



CHAPTER THREE

Aviation Activity Forecasts

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AVIATION ACTIVITY FORECASTS

Introduction

Forecasting aviation activity helps the local airport sponsor determine future airport facility and equipment needs. The preferred demand forecasts are used to identify the type, extent, and timing of aviation development. In addition, the forecasts are instrumental in identifying airport-related infrastructure and capacity needs, and guiding the timing and financial feasibility of airport development alternatives.

Airport activity is often influenced by the types of aviation services offered to transient and based aircraft and by the general business environment at an airport and in the local community. In addition, factors such as vigorous local airport marketing, gains in sales and services, increased industrialization, changes in transportation preferences, and fluctuations in the national or local economy all influence aviation demand. Aviation activity forecasts are developed in accordance with national trends with regional/local influences and in context with the inventory findings. They are developed as a guide with the expectations that facilities needed to

support them will be available as demands dictate. This chapter examines aviation trends and the numerous factors that have influenced those trends in the United States, Texas, and Killeen.

Summary of Airport Historical Operations and Based Aircraft

Skylark Field (ILE) is a non-towered airport and as such accurately tracking airport operations is a challenge. Without an accurate method of counting operations estimates from on-site staff, reported operations from FAA Form 5010, or FAA Terminal Area Forecasts (TAF) can be used. On-site personnel don't keep a detailed daily traffic count. The latest FAA Form 5010 shows an estimated 6,570 operations which is unconfirmed. This estimate conflicts with the data within the TAF. On-field observations made during site visits confirm that the FAA Form 5010 operational figures appear to be low. During these site visits observations of more than 50 operations were witnessed



during an approximately two hour period, most of these being conducted by the Central Texas College (CTC) aircraft. For the last several years CTC has averaged more than 14,000 annual operations. **Table 2-1**, *Historical Aviation Activity* summarizes the available historical based aircraft and annual operations (local, itinerant, air taxi, and military) at Skylark Field since 2000 as recorded through the TAF program. Based aircraft numbers between all three sources differ only slightly.

A based aircraft is defined as an actively registered airplane stationed at a specific airport that regularly uses the airport as the primary “home base” for filing flight plans, frequently uses available airport amenities, and/or maintains a formal commitment for long-term aircraft parking/storage. An aircraft operation is one take off and/or landing of an aircraft. Aircraft operations are identified as either local or itinerant. Local operations consist of those within a 20-mile radius of the airport, while itinerant operations include all operations other

than local, having a terminus of flight or origination of flight at another airport at least 20 miles away.

The following observations were identified at ILE as part of the inventory of historic and current airport activity levels:

- **Aircraft Summary:** Based aircraft at ILE remained steady at between 55 and 60 even after 2009 when the FAA placed stricter rules on counting based aircraft.
- **Operational Summary:** TAF operational history has fallen from a high of over 42,000 operations in 2004, the last year of commercial service at ILE, to and remained steady at approximately 29,000 since 2007. The local and itinerant operations have remained the same since 2000.
- **CTC Operations:** For the period between 2010 and 2013, CTC has conducted more than 14,000 operations annually with a significant level of instrument training conducted by their students and aircraft as well.

TABLE 2-1 | HISTORICAL AVIATION ACTIVITY

Year	Based Aircraft	Local Operations	Itinerant Operations	Air Taxi and Commuter	Total Airport Operations
2000	57	19,500	10,200	12,086	41,786
2001	54	19,500	10,200	12,086	41,786
2002	54	19,500	10,200	12,086	41,786
2003	54	19,500	10,200	12,266	41,966
2004	56	19,500	10,200	12,356	42,056
2005	56	19,500	10,200	12,086	41,786
2006	56	19,500	10,200	12,086	41,786
2007	61	19,500	10,200	0	29,700
2008	55	19,500	10,200	0	29,700
2009	55	19,500	10,200	0	29,700
2010	55	19,500	10,200	0	29,700
2011	55	19,500	10,200	0	29,700
2012	55	19,500	10,200	0	29,700
2013	55	19,500	10,200	0	29,700
2014	55	19,500	10,200	0	29,700

Source: FAA Terminal Area Forecasts



National General Aviation Trends

An understanding of recent and anticipated trends within the general aviation (GA) industry is important when assessing aviation demand at ILE. National trends can provide insight into the potential future of aviation activity. Some may affect aviation demand in the study area while others will have little or no appreciable impact on local/regional aviation demands.

Various data sources were examined and used to support the analysis of national GA trends. Those sources include:

- Federal Aviation Administration, FAA Aerospace Forecasts, Fiscal Years 2014 – 2034;
- National Business Aircraft Association (NBAA), NBAA Business Aviation Fact Book, 2013; and,
- General Aviation Manufacturers Association (GAMA), General Aviation Statistical Databook and Industry Outlook, 2013.

GENERAL AVIATION OVERVIEW

GA aircraft are defined as all aircraft not flown by commercial airlines or the military. GA activity, as defined by the FAA, is divided into six use categories:

- Personal;
- Instructional;
- Corporate;
- Business;
- Air Taxi/Air Tours; and,
- Other

Personal use, air taxi, and FAR Part 135 use of GA aircraft are the largest components of GA activity and occur primarily at GA airports across the nation. At the date of this plan, there are 19,786 public and private airports located throughout the United States, and 5,171 of these are open to public use.

Figure 2-1 displays the breakdown of airports as described in the FAA's *2013 – 2017 National Plan of Integrated Airport System (NPIAS)*. The number and distribution of public-use airports available to GA users provides a valuable transportation and economic resource to local communities, businesses, and

individuals throughout the region, state, and nation.

SUMMARY OF NATIONAL GENERAL AVIATION TRENDS

GA activity is cyclical in nature, which has been demonstrated by the historical data presented. Regardless of the GA activity rebounding due to GARA during the mid and late-1990s, the terrorist attacks of 2001, the war on terror, and the recessionary economy have depressed GA activity during recent years. A slow to moderate recovery has begun with increasing aircraft deliveries and hours flown as well as the introduction of new innovative aircraft into the GA fleet. FAA projections of general aviation activity, including active pilots, active aircraft, and hours flown, all show moderate but promising growth through the forecast horizon of 2034. Following stalled growth, most components of GA activity are projected to rebound and surpass previous activity levels. An important national trend that has the potential to impact GA at ILE is the growing proportion of jet aircraft in the active GA fleet and the growing sophistication of both active pilots and aircraft. The continuing ability of ILE to accommodate the existing and growing GA activity, specifically by the turbine fleet, will be an important consideration.

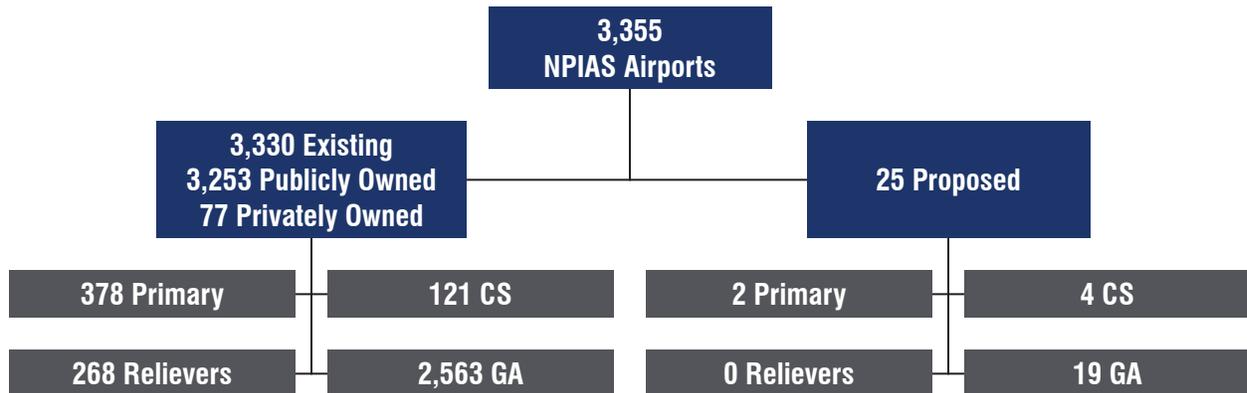
Terminal Area Forecast

The Terminal Area Forecast (TAF) is a detailed FAA forecast-planning database produced each year covering airports in the NPIAS. The TAF is prepared to assist the FAA in meeting its planning, budgeting, and staffing requirements. The TAF forecasts are made at the individual airport level and are based in part on the national FAA Aerospace Forecasts. The TAF contains historical and forecast data for enplanements, airport operations, instrument operations, and based aircraft. TAF data is developed for 264 FAA and 251 contract-towered airports, 31 terminal radar approach control facilities, and 2,817 non-FAA airports as of 2014. Data in the TAF are presented on a U.S. Governmental fiscal year basis which runs from October through September. The TAF assumes an unconstrained demand for aviation services.

As its primary input, the TAF uses the *FAA Aerospace Forecasts* from the specific year. Aviation activity forecasts for FAA-towered and federal contract-towered airports are developed

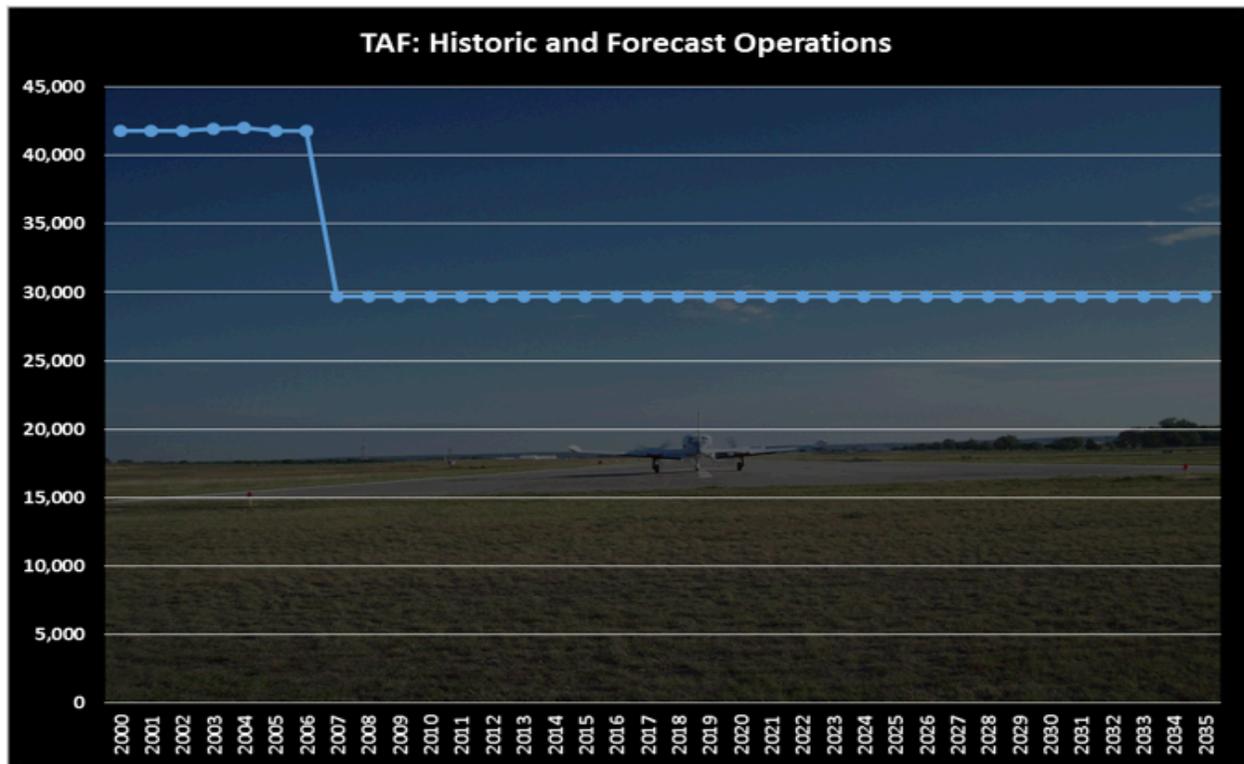


FIGURE 2-1 | NPIAS AIRPORT BREAKDOWN



Primary – Commercial Service airports enplaning more than 10,000 passengers per year.
 CS – Commercial Service airports having more than 2,500 enplaned passengers per year.

FIGURE 2-2 | ILE TERMINAL AREA FORECAST – HISTORICAL AND FORECAST



Source: FAA TAF, Fiscal Years 2000-2035. Forecast years begin with 2014.

using historical relationships between airport passenger demand and/or activity measures and local and national factors that influence aviation activity. At airports similar to ILE, the TAF data is generated from historical data reported by the airport or airport sponsor. The TAF generally reflects a slight or zero-

percent growth rate in the absence of a control tower. Based on the TAF for ILE presented in **Figure 2-2**, the FAA reflects a zero percent growth rate and is showing the same number of annual operations through 2035.



General Aviation Demand Forecasts

Based on information obtained in the inventory analysis, the following factors and assumptions have been incorporated into the GA forecasts of based aircraft and annual operations for ILE:

- An “unconstrained” forecast of aviation demand assumes facility improvements will lead the demand with the proactive nature of the local airport sponsor;
- Greater aircraft utilization resulting from airfield and terminal area improvements can be both directly and indirectly linked to economic development activity;
- Future operational levels are attributable to business needs, flight training, and recreational interests;
- Future airport facilities will continue to accommodate a broad array of GA aircraft and remain flexible in serving larger business-type aircraft; and,
- The forecast of based aircraft and operational levels is tied to the potential for the airport to attract employment and economic development to the area that could be aviation-related.

FORECAST METHODOLOGIES

Development of aviation forecasts involves analytical and judgmental assumptions to realize the highest level of forecast confidence. The GA demand forecasts are developed in accordance with national and regional trends, and in context with the inventory findings, including local population and per capita income trends. The forecasts developed here begin with baseline information from 2014 and with 2015 as the first forecast year. National GA trends and forecasts, used to provide a baseline of growth rates, are provided by the *FAA Aerospace Forecasts, Fiscal Years 2014-2034*. These forecasts are unconstrained, indicating facilities will be developed as the need arises. Various forecast techniques are used to develop GA forecasts for ILE and could include:

Trend Analysis

Trend analysis is the simplest and most familiar form of forecasting and is also one of the most widely used. Historical data is collected and used to forecast an estimate of the aviation demand element into future years. An assumption of this

forecast method is that historical levels for aviation demands will continue and influence similar linear progressions on the future demand levels. Though this assumption seems broad in its application, it can serve as a reliable benchmark against other forecast methods.

Regression Analysis

The forecasts of aviation demand (the dependent variable) are projected on the basis of one or more external indicators (the independent variables). Historical values for both the dependent and independent variables are analyzed to determine their relationships. Once defined, this relationship is used to project the dependent variable with a forecast or projection of the independent variable. In aviation forecasting, an example of the dependent variable is based aircraft. Population or median household income levels are commonly used independent variables that aid in the projection of aviation growth.

Market Analysis

These aviation demand forecasts are developed based on a causal model technique in which independent variables statistically relate the relationship(s) between historical events and aviation demands. This forecast method typically uses an easily identifiable independent variable such as population, which has a high correlation on the indirect cause-and-effect relationship within certain segments of the GA industry. The market share often employs a static and dynamic variable relationship between community factors and GA trends that aids in predicting aviation growth based on forecast community indicators such as population.

FORECAST OF BASED AIRCRAFT

The number of GA aircraft that can be expected to base at an airport facility is dependent on several factors, such as available facilities to include any hangar waiting list, airport operator services, airport proximity and access, etc. GA operators are particularly sensitive to both the quality and location of their basing facilities, with proximity of home and work often identified as the primary consideration in the selection of an aircraft-basing location. Hangars at ILE are at capacity. Demand for aircraft hangar storage is strong, with an active list of approximately 40 seeking new or upgraded hangar facilities and businesses/individuals seeking to build new or improved hangars at ILE to store their aircraft.



Determining the number and type of based aircraft anticipated at an airport is a vital component in developing the plan for the airport. Depending on the potential market and forecast, the airport will tailor the plan in response to anticipated demand. One factor that will impact the based aircraft growth is an active hangar waiting list. At present ILE maintains a hangar waiting list that is validated on a periodic basis. The most recent update in fall 2014 revealed a waiting list of over 40 aircraft some of which have been on this list for more than five years and are retained in the list expressing continued interest in basing at ILE. It is anticipated that an additional 10-15 based aircraft could be at the airport if new hangar units were immediately available. The majority of these on the waiting list continue to be small single-engine general aviation aircraft looking for individual hangars or a T-hangar at ILE. The impacts of this active and long hangar waiting list will be introduced to the various based aircraft forecasts scenarios in a phased in approach during the 0-5 year and 5-10 year terms predicated on an active hangar building program at the airport. If hangars are not built in the short-term future based aircraft will not meet forecast.

Numerous different forecast methods were used to predict based aircraft growth for ILE. Four are presented here: Trend Line, FAA Percentage GA Fleet Growth Rate, FAA Percentage Growth Rate per Aircraft Type, and Regression Analysis based on population growth. The Trend Line analysis of ILE looked back at historical figures from 1990 to the present in two groups: 1990 – 2014 and 2009 - 2014. The trend line process revealed a decreasing trend in the 1990 – 2014 group and this time grouping was not used to predict future growth at ILE. The trends from 2009 to 2014 have been utilized to represent trend line growth at ILE. The FAA growth percentages for the overall segments of GA were employed and this forecast showed a very slight growth in based aircraft for ILE. The ILE current aircraft mix is weighted towards the single-engine piston fleet

that reflects a 1.35 percent annual growth rate postulated by the *FAA Aerospace Forecasts, 2014-2034*. As each forecast from the *FAA Aerospace Forecasts* were applied a much more aggressive growth rate was identified. Socioeconomic factors like population, median household income, and income distribution can be tied directly to aircraft ownership. The City of Killeen and Bell County have experienced exceptional growth in population following the previous ILE master planning project. Household incomes and income distribution have remained steady. With these socioeconomic influences it is expected that they will influence based aircraft growth and the demands for basing aircraft at ILE including the hangar waiting list. A regression analysis for based aircraft employing both Killeen and Bell County growth rates as the independent variable and based aircraft as the dependent variable formed the final based aircraft forecast.

The multiple regression profile was selected as the preferred based aircraft forecast. Should ILE undertake a hangar building program to accommodate the demands identified on their active hangar waiting list these numbers should ramp up significantly during the short- and mid-term forecasts with an additional 15 based aircraft being added at ILE by 2025. **Table 2-2** and **Figure 2-3** provide a summary of the forecasts for based aircraft anticipated at the airport over the 20-year planning period.

The mix of based aircraft for incremental periods throughout the planning period is illustrated in **Table 2-3** and **Figure 2-4, General Aviation Based Aircraft Fleet Mix, 2015-2035**. With an existing high percentage of single-engine aircraft based on the field, the percentage of turbine aircraft, particularly turbo-prop, are expected to increase as a part of the total based aircraft population. This is in line with overall trends in GA with aircraft being used more and more for business purposes.

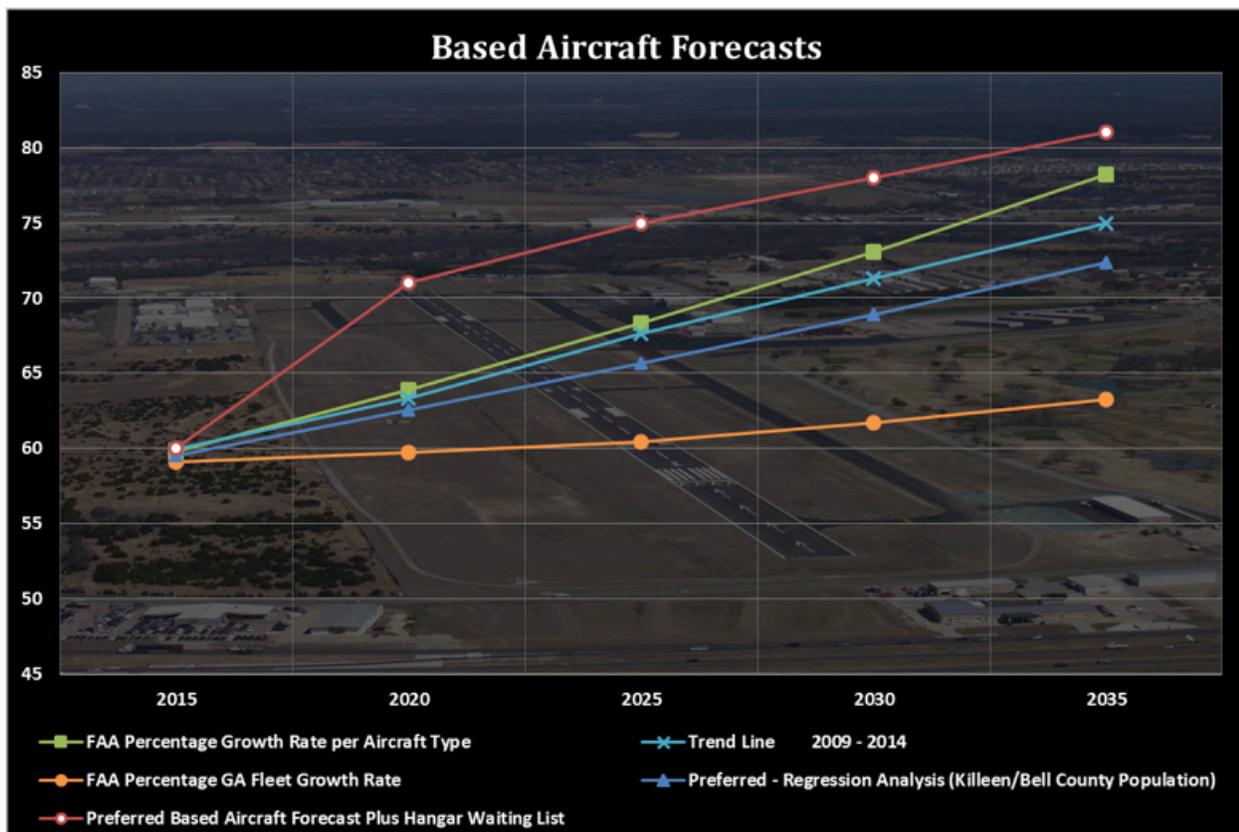


TABLE 2-2 | SUMMARY OF BASED AIRCRAFT FORECASTS, 2015-2035

Year	Trend Line 2004-2014	FAA Percentage GA Fleet Growth Rate	FAA Percentage Growth Rate per Aircraft Type	Preferred Regression Analysis (Killeen/Bell County Population)	Preferred Based Aircraft Forecast Plus Hangar Waiting List
2015	60	60	60	60	60
2020	63	60	64	63	71
2025	68	60	68	66	75
2030	71	62	73	69	78
2035	75	63	78	72	81

Source: Garver Forecast Data for ILE, 2015 and FAA Aerospace Forecasts, Fiscal Years 2014 - 2034.

FIGURE 2-3 | BASED AIRCRAFT FORECASTS, 2015-2035



Source: Garver Forecast Data for ILE, 2015 and FAA Aerospace Forecasts, Fiscal Years 2014 - 2034.

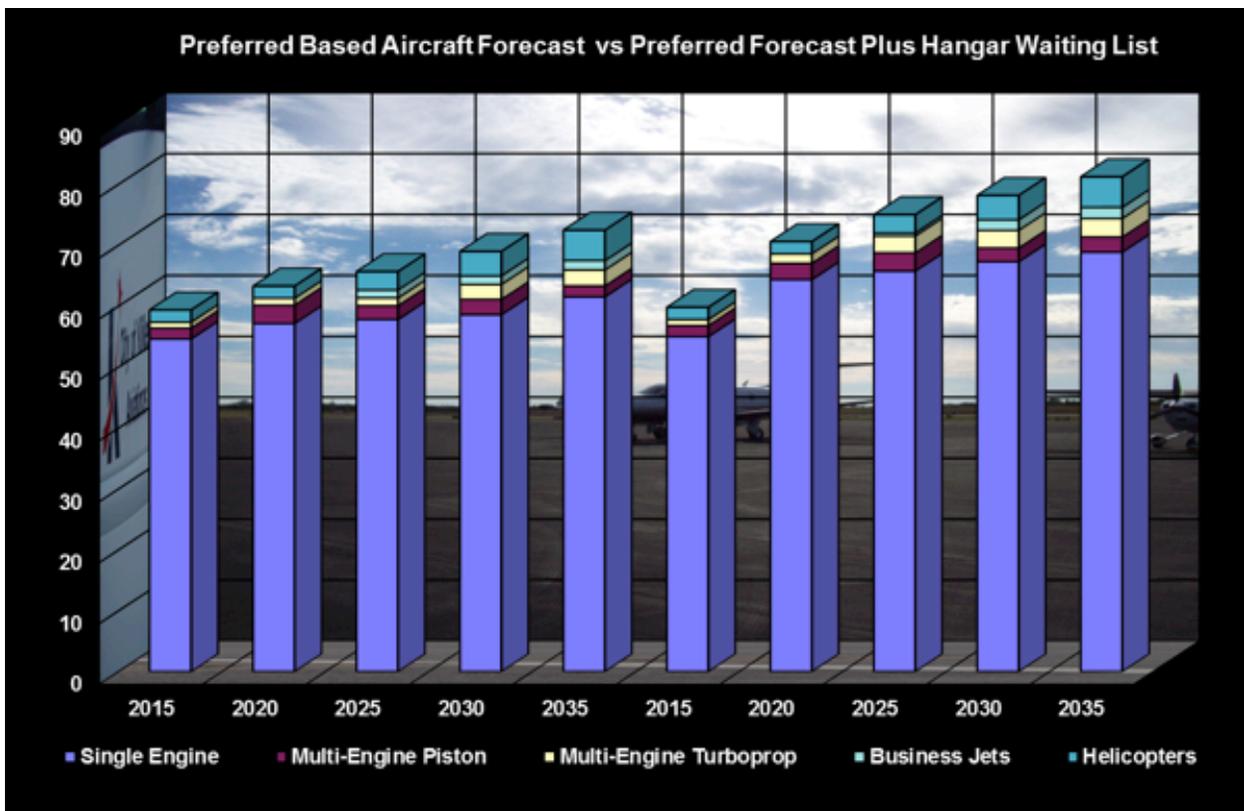


TABLE 2-3 | GENERAL AVIATION BASED AIRCRAFT FLEET MIX, 2015-2035

Preferred Based Aircraft Forecast					
Aircraft Type	2015	2020	2025	2030	2035
Single-Engine Piston	55	57	58	59	62
Multi-Engine Piston	2	3	2	3	2
Multi-Engine Turbo-Prop	1	1	1	2	3
Turbo-Jet	0	0	1	1	2
Helicopter	2	2	3	4	5
Total	60	63	66	69	72
Preferred Based Aircraft Forecast Plus Hangar Waiting List					
Aircraft Type	2015	2020	2025	2030	2035
Single-Engine Piston	55	64	66	67	69
Multi-Engine Piston	2	3	3	2	2
Turbo-Prop	1	2	3	3	3
Turbo-Jet	0	0	1	2	2
Helicopter	2	2	3	4	5
Total	66	71	75	78	81

Source: Garver Forecast Data for ILE, 2015

FIGURE 2-4 | GENERAL AVIATION BASED AIRCRAFT FLEET MIX, 2015-2035



Source: Garver Forecast Data for ILE, 2015



AIRCRAFT OPERATIONS FORECASTS

In developing the ILE projections, several existing forecasts were reviewed. As presented in **Table 2-4** and **Figure 2-5**, *Summary of Aircraft Operations Forecasts, 2015-2035*, this assessment includes the FAA Terminal Area Forecasts, ILE trend line from 1990 to 2013, ILE average utilization rate from 1990 to 2013, ILE 2013 utilization rate for piston operations and the FAA standard utilization rate for turbine aircraft, and the *FAA Aerospace Forecast Fiscal Years, 2014-2034* average annual growth rate of 1.35%.

While most operations growth rates are typically tied to population, it is assumed that population statistics for Bell County and the City of Killeen, as well as the FAA forecast for all

of general aviation are too low based on the existing operations and flight training at ILE. Flight training data collected from CTC shows an average annual operations level of over 14,000 for the period 2011 through 2013. This level of flight training operations at ILE supports a more aggressive growth of operations. The FAA Aerospace Forecasts for turbine aircraft was more aggressive than expected for ILE to meet and sustain. As the economy improves, it is not unreasonable to assume ILE could achieve the operations level provided by the higher forecast. However, at this time, the Preferred Forecasts selected provides ILE with an achievable but aggressive growth schedule that exceeds the existing utilization rate but is tempered by knowledge of the economics and opportunities at ILE that include the region being one of the fastest growth areas in Texas.

TABLE 2-4 | SUMMARY OF AIRCRAFT OPERATIONS FORECASTS, 2015-2035

Year	FAA Terminal Area Forecast	ILE Trend Line (1990-2013)	ILE Average Utilization Rate (1990-2013)	ILE 2013 Utilization Rate (SE/ME) / FAA Standard (Jets)	FAA Aerospace Forecasts (2014-2034)
2014	29,700	29,700	29,700	29,700	29,700
2015	29,700	31,900	31,100	27,300	30,400
2020	29,700	33,300	31,900	28,000	34,400
2025	29,700	34,600	33,700	29,600	38,800
2030	29,700	35,900	34,800	30,400	43,800
2035	29,700	37,200	36,900	32,200	49,500

Source: Garver Forecast Data for ILE, 2015, FAA TAF – FAA APO Terminal Area Forecasts

Notes: 2015 is the first forecast year; SE = single-engine piston; ME = multi-engine piston
Preferred Forecast is in Bold



AIRCRAFT FLEET MIX FORECAST

Table 2-5 and **Figure 2-6**, *Summary of Operations by Aircraft Type, 2015-2035*, displays the aircraft fleet mix operations forecast for ILE for each phase throughout the 20-year planning period. An examination of total IFR operations at ILE in combination with the level of flight training conducted provide some guidance towards an accurate fleet mix forecast. These records account for only a fraction of the total operations but provide an accurate indicator of aircraft type usage and the percentages for each aircraft category to be examined in the fleet mix. FAA IFR data from 2010 through October 2014 reveals a fleet mix use that closely mirrors ILE's based aircraft. Records show that nearly 85 percent of all ILE's IFR operations are conducted by small GA aircraft some commercial operators and some private aircraft owners. These records also show that nearly

ten percent of all IFR operations were conducted by business jet aircraft of which nearly four percent were by those in aircraft approach categories C and D. The operations forecast of aircraft mix is used to determine future airfield design, facility, and service needs, and the configuration of terminal area facilities.

Total operations can be further broken down into aircraft approach categories and airplane design groups. This additional breakdown helps to better define the types of aircraft that will operate at the airport in the future. It also allows for better planning of future facilities and airside needs for the airport and the ability to justify such facilities when the market demands such construction. **Table 2-6**, *Fleet Mix Operations by Design Group, 2015-2035*, displays this breakdown for the 20-year planning effort.

FIGURE 2-5 | SUMMARY OF AIRCRAFT OPERATIONS FORECASTS, 2015-2035



Source: Garver Forecast Data for ILE, 2015

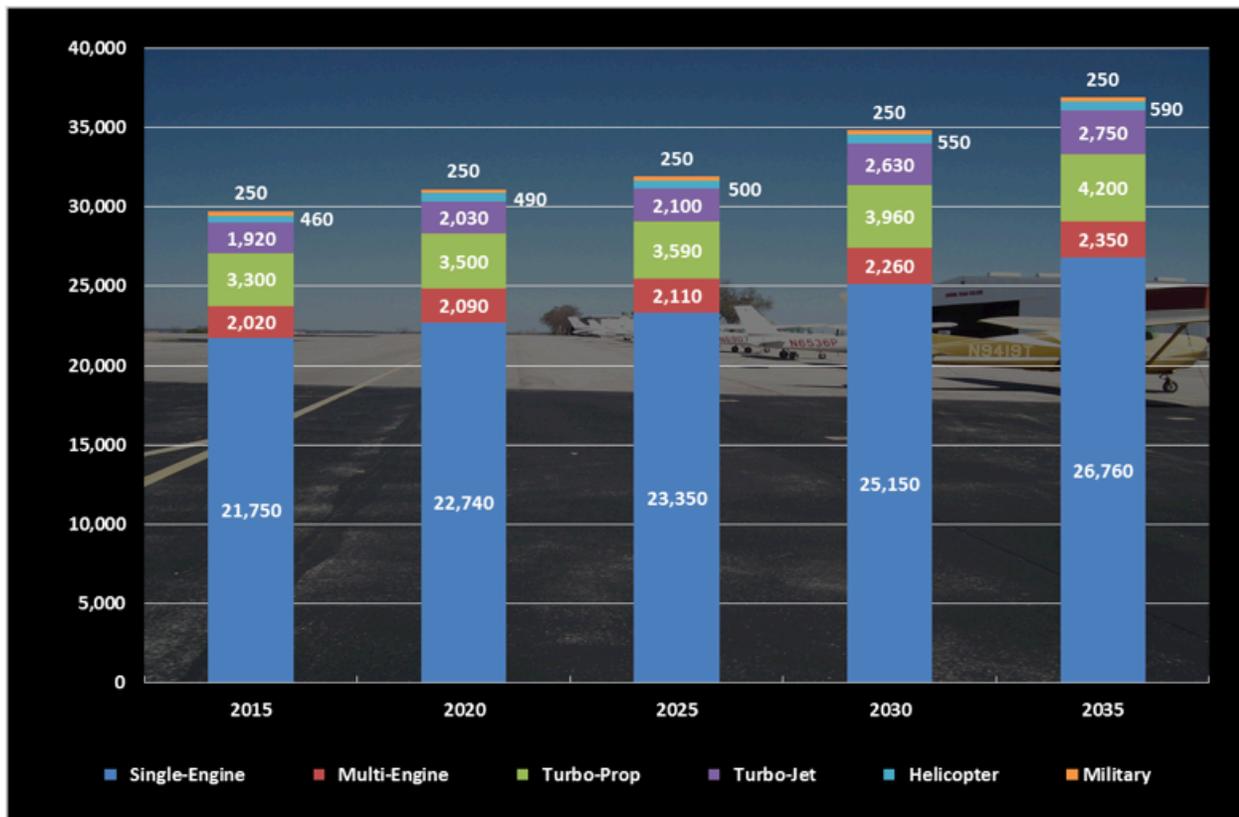


TABLE 2-5 | SUMMARY OF OPERATIONS BY AIRCRAFT TYPE, 2015-2035

Operations by Type	2015	2020	2025	2030	2035
Single-Engine Piston	21,750	22,740	23,350	25,150	26,760
Multi-Engine Piston	2,020	2,090	2,110	2,260	2,350
Turbo-Prop	3,300	3,500	3,590	3,960	4,200
Turbo-Jet	1,920	2,030	2,100	2,630	2,750
Helicopter	460	490	500	550	590
Military	250	250	250	250	250
Total	29,700	31,100	31,900	34,800	36,900

Source: Garver Forecast Data for ILE, 2015

FIGURE 2-6 | SUMMARY OF OPERATIONS BY AIRCRAFT TYPE, 2015-2035



Source: Garver Forecast Data for ILE, 2015



TABLE 2-6 | FLEET MIX OPERATIONS BY DESIGN GROUP, 2015-2035

Aircraft Approach Category	2015	2020	2025	2030	2035
Category A (Less than 91 knots)	20,650	21,190	21,240	23,010	24,450
Category B (92-120 knots)	8,270	9,060	9,710	10,780	11,409
Category C (121-140 knots)	300	350	440	480	520
Category D (141-166 knots)	20	30	30	40	40
Airplane Design Group	2015	2020	2025	2030	2035
Group I (Less than 49 feet)	23,000	23,630	23,900	25,340	26,110
Group II (49 feet to 78 feet)	6,220	6,970	7,570	8,800	10,230
Group III (79 feet to 118 feet)	20	30	50	70	80
Helicopter	210	220	230	240	230
Military	250	250	250	250	250
Total	29,700	31,100	31,900	34,600	36,900

Source: Garver Forecast Data for ILE, 2015

Aircraft Approach Category is based on 1.3 times the stall speed of the aircraft at the maximum certified landing weight in the landing configuration. Representative of the anticipated operations for each aircraft approach category and airplane design group. Totals may not equal due to rounding.



LOCAL AND ITINERANT OPERATIONS

According to FAA Order 7210.3U, Facility Operation and Administration, February 16, 2006, a local operation is any operation performed by an aircraft that “remains in the local traffic pattern, performs a simulated instrument approach, or operates to or from the Airport and a practice area within a 20-mile radius of the field or tower.” An itinerant operation is any operation

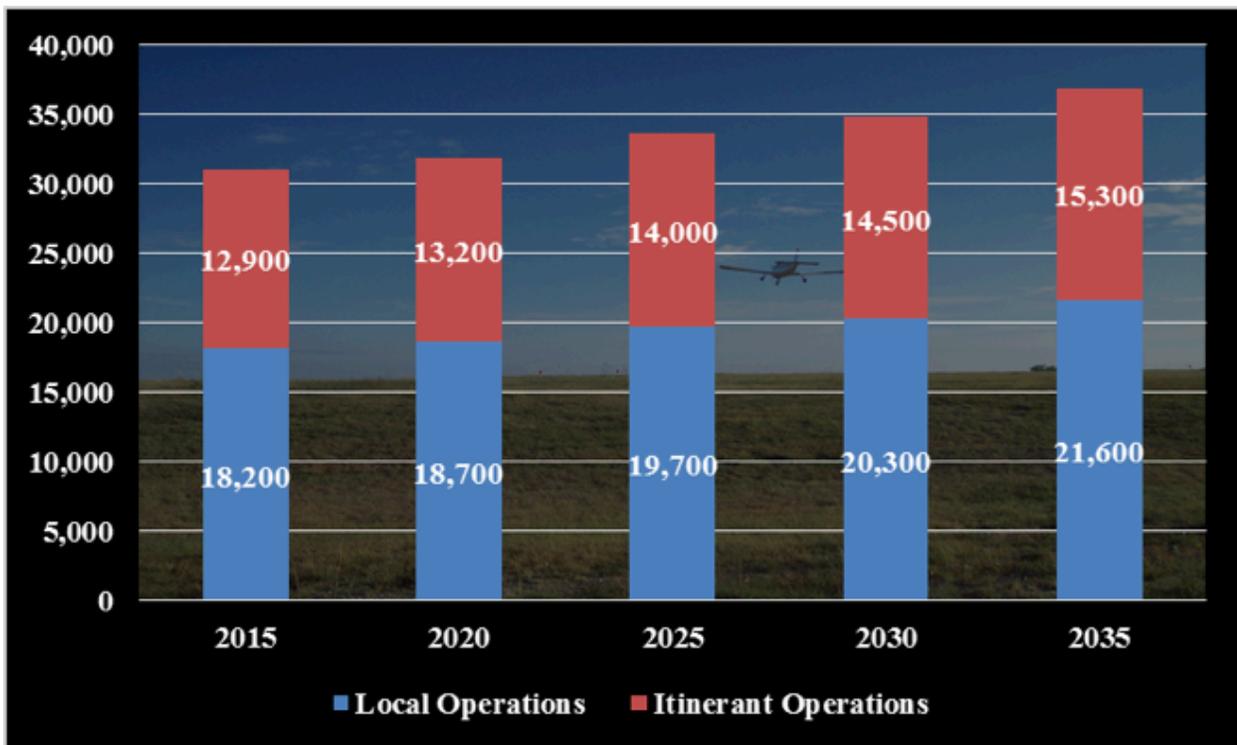
that is not considered local. According to TAF records, only 58 percent of the operations conducted at the airport are local and 42 percent are itinerant. These percentages reflect the business aircraft operations atmosphere at ILE and are expected to remain at or near these same levels throughout the forecast period. **Table 2-7** and **Figure 2-7**, *Summary of Local and Itinerant Operations, 2015-2035*, provides a summary of this information.

TABLE 2-7 | SUMMARY OF LOCAL AND ITINERANT OPERATIONS, 2015-2035

Year	2015	2020	2025	2030	2035
Local Operations	18,200	18,700	19,700	20,300	21,600
Itinerant Operations	12,900	13,200	14,000	14,500	15,300
Total	31,100	31,900	33,700	34,800	36,900

Source: Garver Forecast Data for ILE, 2015

FIGURE 2-7 | SUMMARY OF LOCAL AND ITINERANT OPERATIONS, 2015-2035



Source: Garver Forecast Data for ILE, 2015



ANNUAL INSTRUMENT APPROACH FORECAST

Table 2-8, *Actual Instrument Approach Forecasts, 2015-2035*, summarizes the forecast of annual civilian instrument approaches at ILE throughout the planning period. The forecast of annual instrument approaches (AIAs) provides further guidance in determining requirements for the type, extent, and timing of future navigational aid (NAVAID) equipment. These figures are strictly for instrument flight rules (IFR) operations conducted during instrument meteorological conditions (IMC), which exist whenever the cloud ceiling is at or below 1,000 feet and/or visibility is lower than 3 miles. If instrument approaches are calculated for marginal visual flight rules (MVFR) conditions, the monthly potential instrument approaches to ILE

would nearly double. MVFR weather conditions occur whenever the cloud ceiling is lower than 3,000 feet and/or the visibility is less than 5 miles.

Additional consideration for instrument approach procedures is based on the IFR flight plan filings for the last five year period and the level of training operations conducted by CTC. During the last five year period there have been an average of nearly 1,800 instrument flight plans filed to or from ILE. Of these an average of 26 percent were conducted by CTC. It is estimated that with each one of these instrument flight plans by CTC aircraft that an average of four instrument approaches are conducted which could occur during actual instrument meteorological conditions or as practice approaches for training purposes most at ILE.

FIGURE 2-8 | ACTUAL INSTRUMENT APPROACH FORECASTS, 2015-2035

Category	2015	2020	2025	2030	2035
Annual Operations	31,100	31,900	33,700	34,800	36,900
Forecast Air Taxi Operations	3,400	3,800	4,400	4,900	5,500
% IFR Weather	11.7%	11.7%	11.7%	11.7%	11.7%
% IFR Rated Pilots	50.7%	50.9%	50.8%	50.4%	49.9%
Total Actual Instrument Approaches	450	480	540	580	660
CTC Practice Instrument Approaches	408	428	450	472	500
Total Actual and CTC Practice Approaches	858	908	990	1,052	1,160

Source: Garver Forecast Data for ILE, 2015 and FAA Aerospace Forecasts 2014 – 2034.



CRITICAL AIRCRAFT

The “critical” aircraft at an airport is the largest and most demanding aircraft conducting at least 500 operations per year. Determining the critical aircraft is important for assessing airport design and layout and the structural and equipment needs for both the airfield and terminal area. It is evaluated with respect to size, speed, and weight. The aircraft operating at ILE vary widely from small piston flight trainers to large, complex, sophisticated business jets. Based on the types of aircraft utilizing the airport, the existing “critical” aircraft at ILE is in the Runway Design Code (RDC) C-II-4000 category. The preferred forecasts confirm this to be the critical aircraft during the short-term and maintain it as such throughout the 20-year planning period.

The existing and future critical aircraft at ILE is not defined by a single aircraft. Based on the myriad of aircraft operating on the field today it requires a group approach to define the critical aircraft. Today there are numerous aircraft models that are in the aircraft approach category C with ample operations to define the critical aircraft group. The growing numbers of Gulfstream 350/450s, Cessna Citations, and Bombardier Challengers are all in the airplane design group II thus defining the airplane design group. Hence, the ILE design aircraft is in the C-II category.

Table 2-9 illustrates aircraft specifications for two representative aircraft that are in the RDC – II category and operate at ILE.

TABLE 2-9 | EXISTING AND FUTURE CRITICAL AIRCRAFT CHARACTERISTICS

Aircraft Type and ARC	Wing Span	Aircraft Length	Aircraft Tail Height	Seating	Max Gross Takeoff Weight	Balanced Field Length	Approach Speed
Existing Critical Aircraft							
Dassault Falcon 20/50 B-II	61.8'	60.7'	22.9'	8-9	37,500 lbs.	5,000'	124
Cessna Citation 650 (VII) B-II	53.5'	55.5'	16.8'	6-9	23,000 lbs.	5,170'	122
Potential Future Critical Aircraft							
Bombardier Challenger 604 ARC C-II	64.3'	68.4'	20.3'	9	47,600 lbs.	5,700'	132
Gulfstream 350 ARC C-II	77.1'	89.2'	24.4'	14 (Typ.)	72,000 lbs.	4,700'	136

Source: Garver



FORECAST SUMMARY

The various forecast elements are displayed in **Table 2-13**, *Aviation Forecast Summary, 2015-2035*. The forecasts, combined with the inventory data, will be used to identify and develop the

facility requirements and the need for improved general aviation facilities to serve the ILE. The next chapter, Facility Requirements, identifies the types and extent of facilities needed to adequately accommodate the demand levels identified in this chapter.

TABLE 2-13 | AVIATION FORECAST SUMMARY, 2015-2035

Based Aircraft by Type					
Year	2015	2020	2025	2030	2035
Single-Engine Piston	55	57	58	59	62
Multi-Engine Piston	2	3	2	3	2
Multi-Engine Turbo-Prop	1	1	1	2	3
Turbo-Jet	0	0	1	1	2
Helicopter	2	2	3	4	5
Total	60	63	66	69	72
Based Aircraft by Type Plus Hangar Waiting List					
Year	2015	2020	2025	2030	2035
Single-Engine Piston	55	64	66	67	69
Multi-Engine Piston	2	3	3	2	2
Turbo-Prop	1	2	3	3	3
Turbo-Jet	0	0	1	2	2
Helicopter	2	2	3	4	5
Total	60	71	75	78	81
Operations					
Year	2015	2020	2025	2030	2035
Single-Engine Piston	21,750	22,740	23,350	25,150	26,760
Multi-Engine Piston	2,020	2,090	2,110	2,260	2,350
Turbo-Prop	3,300	3,500	3,590	3,960	4,200
Turbo-Jet	1,920	2,030	2,100	2,630	2,750
Helicopter	460	490	500	550	590
Military	250	250	250	250	250
Local Operations	18,200	18,700	19,700	20,300	21,600
Itinerant Operations	12,900	13,200	14,000	14,500	15,300
Total	31,100	31,900	33,700	34,800	36,900

Source: Garver Forecast Data for ILE, 2015



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