CHAPTER 2
Aviation Demand Forecasts

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

The Federal Aviation Administration (FAA) has oversight responsibility to review and approve aviation forecasts developed in conjunction with airport planning studies. When reviewing a sponsor's forecast (from the master plan), the FAA 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 an airport master plan consists of 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 forecasting methods, preparation of the forecasts, and documentation and evaluation of the results. FAA Advisory Circular (AC) 150/5070-6B, *Airport Master Plans*, outlines the following standard steps involved in the forecast process.

1. **Identify Aviation Activity Measures**: Determine the level(s) and type(s) of aviation activities likely to impact facility needs. For general aviation, these typically include based aircraft and operations.

2. **Review Previous Airport Forecasts**: These may include the FAA *Terminal Area Forecast* (TAF), 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**: Based aircraft and total operations are considered consistent with the TAF if they meet one of the following criteria:

   - The forecasts differ by less than 10 percent in the five-year forecast period and less than 15 percent in the 10-year forecast period;
   - The forecasts do not affect the timing or scale of an airport project; or
   - The forecasts do not affect the role of the airport as defined in the current version of FAA Order 5090.5, *Formulation of the National Plan of Integrated Airport Systems and Airports Capital Improvement Program*.

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 should serve only as guidelines, and planning must remain flexible enough to respond to a range of unforeseen developments.

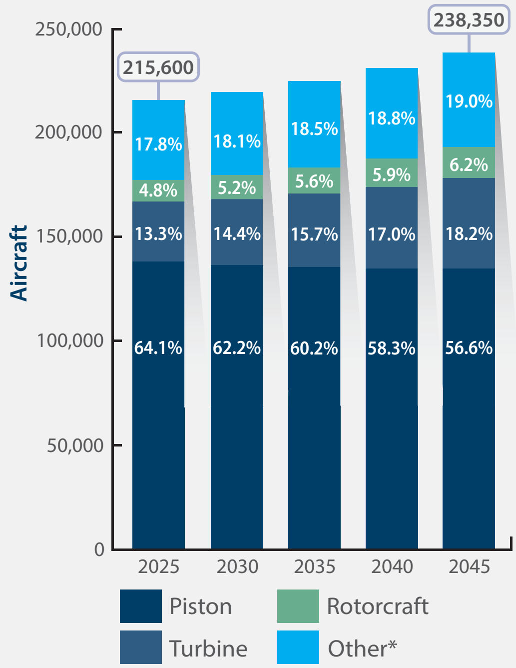
The following forecast analysis for the airport was produced following these basic guidelines. Existing forecasts were examined and compared against current and historical activity. The historical aviation activity was then examined, along with other factors and trends that can affect demand, with the intent 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 master plan utilize a base year of 2025 with a long-range forecast out to 2045.

NATIONAL AVIATION TRENDS

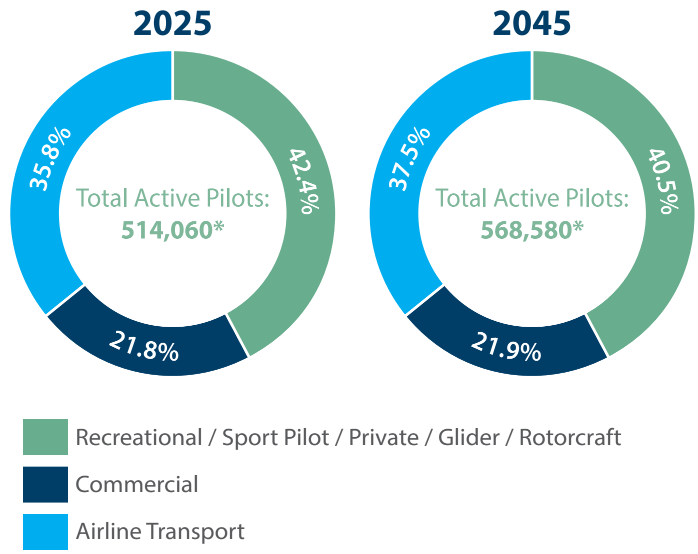
Each year, the FAA updates and publishes a national aviation forecast. Included in this publication are forecasts for large air carriers, regional/commuter air carriers, general aviation, and FAA workload measures. The forecasts are prepared to meet the budget and planning needs of the FAA and provide 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 forecasts is also shown on **Exhibit 2A**.

U.S. Active General Aviation Aircraft



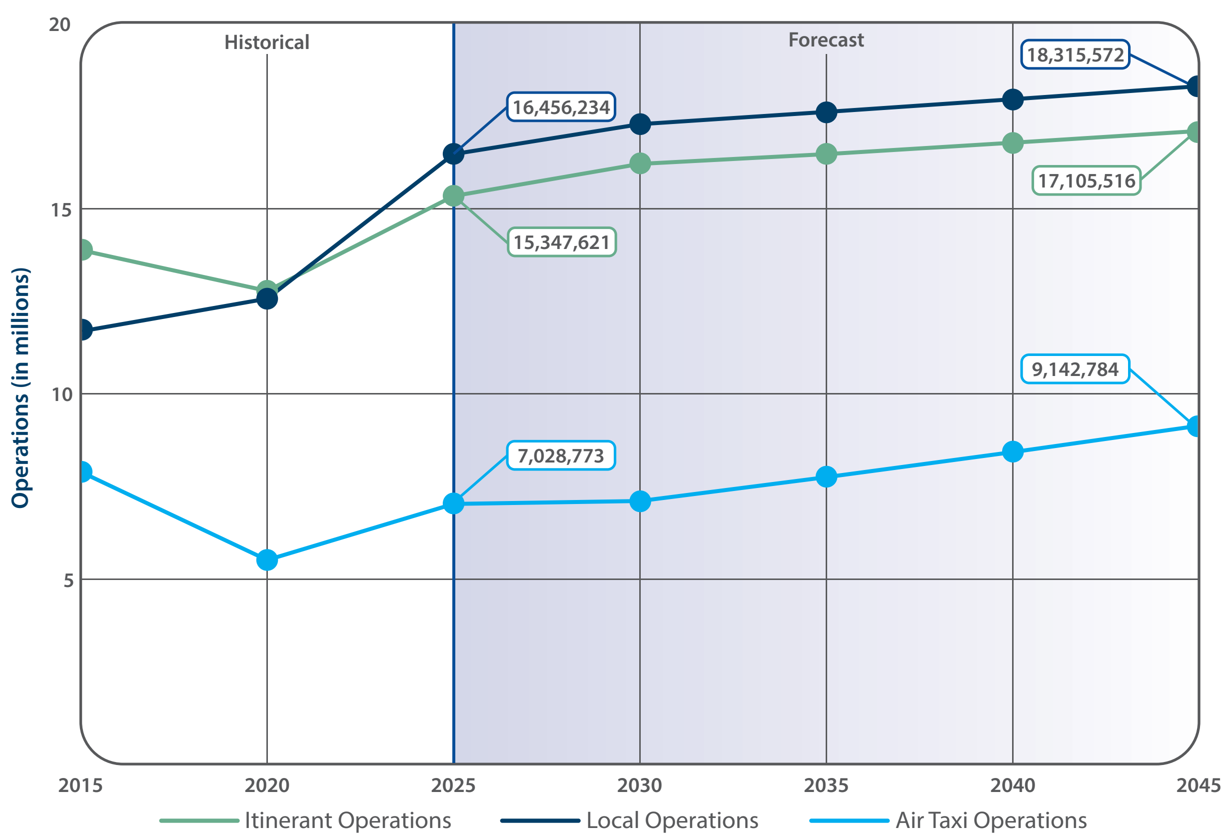
**The other category includes gliders and balloons*

Active Pilots By Certificate



**Excludes Student Pilot Certificates*

U.S. General Aviation and Air Taxi Operations



Source: FAA Aerospace Forecasts FY2025-2045

Exhibit 2A
NATIONAL GENERAL AVIATION FORECASTS

NATIONAL GENERAL AVIATION TRENDS

The long-term outlook for general aviation is promising, as growth at the high end of the segment (more sophisticated aircraft such as business jets, turboprops, and helicopters) offsets continuing retirements at the traditional low end (piston-powered aircraft). The active general aviation fleet is forecasted to remain relatively stable between 2025 and 2045, increasing by just 0.5 percent. While steady growth in both gross domestic product (GDP) and corporate profits results in continued growth of the turbine and rotorcraft fleets, the largest segment of the fleet (fixed-wing piston aircraft) continues to shrink over the forecast period.

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

TABLE 2A: FAA General Aviation Forecast

Forecast Category	Demand Indicator	2025	2045	CAGR
General Aviation Fleet	Total Fixed-Wing Piston	138,270	134,850	-0.1%
General Aviation Fleet	Total Fixed-Wing Turbine	28,605	43,405	2.1%
General Aviation Fleet	Total Helicopters	10,420	14,715	1.7%
General Aviation Fleet	Total Other (experimental, light sport, etc.)	38,305	45,380	0.9%
General Aviation Fleet	**Total GA Fleet:**	**215,600**	**238,350**	**0.5%**
General Aviation Operations	Local	16,456,234	18,315,572	0.5%
General Aviation Operations	Itinerant	15,347,621	17,105,516	0.5%
General Aviation Operations	**Total General Aviation Operations:**	**31,803,855**	**35,421,088**	**0.5%**

Table Source: FAA Aerospace Forecast FY 2025–2045

CAGR = compound annual growth rate (2025–2045)

FAA forecasts of total operations are based on activity at control towers across the United States and are categorized as air carrier, air taxi/commuter, general aviation, and military. While the fleet size remains relatively level, the number of general aviation operations at towered airports is projected to increase from 31.8 million in 2025 to 35.4 million in 2045, with an average increase of 0.8 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.

BUSINESS JET OPERATIONAL TRENDS

General aviation airports are often hubs of diverse activity, although they frequently experience a predominance of operations by piston-powered aircraft. These aircraft, including single-engine and light twin-engine aircraft, comprise most of the based aircraft and operations at general aviation airports. Their routine activities include everything from local flights and flight training to recreational flying and short-haul travel. Piston-powered aircraft are generally more numerous and engage in more frequent, shorter operations, which contributes to a busy and vibrant atmosphere at general aviation airports.

In contrast, business jets are less numerous and conduct fewer operations overall but are physically demanding in a different way. Business jets require more space for their operations due to their larger size and need for longer runways. Their arrivals and departures can place greater demands on airport infrastructure, such as requiring more intensive ground handling, fueling, and maintenance services. The operational impacts of business jets require increased coordination with ground support services and infrastructure support (e.g., larger hangars, apron/taxilanes, and fuel loads), making their presence felt more prominently even if they operate less frequently than their piston-powered counterparts. At general aviation airports with higher amounts of jet traffic, such as RAL, business jets drive the critical aircraft discussion. For this reason, additional focus is placed on national business jet trends to help understand growth patterns and how they might impact future operations at RAL.

Since the early 2000s, business jet operational trends have significantly evolved, driven by advancements in technology, changing economic conditions, and shifts in travel preferences. Progress in aircraft technology has led to the development of business jets with greater range and performance capabilities. Newer models can cover longer distances nonstop, reducing the need for intermediate stops. Ultra-long-range business jets, such as the Gulfstream G700/G800, Bombardier Global 7500, and Boeing Business Jet (BBJ), have ranges of over 7,000 nautical miles (nm) and are experiencing growing demand from corporations and high-net-worth individuals who seek more flexibility and range (ability to travel longer distances). Fuel efficiency improvements and operating cost reductions are focal points; modern business jets are designed with more efficient engines and aerodynamic enhancements that lower fuel consumption and operational expenses. Some of the most fuel-efficient business jet models include the Embraer Phenom 300, Pilatus PC-24, Cessna Citation XLS, and Learjet 75.

The FAA's *Traffic Flow Management System Counts* (TFMSC) database captures an operation when a pilot files a flight plan and/or when a flight is detected by the National Airspace System, usually via radar. As shown in **Table 2B**, the top 15 business jets with the most operations in 2025 (the last full calendar year of available data) are led by two of the most efficient business jets, the Embraer Phenom 300 and the Cessna Citation Latitude. Of the top 15 business jets, several have experienced slowed or declining growth rates over the past five years, reflecting a shift in operations to newer models.

TABLE 2B: 2025 Top 15 Busiest Business Jets by Operations

Aircraft Type	Operations: 2020	Operations: 2021	Operations: 2022	Operations: 2023	Operations: 2024	Operations: 2025	2020–2025 CAGR
E55P (Embraer Phenom 300)	213,923	335,646	354,249	364,496	399,592	470,195	17.06%
C68A (Cessna Citation Latitude)	133,150	229,559	252,954	280,931	335,968	359,074	21.95%
C56X (Cessna Excel/XLS)	242,977	357,612	380,367	348,207	341,568	348,958	7.51%
CL35 (Bombardier Challenger 300)	140,716	217,882	235,031	247,705	270,003	284,560	15.12%
C25B (Cessna Citation CJ3)	125,983	179,269	193,852	205,427	221,978	227,382	12.54%
CL60 (Bombardier Challenger 600/601/604)	131,174	193,995	202,902	191,212	192,776	197,120	8.49%
H25B (BAe HS 125/700-800/Hawker 800)	158,778	240,801	229,572	199,976	188,903	191,214	3.79%
C560 (Cessna Citation V/Ultra/Encore)	170,545	228,409	219,329	197,471	183,614	178,137	0.87%
GLF4 (Gulfstream IV/G400)	133,027	202,549	196,146	175,091	167,300	173,724	5.48%
CL30 (Bombardier Challenger 300)	127,629	172,303	169,523	162,654	162,026	171,924	6.14%
BE40 (Raytheon/Beech Beechjet 400/T-1)	209,219	244,373	234,904	200,363	157,608	136,283	-8.22%
C525 (Cessna CitationJet/CJ1)	124,413	166,026	166,923	152,957	142,491	134,688	1.60%
GLF5 (Gulfstream V/G500)	89,818	127,765	150,344	136,684	135,606	134,635	8.43%
F2TH (Dassault Falcon 2000)	90,177	131,785	149,210	142,465	132,020	132,962	8.08%
C700 (Cessna Citation Longitude)	8,484	29,044	51,928	69,960	99,626	126,122	71.57%

Table Source: FAA TFMSC

CAGR = compound annual growth rate

Table 2C lists the business jets with the fastest operational growth rates over the past five years. These aircraft represent newer models, such as the Cessna Citation Longitude and Latitude (newest Cessna models), the Gulfstream G500 and Bombardier Global 7500 (ultra-long-range aircraft), and the Cirrus Vision SF50 (Vision Jet) and Cessna Citation Bravo (light business jets).

TABLE 2C: Top 15 Fastest Operational Growth Business Jets

Aircraft Type	Operations: 2020	Operations: 2021	Operations: 2022	Operations: 2023	Operations: 2024	Operations: 2025	2020–2025 CAGR
C700 (Cessna Citation Longitude)	8,484	29,044	51,928	69,960	99,626	126,122	71.57%
GL7T (Bombardier Global 7500)	3,351	8,808	15,338	20,692	29,921	35,717	60.52%
GA5C (G-7 Gulfstream G500)	6,464	13,900	17,868	26,823	33,460	37,576	42.19%
C55B (Cessna Citation Bravo)	11,275	21,828	27,608	33,537	31,035	37,688	27.30%
SF50 (Cirrus Vision SF50)	36,700	62,547	82,853	98,641	94,984	116,685	26.03%
E550 (Embraer Legacy 500)	20,039	30,973	36,636	42,616	53,739	63,606	25.99%
E545 (Embraer EMB-545 Legacy 450)	39,788	62,344	71,203	82,854	92,470	115,974	23.86%
FA8X (Dassault Falcon 8X)	2,503	4,146	7,052	7,028	6,880	6,986	22.79%
C68A (Cessna Citation Latitude)	133,150	229,559	252,954	280,931	335,968	359,074	21.95%
GLF6 (Gulfstream)	37,724	55,534	73,457	79,805	84,261	89,795	18.94%
E55P (Embraer Phenom 300)	213,923	335,646	354,249	364,496	399,592	470,195	17.06%
G280 (Gulfstream G280)	42,360	66,010	79,495	79,726	83,720	92,200	16.83%
C25M (Cessna Citation M2)	25,778	38,670	49,915	52,383	53,121	53,736	15.83%
CL35 (Bombardier Challenger 300)	140,716	217,882	235,031	247,705	270,003	284,560	15.12%
GL5T (Bombardier BD-700 Global 5000)	23,772	38,703	40,258	41,975	42,424	47,868	15.03%

Table Source: FAA TFMSC

CAGR = compound annual growth rate

Table 2D provides a five-year breakdown of business jet operations by aircraft reference code (ARC). These data show that the B-II and C-II categories account for over 69 percent of total business jet operations in 2025. The highest growth categories are the A-I (small/efficient jet) and B-III (ultra long-range jet) categories. The A-I category has grown at a compound annual growth rate (CAGR) of 26.03 percent and is represented by a single aircraft: the Cirrus Vision SF50. The B-III category has a CAGR of 21.72 percent and is primarily comprised of the Dassault Falcon F7X and 8X and the Bombardier Global 7500.

TABLE 2D: National Business Jet Operations by ARC

ARC/Example Aircraft	Operations: 2020	Operations: 2021	Operations: 2022	Operations: 2023	Operations: 2024	Operations: 2025	2020–2025 CAGR
A-I/Cirrus Vision SF50	36,700	62,547	82,853	98,641	94,984	116,685	26.03%
B-I/Beechjet 400	619,231	788,859	805,071	719,090	647,915	606,667	-0.41%
C-I/Learjet 45	292,293	397,439	385,763	335,363	311,994	300,353	0.55%
B-II/Phenom 300	1,310,085	1,948,103	2,046,043	2,004,440	2,078,328	2,203,436	10.96%
C-II/Challenger 300	1,054,897	1,560,040	1,634,500	1,554,549	1,553,837	1,610,763	8.83%
D-II/Gulfstream G400	133,027	202,549	196,146	175,091	167,300	173,724	5.48%
B-III/Falcon F7X	28,092	42,908	59,531	64,428	72,020	75,052	21.72%
C-III/Global Express	128,218	195,516	234,013	249,617	258,536	272,028	16.23%
D-III/Gulfstream G500	89,818	127,765	150,344	136,684	135,606	134,635	8.43%

Table Source: FAA TFMSC

ARC = aircraft reference code
CAGR = compound annual growth rate

RISKS TO THE FORECAST

While the FAA is confident its forecasts for aviation demand and activity can be reached, these forecasts are dependent on several factors, including the strength of the global economy, security (including the threat of international terrorism), and oil prices. Higher oil prices could lead to further shifts in consumer spending away from aviation, dampening a recovery in air transport demand. The COVID-19 pandemic introduced a new risk, and although the industry has rebounded, the threat of future global health emergencies and potential economic fallout remains. The anticipated widespread deployment of unmanned aircraft systems (UAS) and advanced air mobility (AAM) vehicles into the national airspace system will introduce new challenges, including the potential replacement of traditional aircraft.

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. RAL is classified in the *National Plan of Integrated Airport Systems* (NPIAS) as a reliever airport with a regional designation, meaning its main purpose is to serve general aviation operators and relieve congestion at Ontario International Airport within the broader regional area.

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, that influence aviation demand at an airport. Aviation demand will also be impacted by the proximity and strength of aviation services offered at competing airports, as well as the local and regional surface transportation network.

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

As a rule, a general aviation airport's service area can extend for approximately 30 nautical miles (nm). As discussed in Chapter One, there are 11 public-use airports with runway lengths of4,000 feet or greater within a 30-nm radius of RAL. Of these airports, 10 are included in the NPIAS, as previously identified in **Table 1G**.

Of these airports, six offer a longer runway length than what is currently available at RAL, ranging from 5,700 feet to 13,002 feet. All have published instrument approaches; Ontario International Airport, March Air Reserve Base, and John Wayne Airport provide precision approach capabilities with ½-mile visibility minimums. By comparison, RAL's runway is 5,401 feet and the lowest minimums available are ¾-mile visibility minimums.

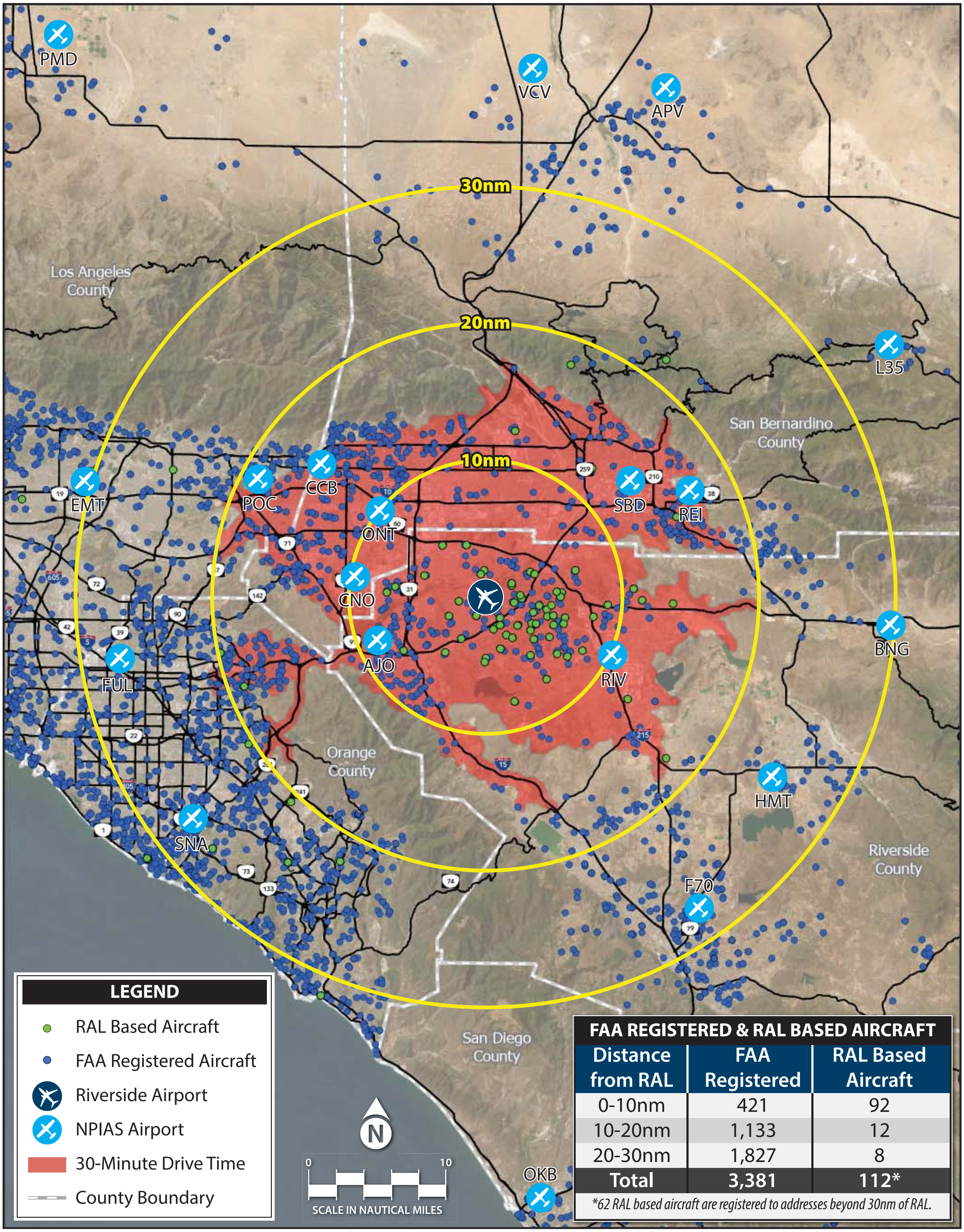
When evaluating the service area for forecasting purposes, two primary demand segments must be considered: based aircraft and itinerant operations. An airport's ability to attract based aircraft is an important factor when defining the service area, as proximity is a consideration for most aircraft owners. Aircraft owners typically choose to base at airports that are close to their homes or businesses. **Exhibit 2B** depicts a radius of 10, 20, and 30 nm from RAL, extending beyond Riverside County and into several neighboring counties. The drive time analysis highlights RAL's strong accessibility via regional transportation corridors, including State Route 91, Interstate 215, and Interstate 60, which significantly enhance ground access to the airport. The 30-minute drive time from RAL also shows that the reach from the airport extends into adjacent counties (San Bernardino, Los Angeles, and Orange Counties).

Registered aircraft in the region and aircraft based at RAL are also shown on the exhibit, with large clusters of registered aircraft located in densely populated areas around RAL, Corona Municipal Airport (AJO), Chino Airport (CNO), Ontario International Airport (ONT), March Air Reserve Base (RIV), San Bernardino International Airport (SBD), Cable Airport (CCB), Redlands Municipal Airport (REI), Brackett Field Airport (POC), Hemet-Ryan Airport (HMT), John Wayne/Orange County Airport (SNA), Fullerton Municipal Airport (FUL), French Valley Airport (F70), and Banning Municipal Airport (BNG). These clusters reflect the highly competitive southern California general aviation environment, where multiple airports serve overlapping markets; nevertheless, RAL's location within the west-central portion of the Inland Empire, combined with its runway length, available aviation services, and proximity to business and residential centers, allows it to capture a distinct share of based aircraft demand.

Registered aircraft within the service area can provide a correlation to based aircraft levels; however, it is not uncommon for some aircraft to be registered in a particular county but be based at an airport outside the county, or vice versa. In total, there are 3,381 registered aircraft within a 30-nm radius of RAL (which extends into five regional counties) and the majority of those aircraft (54 percent) are within 20 to 30 nm of RAL. As of January 2026, the FAA has validated 174 based aircraft at RAL, of which 64 percent are attributed to addresses within 30 nm of the airport. **Exhibit 2B** indicates that RAL's primary based aircraft service area primarily consists of the northwest corner of Riverside County but also includes portions of San Bernardino, Los Angeles, and Orange Counties as secondary service areas based on their proximity to RAL and convenient highway access. This service area definition reflects both geographic accessibility and realistic market behavior in a densely populated, multi-airport metropolitan region.

The second demand segment to consider is itinerant operations. These operations are performed by aircraft that arrive from outside the airport area and land at or depart from RAL to fly to other airports. In most cases, pilots will use airports nearer their intended destinations; however, this is dependent on those airports' ability to accommodate aircraft operators in terms of the facilities and services available. As a result, airports with better facilities and services are more likely to attract a larger portion of the region's itinerant operations.

When compared to other public-use airports in the region, RAL offers a comprehensive array of general aviation services and amenities, including fueling services, aircraft maintenance and repair, ground handling, passenger and crew services, flight planning and support, aircraft storage and tiedowns, and administrative support, as well as a runway capable of accommodating business jets. RAL offers a strategically positioned option for pilots who want to avoid the complexities of the major commercial service airports in the Los Angeles Basin while still staying close to the region's major population and



FAA REGISTERED & RAL BASED AIRCRAFT

Distance from RAL	FAA Registered	RAL Based Aircraft
0-10nm	421	92
10-20nm	1,133	12
20-30nm	1,827	8
Total	3,381	112*

**62 RAL based aircraft are registered to addresses beyond 30nm of RAL.*

Source: ESRI Basemap Imagery (2024), FAA Registered Aircraft 2024 (most recent data available), RAL Based Aircraft List, Coffman Associates analysis business centers. Its central location also makes it an attractive gateway for business and recreational travelers accessing Riverside and San Bernardino Counties, regional employment centers, and the diverse cultural, outdoor, and entertainment destinations throughout southern California.

For the purposes of this study, RAL's primary service area is defined as the western portion of Riverside County. This area contains the majority of the county's population base and economic activity and represents the geographic area from which the airport is expected to draw the greatest share of its based aircraft and aviation demand. While the western portion of the county functions as the primary service area for RAL, the entirety of Riverside County is considered in evaluating population and socioeconomic trends because a majority of the county's residents and economic activity are concentrated in the western region. Utilizing countywide socioeconomic data provides a comprehensive and reasonable basis for assessing long-term aviation demand and supporting forecast development. As of 2025, Riverside County contained 1,184 registered aircraft.

SERVICE AREA SOCIOECONOMICS

The socioeconomic characteristics of an airport's service area can provide valuable information from which an understanding of the dynamics of growth near that airport can be derived. 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 outline 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 RAL include historical and projected population, employment, per capita personal income (PCPI), and GRP data from Woods & Poole Economics, Inc. **Table 2E** summarizes 10 years of historical data and projections through 2045 for Riverside County.

TABLE 2E: Socioeconomic Information for Riverside County

Historical/ Forecast	Year	Population	Employment	Per Capita Personal Income (in 2017 dollars)	Gross Regional Product (in millions of 2017 dollars)
Historical	2015	2,311,154	968,963	$37,620	$79,513
Historical	2016	2,337,895	1,002,648	$38,732	$81,928
Historical	2017	2,365,579	1,033,182	$39,082	$84,070
Historical	2018	2,388,500	1,069,825	$39,795	$87,572
Historical	2019	2,403,783	1,094,396	$41,657	$92,063
Historical	2020	2,424,663	1,076,302	$45,472	$92,166
Historical	2021	2,455,225	1,130,799	$47,278	$98,382
Historical	2022	2,479,628	1,199,971	$43,824	$101,957
Historical	2023	2,503,549	1,226,720	$44,411	$104,815
Historical	2024	2,529,933	1,247,705	$45,526	$107,364
Historical	2025	2,570,372	1,270,708	$46,169	$110,124
Forecast	2030	2,776,296	1,399,598	$49,569	$125,675
Forecast	2035	2,986,274	1,541,121	$53,146	$143,499
Forecast	2045	3,413,577	1,852,771	$60,808	$185,827
CAGR	**2015–2025**	**1.07%**	**2.75%**	**2.07%**	**3.31%**
CAGR	**2025–2045**	**1.43%**	**1.90%**	**1.39%**	**2.65%**

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

CAGR = compound annual growth rate

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, which is 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 not to use certain techniques based on the accuracy of the forecasts produced using other methods.

Trendline/time series projections are probably the simplest and most familiar of the forecasting techniques. By fitting growth curves to historical data and then extending them into the future, a basic trendline projection is produced. A basic assumption of this technique is that outside factors will continue to affect aviation demand in the same manner as in the past. As broad as this assumption may be, 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). An r^2 value (coefficient determination) greater than 0.90 indicates good predictive reliability. A value less than 0.90 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, which provides 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 to assess and preserve options for future facility needs. Facility and financial planning usually require at least a 10-year view because it often takes more than five years to complete a major facility development program; however, it is important to use forecasts that do not overestimate revenue-generating capabilities or underestimate the demand for facilities needed to meet public (user) needs.

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

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

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

PREVIOUS FORECASTS

Consideration is given to any recently completed forecasts of aviation demand for the airport. For RAL, the recently prepared forecasts reviewed are those in the FAA TAF, which was prepared in February 2026, and the most recent airport master plan, which was approved by the Riverside City Council in 2009.

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.

The 2009 *Riverside Airport Master Plan* is now 17 years old. In that time, the country has undergone the Great Recession and the COVID-19 pandemic, and methodologies for counting based aircraft and tracking operations have changed. While the baseline figures may be different, it is still valuable to consider previous master plan considerations and growth rates. **Table 2F** compares the 2026 TAF and 2009 master plan projections for RAL.

TABLE 2F: Previous Forecasts

Year	Based Aircraft: FAA TAF 2026	Based Aircraft: RAL MP 2009	Total Operations: FAA TAF 2026	Total Operations: RAL MP 2009
2006	246	202	83,562	85,256
2012	162	300	70,513	100,600
2017	195	370	101,704	111,000
2025	183	442	130,447	130,776
2027	189	480	131,286	136,800
2030	198	543	132,471	146,360
2035	213	667	134,466	163,802
2045	243	1,008	138,542	205,168
2025–2045 CAGR	**1.43%**	**4.21%**	**0.30%**	**2.28%**

Table Sources: FAA Terminal Area Forecast (FAA TAF), February 2026; Riverside Airport Master Plan (RAL MP), 2009

The 2009 master plan utilized a base year of 2006 with projections for 2012, 2017, and 2027. All other years included in the table have been interpolated or extrapolated.

CAGR = compound annual growth rate

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 is 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 RAL, certain elements must be forecasted. These indicators of demand 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 needed facilities 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 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

Documentation of the historical number of based aircraft at RAL has been somewhat intermittent. The FAA did not require airports to report 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 information from other airports. The FAA now utilizes this inventory as a baseline for determining how many and what type(s) of aircraft are based at any individual airport. Based aircraft levels factor into the formulation of asset classifications within the NPIAS and apply only to airports included in the NPIAS. 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).

Airport staff have undertaken and submitted a comprehensive physical count to the FAA for validation. The most recent validation of based aircraft at RAL identified 174 validated based aircraft. Of the validated based aircraft, there are 154 single-engine piston aircraft, 11 multi-engine piston aircraft, three turboprops, five business jets, and one helicopter.

REGISTERED AIRCRAFT FORECASTS

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

Riverside County was previously established as the primary service area for RAL. **Table 2G** presents the historical registered aircraft for Riverside 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 aircraft owners. Although this information generally provides a correlation to based aircraft, it is not uncommon for some aircraft to be registered in the county but be based at an airport outside the county, or vice versa.

The registered aircraft in the service area show a declining trend over the past 10 years; however, the most significant drop in registrations occurred between 2016 and 2018. Since 2020, registrations have still shown a slight decrease year-over-year, although at a slower rate. Total aircraft registrations in 2025 were at 1,184.

TABLE 2G: Historical Service Area Registered Aircraft

Year	Riverside County
2015	1,503
2016	1,532
2017	1,464
2018	1,323
2019	1,286
2020	1,278
2021	1,265
2022	1,224
2023	1,218
2024	1,217
2025	1,184
10-Year CAGR	**-2.36%**
5-Year CAGR	**-1.52%**

Table Source: FAA Aircraft Registration Database

CAGR = compound annual growth rate

Although there are no recently prepared registered aircraft forecasts for the service area county, one was prepared for this study using market share, ratio, and historical growth rate projection methods. Several regression forecasts were also considered, which examined the correlation of registered aircraft (dependent variable) with the service area population, employment, income, and GRP. **Table 2H** details the results of this analysis.

TABLE 2H: Regression Analysis

Independent Variable	r^2
Time Series	0.82
Population	0.75
Employment	0.86
Income	0.82
Gross Regional Product	0.85

Table Source: Coffman Associates Analysis

None of the regressions produced a correlation over 0.86; this is below 0.90, which is the threshold that indicates a reliable predictive value. The regression analysis also presents a directional inconsistency: not only is the resulting correlation below 0.90, but the highest-correlating specification produces a negative coefficient. This would imply declining forecast values, which conflicts with the FAA's positive outlook for active aircraft nationwide and for California. As a result, the regression analysis for registered aircraft has been excluded from further consideration.

Historical and Socioeconomic Growth Rate Projection

Over the last 10 years, the number of registered aircraft in the service area has had a declining CAGR of -2.36 percent. By applying this CAGR to the current number of registered aircraft, a forecast emerges that results in 735 registered aircraft by 2045. Applying the five-year growth rate of registered aircraft (-1.52 percent CAGR) to the forecast years results in 872 aircraft registrations by 2045.

Registered aircraft growth is often related to population and economic activity in the service area. For this reason, registered aircraft projections tied to the projected service area socioeconomic forecasts were also prepared. Applying the forecasted employment growth rate for the service area (1.90 percent) to the current number of registered aircraft over the forecast years results in 1,726 service area aircraft registrations by 2045. In the same way, applying the forecasted GRP growth rate of the service area to aircraft registrations results in 1,998 registered aircraft by 2045 and a CAGR of 2.65 percent.

Market Share of California Based Aircraft

Market share projections consider the ratio of service area registered aircraft to the total number of aircraft based in the State of California, both historically and as forecasted by the FAA. A market share projection was prepared due to the expected growth in based aircraft numbers at the state level, as published in the FAA TAF. The service area count of 1,184 registered aircraft in 2025 represents approximately 6.82 percent of all aircraft based in California. If the service area maintained this market share, it would result in 1,389 aircraft by 2044 (0.80 percent CAGR). Two additional growth forecasts were prepared based on a mid-range increasing market share scenario and a high-range increasing market share scenario. The mid-range forecast considers a scenario in which the service area experiences a 1.34 percent CAGR, which is reflective of the service area's return to a market share of 7.36 percent, a level which has been experienced as recently as 2023. Applying this growth rate to the forecast years results in a total service area aircraft count of 1,544 by 2045. The high-range forecast applies the 10-year market share high (8.10 percent) to the market share of the forecast years, yielding 1,698 registered aircraft in the service area by 2045. The high-range forecast reflects a registered aircraft CAGR of 1.82 percent. **Table 2J** shows the market share of the service area compared to California totals.

TABLE 2J: Registered Aircraft Projections: Market Share of California Based Aircraft

Historical/Forecast	Year	Registered Aircraft	California Based Aircraft	Service Area Market Share %
Historical	2015	1,503	19,764	7.60%
Historical	2016	1,532	20,600	7.44%
Historical	2017	1,464	19,321	7.58%
Historical	2018	1,323	18,212	7.26%
Historical	2019	1,286	17,025	7.55%
Historical	2020	1,278	15,783	8.10%
Historical	2021	1,265	16,239	7.79%
Historical	2022	1,224	16,368	7.48%
Historical	2023	1,218	16,518	7.37%
Historical	2024	1,217	17,834	6.82%
Historical	2025	1,184	17,878	6.62%
Historical	**2015–2025 CAGR**	**-2.36%**	**-1.00%**	**-1.37%**
Historical	**2020–2025 CAGR**	**-1.52%**	**2.52%**	**-3.94%**
Constant Market Share	2030	1,232	18,602	6.62%
Constant Market Share	2035	1,281	19,344	6.62%
Constant Market Share	2045	1,389	20,975	6.62%
Constant Market Share	**2025–2045 CAGR**	**0.80%**	**0.80%**	**–**
Increasing Market Share (Mid-Range)	2030	1,266	18,602	6.81%
Increasing Market Share (Mid-Range)	2035	1,352	19,344	6.99%
Increasing Market Share (Mid-Range)	2045	1,544	20,975	7.36%
Increasing Market Share (Mid-Range)	**2025–2045 CAGR**	**1.34%**	**0.80%**	**–**
Increasing Market Share (High-Range)	2030	1,301	18,602	6.99%
Increasing Market Share (High-Range)	2035	1,424	19,344	7.36%
Increasing Market Share (High-Range)	2045	1,698	20,975	8.10%
Increasing Market Share (High-Range)	**2025–2045 CAGR**	**1.82%**	**0.80%**	**–**

Table Sources: FAA Aircraft Registration Database; FAA Terminal Area Forecast, 2026; Coffman Associates Analysis

CAGR = compound annual growth rate

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 has 0.46 registered aircraft per 1,000 residents. Two projections were prepared: one based on maintaining the current ratio over the forecast period and another projecting an increasing ratio that returned to the 10-year historical average of 0.54 registered aircraft per 1,000 residents. Maintaining the current ratio (0.46) through 2045 resulted in 1,572 registered aircraft (1.43 percent CAGR). The increasing ratio projection resulted in 1,843 registered aircraft by 2045 (2.24 percent CAGR).

Registered Aircraft Forecast Summary

Table 2K summarizes the nine registered aircraft forecasts for the RAL primary service area. Overall, registrations within Riverside County have declined over the past 10 years; however, since the COVID-19 pandemic in 2020, the number of overall aircraft based in California is beginning to grow. Most of the projections indicate modest to moderate growth with CAGRs that range from 0.80 percent to 2.65 percent. The five-year and 10-year historical growth rate forecasts are considered outliers that reflect past declines, which are not expected to continue. Service area socioeconomic data projections show strong growth and the overall state market for based aircraft is robust. This is reflected by the state CAGR of 0.80 percent, which is greater than the 0.5 percent CAGR projected nationally for active general aviation aircraft. Overall, the constant market share projection of California based aircraft is considered the most reasonable forecast because it is tied to a historical trend but allows for increasing growth consistent with the socioeconomic growth projected for the county. The selected registered aircraft forecast resulted in 1,232 registered aircraft in 2030, 1,281 registered aircraft in 2035, and 1,389 registered aircraft in 2045.

TABLE 2K: Registered Aircraft Forecast Summary

Projection	2030	2035	2045	CAGR 2025–2045
5-Year Growth Rate	1,097	1,016	872	-1.52%
20-Year Growth Rate	1,051	933	735	-2.36%
Service Area Employment Growth Rate	1,301	1,430	1,726	1.90%
Service Area GRP Growth Rate	1,349	1,538	1,998	2.65%
Constant % of CA Based Aircraft (SELECTED FORECAST)	**1,232**	**1,281**	**1,389**	**0.80%**
Increasing % of CA Based Aircraft (Mid)	1,266	1,352	1,544	1.34%
Increasing % of CA Based Aircraft (High)	1,301	1,424	1,698	1.82%
Constant Aircraft/1,000 Population	1,279	1,376	1,572	1.43%
Increasing Aircraft/1,000 Population	1,334	1,494	1,843	2.24%

Table Source: Coffman Associates Analysis

CAGR = compound annual growth rate

Based Aircraft Market Share of Registered Aircraft Forecast

Utilizing the forecast of registered aircraft in RAL's primary service area, a market share forecast of based aircraft at RAL was developed. In 2025, the 174 FAA-validated based aircraft at RAL represented 14.70 percent of the aircraft registered in the service area. By maintaining this market share as a constant through the planning years, a forecast emerged that resulted in 204 based aircraft by 2045 (0.80 percent CAGR). Two increasing market share forecasts were also evaluated. The mid-range scenario considered a 16.42 percent market share by 2045 and resulted in an increase in based aircraft to 228, or a 1.36 percent CAGR, by the end of the planning period. The high-range market share forecast evaluated a stronger growth scenario that considered the airport holding 18.15 percent of the market share, which is near the historical high, by the end of the planning period. This resulted in 252 based aircraft by 2045 and a CAGR of 1.87 percent. The three market share projections are presented in **Table 2L**.

TABLE 2L: Based Aircraft Market Share of Registered Aircraft Forecast

Historical/Forecast	Year	RAL Based Aircraft	Service Area Registered Aircraft	RAL Market Share %
Historical	2015	172	1,503	11.44%
Historical	2016	159	1,532	10.38%
Historical	2017	195	1,464	13.32%
Historical	2018	178	1,323	13.45%
Historical	2019	173	1,286	13.45%
Historical	2020	187	1,278	14.63%
Historical	2021	217	1,265	17.15%
Historical	2022	217	1,224	17.73%
Historical	2023	221	1,218	18.14%
Historical	2024	217	1,217	17.83%
Historical	2025	174	1,184	14.70%
Constant Market Share	2030	181	1,232	14.70%
Constant Market Share	2035	188	1,281	14.70%
Constant Market Share	2045	204	1,389	14.70%
Constant Market Share	**2025–2045 CAGR**	**0.80%**	**0.80%**	**–**
Increasing Market Share (Mid-Range)	2030	186	1,232	15.12%
Increasing Market Share (Mid-Range)	2035	199	1,281	15.55%
Increasing Market Share (Mid-Range)	2045	228	1,389	16.42%
Increasing Market Share (Mid-Range)	**2025–2045 CAGR**	**1.36%**	**0.80%**	**–**
Increasing Market Share (High-Range)	2030	192	1,232	15.56%
Increasing Market Share (High-Range)	2035	210	1,281	16.42%
Increasing Market Share (High-Range)	2045	252	1,389	18.15%
Increasing Market Share (High-Range)	**2025–2045 CAGR**	**1.87%**	**0.80%**	**–**

Table Sources: basedaircraft.com (2025); FAA TAF (2015–2024); FAA Aircraft Registration Database; Coffman Associates Analysis

CAGR = compound annual growth rate

Ratio of Based Aircraft to Population

In 2025, the ratio of based aircraft per 1,000 county residents stood at 0.068. Maintaining this ratio at a constant through 2045 resulted in based aircraft growth due to the increasing nature of the service area population projections. Under this scenario, the airport would have 232 based aircraft by the end of the planning period and would grow at a CAGR of 1.45 percent.

An increasing ratio scenario was also evaluated. This scenario considers growth up to the 10-year historical high ratio of 0.088 based aircraft per 1,000 residents by the end of the planning period. Applying this ratio to the forecasted population for the service area produces 300 based aircraft by 2045 at a CAGR of 2.77 percent.

Growth Rate Projections

Because registered aircraft within the state and service area are projected to grow over the planning period, a growth rate projection utilizing the CAGR reported in the FAA TAF for RAL of 1.43 percent has been considered. When the 20-year CAGR is applied to RAL based aircraft, a forecast emerges that yields 231 based aircraft by 2045.

Regression Analysis

Several forecasts were prepared utilizing historical based aircraft data and the regression model. Correlations were examined utilizing 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 produced were between 0.0009 and 0.0554. As previously described, correlation values over 0.90 indicate good predictive reliability. Because none of the regressions produced a correlation value over 0.90, 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 (Riverside 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 growth in the state and ratio projections based on population growth, as well as the FAA TAF projection for based aircraft growth at RAL. These six projections are summarized in **Table 2M**, along with the FAA's TAF projection for RAL, which utilizes a base year count of 183 aircraft and a CAGR of 1.43 percent.

TABLE 2M: Based Aircraft Forecast Summary

Projection	Base Year	2030	2035	2045	CAGR 2025–2045
Constant Market Share	174	181	188	204	0.80%
Increasing Market Share (Mid-Range)	174	186	199	228	1.36%
Increasing Market Share (High-Range)	174	192	210	252	1.87%
Constant Ratio per 1,000 Residents	174	189	203	232	1.45%
Historic High Ratio per 1,000 Residents	174	202	232	300	2.77%
RAL 2026 TAF Growth Rate (SELECTED FORECAST)	**174**	**187**	**201**	**231**	**1.43%**
RAL 2026 TAF	183	198	213	243	1.43%

Table Sources: FAA TAF; basedaircraft.com (2025); Coffman Associates Analysis

CAGR = compound annual growth rate

The potential for available hangar space is not the only factor in future based aircraft levels. Economic conditions within the service area are projected to increase at strong rates, which will support aviation and based aircraft growth; therefore, **the RAL 2026 TAF Growth Rate has been selected as the preferred forecast**. The selected forecast, which resulted in 231 based aircraft by 2045, is reasonably optimistic and assumes RAL can continue to moderately increase its based aircraft, resulting in steady growth over the planning years. It also assumes continued economic growth in the local area will drive demand for more based aircraft.

Exhibit 2C presents the based aircraft forecasts that comprise the planning envelope.

BASED AIRCRAFT FLEET MIX FORECAST

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

The current based aircraft fleet mix consists of 154 single-engine piston aircraft, 11 multi-engine piston aircraft, three turboprops, five jets, and one helicopter. As a general aviation airport with a significant level of both small aircraft and business jet activities, RAL should continue to have a diverse fleet mix, including small single-engine piston aircraft, turbine-powered aircraft, and helicopters. The forecasted growth trends in the RAL based aircraft fleet mix take FAA projections of the national general aviation fleet mix into consideration. Growth is anticipated to occur within the more sophisticated categories, including the turboprop, jet, and helicopter categories, consistent with national aviation trends.

Table 2N presents the forecasted fleet mix for based aircraft at RAL.

TABLE 2N: Based Aircraft Fleet Mix

Aircraft Type	2025	2025 %	2030	2030 %	2035	2035 %	2045	2045 %
Single-Engine Piston	154	88.5%	165	88.0%	175	87.0%	198	85.5%
Multi-Engine	11	6.3%	9	5.0%	7	3.5%	5	2.0%
Turboprop	3	1.7%	5	2.5%	7	3.5%	10	4.5%
Jet	5	2.9%	7	3.5%	9	4.5%	13	5.5%
Helicopter	1	0.6%	2	1.0%	3	1.5%	6	2.5%
Total:	**174**	**100%**	**187**	**100%**	**201**	**100%**	**231**	**100%**

Table Sources: basedaircraft.com (2025); Coffman Associates Analysis

OPERATIONS FORECASTS

Operations at RAL are classified as general aviation (GA), air taxi, or military. 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. Military operations are those conducted by various branches of the United States (U.S.) military. Air carrier operations are an additional category of operations that are conducted by large aircraft with 60 or more passenger seats. Air carrier flights are infrequent at RAL and are not included as part of the operations forecast.

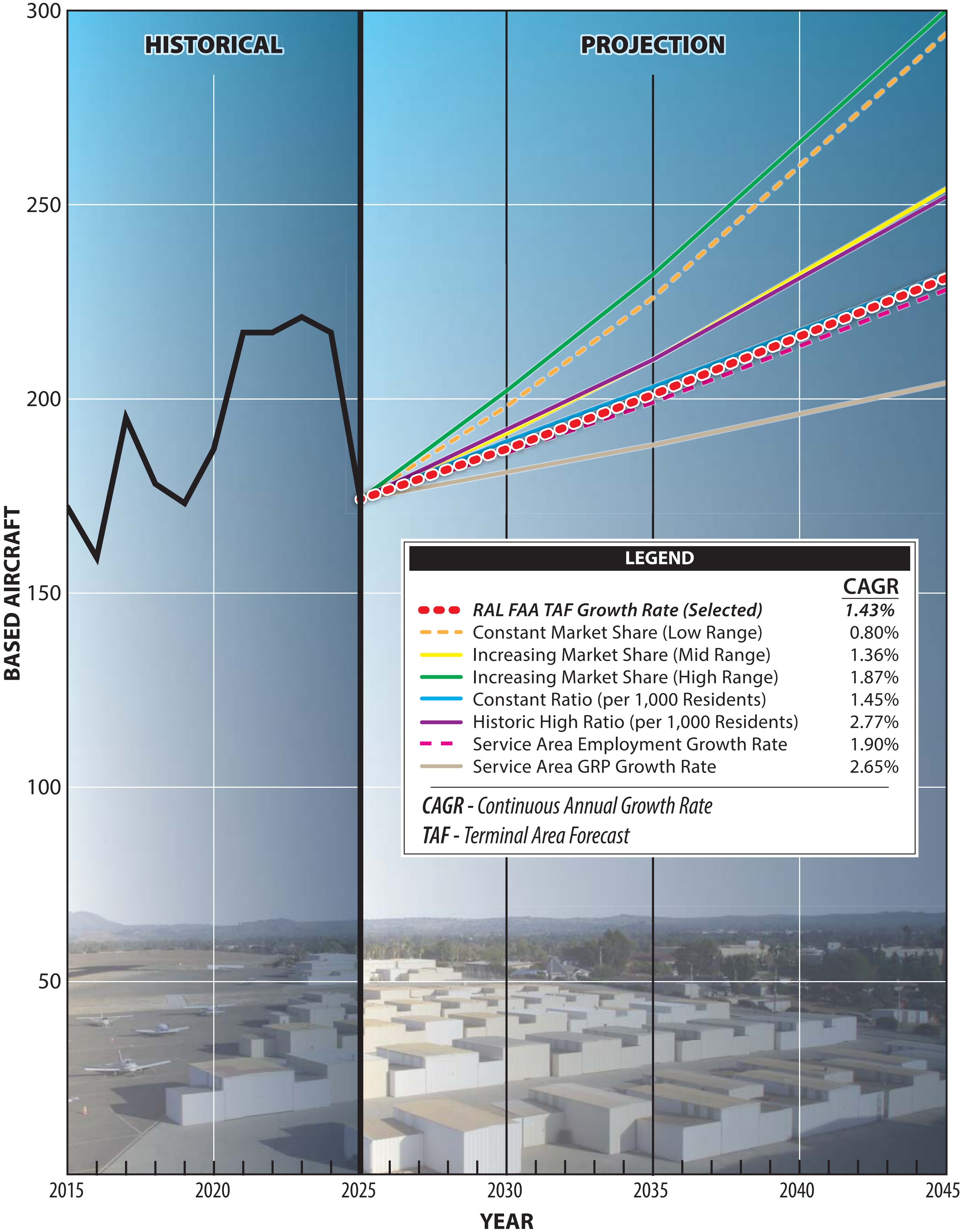


Exhibit 2C
BASED AIRCRAFT PROJECTIONS

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. Local operations are generally characterized by training activity. Itinerant operations are those performed by aircraft with specific origins or destinations away from an airport. Typically, itinerant operations increase with business and commercial use because business aircraft are primarily used to transport passengers between locations.

Several methods have been employed to develop a reasonable planning envelope of future potential aircraft operations. The following sections present several new operations forecasts. Counts from the RAL airport traffic control tower (ATCT) were utilized in this analysis. **Table 2P** shows the historical operations data for RAL since 2015.

TABLE 2P: Historical Operations Data

Year	Itinerant: Air Carrier	Itinerant: Air Taxi	Itinerant: GA	Itinerant: Military	Itinerant: Total	Local: Civil	Local: Military	Local: Total	Total Operations
2015	0	3,431	47,335	447	51,213	58,636	96	58,732	109,945
2016	0	4,006	44,533	395	48,934	56,444	72	56,516	105,450
2017	21	3,661	44,075	488	48,245	54,203	44	54,247	102,492
2018	0	2,447	41,077	379	43,902	64,676	57	64,733	108,635
2019	0	2,330	44,207	304	46,841	75,603	253	75,856	122,697
2020	0	2,363	43,372	248	45,982	72,425	247	72,672	118,654
2021	0	2,502	44,168	499	47,169	67,158	72	67,230	114,399
2022	139	2,935	49,038	497	52,610	74,480	263	74,743	127,353
2023	1	4,159	47,460	391	52,011	78,387	84	78,472	130,483
2024	0	3,355	51,827	436	55,617	88,426	48	88,475	144,092
2025	11	3,483	48,821	471	52,787	81,358	266	81,623	134,410

Table Sources: FAA Operations and Performance Data (OPSNET); RAL Records

GA = general aviation

Historical Growth Rate Projections

Over the course of 2020 to 2025, RAL's ATCT indicates CAGRs of 2.40 percent for itinerant GA operations, 2.35 percent for local GA operations, and 8.07 percent for air taxi operations. By applying the five-year historical growth rates to each respective operational category, a forecast emerges that results in 78,378 itinerant GA operations, 129,553 local GA operations, and 16,440 air taxi operations annually by 2045.

Market Share Projections

Market share analysis compares historical and forecasted data points to arrive at a trend for the unknown variable (RAL operations). The first forecast compares the current market share of itinerant and local GA operations and air taxi operations at the airport to the FAA national forecast for operations at towered airports.

In 2025, RAL accounted for 0.318 percent of itinerant GA operations in the U.S., 0.494 percent of U.S. local GA operations, and 0.0496 percent of U.S. air taxi operations. By carrying these percentages forward through the planning horizon, a constant market share forecast emerges; **Table 2Q** shows the results.

The constant market share is considered a low-range projection, as it is anticipated with based aircraft growth; each operational segment should experience growth beyond maintaining a constant share.

A mid-range increasing market share projection was prepared that increased RAL's market share of itinerant GA operations to 0.380 percent, reflecting the historical growth trend and resulting in 65,001 annual operations. RAL's 2045 market share of local GA operations was taken to 0.615 percent and the 2045 market share of air taxi operations was taken to 0.0703 percent, both of which reflect moderate historical market share increases. The results of the mid-range projections are also shown in **Table 2Q**.

High-range increasing market share projections were also prepared, which consider the potential for operations to exceed historical market share trends of the past five years. The resulting projections took RAL's 2045 market shares to 0.454 percent (itinerant GA operations), 0.766 percent (local GA operations), and 0.2004 percent (air taxi operations). The results of the high-range projections are shown in **Table 2Q**.

TABLE 2Q: Operations Market Share Projections

Historical/ Forecast	Year	GA Itinerant: RAL	GA Itinerant: U.S.	GA Itinerant: RAL Market %	GA Local: RAL	GA Local: U.S.	GA Local: RAL Market %	Air Taxi: RAL	Air Taxi: U.S.	Air Taxi: RAL Market %
Historical	2015	47,335	13,887,203	0.341%	58,636	11,691,338	0.502%	3,431	7,895,478	0.0435%
Historical	2016	44,533	13,905,204	0.320%	56,444	11,632,612	0.485%	4,006	7,580,119	0.0528%
Historical	2017	44,075	13,839,151	0.318%	54,203	11,732,324	0.462%	3,661	7,179,651	0.0510%
Historical	2018	41,077	14,130,495	0.291%	64,676	12,354,014	0.524%	2,447	7,125,556	0.0343%
Historical	2019	44,207	14,458,889	0.306%	75,603	13,372,787	0.565%	2,330	7,274,058	0.0320%
Historical	2020	43,372	12,790,762	0.339%	72,425	12,596,530	0.575%	2,363	5,513,506	0.0429%
Historical	2021	44,168	13,891,464	0.318%	67,158	13,651,750	0.492%	2,502	5,893,070	0.0425%
Historical	2022	49,038	14,634,811	0.335%	74,480	14,029,412	0.531%	2,935	6,522,238	0.0450%
Historical	2023	47,460	14,581,782	0.325%	78,387	15,270,058	0.513%	4,159	6,455,870	0.0644%
Historical	2024	51,827	14,917,167	0.347%	88,426	15,971,308	0.554%	3,355	6,732,627	0.0498%
Historical	2025	48,821	15,347,621	0.318%	81,358	16,456,234	0.494%	3,483	7,028,773	0.0496%
Constant Market Share (Low Range)	2030	51,454	16,180,379	0.318%	85,407	17,288,895	0.494%	3,522	7,108,069	0.0496%
Constant Market Share (Low Range)	2035	52,407	16,480,109	0.318%	87,046	17,620,607	0.494%	3,842	7,752,708	0.0496%
Constant Market Share (Low Range)	2045	54,396	17,105,516	0.318%	90,479	18,315,572	0.494%	4,531	9,142,784	0.0496%
Constant Market Share (Low Range)	**CAGR**	**0.54%**	–	–	**0.53%**	–	–	**1.32%**	–	–
Increasing Market Share (Mid Range)	2030	53,974*	16,180,379	0.334%	90,688*	17,288,895	0.525%	3,891*	7,108,069	0.0547%
Increasing Market Share (Mid Range)	2035	57,524*	16,480,109	0.349%	97,741*	17,620,607	0.555%	4,646*	7,752,708	0.0599%
Increasing Market Share (Mid Range)	2045	65,001*	17,105,516	0.380%	112,641*	18,315,572	0.615%	6,427*	9,142,784	0.0703%
Increasing Market Share (Mid Range)	**CAGR**	**1.44%***	–	–	**1.64%***	–	–	**3.11%***	–	–
Increasing Market Share (High Range)	2030	56,269	16,180,379	0.348%	95,353	17,288,895	0.552%	4,995	7,108,069	0.0703%
Increasing Market Share (High Range)	2035	62,655	16,480,109	0.380%	108,415	17,620,607	0.615%	7,726	7,752,708	0.0997%
Increasing Market Share (High Range)	2045	77,725	17,105,516	0.454%	140,245	18,315,572	0.766%	18,326	9,142,784	0.2004%
Increasing Market Share (High Range)	**CAGR**	**2.35%**	–	–	**2.76%**	–	–	**8.66%**	–	–

Table Sources: FAA Operations and Performance Data (OPSNET); FAA Aerospace Forecast FY 2025–2045; RAL Records

*Selected forecast
CAGR = compound annual growth rate: 2025–2045
GA = general aviation

Statewide TAF Growth Rate Forecast

FAA Order 5090.5, *Formulation of the NPIAS*, provides a method for estimating future operations at airports by applying the statewide TAF growth rate. While this is typically used for non-towered airports, it provides a useful method for checking the reasonableness of other forecasts and can be the selected forecast if determined to be the most reasonable. For all NPIAS airports in California, the FAA projects an annual growth rate of 0.40 percent for itinerant general aviation operations, 0.48 percent for local general aviation operations, and 0.76 percent for air taxi operations in the state. Utilizing these growth rates to form projections takes RAL's 2045 operations to 52,856 (itinerant general aviation operations); 89,504 (local general aviation operations); and 4,052 (air taxi operations).

Regression Analysis

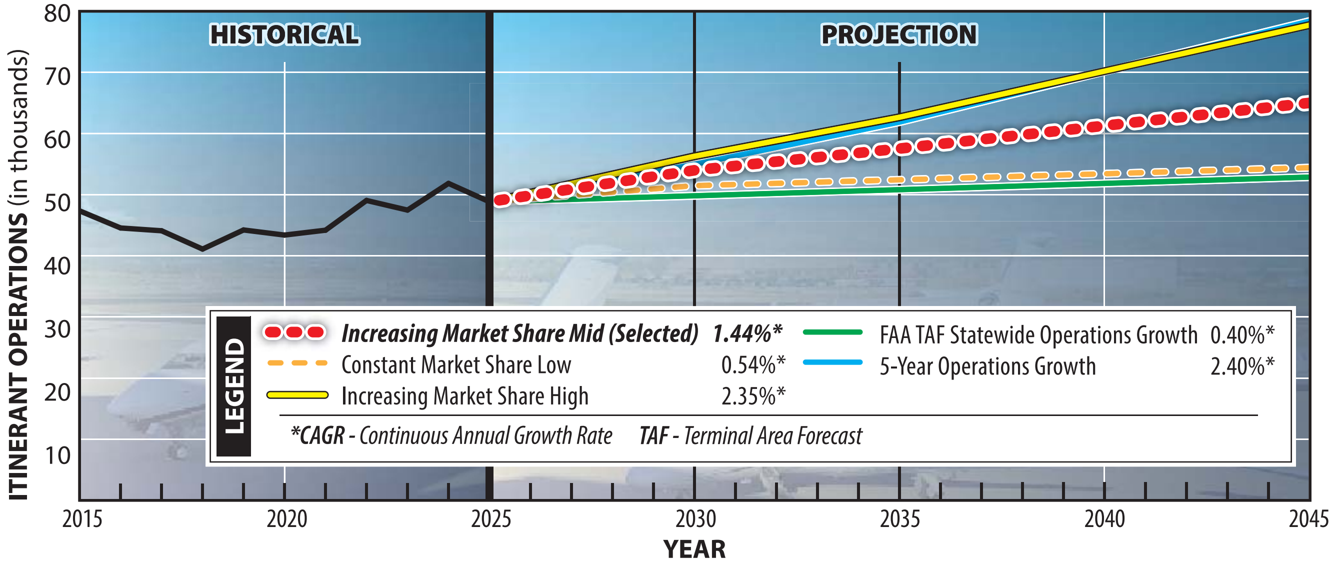
Several forecasts were prepared utilizing historical operations data and the regression model. Independent variables examined included national general aviation operations, population, employment, income, GRP, and time series regressions. The regression that produced the best correlation was a GRP regression of local general aviation operations, which had an r^2 value of 0.80. As previously described, correlation values over 0.90 indicate good predictive reliability. Because none of the regressions produced a correlation value over 0.90, the regression forecasts have been excluded from consideration.

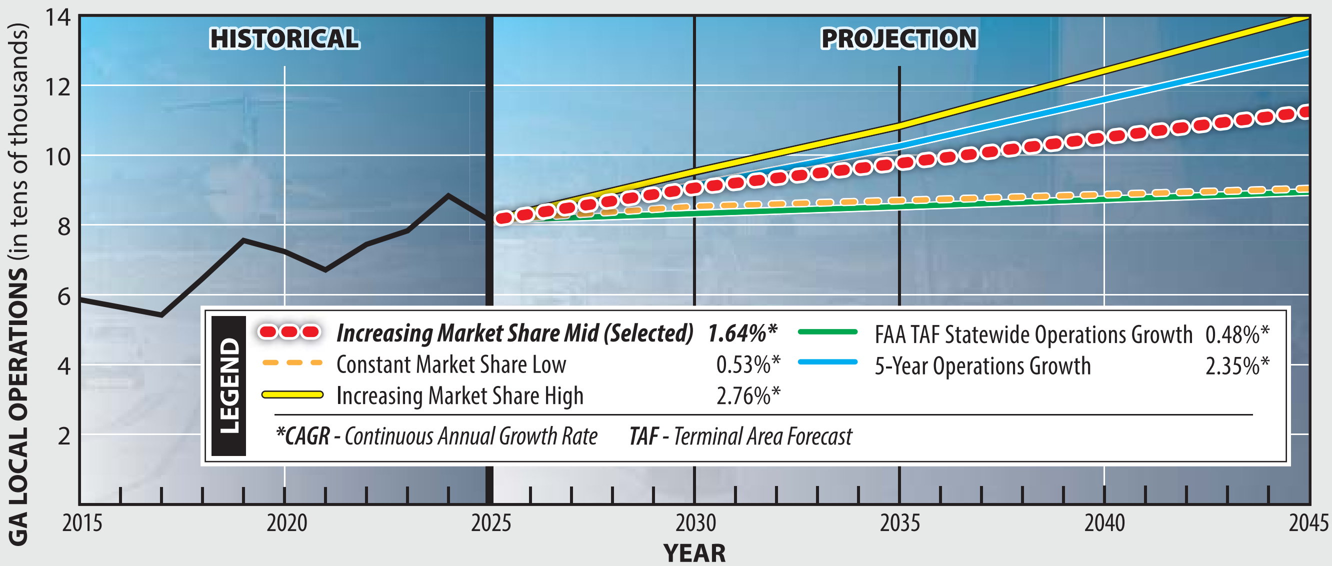
General Aviation and Air Taxi Operations Forecast Summary

Operations at RAL have historically experienced some fluctuation but have had an overall growing trend, particularly in local general aviation operations. The selected forecasts take a realistic approach to growth and anticipate moderate operations growth levels over the planning period. Historical trends indicate RAL's operations count is increasing, and there is no reason to expect that trend to change in the future. Socioeconomic indicators suggest RAL's service area will continue to thrive over the planning period, bringing new business opportunities and potential users and tenants. As discussed in the based aircraft section, there is strong demand for new based aircraft at RAL, including demand for business jets and turboprops, which would support operational growth across the GA and air taxi categories. For these reasons, the mid-range increasing market share projections of local and itinerant general aviation operations and air taxi operations have been selected. These projections are above the FAA TAF projections for RAL, but still within a reasonable range considering the development potential of the airport. **Exhibit 2D** graphically represents the operations projections that comprise the planning envelope.

Military Operations Forecast

Military aircraft can (and do) utilize civilian airports across the country, including RAL; however, it is inherently difficult to project future military operations due to their national security nature and the fact that such missions can change without notice, so it is typical for the FAA to use a flat-line number for military operations. For this planning study, military operations at RAL are projected to represent 700 annual operations (471 itinerant and 229 local), as reflected in the FAA TAF.





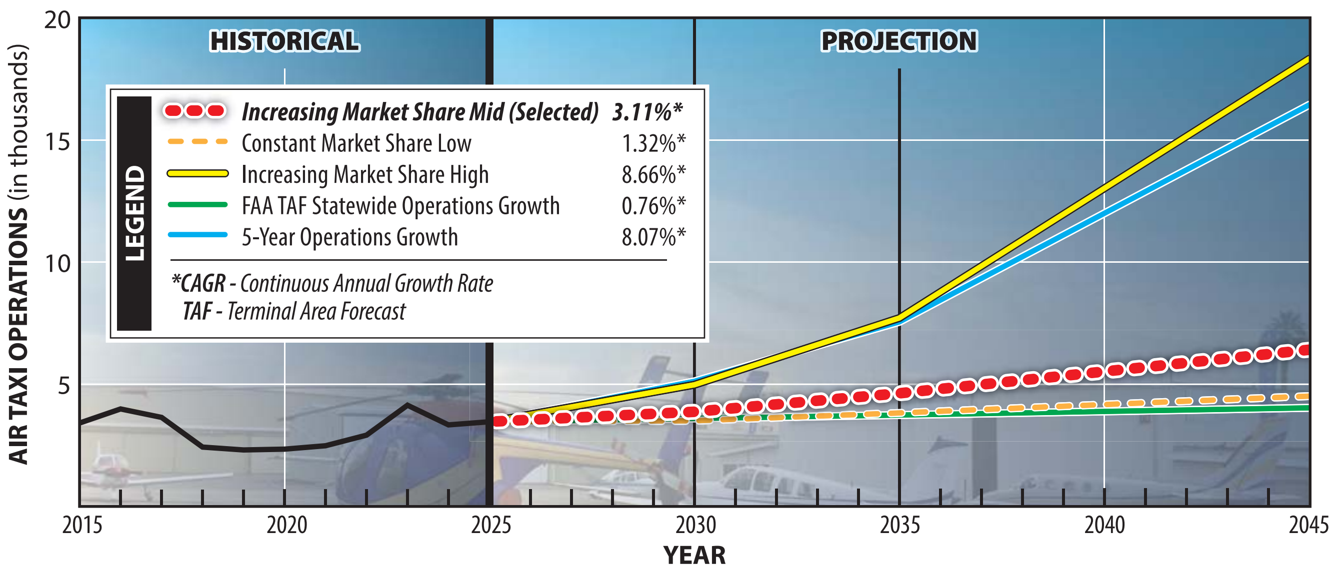


Exhibit 2D
GENERAL AVIATION OPERATIONS FORECASTS

Total Operations Forecast Summary

Table 2R 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 RAL are projected to grow from 134,410 in 2025 to 184,769 by 2045 at a CAGR of 1.60 percent.

TABLE 2R: Total Operations Forecast Summary

Year	Itinerant: Air Carrier	Itinerant: Air Taxi	Itinerant: GA	Itinerant: Military	Itinerant: Subtotal	Local: GA	Local: Military	Local: Subtotal	Total Operations
2025	11	3,483	48,821	471	52,787	81,358	266	81,623	134,410
2030	0	3,891	53,974	471	58,336	90,688	229	90,917	149,252
2035	0	4,646	57,524	471	62,641	97,741	229	97,970	160,611
2045	0	6,427	65,001	471	71,899	112,641	229	112,870	184,769
CAGR	**–**	**3.11%**	**1.44%**	**0.00%**	**1.56%**	**1.64%**	**-0.75%**	**1.63%**	**1.60%**

Table Source: Coffman Associates Analysis

CAGR = compound annual growth rate
GA = general aviation

PEAK PERIOD FORECASTS

Many aspects of facility planning relate to levels of peaking activity (times when an airport is busiest). For example, the appropriate size of terminal facilities can be estimated by determining the number of people who could reasonably be expected to use the facility at a given time. The following planning definitions apply to the peak periods:

- Peak month: the calendar month when peak aircraft operations occur
- Busy day: the busy day of a typical week in the peak month
- Design day: the average day in the peak month
- Design hour: average hourly operations during the peak month

The peak month is an absolute peak within a given year. All other peak periods will be exceeded at various times during the year. The peak period forecasts represent reasonable planning standards that can be applied without overbuilding or being too restrictive.

Tower operations data provide an understanding of the peak operational periods for the airport. Over the last four years, the peak month has averaged 9.52 percent of annual operations. The design day is the peak month average divided by the number of days in the peak month. The peak months for three of the last four years have been months with 31 days; thus, the peak month is divided by 31 days. The busy day operations count during the average week of the peak month was 128.56 percent more than the design day. The design hour averaged 5.88 percent of design day operations. **Table 2S** summarizes the peaking operational characteristics for the airport.

TABLE 2S: Peak Period Forecasts

Peaking Period	2025	2030	2035	2045
Annual Operations	134,410	149,252	160,611	184,769
Peak Month	12,456	14,213	15,295	17,595
Design Day	415	458	493	568
Busy Day	534	589	634	730
Design Hour	24	27	29	33

Table Source: Coffman Associates Analysis

FORECAST SUMMARY

This chapter has outlined the various activity levels that might reasonably be anticipated over the planning period. **Exhibit 2E** 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 number of based aircraft at RAL is forecasted to increase from 174 in 2025 to 231 by 2044 (1.43 percent CAGR). Total operations at RAL are forecasted to increase from 134,410 in 2025 to 184,769 by 2045 (1.60 percent 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 master planning effort are considered reasonable for planning purposes. The need for additional facilities will be based on these forecasts; however, if demand does not materialize as projected, the implementation of facility construction can be slower. Likewise, if demand exceeds these forecasts, the airport may accelerate construction of new facilities.

FORECAST COMPARISON TO THE FAA TAF

When reviewing airport master plan forecasts, the FAA compares them to the most recent TAF for consistency. To be consistent with the TAF, the master plan forecasts should differ by 10 percent or less in the first five years and 15 percent or less in the 10-year timeframe. If the forecasts are not consistent with these parameters, further discussion with the local FAA Airports District Office (ADO) will be required. Ultimately, the forecasts may be forwarded to the FAA headquarters in Washington, D.C., for further review. Deviation from these thresholds will require specific local documentation.

Table 2T presents a comparison of the master plan forecasts and the FAA TAF (published in February 2026) for total operations and based aircraft. The percentage difference is the absolute value of the difference between the two numbers divided by the average of the two numbers. The base year was established as 2025.

TABLE 2T: Forecast Comparison to the Terminal Area Forecast

Forecast Type	Forecast Comparison	Base Year: 2025	Forecast: 2030	Forecast: 2035	Forecast: 2045
Operations	Master Plan Forecast	134,410	149,252	160,611	184,769
Operations	2026 RAL TAF	130,447	132,471	134,466	138,542
Operations	% Difference	2.99%	11.91%	17.72%	28.60%
Operations	Adjusted FAA TAF	134,410	136,448	138,518	142,751
Operations	**% Difference from Adjusted TAF**	**0.00%**	**8.96%**	**14.77%**	**25.66%**
Based Aircraft	Master Plan Forecast	174	187	201	231
Based Aircraft	2026 RAL TAF	183	198	213	243
Based Aircraft	% Difference	5.04%	5.71%	5.80%	5.06%
Based Aircraft	Adjusted FAA TAF	174	187	201	231
Based Aircraft	**% Difference from Adjusted TAF**	**0.00%**	**0.00%**	**0.00%**	**0.00%**

TAF = FAA Terminal Area Forecast (February 2026)

	Base Year	Forecast		
	2025	**2030**	**2035**	**2045**
AIRPORT OPERATIONS				
Itinerant				
Air Carrier	11	0	0	0
Air Taxi	3,483	3,891	4,646	6,427
General Aviation	48,821	53,974	57,524	65,001
Military	471	471	471	471
Subtotal	**52,786**	**58,336**	**62,641**	**71,899**
Local				
General Aviation	81,358	90,688	97,741	112,641
Military	266	229	229	229
Subtotal	**81,624**	**90,917**	**97,970**	**112,870**
Total Operations	**134,410**	**149,252**	**160,611**	**184,769**
PEAKING				
Peak Month	12,456	14,213	15,295	17,595
Busy Day	534	589	634	730
Design Day	415	458	493	568
Design Hour	24	27	29	33
BASED AIRCRAFT				
Single-Engine Piston	154	165	175	198
Multi-Engine Piston	11	9	7	5
Turboprop	3	5	7	10
Jet	5	7	9	13
Helicopter	1	2	3	6
Total Based Aircraft	**174**	**187**	**201**	**231**

Exhibit 2E
FORECAST SUMMARY

When comparing the planning forecasts to the TAF for RAL, an adjustment to the TAF operations must be made to account for the tower operations data that reflects a true baseline of annual operations at the airport. The adjusted figures for the forecast years are based on the FAA TAF for RAL, which maintains an increasing forecast for operations with a CAGR of 0.30 percent. With this adjustment, the planning forecasts are within the tolerance for the five-year and 10-year periods for annual operations. The selected based aircraft forecast meets the TAF tolerance parameters with and without the adjustment.

AIRCRAFT/AIRPORT/RUNWAY CLASSIFICATION

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

AIRCRAFT CLASSIFICATION

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

FAA AC 150/5300-13B, *Airport Design*, describes the following airplane classification systems, the parameters of which are presented on **Exhibit 2F**.

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

Airplane Design Group (ADG)

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

AIRCRAFT APPROACH CATEGORY (AAC)

Category	Approach Speed
A	less than 91 knots
B	91 knots or more but less than 121 knots
C	121 knots or more but less than 141 knots
D	141 knots or more but less than 166 knots
E	166 knots or more

AIRPLANE DESIGN GROUP (ADG)

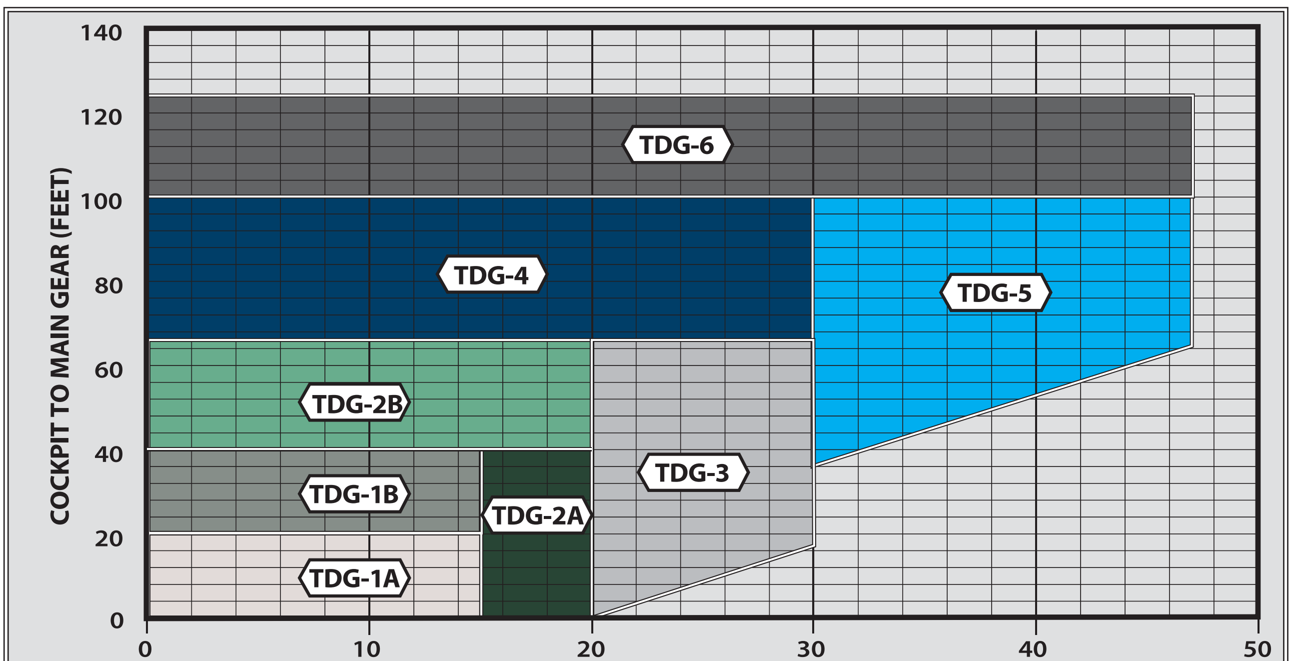
Group #	Tail Height (ft)	Wingspan (ft)
I	<20	<49
II	20-<30	49-<79
III	30-<45	79-<118
IV	45-<60	118-<171
V	60-<66	171-<214
VI	66-<80	214-<262

VISIBILITY MINIMUMS

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

***RVR**: Runway Visual Range

TAXIWAY DESIGN GROUP (TDG)



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

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 421	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

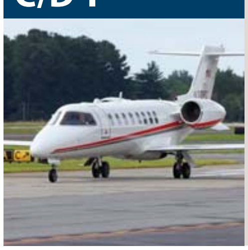
B-II *over 12,500 lbs.*

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

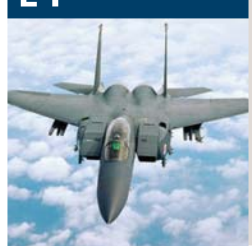
C/D-IV

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**

E-I



Aircraft	TDG
• **F-15**	**1B**

Note: Aircraft pictured is identified in bold type.

Exhibit 2F
AIRCRAFT REFERENCE CODES

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 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 2F** 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.

AIRPORT AND RUNWAY CLASSIFICATIONS

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

Runway Design Code (RDC)

The RDC is a code that signifies the design standards to which a 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 currently published instrument approach visibility minimums expressed by RVR values in feet of 1,200 (⅛-mile), 1,600 (¼-mile), 2,400 (½-mile), 4,000 (¾-mile), and 5,000 (1-mile). (Instrument approach procedures are published in the FAA's *Instrument Flight Procedures Information Gateway*.) 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.

Approach Reference Code (APRC)

The APRC is a code that signifies the current operational capabilities of a runway and associated parallel taxiway in regard to landing operations. The APRC has the same three components as the RDC: AAC, ADG, and RVR. The APRC describes the current operational capabilities of a runway under particular meteorological conditions in which no special operating procedures are necessary, as opposed to the RDC, which is based on planned development and has no operational component. The APRC for a runway is established based on the minimum runway-to-taxiway centerline separation.

Departure Reference Code (DPRC)

The DPRC is a code that signifies the current operational capabilities of a runway and associated parallel taxiway in regard to takeoff operations. The DPRC represents aircraft that can take off from a runway while any aircraft are present on adjacent taxiways, under particular meteorological conditions with no special operating conditions. The DPRC is similar to the APRC but has two components: AAC and ADG. A runway may have more than one DPRC, depending on the parallel taxiway separation distance.

Airport Reference Code (ARC)

The ARC is an airport designation that signifies the airport's highest RDC minus the third (visibility) component of the RDC. The ARC is used for planning and design only and does not limit the aircraft that may be able to operate safely at an airport. The RAL airport layout plan (ALP) (dated January 2010), which was approved by the City of Riverside City Council as part of the 2009 airport master plan, reflects an existing ARC B-II for Runway 9-27 and ARC B-I(S) for Runway 16-34.

CRITICAL AIRCRAFT

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

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

The critical aircraft is defined as the most demanding aircraft type, or grouping of aircraft with similar characteristics, that makes regular use of the airport. Regular use is 500 annual operations, excluding touch-and-go operations.

Planning for future aircraft use is important because the design standards are used to plan separation distances between facilities. These future standards must be considered now to ensure that short-term development does not preclude the reasonable long-range potential needs of the airport.

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

AIRPORT DESIGN AIRCRAFT

Three elements are used to classify the airport design aircraft: AAC, ADG, and TDG. The AAC and ADG are examined first, followed by the TDG. The FAA's *Aircraft Characteristics Database* (most recently updated in October 2024) is the source for data pertaining to an aircraft's designated AAC, ADG, and TDG.

The FAA's TFMSC database includes documentation of commercial traffic (air carrier and air taxi), general aviation traffic, and military aircraft traffic. 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 database provides an accurate reflection of instrument flight rules (IFR) activity. Operators of high-performance aircraft, such as turboprops and jets, tend to file flight plans at a high rate. **Exhibit 2G** presents the operational mix of turbine powered aircraft operations over the last 10 years as derived from the TFMSC.

According to TFMSC data for RAL, operations conducted by aircraft with an AAC/ADG of B-II have exceeded 500 annual operations at the airport each year for the past 10 years, except for 2020 and 2024. As such, **the historical operational activity indicates RAL's existing critical aircraft is B-II for Runway 9-27, which is best represented by the Cessna Citation Sovereign**. The critical aircraft and design standards are not anticipated to change in the next five years; therefore, the same B-II design standards apply to the future condition (next five years) as well.

To determine the airport's ultimate (long-term/conceptual) ARC, annual operations by ARC were forecasted through 2045 using a growth rate forecast based on industry growth trends within each ARC category. Historical and forecasted operations by ARC are depicted in **Table 2U**. Based on projected activity at RAL and consistent with observed national trends, operations by aircraft in the C-III and D-II/III categories are expected to increase over the planning horizon. **For planning and design purposes, the ultimate critical aircraft at RAL is identified within the C-III category and is best represented by the Gulfstream 650 (one of which is currently based at RAL).**

TABLE 2U: Historical and Forecast Operations by Airport Reference Code

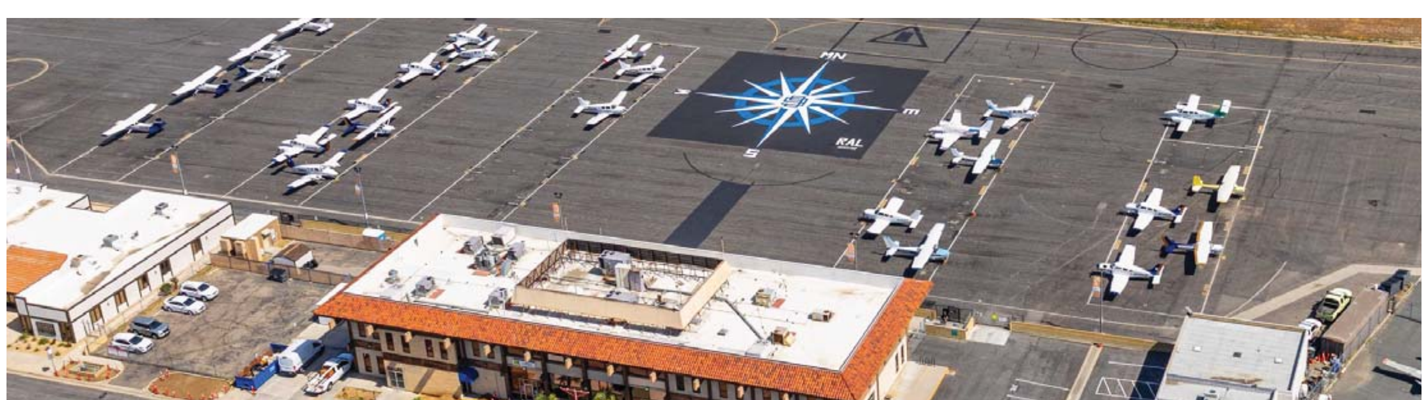
Historical/ Forecast	Year	B-I	B-II	C-I	C-II	C-III	D-II	D-III
Historical	2020	72	408	18	52	80	64	0
Historical	2021	100	602	30	86	130	74	4
Historical	2022	50	566	22	98	108	76	4
Historical	2023	142	502	12	90	116	72	2
Historical	2024	182	474	30	96	100	60	4
Historical	2025	114	644	28	68	124	58	4
Historical	**CAGR**	**9.63%**	**9.56%**	**9.24%**	**5.51%**	**9.16%**	**-1.95%**	**0.00%**
Forecast	2030	106	876	27	93	205	50	9
Forecast	2035	98	1191	27	128	340	75	18
Forecast	2045	84	2203	26	243	933	100	83
Forecast	**CAGR**	**-1.50%**	**6.30%**	**-0.50%**	**6.60%**	**10.60%**	**8.40%**	**17.50%**

Table Sources: FAA TFMSC; Coffman Associates Analysis

A-I and A-II are not shown as smaller/slower aircraft are unlikely to impact critical design aircraft.
B-III, C-IV through C-V, and D-IV and above are not shown due to minimal activity at RAL.

CAGR = compound annual growth rate

ARC	Aircraft	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
A-I	B36T - Allison 36 Turbine Bonanza	0	0	0	0	2	0	0	0	0	0
	DA20 - Diamond DA 20	0	2	0	0	0	0	0	0	0	0
	EVOT - Lancair Evolution Turbine	0	0	0	2	0	2	0	0	6	0
	LNP4 - Lancair Propjet four-seat	0	0	0	0	0	0	0	2	2	0
	P46T - Piper Malibu Meridian	16	16	18	14	10	18	16	18	24	28
	SF50 - Cirrus Vision SF50	0	0	0	0	2	2	4	4	30	8
	TBM7 - Socata TBM-7	2	10	10	12	8	54	18	6	0	2
	TBM8 - Socata TBM-850	18	8	0	0	2	0	0	6	0	0
	TBM9 - Socata TBM	0	2	6	6	2	8	4	4	2	2
Total		36	38	34	34	26	84	42	40	64	40
A-II	C208 - Cessna 208 Caravan	4	8	2	2	2	4	6	2	0	4
	PC12 - Pilatus PC-12	16	44	52	58	44	120	186	116	62	94
Total		20	52	54	60	46	124	192	118	62	98
B-I	AC90 - Gulfstream Commander	2	10	4	0	0	0	0	0	0	0
	BE10 - Beech King Air 100 A/B	6	0	10	2	0	0	0	6	0	0
	BE40 - Raytheon/Beech Beechjet 400/T-1	8	4	8	4	10	14	8	2	4	6
	C25M - Cessna Citation M2	0	0	0	4	2	4	16	2	0	0
	C425 - Cessna 425 Corsair	2	2	0	2	0	8	0	0	0	0
	C500 - Cessna 500/Citation I	2	2	4	0	0	0	0	0	0	0
	C501 - Cessna I/SP	0	2	0	2	2	0	0	0	0	2
	C510 - Cessna Citation Mustang	28	16	14	18	14	10	4	12	14	2
	C525 - Cessna CitationJet/CJ1	66	48	8	30	16	26	16	8	10	8
	E50P - Embraer Phenom 100	20	26	14	4	6	6	0	0	0	6
	EA50 - Eclipse 500	4	10	4	12	8	10	0	4	6	0
	FA10 - Dassault Falcon/Mystère 10	2	0	0	0	0	0	0	0	0	0
	HDJT - Honda HA-420 HondaJet	0	0	6	0	2	16	4	6	2	2
	LJ31 - Bombardier Learjet 31/A/B	2	6	0	4	2	2	0	0	0	6
	MU2 - Mitsubishi Marquise/Solitaire	0	4	0	0	0	2	0	0	0	0
	PAY1 - Piper Cheyenne 1	12	2	2	2	0	0	0	4	0	0
	PAY2 - Piper Cheyenne 2	8	4	4	2	0	0	0	0	0	0
	PAY4 - Piper Cheyenne 400	4	0	0	0	0	0	0	2	0	0
	PRM1 - Raytheon Premier 1/390 Premier 1	8	10	16	6	10	2	2	96	146	82
Total		174	146	94	92	72	100	50	142	182	114



ARC	Aircraft	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
B-II	ASTR - IAI Astra 1125	0	4	0	0	0	4	2	0	0	0
	B190 - Beech 1900/C-12J	0	0	0	0	0	0	0	0	0	2
	B350 - Beech Super King Air 350	10	40	36	18	8	44	14	10	18	152
	BE20 - Beech 200 Super King	248	336	294	194	108	108	166	148	90	82
	BE30 - Raytheon 300 Super King Air	10	4	2	8	2	4	14	6	10	12
	BE90 - Beech King Air 90	4	0	0	0	0	0	0	0	0	0
	BE9L - Beech King Air 90	18	18	12	16	14	70	74	24	4	18
	BE9T - Beech F90 King Air	4	0	4	0	6	0	0	0	0	4
	C25A - Cessna Citation CJ2	12	24	56	10	16	16	2	2	4	4
	C25B - Cessna Citation CJ3	6	6	22	18	12	18	22	10	34	8
	C25C - Cessna Citation CJ4	2	0	52	76	62	66	52	70	64	44
	C441 - Cessna Conquest	10	0	8	8	20	18	12	16	10	40
	C550 - Cessna Citation II/Bravo	32	18	20	10	6	10	6	6	0	2
	C551 - Cessna Citation II/SP	0	0	0	2	0	0	0	0	0	0
	C55B - Cessna Citation Bravo	0	0	0	0	6	0	0	2	2	2
	C560 - Cessna Citation V/Ultra/Encore	22	18	8	14	10	10	4	4	8	6
	C56X - Cessna Excel/XLS	28	26	28	32	14	30	20	20	8	10
	C680 - Cessna Citation Sovereign	168	154	162	140	88	164	142	146	154	160
	C68A - Cessna Citation Latitude	0	0	2	4	4	6	18	14	54	66
	DC3T - Basler Turbo 67	0	0	0	0	0	2	0	0	0	0
	E545 - Embraer EMB-545 Legacy 450	0	0	0	0	0	2	0	0	2	8
	E550 - Embraer Legacy 500	2	0	0	0	30	24	4	0	0	2
	E55P - Embraer Phenom 300	12	18	12	16	2	4	12	24	10	22
	FA20 - Dassault Falcon/Mystère 20	4	2	0	0	0	0	0	0	0	0
	JS31 - BAe-3100 Jetstream	0	0	0	2	0	0	0	0	0	0
	PC24 - Pilatus PC-24	0	0	0	2	0	2	2	0	2	0
	SW3 - Fairchild Swearingen SA-226T/TB Merlin 3	18	12	4	0	0	0	0	0	0	0
Total		610	680	722	570	408	602	566	502	474	644
B-III	CN35 - CASA CN-235	0	0	0	0	0	2	0	0	0	0
	FA7X - Dassault Falcon F7X	0	0	2	0	0	0	0	0	0	0
	GL7T - Bombardier Global 7500	0	0	0	0	0	0	0	0	2	0
Total		0	0	2	0	0	2	0	0	2	0
B-IV	C130 - Lockheed 130 Hercules	0	2	2	0	0	0	0	0	0	0
	C17 - Boeing Globemaster 3	2	0	2	2	0	4	0	0	0	0
Total		2	2	4	2	0	4	0	0	0	0
C-I	LJ35 - Bombardier Learjet 35/36	16	26	6	20	6	8	4	2	4	0
	LJ40 - Learjet 40; Gates Learjet	0	0	0	0	0	2	0	0	2	2
	LJ45 - Bombardier Learjet 45	10	4	6	2	0	6	2	4	14	16
	LJ55 - Bombardier Learjet 55	0	0	0	0	0	0	4	0	2	0
	LJ60 - Bombardier Learjet 60	10	0	10	2	12	10	4	2	6	8
	P180 - Piaggio P-180 Avanti	0	0	0	0	0	0	0	4	2	2
	SBR1 - North American Rockwell Sabre 40/60	2	2	0	0	0	0	0	0	0	0
	WW24 - IAI 1124 Westwind	0	6	4	0	0	4	8	0	0	0
Total		38	38	26	24	18	30	22	12	30	28

Exhibit 2G
HISTORICAL TURBOPROP AND JET OPERATIONS

ARC	Aircraft	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
C-II	A10 - Fairchild A10	0	0	4	0	0	0	0	0	0	0
	C650 - Cessna III/VI/VII	2	0	2	2	2	0	2	0	0	0
	C700 - Cessna Citation Longitude	0	0	0	0	0	2	2	8	2	0
	C750 - Cessna Citation X	6	0	6	4	0	2	14	4	8	2
	CL30 - Bombardier (Canadair) Challenger 300	26	16	12	16	6	12	8	6	8	14
	CL35 - Bombardier Challenger 300	4	2	12	16	0	24	14	24	20	16
	CL60 - Bombardier Challenger 600/601/604	4	2	6	8	16	14	22	8	24	4
	CRJ7 - Bombardier CRJ-700	0	0	0	0	0	0	0	2	0	0
	E135 - Embraer ERJ 135/140/Legacy	2	0	0	0	0	0	2	0	0	0
	E35L - Embraer 135 LR	0	4	0	0	0	0	2	0	0	0
	F2TH - Dassault Falcon 2000	4	6	6	0	2	8	6	14	8	12
	F900 - Dassault Falcon 900	6	8	4	8	8	2	6	4	2	2
	FA50 - Dassault Falcon/Mystère 50	4	6	4	2	2	0	0	4	2	0
	G150 - Gulfstream G150	0	0	0	2	0	0	0	0	0	0
	G280 - Gulfstream G280	0	2	0	2	4	4	4	6	10	6
	GALX - IAI 1126 Galaxy/Gulfstream G200	2	6	0	4	8	4	0	0	0	0
	GLF3 - Gulfstream III/G300	2	0	0	2	0	0	4	0	0	0
	H25B - BAe HS 125/700-800/Hawker 800	12	14	8	8	4	10	8	10	12	12
	H25C - BAe/Raytheon HS 125-1000/Hawker 1000	0	0	0	0	0	0	2	0	0	0
	JS41 - BAe Jetstream 41	0	0	0	0	0	4	0	0	0	0
	LJ75 - Learjet 75	0	0	0	0	0	0	2	0	0	0
Total		74	66	64	74	52	86	98	90	96	68
C-III	GA5C - G-7 Gulfstream G500	0	0	0	0	0	0	0	0	6	0
	GL5T - Bombardier BD-700 Global 5000	0	0	0	0	0	4	4	2	0	2
	GLEX - Bombardier BD-700 Global Express	0	0	2	0	4	2	0	4	2	2
	GLF6 - Gulfstream	36	132	122	96	76	124	100	106	88	120
	SB20 - Saab 2000	0	0	0	0	0	0	4	4	4	0
Total		36	132	124	96	80	130	108	116	100	124
C-IV	B752 - Boeing 757-200	0	2	0	0	0	0	0	0	0	0
	K35R - Boeing KC-135 Stratotanker	0	0	4	0	0	0	0	0	0	0
Total		0	2	4	0	0	0	0	0	0	0
C-V	B77L - Boeing 777-200LRF/LR	2	0	0	0	0	0	0	0	0	0
Total		2	0	0	0	0	0	0	0	0	0
D-I	F16 - Lockheed F-16 Fighting Falcon 4	0	2	0	2	0	0	0	0	0	
	F18 - Boeing FA-18 Hornet 2	0	0	0	0	0	0	0	0	0	
	T38 - Northrop T-38 Talon 0	2	0	0	0	0	0	0	0	0	
Total	6	2	2	0	2	0	0	0	0	0	
D-II	CRJ2 - Bombardier CRJ-200 0	0	0	0	0	0	0	0	0	8	
	GLF4 - Gulfstream IV/G400 132	66	68	68	64	74	76	72	60	50	
Total	132	66	68	68	64	74	76	72	60	58	
D-III	GLF5 - Gulfstream V/G500 20	0	2	12	0	4	4	2	4	4	
Total	20	0	2	12	0	4	4	2	4	4	

ARC	Aircraft	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
D-IV	DC87 - Boeing (Douglas) DC 8-70	0	0	0	2	0	0	0	0	0	0
Total		0	0	0	2	0	0	0	0	0	0
E-I	F15 - Boeing F-15 Eagle	0	0	2	0	0	0	0	0	0	0
Total		0	0	2	0	0	0	0	0	0	0

ARC SUMMARY

ARC	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
A-I	36	38	34	34	26	84	42	40	64	40
A-II	20	52	54	60	46	124	192	118	62	98
B-I	174	146	94	92	72	100	50	142	182	114
B-II	610	680	722	570	408	602	566	502	474	644
B-III	0	0	2	0	0	2	0	0	2	0
B-IV	2	2	4	2	0	4	0	0	0	0
C-I	38	38	26	24	18	30	22	12	30	28
C-II	74	66	64	74	52	86	98	90	96	68
C-III	36	132	124	96	80	130	108	116	100	124
C-IV	0	2	4	0	0	0	0	0	0	0
C-V	2	0	0	0	0	0	0	0	0	0
D-I	6	2	2	0	2	0	0	0	0	0
D-II	132	66	68	68	64	74	76	72	60	58
D-III	20	0	2	12	0	4	4	2	4	4
D-IV	0	0	0	2	0	0	0	0	0	0
E-I	0	0	2	0	0	0	0	0	0	0
Total	1,150	1,224	1,202	1,034	768	1,240	1,158	1,094	1,074	1,178

APPROACH CATEGORY

AAC	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
A	56	90	88	94	72	208	234	158	126	138
B	786	828	822	664	480	708	616	644	658	758
C	150	238	218	194	150	246	228	218	226	220
D	158	68	72	82	66	78	80	74	64	62
E	0	0	2	0	0	0	0	0	0	0
Total	1,150	1,224	1,202	1,034	768	1,240	1,158	1,094	1,074	1,178

DESIGN GROUP

ADG	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
I	254	224	158	150	118	214	114	194	276	182
II	836	864	908	772	570	886	932	782	692	868
III	56	132	128	108	80	136	112	118	106	128
IV	2	4	8	4	0	4	0	0	0	0
V	2	0	0	0	0	0	0	0	0	0
Total	1,150	1,224	1,202	1,034	768	1,240	1,158	1,094	1,074	1,178

Exhibit 2G (cont.)
HISTORICAL TURBOPROP AND JET OPERATIONS

It should be noted that the ultimate condition is conceptual and any planned modifications to the runway dimensions at RAL based on the ultimate critical aircraft are included for planning purposes only. Separate justification will be required before the FAA commits to supporting and funding any project (e.g., a runway extension) based on the ultimate critical aircraft.

TAXIWAY DESIGN GROUP

The TFMSC also provides a breakdown of aircraft operations by TDG. According to RAL operations data (presented in **Table 2V**), the highest TDG that exceeded the threshold of 500 annual operations in 2024 is TDG 2 (TDG 2A and 2B combined), which is represented by the Beechcraft Super King Air 200/300/350, Cessna Citation CJ3, Pilatus PC-12, and Dassault Falcon 900. TDG 2A is routinely closest to the 500 annual operations threshold; as such, TDG 2A is considered the existing TDG critical design aircraft for taxiway planning purposes. Operations within TDG 2B, which is a group that includes the Gulfstream 650, have also increased in recent years and are projected to become the ultimate critical design TDG for RAL.

TABLE 2V: RAL Operations by Taxiway Design Group

TDG	2020	2021	2022	2023	2024	2025	CAGR
1A	3,598	3,810	3,881	4,476	4,696	4,275	3.51%
1B	252	396	344	330	389	387	8.96%
2A	298	454	472	437	313	432	7.71%
2B	79	134	111	115	100	128	10.13%
3	2	5	5	5	4	0	–

Table Source: FAA TFMSC

CAGR = compound annual growth rate
TDG = taxiway design group

RUNWAY DESIGN CODE

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

At RAL, the current runway design for primary Runway 9-27 should meet the overall airport design aircraft, which has been identified as the Cessna Citation Sovereign (a B-II aircraft). The runway has an instrument landing system (ILS) approach with vertical guidance (APV) with visibility minimums as low as ¾-mile. The RVR value assigned to a runway with ¾-mile minimums is 4000; therefore, **the applicable existing and future RDC for Runway 9-27 is B-II-4000**. The APRC for Runway 9-27, which has a minimum runway/taxiway separation distance of 275 feet, is established as B/II/4000. The DPRC is the same as the APRC with the RVR component removed. The ultimate critical aircraft for the airport has been established as the Gulfstream 650, which is a C-III aircraft; therefore, **the ultimate RDC for Runway 9-27 is C-III-4000**.

Additional Runway 16-34 is not equipped with instrument approach capabilities and is operated as a visual-only runway. The existing geometry of Runway 16-34 is designed to meet B-I(S) standards, as reflected on the 2010 ALP; therefore, **the existing/future and ultimate RDC is planned to be maintained at B-I(S)-VIS**. As part of this master plan, the continued eligibility of this runway will be examined based on the FAA's wind coverage requirements for crosswind components up to 10.5 knots (to be discussed in the next chapter). Runway 16-34 has parallel taxiways on both sides of the runway. Each parallel taxiway maintains a runway-to-taxiway centerline separation of 150 feet. The APRC for Runway 16-34 is established as B/I(S)/4000 and the DPRC is established as B/I(S).

CRITICAL AIRCRAFT SUMMARY

Table 2W summarizes the existing, future (next 10 years), and ultimate (long-term/conceptual) runway classifications.

TABLE 2W: Airport and Runway Classifications

Classification Type	Runway 9-27: Existing/Future	Runway 9-27: Ultimate	Runway 16-34: Existing/Future/Ultimate
Airport Reference Code (ARC)	B-II	C-III	B-I(S)
Runway Design Code (RDC)	B-II-4000	C-III-4000	B-I(S)-VIS
Taxiway Design Group (TDG)	2A	2B	1A
Approach Reference Code (APRC)	B/II/4000	B/II/4000	B/I(S)/4000
Departure Reference Code (DPRC)	B/II	B/II	B/I(S)

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

APRC and DPRC data can be found in FAA AC 150/5300-13B, Appendix L, Tables L-1 and L-2.

N/A = not applicable

SUMMARY

This chapter has outlined the various activity levels that might reasonably be anticipated over the planning period, as well as the critical aircraft for the airport. Total based aircraft are forecasted to grow from the current count of 174 to 231 by 2045. Operations are forecasted to grow from 134,410 in 2025 to 184,769 by 2045. This projected growth is driven by the FAA's positive outlook for GA activity nationwide, as well as positive socioeconomic outlooks for the region and the capacity for new developments at RAL.

The existing and future critical aircraft for Runway 9-27 is described as B-II, with the Cessna Citation Sovereign as the representative aircraft. The ultimate (conceptual) critical aircraft is described as C-III, represented by the Gulfstream 650 aircraft. For crosswind Runway 16-34, the existing/future and ultimate ARC is B-I(S), with the Beechcraft Barron aircraft as the representative aircraft.

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