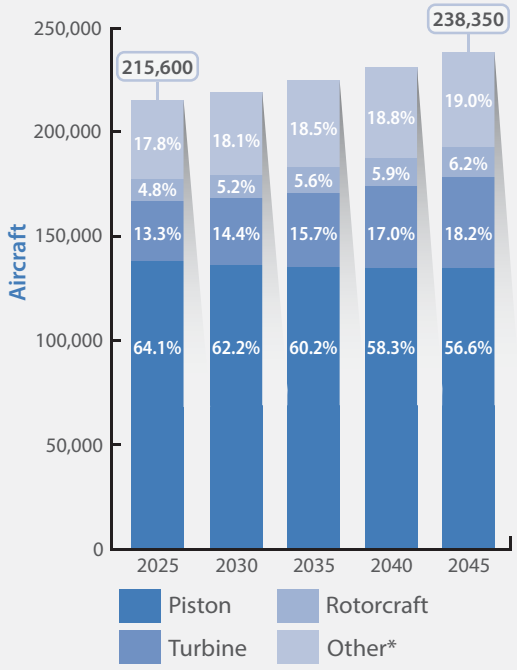
The following forecast analysis for the airport was produced following these basic guidelines. Existing forecasts are examined and compared against current and historical activity. The historical aviation activity is then examined, along with other factors and trends that can affect demand. The intent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

The forecasts for this planning study will utilize a base year of 2025 with a long-range forecast out to 2045.

## *NATIONAL AVIATION TRENDS*

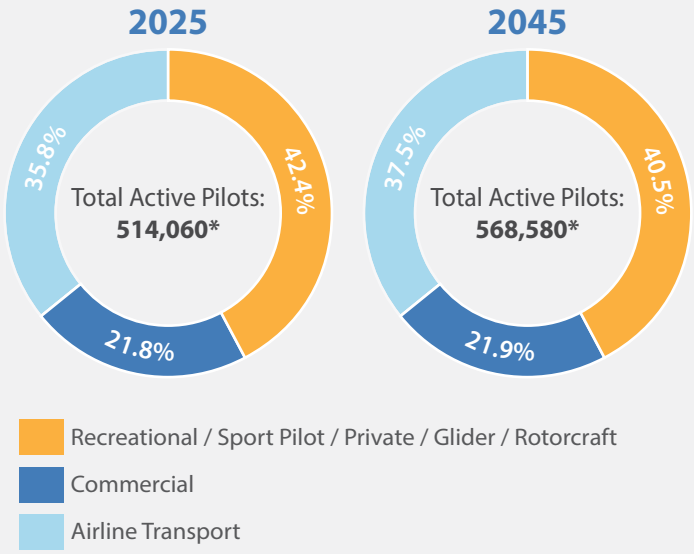
Each year, the FAA updates and publishes a national aviation forecast. Included in this publication are forecasts for large air carriers, regional/commuter air carriers, general aviation, and FAA workload measures. The forecasts are prepared to meet the budget and planning needs of the FAA and provide information that can be used by state and local authorities, the aviation industry, and the public. At the time this chapter was prepared, the most recent edition was the *FAA Aerospace Forecast – Fiscal Years* (FY) *2025-2045*. 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 a brief synopsis of highlights from the FAA's national general aviation forecasts. A summary of the FAA's forecasts is also shown on **Exhibit 2A**.

## U.S. Active General Aviation Aircraft



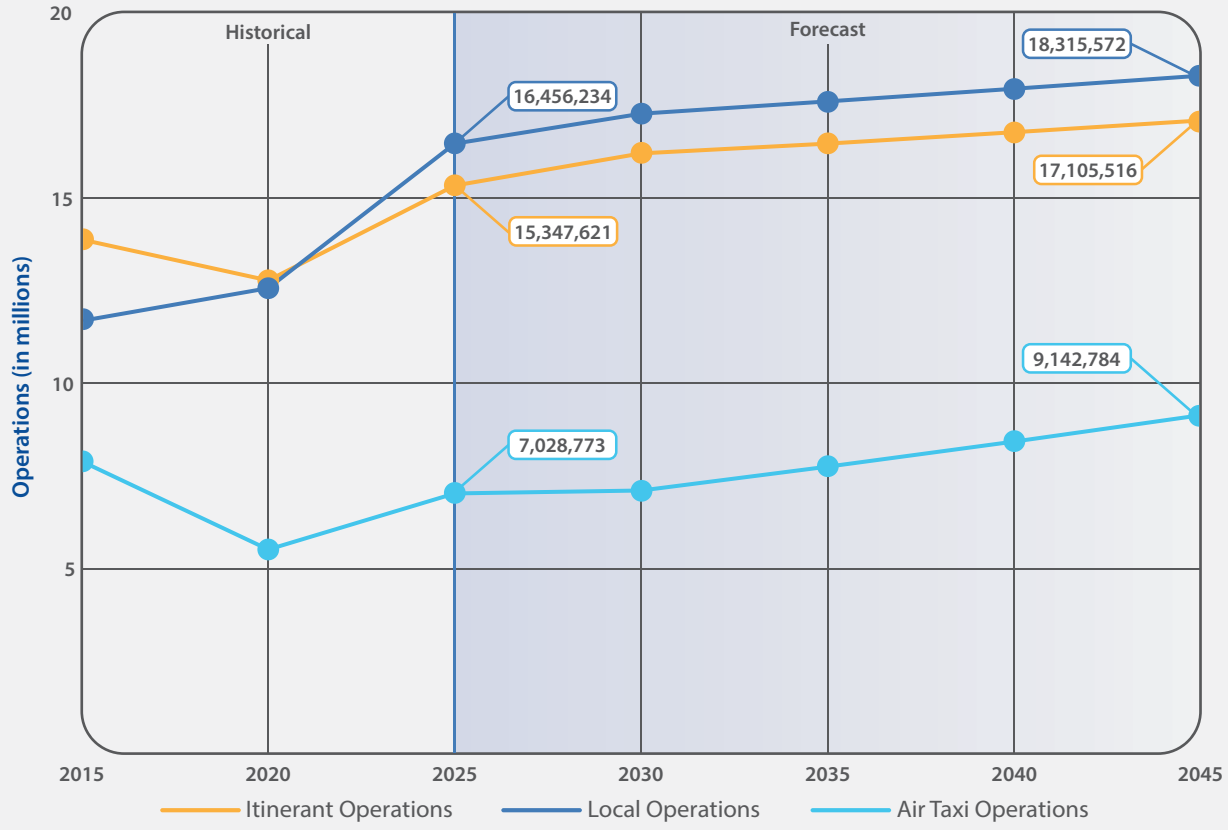

*The other category includes gliders and balloons

## Active Pilots By Certificate




*Excludes Student Pilot Certificates

## U.S. General Aviation and Air Taxi Operations




Source: FAA Aerospace Forecasts FY2025-2045

## NATIONAL GENERAL AVIATION TRENDS

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 0.5 percent annually between 2025 and 2045. While steady growth in both gross domestic product (GDP) and corporate profits results in the 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 for at least one hour during the year. **Table 2A** shows the primary general aviation demand indicators, as forecast by the FAA.

**TABLE 2A | FAA General Aviation Forecast**

| Demand Indicator | 2025 | 2045 | CAGR |
|---|---|---|---|
| **General Aviation Fleet** | | | |
| Total Fixed-Wing Piston | 138,270 | 134,850 | -0.1% |
| Total Fixed-Wing Turbine | 28,605 | 43,405 | 2.1% |
| Total Helicopters | 10,420 | 14,715 | 1.7% |
| Total Other (experimental, light sport, etc.) | 38,305 | 45,380 | 0.9% |
| **Total General Aviation Fleet** | **215,600** | **238,350** | **0.5%** |
| **General Aviation Operations** | | | |
| Local | 16,456,000 | 18,316,000 | 0.5% |
| Itinerant | 15,348,000 | 17,106,000 | 0.5% |
| **Total General Aviation Operations** | **31,804,000** | **35,421,000** | **0.5%** |

CAGR = compound annual growth rate (2025-2045)

*Source: FAA Aerospace Forecast – FY 2025-2045*

FAA forecasts of total operations are based on activity at airport traffic control towers across the United States and are categorized as air carrier, air taxi/commuter, general aviation, and military. The number of general aviation operations at towered airports is projected to increase from 31.8 million in 2025 to 35.4 million in 2045, 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 both local and itinerant general aviation operations.

## *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 primarily defined 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.

The service area for an airport is a geographical 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, which influence aviation demand at an airport. For the purposes of this study, La Porte Municipal Airport's service area will be defined as Harris County, Texas.

## SERVICE AREA SOCIOECONOMICS

The socioeconomic characteristics of an airport's service area can provide valuable information from which to derive an understanding of the dynamics of growth near that airport. This information is crucial in determining aviation demand level requirements, as most aviation demand is directly related to the socioeconomic conditions of the surrounding region. Statistical analysis of population, employment, income, and gross regional product (GRP) trends outlines the economic strength of a region and can help determine the ability of the area to sustain a strong economy in the future. Socioeconomic data utilized in the development of new based aircraft and operations forecasts for T41 include historical and projected population, employment, per capita personal income (PCPI), and GRP data from Woods and Poole Economics, Inc. Ten years of historical data and projections through 2045 for the service area (Harris County) and the State of Texas are summarized in **Table 2B**.

**TABLE 2B | Socioeconomic Information**

| Year/CAGR | Population | | Employment | |
|---|---|---|---|---|
| | Harris County | Texas | Harris County | Texas |
| **Historical** | | | | |
| 2015 | 4,554,340 | 27,397,220 | 3,088,202 | 16,414,565 |
| 2016 | 4,620,528 | 27,827,935 | 3,059,668 | 16,683,269 |
| 2017 | 4,653,064 | 28,189,095 | 3,127,062 | 17,104,406 |
| 2018 | 4,673,634 | 28,507,726 | 3,206,535 | 17,608,889 |
| 2019 | 4,705,457 | 28,855,339 | 3,261,048 | 17,901,634 |
| 2020 | 4,735,383 | 29,239,570 | 3,187,026 | 17,700,738 |
| 2021 | 4,736,633 | 29,570,351 | 3,303,193 | 18,559,324 |
| 2022 | 4,806,747 | 30,113,488 | 3,485,518 | 19,631,439 |
| 2023 | 4,903,450 | 30,727,890 | 3,599,694 | 20,164,140 |
| 2024 | 5,009,302 | 31,290,831 | 3,648,298 | 20,498,667 |
| 2025 | 5,055,295 | 31,657,151 | 3,696,679 | 20,837,667 |
| **2015-2025 CAGR** | **1.1%** | **1.5%** | **1.8%** | **2.4%** |
| **Forecast** | | | | |
| 2030 | 5,277,777 | 33,509,919 | 3,932,230 | 22,599,610 |
| 2035 | 5,483,223 | 35,378,996 | 4,152,315 | 24,464,224 |
| 2045 | 5,834,115 | 39,139,246 | 4,546,643 | 28,528,544 |
| **2025-2045 CAGR** | **0.7%** | **1.1%** | **1.0%** | **1.6%** |

*Continues on next page*

**TABLE 2B | Socioeconomic Information (continued)**

| Year/CAGR | Income (2017 dollars) | | GRP (millions/2017 dollars) | |
|---|---|---|---|---|
| | Harris County | Texas | Harris County | Texas |
| **Historical** | | | | |
| 2015 | $55,095 | $48,061 | $386,003 | $1,630,013 |
| 2016 | $51,204 | $46,666 | $374,218 | $1,610,620 |
| 2017 | $53,814 | $48,523 | $377,601 | $1,667,313 |
| 2018 | $56,452 | $50,317 | $395,689 | $1,771,759 |
| 2019 | $56,685 | $51,467 | $385,717 | $1,801,652 |
| 2020 | $56,466 | $52,365 | $370,133 | $1,722,216 |
| 2021 | $60,505 | $55,237 | $400,372 | $1,916,981 |
| 2022 | $60,520 | $54,097 | $433,795 | $2,098,789 |
| 2023 | $60,446 | $54,583 | $449,836 | $2,144,447 |
| 2024 | $60,780 | $55,522 | $459,334 | $2,201,084 |
| 2025 | $61,872 | $56,614 | $468,956 | $2,259,033 |
| **2015-2025 CAGR** | **1.2%** | **1.7%** | **2.0%** | **3.3%** |
| **Forecast** | | | | |
| 2030 | $67,093 | $62,099 | $518,656 | $2,569,963 |
| 2035 | $72,254 | $67,798 | $571,302 | $2,918,294 |
| 2045 | $83,324 | $80,447 | $688,057 | $3,748,271 |
| **2025-2045 CAGR** | **1.5%** | **1.8%** | **1.9%** | **2.6%** |

CAGR = compound annual growth rate
GRP = gross regional product

*Source: Woods & Poole Economics, Inc., 2025*

## *FORECASTING APPROACH*

The development of aviation forecasts involves both analytical processes and expert judgment. 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 based on the accuracy of the forecasts produced using other methods.

Trendline/time series projections are the simplest and most familiar of the forecasting techniques. By fitting growth curves to historical data and 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 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, thereby yielding a correlation coefficient. The correlation coefficient (Pearson's r) 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 for the larger geographical area to produce a market share projection. This method has the same limitations as trendline projections but can be used to check the validity of other forecasting techniques.

Forecasts age, and the further a forecast is from the base year, the less reliable it may become, particularly due to changing local and national conditions; nevertheless, 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 completion of a major facility development program often takes more than five years; however, it is important to use forecasts that do not overestimate revenue-generating capabilities or understate the demand for facilities needed to meet public (user) needs.

A wide range of factors are known to influence the aviation industry and can have significant impacts on the extent and nature of aviation activity in 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 current aviation trends, forecasts are presented for the following aviation demand indicators:

- Based aircraft
- Based aircraft fleet mix
- Operations
- Operations fleet mix & critical aircraft

## *PREVIOUS FORECAST*

Consideration is given to any recently completed forecasts of aviation demand for the airport. For T41, the only recently prepared forecast is the FAA TAF, which was prepared in February 2026. On an annual basis, the FAA publishes the TAF for each airport included in the NPIAS. The TAF is a generalized forecast of airport activity that is used by the FAA primarily for internal planning purposes. It is available to airports and consultants to use as a baseline projection and is an important point of comparison when developing local forecasts.

**Table 2C** presents the 2026 TAF projections for T41. As shown, the FAA estimates T41 currently accommodates approximately 29,050 annual operations and 71 based aircraft. The FAA TAF has applied a 2.3 percent compound annual growth rate for total operations over the next 20 years and a 2.1 percent CAGR for based aircraft.

**TABLE 2C | FAA Terminal Area Forecast for T41**

| Year | Itinerant Operations | | | | | Local Operations | | | Total Operations | Based Aircraft |
|---|---|---|---|---|---|---|---|---|---|---|
| | Air Carrier | Air Taxi | GA | Military | Subtotal | GA | Military | Subtotal | | |
| **Historical** | | | | | | | | | | |
| 2015 | 0 | 0 | 9,683 | 0 | 9,683 | 19,367 | 0 | 19,367 | 29,050 | 82 |
| 2016 | 0 | 0 | 9,683 | 0 | 9,683 | 19,367 | 0 | 19,367 | 29,050 | 82 |
| 2017 | 0 | 0 | 9,683 | 0 | 9,683 | 19,367 | 0 | 19,367 | 29,050 | 74 |
| 2018 | 0 | 0 | 9,683 | 0 | 9,683 | 19,367 | 0 | 19,367 | 29,050 | 74 |
| 2019 | 0 | 0 | 9,683 | 0 | 9,683 | 19,367 | 0 | 19,367 | 29,050 | 49 |
| 2020 | 0 | 0 | 9,683 | 0 | 9,683 | 19,367 | 0 | 19,367 | 29,050 | 44 |
| 2021 | 0 | 0 | 9,683 | 0 | 9,683 | 19,367 | 0 | 19,367 | 29,050 | 44 |
| 2022 | 0 | 0 | 9,909 | 0 | 9,909 | 19,818 | 0 | 19,818 | 29,727 | 44 |
| 2023 | 0 | 0 | 9,909 | 0 | 9,909 | 19,818 | 0 | 19,818 | 29,727 | 45 |
| 2024 | 0 | 0 | 9,683 | 0 | 9,683 | 19,367 | 0 | 19,367 | 29,050 | 71 |
| 2025 | 0 | 0 | 9,683 | 0 | 9,683 | 19,367 | 0 | 19,367 | 29,050 | 71 |
| **Forecast** | | | | | | | | | | |
| 2030 | 0 | 0 | 10,868 | 0 | 10,868 | 21,728 | 0 | 21,728 | 32,596 | 79 |
| 2035 | 0 | 0 | 12,197 | 0 | 12,197 | 24,379 | 0 | 24,379 | 36,576 | 89 |
| 2045 | 0 | 0 | 15,353 | 0 | 15,353 | 30,696 | 0 | 30,696 | 46,049 | 107 |

## *BASED AIRCRAFT AND OPERATIONS FORECASTS*

The numbers of based aircraft and operations are the most basic indicators of aviation demand. By first developing a forecast of based aircraft for the airport, other demand indicators can be projected. The process of developing forecasts of based aircraft begins with an analysis of aircraft ownership in the primary general aviation service area through a review of historical aircraft registrations. An initial forecast of registered aircraft is developed and used as one data point to arrive at a based aircraft forecast for the airport. To determine the types and sizes of facilities that should be planned to accommodate activity at T41, certain indicators of demand must be forecast. These include based aircraft, aircraft fleet mix, and annual operations.

### BASED AIRCRAFT FORECAST

Forecasts of based aircraft may directly influence needed facilities and applicable design standards. The facilities needed may include hangars, aprons, taxilanes, etc. The applicable design standards may include separation distances and object clearing surfaces. The sizes and types of based aircraft are also an important consideration; the addition of numerous small aircraft may have no effect on design standards, while the addition of a few larger business jets can have a substantial impact on applicable design standards.

Because of the numerous variables known to influence aviation demand, several separate forecasts of based aircraft are developed. Each forecast is examined for practicality, and any outliers are discarded or given less weight. Collectively, the remaining forecasts will create a planning envelope. A single planning forecast is then selected for use in developing facility needs for the airport. The selected forecast of based aircraft can be one of the forecasts developed, based on the experience and judgment of the forecaster, or it can be a blend of the forecasts.

### Based Aircraft Inventory

The FAA did not require airports to report their based aircraft numbers until recently, with the establishment of a based aircraft inventory, in which it is possible to cross-reference based aircraft claimed by one airport with other airports. The FAA now utilizes this inventory as a baseline for determining how many and what types of aircraft are based at individual airports. This database evolves daily as aircraft are added or removed. It is the responsibility of the sponsor (owner) of each airport to input based aircraft information into the FAA database (www.basedaircraft.com). Based aircraft history dating back to 2017 was collected for this forecast, as reported on www.basedaircraft.com and provided by the sponsor.

Airport staff have undertaken and submitted a comprehensive physical count to the FAA for validation. The most recent validation of based aircraft at T41 identified 81 validated based aircraft. Of the validated based aircraft, there are 75 single-engine propeller aircraft, four (4) multi-engine propeller aircraft, and two (2) helicopters.

## REGISTERED AIRCRAFT FORECASTS

Aircraft ownership trends for the service area (Harris County) typically dictate based aircraft trends for an airport. As such, a forecast of registered aircraft for the primary service area is developed for use as an input to the subsequent based aircraft forecast.

**Table 2D** presents the historical registered aircraft for Harris County over the past 10 years. These figures are derived from the FAA aircraft registration database, which categorizes aircraft registrations by county, based on the zip codes of the 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 airports outside the county, or vice versa.

**TABLE 2D | Historical Registered Aircraft – Harris County**

| Year | Single-Engine Piston | Multi-Engine Piston | Turboprop | Jet | Helicopter | Electric | Other | UAV | Total |
|---|---|---|---|---|---|---|---|---|---|
| 2015 | 1,699 | 223 | 114 | 341 | 113 | 2 | 139 | 35 | 2,666 |
| 2016 | 1,711 | 220 | 115 | 343 | 112 | 6 | 131 | 74 | 2,712 |
| 2017 | 1,617 | 204 | 104 | 332 | 104 | 5 | 127 | 73 | 2,566 |
| 2018 | 1,515 | 185 | 101 | 334 | 97 | 5 | 101 | 66 | 2,404 |
| 2019 | 1,428 | 177 | 98 | 335 | 93 | 7 | 97 | 37 | 2,272 |
| 2020 | 1,396 | 176 | 104 | 337 | 83 | 5 | 89 | 31 | 2,221 |
| 2021 | 1,365 | 164 | 102 | 324 | 82 | 5 | 77 | 26 | 2,145 |
| 2022 | 1,346 | 161 | 99 | 320 | 82 | 1 | 71 | 14 | 2,094 |
| 2023 | 1,296 | 146 | 95 | 323 | 92 | 2 | 62 | 16 | 2,032 |
| 2024 | 1,269 | 139 | 92 | 324 | 91 | 2 | 63 | 16 | 1,996 |
| 2025 | 1,291 | 143 | 87 | 312 | 98 | 3 | 63 | 25 | 2,022 |

UAV = unmanned aerial vehicle

*Source: FAA Aircraft Registry*

The registered aircraft in the service area show a declining trend over the last several years, with registrations dropping from 2,666 in 2015 to 2,022 in 2025. Single-engine piston aircraft comprise the majority of aircraft (64 percent of registrations).

A forecast of aircraft registered in the market area was prepared for this study using market share, ratio, and historical growth rate projection methods.

### Historical Growth Rate Projection

Utilizing historical data of registered aircraft, a growth rate projection was prepared to reflect the compound annual growth rate (CAGR) of -1.8 percent for the most recent five-year period. This declining trend results in 1,381 registered non-UAV aircraft by 2045. While registrations have declined in recent years, this trend could be reversed as the local region is infused with more rapid population growth and a forecast higher growth rate for per capita personal income, which can correspond to aircraft ownership. The historical growth rate projection is included for comparison purposes but is not viewed as a likely outcome.

### Market Share of Texas Based Aircraft

Market share projections consider the ratio of service area registered aircraft to the total number of based aircraft, both historically and forecasted by the FAA, in the State of Texas. Texas state data was used due to the expected growth in based aircraft numbers at the state level, as opposed to the general declining historical trend of national registrations. The service area count of 1,997 non-UAV registered aircraft in 2025 represents approximately 14.35 percent of all based aircraft in Texas. If the service area maintains this market share, it would result in 2,100 aircraft by 2030 and 2,458 aircraft by 2045 (1.0 percent CAGR). An additional growth forecast was prepared based on an increasing market share scenario in which the service area returns to a 10-year average of 17.83 percent market share. This results in a total service area aircraft count of 2,196 by 2030 and 3,055 by 2045 (2.1 percent CAGR). **Table 2E** shows the market share of the service area compared to Texas totals.

**TABLE 2E | Registered Aircraft Projections – Market Share of Texas Based Aircraft**

| Year | Service Area Registered Aircraft | Texas Based Aircraft | Service Area Market Share % |
|---|---|---|---|
| 2015 | 2,631 | 11,865 | 22.17% |
| 2016 | 2,638 | 13,065 | 20.19% |
| 2017 | 2,493 | 12,416 | 20.08% |
| 2018 | 2,338 | 12,920 | 18.10% |
| 2019 | 2,235 | 11,968 | 18.67% |
| 2020 | 2,190 | 11,600 | 18.88% |
| 2021 | 2,119 | 11,977 | 17.69% |
| 2022 | 2,080 | 12,937 | 16.08% |
| 2023 | 2,016 | 13,080 | 15.41% |
| 2024 | 1,980 | 13,605 | 14.55% |
| 2025 | 1,997 | 13,920 | 14.35% |
| **2015-2025 CAGR** | **-2.7%** | **1.6%** | **–** |

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**TABLE 2E | Registered Aircraft Projections – Market Share of Texas Based Aircraft (continued)**

| Year | Service Area Registered Aircraft | Texas Based Aircraft | Service Area Market Share % |
|---|---|---|---|
| **Constant Market Share** | | | |
| 2030 | 2,100 | 14,640 | 14.35% |
| 2035 | 2,209 | 15,397 | 14.35% |
| 2045 | 2,458 | 17,136 | 14.35% |
| **2025-2045 CAGR** | **1.0%** | **1.0%** | **–** |
| **Increasing Market Share** | | | |
| 2030 | 2,196 | 14,640 | 15.00% |
| 2035 | 2,464 | 15,397 | 16.00% |
| 2045 | 3,055 | 17,136 | 17.83% |
| **2025-2045 CAGR** | **2.1%** | **1.0%** | **–** |

*Sources: Texas TAF, February 2026; Coffman Associates analysis*

### Ratio of Registered Aircraft to Population

The number of registered aircraft in an area often fluctuates based on population trends. As of 2025, the service area contains 0.40 registered aircraft per 1,000 residents. Over the past five years, this ratio has decreased as the number of aircraft registrations has declined and the service area population has grown. Two projections have been prepared: one based on maintaining the current ratio over the forecast period, and another projecting an increasing ratio that returns to the 10-year historical high of 0.58 registered aircraft per 1,000 residents. Maintaining the constant ratio (0.40) through 2045 results in 2,305 registered aircraft (0.8% CAGR). The increasing ratio projection results in 3,384 registered aircraft by 2045 (2.7% CAGR).

### Registered Aircraft Forecast Summary

**Table 2F** summarizes the five registered aircraft forecasts for Harris County. Overall, registrations have been declining; however, the Houston metropolitan area remains one of the fastest growing metropolitan areas in the country and is forecast to see an increase in personal income per capita growth. Furthermore, the overall state market for aircraft is strong and far exceeds national registered aircraft growth rates. For these reasons, the constant market share projection, with a CAGR of 1.0 percent, is considered the most realistic scenario. This forecast reflects modest growth while maintaining a reasonable ratio of aircraft to population. The selected registered aircraft forecast results in 2,100 aircraft in 2030, 2,209 in 2035, and 2,458 in 2045.

**TABLE 2F | Registered Aircraft Forecast Summary**

| Projection | 2030 | 2035 | 2045 | CAGR 2025-2045 |
|---|---|---|---|---|
| 5-Year Growth Rate | 1,821 | 1,661 | 1,381 | -1.8% |
| **Constant % of TX Based Aircraft** | **2,100** | **2,209** | **2,458** | **1.0%** |
| Increasing % of TX Based Aircraft | 2,196 | 2,464 | 3,055 | 2.1% |
| Constant Aircraft/1,000 Population | 2,085 | 2,166 | 2,305 | 0.8% |
| Increasing Aircraft/1,000 Population | 2,375 | 2,742 | 3,384 | 2.7% |

CAGR = compound annual growth rate
**Boldface** indicates selected forecast.

*Source: Coffman Associates analysis*

### Based Aircraft Market Share of Registered Aircraft Forecast

Utilizing the forecast of registered aircraft in Harris County, a market share forecast of based aircraft at T41 has been developed.

In 2025, the 81 based aircraft at T41 represented 4.0 percent of the aircraft registered in Harris County. By maintaining this market share as a constant through the planning years, a forecast emerges that results in 100 based aircraft by 2045 (1.0% CAGR). An increasing market share projection, which assumes a 102 percent increase in the airport's market share to 8.19 percent (approximately the same percentage growth between 2020 and 2025), results in 201 based aircraft by 2045 (4.7% CAGR). **Table 2G** presents the two market share projections.

**TABLE 2G | Based Aircraft Market Share of Registered Aircraft Forecast**

| Year | T41 Based Aircraft | Service Area Registered Aircraft | T41 Market Share % |
|---|---|---|---|
| 2020 | 44 | 2,190 | 2.01% |
| 2021 | 44 | 2,119 | 2.08% |
| 2022 | 42 | 2,080 | 2.02% |
| 2023 | 40 | 2,016 | 1.98% |
| 2024 | 75 | 1,980 | 3.79% |
| 2025 | 81 | 1,997 | 4.06% |
| **CAGR** | **13.0%** | **-1.8%** | **–** |
| **Constant Market Share** | | | |
| 2030 | 85 | 2,100 | 4.06% |
| 2035 | 90 | 2,209 | 4.06% |
| 2045 | 100 | 2,458 | 4.06% |
| **CAGR** | **1.0%** | **1.0%** | **–** |
| **Increasing Market Share** | | | |
| 2030 | 107 | 2,100 | 5.09% |
| 2035 | 135 | 2,209 | 6.12% |
| 2045 | 201 | 2,458 | 8.19% |
| **CAGR** | **4.7%** | **1.0%** | **–** |

CAGR = compound annual growth rate

*Sources: basedaircraft.com; Coffman Associates analysis*

### Growth Rate/Trendline Projections

According to based aircraft records, T41's count has grown in the last five years, from 44 based aircraft in 2020 to 81 in 2025 (13.0% CAGR). This CAGR is well above what would be considered reasonable for a long-term scenario, so a projection based on this historical CAGR was not prepared; however, a trendline analysis produces a forecast of 292 based aircraft at T41 by 2045 (6.6% CAGR).

### Socioeconomic Growth Projections

Based aircraft growth is often related to the population and economic activity of the service area. For this reason, based aircraft projections tied to the projected CAGRs in population (0.7%), employment (1.0%), income (1.5%), and GRP (1.9%) for Harris County were also prepared. Applying these CAGRs results in 93 based aircraft for population, 100 for employment, 109 for income, and 119 for GRP by 2045.

## Regression Analysis

Several forecasts were prepared utilizing 10 years of historical based aircraft data and the regression model. Correlations were examined with independent variables, including population, employment, income, and GRP, as well as a time series regression. None of the regressions produced a strong correlation; the $r^2$ values were between 0 and 0.2. As previously described, correlation values over 0.95 indicate good predictive reliability. Because none of the regressions produced a correlation value over 0.95, the regression forecasts have been excluded from consideration.

## Selected Based Aircraft Forecast

Selecting a based aircraft forecast ultimately falls to the judgment of the forecast analyst. The selected forecast should be reasonable and based on a sound methodology. The methodology presented in this analysis first examines the history of aircraft ownership in the service area (Harris County). Utilizing the selected registered aircraft projection, a market share analysis was conducted based on maintaining a constant market share and an increasing market share over the forecast period. Additional projections considered a trendline analysis and growth rates based on key socioeconomic indicators (population, employment, income, and GRP). These eight projections are summarized in **Table 2H**.

**TABLE 2H | Based Aircraft Forecast Summary**

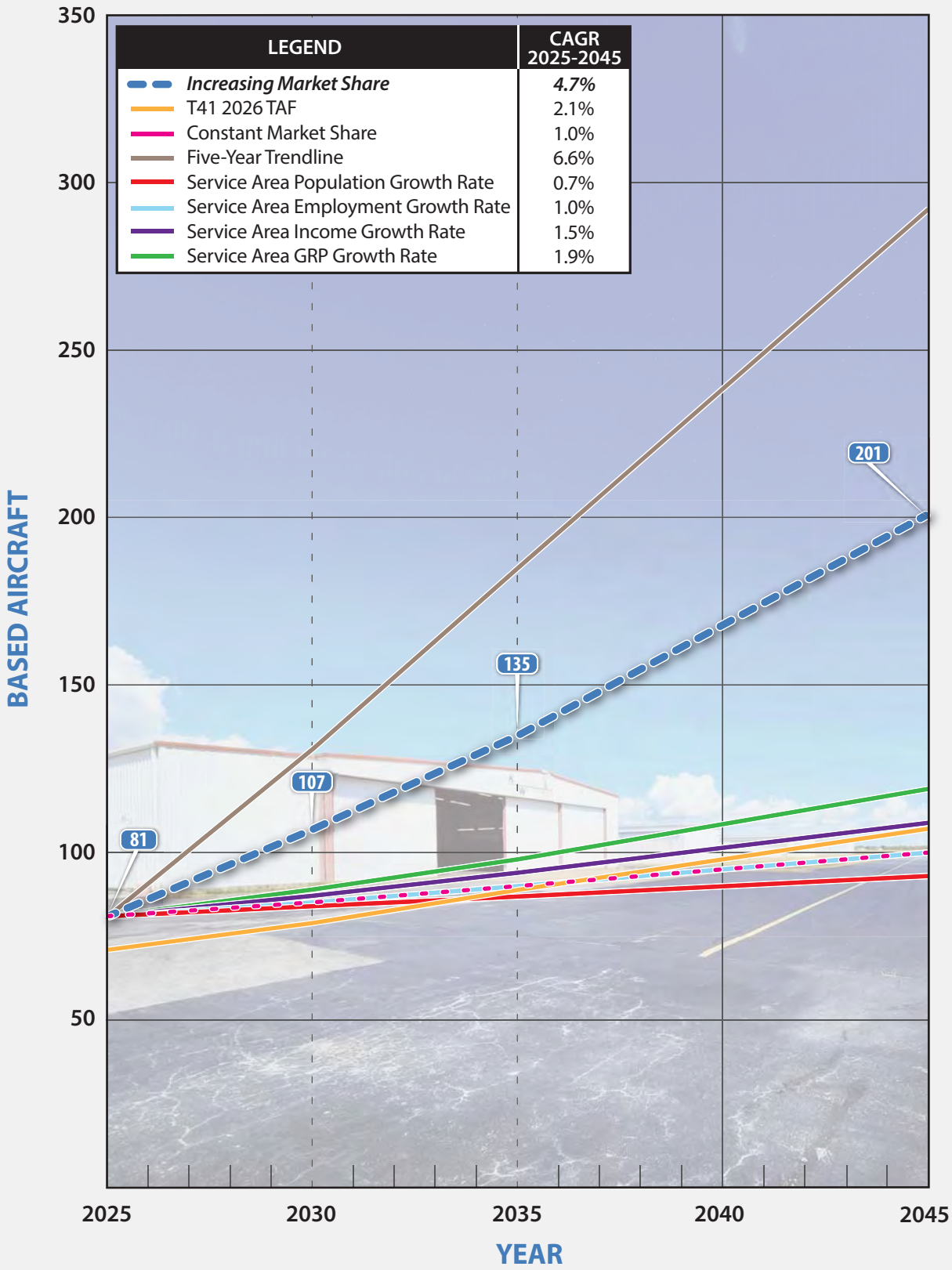
| Projection | 2025 | 2030 | 2035 | 2045 | CAGR 2025-2045 |
|---|---|---|---|---|---|
| T41 2026 TAF | 71 | 79 | 89 | 107 | 2.1% |
| Constant Market Share | 81 | 85 | 90 | 100 | 1.0% |
| **Increasing Market Share** | **81** | **107** | **135** | **201** | **4.7%** |
| Five-Year Trendline | 81 | 131 | 185 | 292 | 6.6% |
| Service Area Population Growth Rate | 81 | 84 | 87 | 93 | 0.7% |
| Service Area Employment Growth Rate | 81 | 85 | 90 | 100 | 1.0% |
| Service Area Income Growth Rate | 81 | 87 | 94 | 109 | 1.5% |
| Service Area GRP Growth Rate | 81 | 89 | 98 | 119 | 1.9% |

CAGR = compound annual growth rate
**Boldface** indicates selected forecast.

*Sources: FAA TAF; basedaircraft.com; Coffman Associates analysis*

Future based aircraft counts at the airport will depend on several factors, including the state of the economy, fuel costs, available facilities, competing airports, and hangar development potential. Forecasts assume a reasonably stable and growing economy and reasonable development of the airport facilities necessary to accommodate aviation demand. T41 will not experience significant based aircraft growth unless new hangar facilities are constructed. As larger reliever airports in the growing Houston metropolitan area become more congested, an increasing number of aircraft owners may choose T41. This combined with the significant growth T41 has already seen in recent years and the forecasted continued population and economic growth of the region results in the increasing market share being the selected forecast. The selected forecast results in 201 based aircraft by 2045 — an increase of 120 total based aircraft over the next 20 years.

**Exhibit 2B** presents the eight based aircraft forecasts that comprise the planning envelope.




*Sources: FAA TAF; basedaircraft.com; Coffman Associates analysis*

## BASED AIRCRAFT FLEET MIX FORECAST

It is important to understand the current and projected based aircraft fleet mix at an airport to ensure proper facility planning. For example, the addition of one or several larger turboprop or business jet aircraft to the airfield could have a significant impact on separation requirements and various obstacle clearing surfaces.

The based aircraft fleet mix in 2025 consisted of 75 single-engine piston aircraft, four multi-engine piston aircraft, and two helicopters. As a reliever airport, T41 should grow to serve a more diverse fleet mix, including turbine-powered aircraft. The forecasted growth trends in the T41 based aircraft fleet mix take FAA projections of the national general aviation fleet mix into consideration. Consistent with national aviation trends, growth is anticipated to occur within the more sophisticated aircraft categories, including the turboprop and jet categories. **Table 2J** presents the forecast fleet mix for based aircraft at T41.

**TABLE 2J | Based Aircraft Fleet Mix**

| Aircraft Type | 2025 | % | 2030 | % | 2035 | % | 2045 | % |
|---|---|---|---|---|---|---|---|---|
| SEP | 75 | 92.6% | 94 | 87.9% | 119 | 88.1% | 181 | 90.0% |
| MEP | 4 | 4.9% | 3 | 2.8% | 2 | 1.5% | 1 | 0.5% |
| Turboprop | 0 | 0.0% | 5 | 4.7% | 8 | 5.9% | 10 | 5.0% |
| Jet | 0 | 0.0% | 1 | 0.9% | 2 | 1.5% | 4 | 2.0% |
| Helicopter | 2 | 2.5% | 4 | 3.7% | 4 | 3.0% | 5 | 2.5% |
| Glider/Other | 0 | 0.0% | 0 | 0.0% | 0 | 0.0% | 0 | 0.0% |
| **Total** | **81** | **100%** | **107** | **100%** | **135** | **100%** | **201** | **100%** |

MEP = multi-engine piston
SEP = single-engine piston

*Sources: FAA Based Aircraft Registry; Coffman Associates analysis*

## OPERATIONS FORECASTS

Operations at T41 are classified as either air taxi or general aviation (GA). GA 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. Examples of air taxi operations include chartered aircraft (executive jets, turboprops, or pistons), subscription-based air services, air medical flights, air cargo, or tour/sightseeing flights. According to operations data, there are no military or air carrier operations at the airport.

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 T41 is not equipped with an airport traffic control tower (ATCT), precise historical operational (takeoff and landing) counts are not available. The only available data sources for operations estimates are the FAA’s TAF (previously detailed in **Table 2C**) and the FAA’s Traffic Flow Management System Count

(TFMSC), which will be described in greater detail in a later section. While the TFMSC provides a reasonably accurate count of operations conducted by turbine aircraft, piston-powered aircraft operating under visual flight rules (VFR) are typically excluded; therefore, the FAA TAF estimates will be utilized as the baseline for GA operations.

The AirportIQ database maintained by GCR, which documents operations with filed flight plans, indicates that there are minimal air taxi operations at T41 - an average of four annually in the last ten years. AirportIQ is considered a reliable data source for air taxi operations, as they are typically performed under filed flight plans, whereas GA operations do not always include filed flight plans.

A summary of historical operations data for T41 is shown in **Table 2K**. As mentioned previously, all GA and military data are sourced from the FAA TAF, while air taxi operations are sourced from the AirportIQ database.

**TABLE 2K | Historical Operations Data**

| Year | Itinerant | | | | | Local | | | Total Operations |
|---|---|---|---|---|---|---|---|---|---|
| | Air Carrier | Air Taxi | GA | Military | Total | GA | Military | Total | |
| 2020 | 0 | 0 | 9,683 | 0 | 9,683 | 19,367 | 0 | 19,367 | 29,050 |
| 2021 | 0 | 2 | 9,683 | 0 | 9,685 | 19,367 | 0 | 19,367 | 29,052 |
| 2021 | 0 | 2 | 9,909 | 0 | 9,911 | 19,818 | 0 | 19,818 | 29,729 |
| 2023 | 0 | 4 | 9,909 | 0 | 9,913 | 19,818 | 0 | 19,818 | 29,731 |
| 2024 | 0 | 8 | 9,683 | 0 | 9,691 | 19,367 | 0 | 19,367 | 29,058 |
| 2025 | 0 | 2 | 9,683 | 0 | 9,685 | 19,367 | 0 | 19,367 | 29,052 |

*Sources: FAA TAF (GA); AirportIQ database (air taxi)*

### Market Share Projections

Market share analysis compares the historical estimate and forecast data points to arrive at a trend for the unknown variable (T41 operations). The first forecast compares the current market share of GA (itinerant and local) and air taxi operations at the airport to the FAA TAF forecast for operations in Texas.

In 2025, T41 accounted for 0.37 percent of itinerant GA operations in Texas, 0.66 percent of Texas local GA operations, and less than 0.005 percent of Texas air taxi operations. By carrying these percentages forward through the planning horizon, a constant market share forecast emerges, as shown in **Table 2L**. The constant market share is considered a low-range projection, as anticipated growth in based aircraft should result in an increase in each of these operational segments beyond maintaining a constant share.

A mid-range increasing market share projection was prepared that increases T41's market share of itinerant GA operations to 0.5 percent. The local GA operations market share is taken to 0.8 percent, and the market share of air taxi operations is taken to 0.02 percent. Each reflects marginal increases. The results of the mid-range projections are also shown in **Table 2L**.

High-range, increasing market share projections were also prepared. These consider the potential for operations to grow substantially from current estimates and far exceed growth rates expected at the state level. The resulting projections take T41's 2045 market shares to 1.0 percent (itinerant GA) and 1.0 percent (local GA). Due to the low number of historic air taxi operations, a high-range projection for this operational segment was not prepared and the mid-range forecast is considered sufficient. The results of the high-range projections are shown in **Table 2L**.

**TABLE 2L | Operations Market Share Projections**

| Year | GA Itinerant | | | GA Local | | | Air Taxi | | |
|---|---|---|---|---|---|---|---|---|---|
| | T41 | Texas | T41 Market % | T41 | Texas | T41 Market % | T41 | Texas | T41 Market % |
| 2025 | 9,683 | 2,606,326 | 0.37% | 19,367 | 2,949,045 | 0.66% | 2 | 532,582 | 0.00% |
| **Constant Market Share – Low Range** | | | | | | | | | |
| 2030 | 10,200 | 2,738,809 | 0.37% | 20,400 | 3,101,362 | 0.66% | 2 | 472,781 | 0.00% |
| 2035 | 10,500 | 2,806,773 | 0.37% | 21,000 | 3,182,895 | 0.66% | 2 | 497,387 | 0.00% |
| 2045 | 11,000 | 2,956,900 | 0.37% | 22,100 | 3,364,587 | 0.66% | 2 | 542,771 | 0.00% |
| CAGR | 0.64% | 0.63% | - | 0.66% | 0.66% | - | 0.09% | 0.09% | - |
| **Increasing Market Share – Mid Range** | | | | | | | | | |
| 2030 | **11,000** | 2,738,809 | 0.40% | **21,800** | 3,101,362 | 0.70% | **25** | 472,781 | 0.01% |
| 2035 | **12,700** | 2,806,773 | 0.45% | **23,900** | 3,182,895 | 0.75% | **50** | 497,387 | 0.01% |
| 2045 | **14,800** | 2,956,900 | 0.50% | **27,000** | 3,364,587 | 0.80% | **100** | 542,771 | 0.02% |
| CAGR | **2.14%** | 0.63% | - | **1.68%** | 0.66% | - | **21.60%** | 0.09% | - |
| **Increasing Market Share – High Range** | | | | | | | | | |
| 2030 | 15,100 | 2,738,809 | 0.55% | 21,800 | 3,101,362 | 0.70% | | | |
| 2035 | 19,700 | 2,806,773 | 0.70% | 25,500 | 3,182,895 | 0.80% | | | |
| 2045 | 29,600 | 2,956,900 | 1.00% | 33,700 | 3,364,587 | 1.00% | | | |
| CAGR | 5.75% | 0.63% | - | 2.81% | 0.66% | - | | | |

CAGR = compound annual growth rate
**Boldface** indicates selected forecast.

*Sources: FAA TAF (GA); AirportIQ database (air taxi); Coffman Associates analysis*

### Regression Analysis

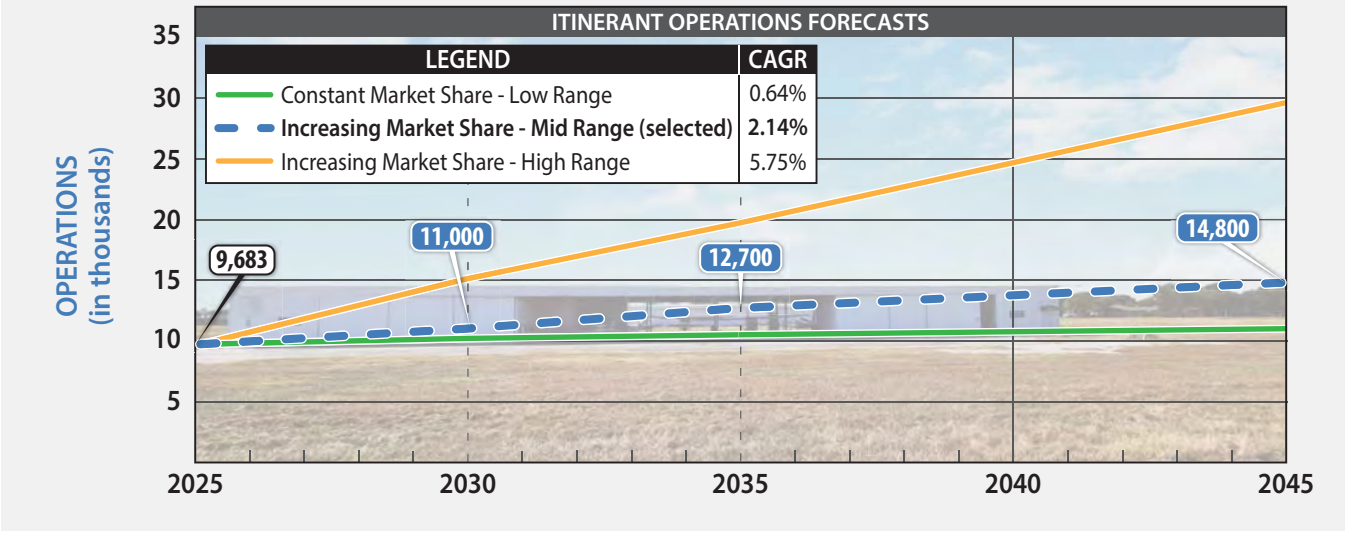
Development of regressions requires reliable historical data so that correlations between dependent and independent variables can be examined. Because T41 does not have reliable historical operational data, regression analysis cannot be used; therefore, regressions are not included in the operations forecast analysis.

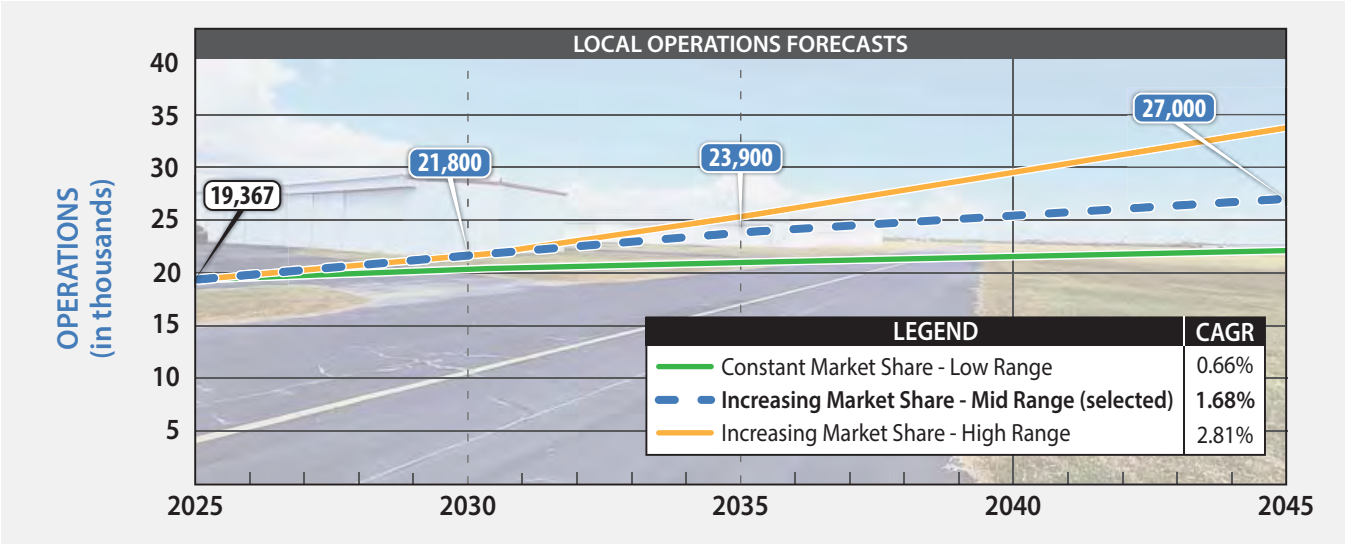
### General Aviation and Air Taxi Operations Forecast Summary

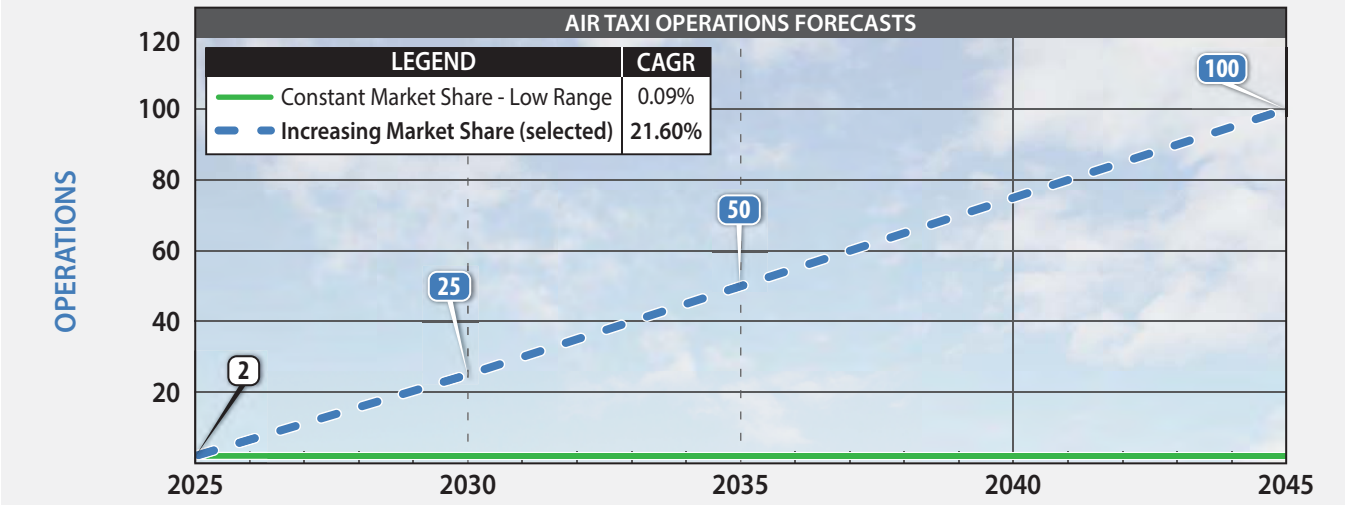
When reliable historical operational trends are unavailable to predict future activity, an approach that considers a variety of forward-looking factors must be used to select an operations forecast. Market trends indicate that GA and air taxi operations will continue to grow in the State of Texas. More people are traveling to Texas for business and recreation, and many travel by air. Airlines are developing new programs to grow the next generation of pilots, which has led to the creation of new flight schools and flight training programs. Socioeconomic indicators suggest Harris County will continue to grow over the planning period, introducing new business opportunities and potential users and tenants.

As discussed in the based aircraft section, there is likely demand for new based aircraft at T41, which has the potential to support operational growth across the GA and air taxi categories. For these reasons, the mid-range increasing market share projections of itinerant GA, local GA, and air taxi operations have been selected. These projections reflect moderate growth rates, considering the development potential of the airport.

**Exhibit 2C** graphically represents the operations projections that comprise the planning envelope.




*Sources: FAA TAF, AirportIQ, Coffman Associates analysis*

### Military Operations Forecast

Military aircraft can (and do) utilize civilian airports across the country. No military operations were reported in the TAF, though a small number (fewer than ten) were recorded in ADS-B Exchange data, all of them by U.S. Coast Guard MH-65 helicopters from the nearby Coast Guard Air Station Houston. Given the small number of operations, these were not included in the forecast analysis.

### Total Operations Forecast Summary

**Table 2M** presents the summary of the selected operations forecasts. The summary table details the culmination of each selected operations forecast. Over the planning horizon, total operations at T41 are projected to grow from 29,052 in 2025 to 41,900 in 2045 with a CAGR of 1.8 percent.

**TABLE 2M | Total Operations Forecast Summary**

| Year | Itinerant | | | | | Local | | | Total Operations |
|---|---|---|---|---|---|---|---|---|---|
| | Air Carrier | Air Taxi | GA | Military | Subtotal | GA | Military | Subtotal | |
| 2025 | 0 | 2 | 9,683 | 0 | 9,685 | 19,367 | 0 | 19,367 | 29,052 |
| 2030 | 0 | 25 | 11,000 | 0 | 11,025 | 21,800 | 0 | 21,800 | 32,825 |
| 2035 | 0 | 50 | 12,700 | 0 | 12,750 | 23,900 | 0 | 23,900 | 36,650 |
| 2045 | 0 | 100 | 14,800 | 0 | 14,900 | 27,000 | 0 | 27,000 | 41,900 |
| **CAGR** | **0.0%** | **21.6%** | **2.1%** | **0.0%** | **2.2%** | **1.7%** | **0.0%** | **1.7%** | **1.8%** |

CAGR = compound annual growth rate

*Source: Coffman Associates analysis*

## FORECAST SUMMARY

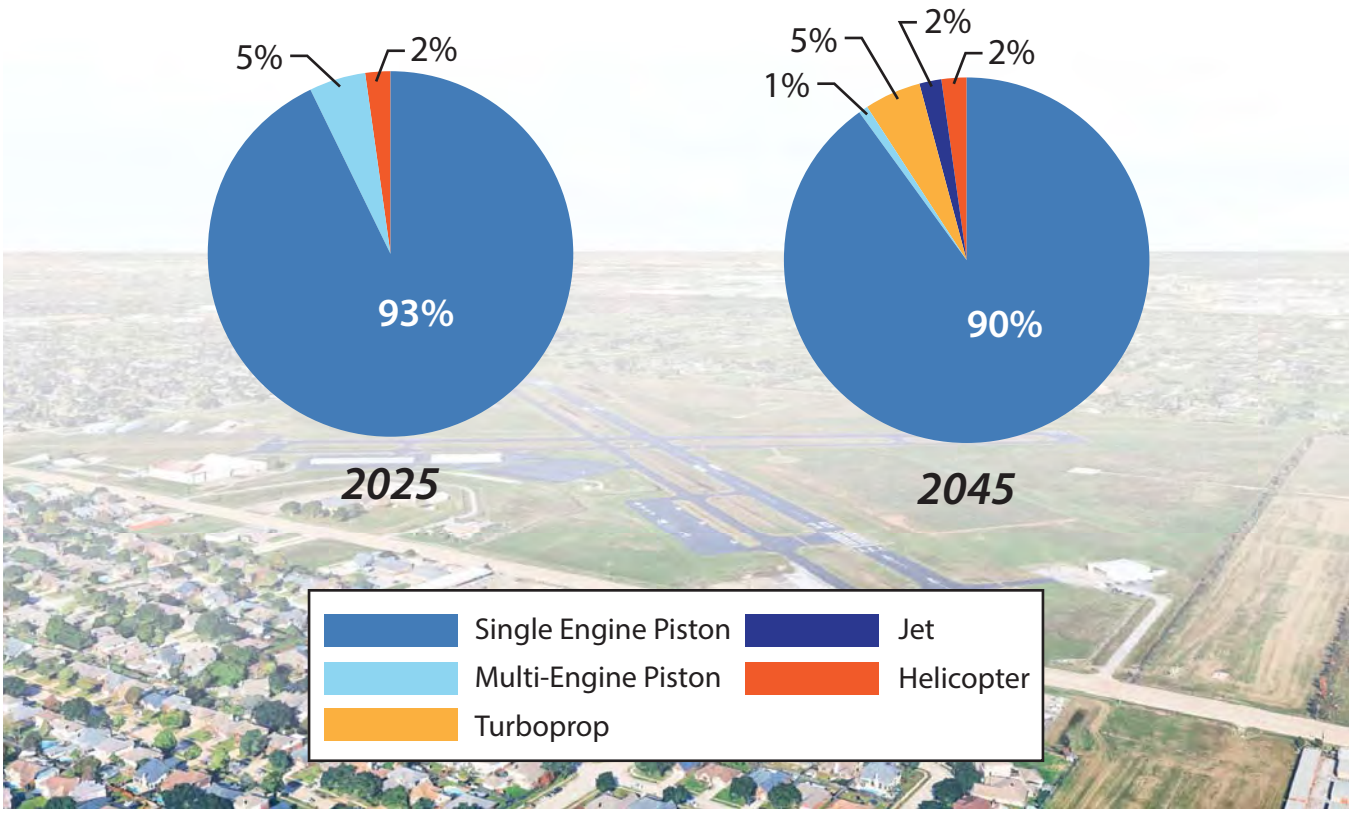
This chapter has outlined the various activity levels that might reasonably be anticipated over the planning period. **Exhibit 2D** presents a summary of the aviation forecasts prepared in this chapter. The base year for these forecasts is 2025 with a 20-year planning horizon to 2045. The primary aviation demand indicators are based aircraft and operations. The based aircraft count is forecast to increase from 81 aircraft in 2025 to 201 by 2045 (4.7% CAGR). Total operations at T41 are forecast to increase from 29,052 operations in 2025 to 41,900 by 2045 (1.8% CAGR).

**Projections of aviation demand will be influenced by unforeseen factors and events in the future; therefore, it is not reasonable to assume 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 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.**

| | 2025 | 2030 | 2035 | 2045 | CAGR |
|---|---|---|---|---|---|
| **ANNUAL OPERATIONS** | | | | | |
| **Itinerant** | | | | | |
| Air Carrier | 0 | 0 | 0 | 0 | 0.0% |
| Air Taxi | 2 | 25 | 50 | 100 | 21.6% |
| General Aviation | 9,683 | 11,000 | 12,700 | 14,800 | 2.1% |
| Military | 0 | 0 | 0 | 0 | 0.0% |
| ***Itinerant Subtotal*** | ***9,685*** | ***11,025*** | ***12,750*** | ***14,900*** | ***2.2%*** |
| **Local** | | | | | |
| General Aviation | 19,367 | 21,800 | 23,900 | 27,000 | 1.7% |
| Military | 0 | 0 | 0 | 0 | N/A |
| ***Local Subtotal*** | ***19,367*** | ***21,800*** | ***23,900*** | ***27,000*** | ***1.7%*** |
| **Total Operations** | **29,052** | **32,825** | **36,650** | **41,900** | **1.8%** |
| **BASED AIRCRAFT** | | | | | |
| Single-Engine Piston | 75 | 94 | 119 | 181 | |
| Multi-Engine Piston | 4 | 3 | 2 | 1 | |
| Turboprop | 0 | 5 | 8 | 10 | |
| Jet | 0 | 1 | 2 | 4 | |
| Helicopter | 2 | 4 | 4 | 5 | |
| Glider/Other | 0 | 0 | 0 | 0 | |
| **TOTAL BASED AIRCRAFT** | **81** | **107** | **135** | **201** | |

***N/A*** - Not Applicable ***CAGR*** - Compound annual growth rate

***Total Based Aircraft Fleet Mix***




***Source***: Coffman Associates analysis

## *CRITICAL AIRCRAFT*

**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 important 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.

### 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 2E**.

**Aircraft Approach Category (AAC) |** The AAC is a grouping of aircraft based on a reference landing speed ($V_{REF}$), if specified. If $V_{REF}$ is not specified, it is based on 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 related 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 the taxiway safety area (TSA), taxiway object free area (TOFA), taxilane object free area, apron wingtip clearance, and various separation distances.

**Taxiway Design Group (TDG) |** The TDG is a 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

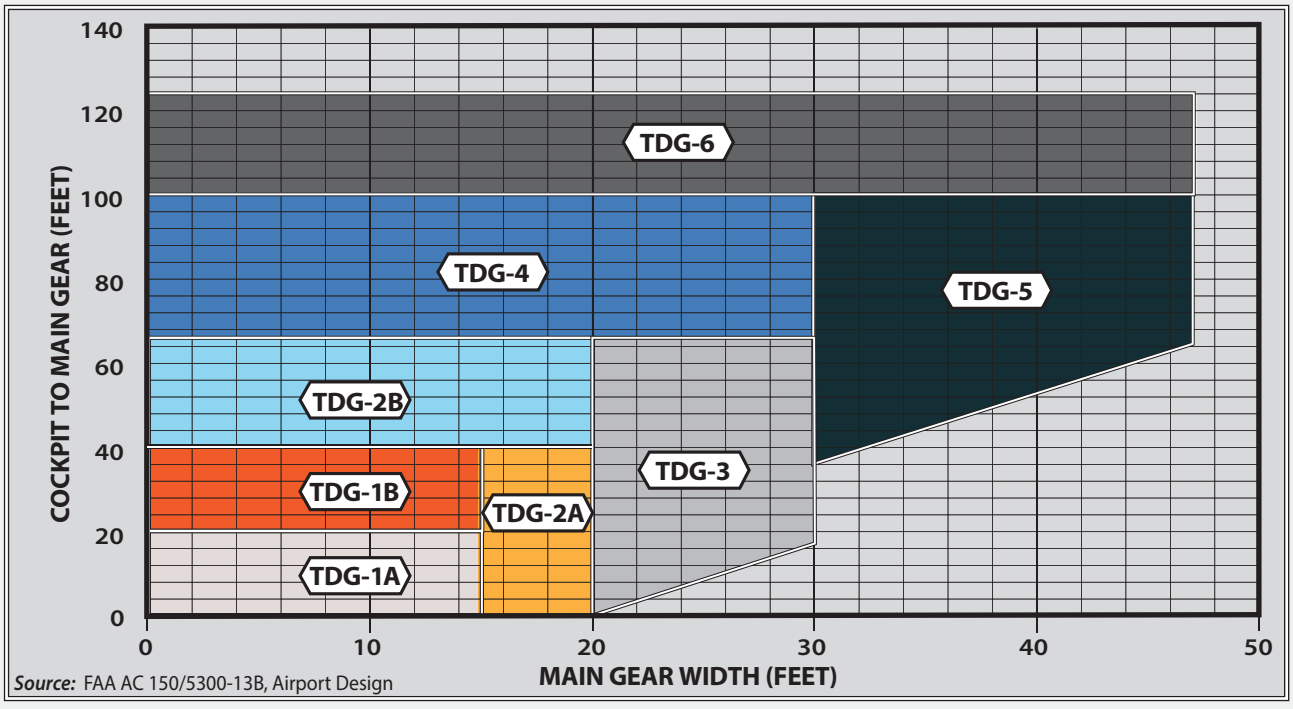
| AIRCRAFT APPROACH CATEGORY (AAC) | |
|---|---|
| **Category** | **Approach Speed** |
| A | less than 91 knots |
| B | 91 knots or more but less than 121 knots |
| C | 121 knots or more but less than 141 knots |
| D | 141 knots or more but less than 166 knots |
| E | 166 knots or more |

| 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

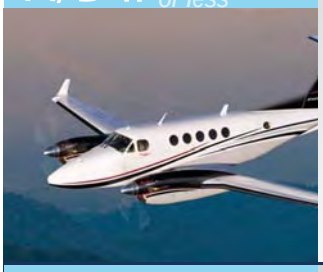
## A-I

| Aircraft | TDG |
|---|---|
| • **Beech Bonanza** | **1A** |
| • Cessna 150, 172 | 1A |
| • Piper Comanche, Seneca | 1A |

## B-I

| Aircraft | TDG |
|---|---|
| • Eclipse 500 | 1A |
| • Beech Baron 55/58 | 1A |
| • Beech King Air 100 | 1A |
| • **Cessna 425** | **2A** |
| • Cessna Citation M2 (525) | 1A |
| • Cessna Citation 1(500) | 1A |
| • Embraer Phenom 100 | 1A |

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

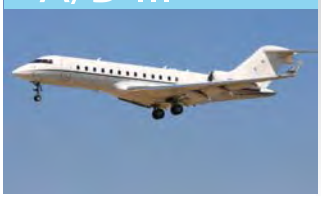


| Aircraft | TDG |
|---|---|
| • **Beech Super King Air 200** | **2A** |
| • Beech King Air 90 | 1A |
| • Cessna 441 Conquest | 1A |
| • Cessna Citation CJ2 | 2A |
| • Pilatus PC-12 | 2 |

## B-II *over 12,500 lbs.*

| Aircraft | TDG |
|---|---|
| • Beech Super King Air 350 | 2A |
| • **Cessna Citation CJ3(525B)** | **2A** |
| • Cessna Citation CJ4 (525C) | 1B |
| • Cessna Citation Latitude | 1B |
| • Embraer Phenom 300 | 1B |
| • Falcon 20 | 1B |
| • Pilatus PC-24 | 2A |

## A/B-III



| Aircraft | TDG |
|---|---|
| • Bombardier Dash 8 | 3 |
| • **Bombardier Global 7500** | **2B** |
| • Falcon 7X, 8X | 2A |

## C/D-I

| Aircraft | TDG |
|---|---|
| • **Lear** 35, 40, 45, 55, **60XR** | **1B** |
| • F-16 | 1A |

## C/D-II

| Aircraft | TDG |
|---|---|
| • Challenger 600/604 | 1B |
| • Cessna Citation III, VI,VII, X | 1B |
| • Embraer Legacy 135/140 | 2B |
| • Gulfstream IV (D-II) | 2A |
| • Gulfstream G280 | 1B |
| • Lear 70, 75 | 1B |
| • **Falcon** 50, **900**, 2000 | **2A** |
| • Hawker 800XP, 4000 | 1B |

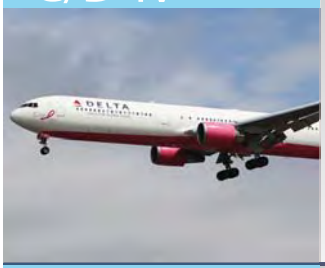
## C/D-III *less than 150,000 lbs.*

| Aircraft | TDG |
|---|---|
| • Gulfstream V | 2B |
| • **Gulfstream** 550, 600, **650** | **2B** |
| • Global 5000, 6000 | 2B |

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

| Aircraft | TDG |
|---|---|
| • Airbus A319, A320, A321 | 3 |
| • **Boeing 737-800,** 900 | **3** |
| • MD-83, 88 | 4 |

## C/D-IV



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

## C/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** |

Note: Aircraft pictured is identified in bold type.

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 2E** summarizes the classifications of the most common aircraft in operation today. Generally, recreational and business piston and turboprop aircraft will 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 will fall in AAC C and D.

## RUNWAY CLASSIFICATION

Runway classifications, along with the aircraft classifications defined previously, are used to determine the appropriate FAA design standards to which the 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 RDC is based on planned development and has no operational component. 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, the AAC, is depicted by a letter and relates to aircraft approach speed (operational characteristics). The second component, the ADG, is depicted by a Roman numeral 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 (one 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.

## EXISTING AND ULTIMATE CRITICAL AIRCRAFT

The TFMSC database is maintained by the FAA to monitor the types of aircraft and frequency of usage at airports; the TFMSC is the preferred data source for establishing critical aircraft. Information is regularly added to the TFMSC database when pilots file flight plans and/or when flights are detected by the National Airspace System (NAS) on radar. The TFMSC includes data for GA, commercial service (air carrier and air taxi), 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; however, the TFMSC provides an accurate reflection of IFR activity. Operators of high-performance aircraft, such as turboprops and jets, tend to file flight plans at a high rate.

Historical operations at T41 by AAC/ADG are summarized in **Table 2P**. Data are limited, as the TFMSC reports that no single family of aircraft exceeds the threshold of 500 annual operations at T41. Most operations are reported within the A-I (336 operations) and B-I (24 operations) categories. Eight operations in the previous 12 months were conducted by B-II aircraft, all of which were Beechcraft King Air turboprops. There were two operations by jet aircraft in the last 12 months conducted by category B-I Cessna Citation 501s.

**TABLE 2P | Historical and Forecasted Operations by AAC/ADG**

| Year | A-I | A-II | B-I | B-II | C-II |
|---|---|---|---|---|---|
| **Historical** | | | | | |
| 2020 | 376 | 4 | 48 | 38 | 0 |
| 2021 | 304 | 22 | 66 | 104 | 0 |
| 2022 | 280 | 10 | 40 | 72 | 0 |
| 2023 | 222 | 0 | 36 | 38 | 2 |
| 2024 | 310 | 2 | 46 | 30 | 0 |
| 2025* | 336 | 0 | 24 | 8 | 0 |
| **CAGR** | **-2.2%** | **-100.0%** | **-12.9%** | **-26.8%** | **N/A** |
| **Forecast** | | | | | |
| 2030 | 350 | 0 | 50 | 100 | 2 |
| 2035 | 400 | 0 | 75 | 250 | 3 |
| 2045 | 475 | 0 | 100 | 500 | 5 |
| **CAGR** | **1.7%** | **N/A** | **7.4%** | **23.0%** | **N/A** |

N/A = not applicable
*2025 data represent a 12-month period ending February 2026.
Any categories not shown are due to the absence of such activity at T41.

*Sources: FAA TFMSC; Coffman Associates analysis*

Historically, T41 has been planned to meet design standards associated with AAC B and ADG II aircraft. However, since operational data reflect ADG I as the most frequent user class at T41, the primary runway should be designed to A/B-I standards with the Cessna Citation 501 jet as the representative aircraft.

To determine T41's ultimate ARC, annual operations by AAC/ADG were forecast through 2045 using a forecast based on industry growth trends within each ARC category. In particular, operation levels within the AAC B and ADG II categories are projected to increase reflecting the potential for one or more based turboprops or business jets in the B-II category, which is reasonable, considering the population and economic growth that is anticipated to continue throughout Harris County. Therefore, the ultimate condition reflects a plan for T41 to continue to meet B-II design standards on Runway 12-30 as it does today. The representative ultimate critical aircraft is the Beechcraft King Air 200/300/350.

## RUNWAY DESIGN CODE

Each runway at an airport is assigned an RDC. The RDC relates to specific FAA design standards that should be planned in relation to each runway, regardless of whether the airport currently meets the appropriate design standards (to be discussed in the next chapter). Runway 12-30 measures 4,165 feet long by 75 feet wide and Runway 30 is equipped with the airport's only published straight-in instrument approach procedure, which has 1-mile visibility minimums. The resulting RDC for Runway 12-30 in the existing condition is B-I-5000 and B-II-5000 in the ultimate condition with a TDG of 2A, based on the Beechcraft King Air 200/300/350. Runway 5-23 should be designed to A-I(Small)-VIS standards and TDG 1A in the existing and ultimate conditions, with the Beechcraft King Air 100 as the critical aircraft.

**Table 2F** summarizes the current and future airport and runway classifications. The next chapter, Facility Requirements and Development Alternatives, will outline the airside and landside elements necessary to meet the aviation needs that have been determined in this forecasting effort. Various development alternatives to meet facility needs will also be presented.

## CRITICAL AIRCRAFT SUMMARY

**Table 2Q** summarizes the current and future runway classifications.

**TABLE 2Q | Airport and Runway Classifications**

| | Runway 12-30 | | Runway 5-23 |
|---|---|---|---|
| | Existing | Ultimate | Existing/Ultimate |
| Critical Aircraft | Cessna Citation 501 | Beechcraft King Air 200/300/350 | Beechcraft King Air 100 |
| Runway Design Code (RDC) | B-I-5000 | B-II-5000 | A-I(Small)-VIS |
| Taxiway Design Group (TDG) | 1A | 2A | 1A |

*Source: FAA AC 150/5300-13B, Airport Design, Change 1*