CHAPTER 3
FORECASTS OF AVIATION ACTIVITY

INTRODUCTION

Forecasts of aviation activity are an essential element of the airport master planning process, as they provide a foundation for airport planning and development to meet future aviation demand. Merritt Island Airport (COI) is a dynamic airport environment, with substantial existing demand. Proactive planning will ensure that this demand continues to be suitably met throughout the planning period.

The base year of the forecasts of this study is 2007. Future activity projections will reflect the milestone planning years of 2012, 2017, and 2027. The elements of this forecast for COI are:

- Operations,
- Based Aircraft, and
- Fleet Mix.

Also calculated are peak operations projections as part of the operations forecasts. Peak hour operations are an important component of the forecasts and will be compared to the per-hour airport capacity in a subsequent chapter.

The following sections present historical and informational data for COI, in order to understand the existing conditions of the airport environs.

Needs and Benefits

Forecasts of future activity are a key component of a master planning study since every subsequent decision related to the purpose, size, design and location of any structure or equipment relies on the estimated levels of activity. Failure to properly plan for the future can result in negative consequences to the airports capacity, activity safety and efficiency. Therefore, the forecast planning horizon term is twenty years in order to ensure the adequate facilities are in place for the operator, the traveling public and the surrounding community.

Forecasting Limitations

Forecasting future activity is a complex assessment based on a multitude of factors, both controllable and those beyond an airport's control. Forecasts of future activity are not to be construed with predictions of the future but rather an educated guess of future activity based upon a variety of predictors, mathematical formulae, assumptions and subjective judgment.

The accuracy of the estimates decline as the planning term is extended, by unforeseen local or geo-political events, by unpredictable events involving natural disasters, or, more subtly, longer-term weather or climatological events. These caveats notwithstanding, the forecasts provided in this section utilize all of these methods, which together constitute best practices in the industry.

HISTORICAL ACTIVITY

A review of historical operations at the airport is useful in determining previous trends and projecting future activity. Historical activity data has been compiled based upon previous studies undertaken by the airport and airport records. **Tables 3-1** and **3-2** present airport activity from the year 1997 through 2007.

Operations

Aircraft operations are defined as a takeoff or landing; a takeoff and a landing are counted as two operations. COI operations historically have been comprised entirely of general aviation operations. General aviation includes non-commercial transports and non-military activity, including recreational flying, corporate and business travel, and flight training. Several air taxi/charter aircraft operators are based at the airport, providing commercial air taxi operations. No commercial airline service or military activity is accommodated at the airport.

The airport operations are also categorized by local and itinerant operations. Local operations are those which remain in the traffic pattern or within 20 nautical miles (NM) of the airport. Itinerant operations are those which originate or terminate at an airport more than 20 NM from the destination airport. Most general aviation airports in the US have a much higher percentage of local operations largely in part to flight training activity, which is common at COI.

Based Aircraft

The number of based aircraft at COI in recent years has been driven largely by storage space and availability. The Titusville-Cocoa Airport Authority (TICO Authority) maintains an extensive waiting list (approximately 105 individuals) for aircraft storage facilities. Historical based aircraft counts are illustrated by aircraft fleet mix in **Table 3-2**.

Table 3-1 presents Merritt Island historic operations from 1997-2007, while **Table 3-2** displays the historic based aircraft counts.

Table 3-1
Historical Airport Operations

Year	Local	Air Taxi	Itinerant	Total
1997	61,940	1,800	46,726	110,466
1998	61,940	1,800	46,726	110,466
1999	61,940	1,800	46,726	110,466
2000	61,940	1,800	46,726	110,466
2001	64,000	1,500	48,000	113,500
2002	64,000	1,500	48,000	113,500
2003	64,000	1,500	48,000	113,500
2004	64,000	1,500	48,000	113,500
2005	64,000	1,500	48,000	113,500
2006	64,000	1,500	48,000	113,500
2007	64,000	1,500	48,000	113,500
AAGR	0.33%	-1.81%	0.27%	0.27%

Source: FAA Terminal Area Forecast, April 2008.

The slight decline in air taxi operations in recent years can be attributed to enhanced facility offerings at the nearby Space Coast Regional Airport (TIX).

Total based aircraft counts have increased nearly 1.89% since 1997 as shown in **Table 3-2**.

Table 3-2
Historic Based Aircraft

Year	Piston Engine		Turbine Engine				
	Single Engine	Multi-Engine	Turboprop	Jet	Rotorcraft	Experimental/ Other	Total
1997	140	40	0	0	0	0	180
1998	140	40	0	0	0	0	180
1999	179	40	0	0	0	0	219
2000	163	40	0	0	0	0	203
2001	174	43	2	0	6	0	225
2002	174	43	2	0	6	0	225
2003	174	43	2	0	6	0	225
2004	174	43	2	0	6	0	225
2005	174	43	2	0	6	0	225
2006	174	43	2	0	6	0	225
2007*	177	24	8	0	5	3	217

*Notes: *2007 Based Aircraft determined from N-Aircraft Identification Numbers for Existing Based Aircraft.*
Sources: Airport 5010 Data, FAA Terminal Area Forecast, 2007 and Airport Records, 1997-2008

This growth is likely attributed to an increase in available storage hangars. However, since no storage hangars have been constructed in recent years, this may attribute to the stagnant growth in based aircraft from 2001 through 2006. However, in reviewing actual tenant information for the year 2007 obtained from airport management, it was

determined based upon registered N-Numbers that there are actually 177 single engine, 24 multi-engine piston, 8 turboprop, 5 rotorcraft and 3 experimental/other aircraft based at COI.

EXISTING FORECASTS OF ACTIVITY

Forecasts of aviation activity are created in conjunction with airport planning studies at various update intervals, as well as annually by the FAA for certain airports. Discussed below are the most recent existing forecasts of aviation activity for COI.

Florida Aviation System Plan

The Florida Aviation System Plan (FASP) is the result of an on-going project performed in conjunction with the Florida Department of Transportation (FDOT) and the FAA to continually monitor and evaluate the progress of aviation in the state of Florida. The process is ongoing with various parts and phases such as forecast and facility requirements, being periodically updated. The most recent FASP Forecast, 2007-2026, dated November 8, 2007 for COI has a base year of 2006 and projects an annual growth rate of 1.30% for operations and 1.00% in based aircraft. **Table 3-3** displays the current FASP forecast.

Table 3-3
FASP Forecast, 2007-2026

Year	Based Aircraft	Operations
2002	225	113,500
2007	227	114,975
2012	238	122,645
2022	263	139,555
AAGR	1.00%	1.30%
2027*	277	148,865

Source: Florida Aviation System Plan, 2007-2026, November 2007.

** Note – Extrapolated by LPA*

Terminal Area Forecast

The FAA prepares detailed Terminal Area Forecasts (TAF) for airports included in the NPIAS each year. Typically, the TAF projects airport operations and based aircraft, as well as passenger enplanements for commercial service airports, over a 19 or 20-year planning period. The methodologies involve regression analysis of national economic indicators and industry trends, though sometimes for non-towered airports the TAF can lack detail in its composition and display a flat-line growth. The 2007 FAA TAF is presented in **Table 3-4**.

Table 3-4
FAA Terminal Area Forecast

Year	Local	Air Taxi	Itinerant	Total
2007	64,000	1,500	48,000	113,500
2012	64,000	1,500	48,000	113,500
2017	64,000	1,500	48,000	113,500
2027*	64,000	1,500	48,000	113,500
AAGR	0.00%	0.00%	0.00%	0.00%

Source: FAA Terminal Area Forecast, April 2008.

** Note – Extrapolated by LPA*

Aerospace Forecast

The FAA also publishes its national Aerospace Forecasts each year in March. This forecast provides a 17-year projection of aviation activity at the national level, taking into account global and national economic activity and aviation industry trends in aircraft manufacturing, advanced technology, and the operational characteristics of general aviation, commercial, and charter sectors of aviation.

The FAA expects all general aviation activity to increase significantly through the planning period, 2008-2025. Business jet manufacturing for corporate and fractional operators is projected to continue a robust expansion, including the entry of Very Light Jets (VLJs) into the market in 2007/2008, to be operated by both private owners and charter operators. The category of piston engine light sport aircraft, certificated by the FAA in 2005, is also anticipated to increase within the recreational general aviation sector. The average annual growth rate (AAGR) projected in the Aerospace Forecasts throughout the planning period for each of the aircraft categories is noted in **Tables 3-5 and 3-6**.

Table 3-5
FAA Aerospace Growth Forecast
Active General Aviation and Air Taxi Aircraft

	Piston		Turbine						
Period	Single	Multi	Turbo-prop	Jet	Rotor	Experi-mental	Sport	Other	Total
2000-07	-0.5%	-1.8%	5.2%	6.7%	4.4%	2.3%	n/a	-0.7%	0.5%
2007-10	-0.1%	-0.9%	1.5%	8.9%	5.3%	3.2%	27.5%	0.7%	1.4%
2010-20	0.4%	-0.9%	1.7%	5.8%	3.0%	2.2%	9.0%	-0.2%	1.4%
2007-25	0.5%	-0.9%	1.6%	5.6%	3.1%	2.2%	9.9%	0.0%	1.4%

Source: FAA Aerospace Forecast, 2008-2025, Table 27, March 2008

Table 3-6
FAA Aerospace Growth Forecast
Active General Aviation and Air Taxi Hours Flown

	Piston		Turbine						
Period	Single	Multi	Turbo-prop	Jet*	Rotor	Experi-mental	Sport	Other	Total
2000-07	-4.09%	-4.15%	1.39%	6.93%	6.68%	-0.55%	NA	-7.60%	6.68%
2007-10	-0.50%	-1.46%	1.44%	12.16%	4.90%	2.68%	30.08%	1.18%	4.90%
2010-20	0.95%	-1.83%	1.18%	8.09%	3.02%	2.70%	11.13%	0.34%	3.02%
2007-25	1.03%	-1.20%	1.17%	7.70%	3.11%	2.51%	12.07%	0.48%	3.11%

*Note: *Jet aircraft growth includes very light jets.*
Source: FAA Aerospace Forecast, 2008-2025, Table 28, March 2008

SOCIOECONOMIC INDICATORS

The demographic and economic trends in areas surrounding a general aviation airport are strong indicators of the demand for aviation facilities and services. The Titusville-Cocoa area and northern Brevard County has experienced significant growth in the recent past, including population, per capita income, and business and industrial increases. Merritt Island and the surrounding areas are all considered to be part of the Palm Bay-Melbourne-Titusville Metropolitan Statistical Area (MSA), which includes all of Brevard County.

The factors influencing the socioeconomic climate of the Merritt Island Airport are discussed in the following section, with historical data presented for Brevard County, the State of Florida, and the U.S. as a whole.

Population

Consistent population growth in a particular area reflects a stable workforce, economy, and a considerable demand for air transportation. Brevard County has experienced steady increases in population over the last decade, most directly attributed to business expansion within and relocation to the county, additional tourism, as well as abundant new residential developments. Though the area has not grown as quickly as the overall State of Florida, the growth is 50 percent faster than the U.S. average as a whole. **Table 3-7** presents historical population for Brevard County, the State of Florida, and the U.S. through 2005.

Table 3-7
Historical Population

Period	Brevard	Florida	United States
1995	451,310	14,537,875	266,278,393
1996	455,889	14,853,360	269,394,284
1997	461,686	15,186,304	272,646,925
1998	467,624	15,486,559	275,854,104
1999	472,138	15,759,421	279,040,168
2000	477,871	16,050,166	282,216,952
2001	486,377	16,354,728	285,226,284
2002	495,457	16,682,250	288,125,973
2003	504,792	16,981,800	290,796,023
2004	518,134	17,366,593	293,638,158
2005	528,640	17,768,191	296,507,061
AAGR	1.59%	2.03%	1.08%

Source: Bureau of Economic Analysis, April 2008

Per Capita Income

The measure of per capita income is all income received by all workers divided by total population, and is indicative of the economic strength in a particular community. In 2005, Brevard County's per capita income was lower than both the Florida and U.S. averages; however it has been growing at a faster pace at the local level than on the state or national levels. **Table 3-8** shows historical per capita personal income for Brevard County, Florida, and the U.S. through 2005.

Table 3-8
Historical Per Capita Personal Income

Period	Brevard	Florida	United States
1995	$20,779	$22,691	$23,076
1996	$21,477	$23,655	$24,175
1997	$22,765	$24,502	$25,334
1998	$23,830	$25,987	$26,883
1999	$24,597	$26,894	$27,939
2000	$26,922	$28,507	$29,843
2001	$27,402	$29,266	$30,562
2002	$27,960	$29,702	$30,795
2003	$28,895	$30,290	$31,466
2004	$30,455	$32,534	$33,090
2005	$31,800	$34,001	$34,471
AAGR	4.35%	4.13%	4.09%

Source: Bureau of Economic Analysis, April 2008

Unemployment

The percentage of unemployment in an area also reflects its economic strength. The unemployment rate for Brevard County historically has been lower than that of both the State of Florida and the U.S. as a whole. For Brevard County, the previous five years display a reduction in unemployment from 5.7 percent in 2002 to 3.3 percent in 2006. These unemployment statistics reveal a strong and growing local economy. **Table 3-9** shows the historical unemployment rates of Brevard County, Florida, and the U.S. It is important to note that a different time period was used compared to the other socioeconomic data sets because more recent data was available for unemployment.

Table 3-9
Historical Unemployment

Period	Brevard	Florida	United States
1997	4.7%	5.0%	4.9%
1998	4.4%	4.5%	4.5%
1999	4.1%	4.0%	4.2%
2000	3.6%	3.8%	4.0%
2001	4.4%	4.7%	4.7%
2002	5.7%	5.7%	5.8%
2003	5.2%	5.3%	6.0%
2004	4.4%	4.7%	5.5%
2005	3.7%	3.9%	5.1%
2006	3.3%	3.4%	4.6%
2007	No Data	4.0%	No Data

Source: Bureau of Labor Statistics, April 2008.

Regression Analysis and Socio-Economic Correlation

The purpose of a regression analysis is to use independent variable data to predict the value of a dependent variable. Some regression analyses provide strong correlations, i.e. a comparison of automobile insurance rates to population within a square mile. The increased traffic in higher populated areas results in additional number of accidents, thefts, etc. and, therefore, causes insurance rates to increase. In this example, the population per square mile would be the independent variable, whereas the cost of insurance would be the dependent variable.

There are numerous methods validating regression analysis reliability; however, the most common methods include the use of R-squared or an analysis of variance (ANOVA). The ANOVA methodology uses an approach known as the F test to determine the difference between the means of two or more groups. The R-squared output of the regression is the fraction or percentage of the variation in dependent variables that is explained by the independent variables. In essence, data from both sources are used to develop a scatter plot of x and y values. This data is then analyzed to formulate a best fit

line which represents the least amount of deviation for both predictors. Variables that demonstrate strong correlations will produce values (or confidence) above 90%. In these cases, the independent variable does a good job of explaining variation in the dependent variable and the analysis is therefore considered valid. If the significance value of F or R-squared is less then 90% then the independent variables do not explain the dependent variable and a null hypothesis is accepted for the model as a whole.

In the case of COI, the independent variables are comprised of population and per capita income data for Brevard County and the State of Florida as a whole, whereas the dependent variable is the number of based aircraft and/or operations. The objective of this analysis was to determine whether or not a correlation exists between population and income to the number of based aircraft and/or operational activity at COI. After analyzing the data collected by using the two regression methods discussed, it was determined that the F statistic was too high and the R squared value was too low. Therefore, neither of the models described produced a valid correlation.

This may be attributed to the fact that COI is part of the Titusville Airport System, and, therefore, the number of operations or based aircraft cannot be directly correlated to income levels or population within the area. As such, COI operations correlates to variables specifically related to the airport itself (i.e. available storage facilities) rather than local socioeconomic influences. For this reason, the creation of a regression forecast using the aforementioned variables was abandoned due to a lack of correlation. Thus, alternative forecasting methodologies were implemented in the following sections to calculate activity projection forecasts for COI.

AVIATION ACTIVITY FORECASTS

Two of the primary considerations that can influence activity forecasts at an airport include historical and industry trends. By tracing historical trends, it is possible to determine the impact that economic fluctuations, as well as changes in the market have had on historic activity at an airport. Likewise, applying recent or anticipated industry trends allows educated assumptions to be made as to how a market may be served or activity may be affected in the future.

Several sources of data were utilized to identify both national and local trends. In addition to the historic data and previous studies conducted, national and local industry information was collected from the current FAA Aerospace Forecasts, the FAA Terminal Area Forecast, local and national economic forecasts and industry periodicals. These considerations played a key role in determining the forecasts of aircraft operations, based aircraft and aircraft fleet mix presented in this chapter.

Forecast Methodology

Historic trends are one of the primary considerations that can influence activity forecasts at an airport. By tracing these trends, it is possible to determine the impact that economic

fluctuations, as well as changes in the industry have had on activity at the airport. Historic operations at COI include primarily air taxi and general aviation operations. However, historically general aviation (GA) operations have consistently represented the majority of airport operations.

Many elements make up the broad definition of general aviation activity. General aviation includes all segments of the aviation industry except those conducted by scheduled commercial air carriers. Its activities include the training of new pilots, sightseeing, aerial photography, law enforcement, and medical flights, as well as business, corporate, and personal travel. General aviation operations are divided into the categories of local or itinerant. Local operations are those arrivals or departures performed by aircraft that remain within the airport traffic pattern, or those that occur within sight of the airport. This covers an area within a 20 nautical mile radius of the airfield. Local operations are most often associated with training activity and flight instruction. Itinerant operations are arrivals or departures other than local operations, performed by either based or transient aircraft that do not remain within the airport traffic pattern.

The FAA defines an operation as either a single aircraft landing or takeoff. Under this definition, touch-and-go training procedures are considered two operations (one arrival and one departure) and are deemed local operations. Itinerant general aviation operations are typically comprised of private, business/corporate, and air taxi flight activity. Additionally, itinerant activity may include law enforcement and medical flights.

Industry trends, as well as national and local economy reviews, constituted the most reliable sources of information for the projection of aircraft activity at the airport. The best source of information on the nation's general aviation activity is contained in the 2008 FAA Aerospace Forecasts, while information related to local activity is provided in the Florida Aviation System Plan. Given the nature of the airport operations, which are mostly general aviation, projection of future activity based on these forecasts with an adjustment based on local trends was considered a reasonable forecasting approach. The primary goal of the analysis was to develop an approach that gives reasonable attention to all factors while at the same time providing a rational basis on which to base the forecast selection.

Additionally, general aviation growth relies on many other factors, which include: level of services offered, competitive pricing, airfield characteristics, local area attractiveness, and pilots' perception of services. As a result, these forecasts assume that Airport Management, Fixed Based Operators (FBO), and other tenants, will actively support all aviation activity and initiate the appropriate measures to either maintain or extend air traffic at the airport. Therefore, it is anticipated that total aircraft operations at COI will continue to grow due to a strong presence in flight training activity coupled with increased business traffic interest.

Aircraft Operations Forecast

Projected airport operational activity levels are an important factor in identifying existing airfield capacity shortfalls and assessing future needs for airside improvements. Frequency and type of operation also give insight into specific airfield needs that may be sensitive to increased levels of operational activity. Thus, in order to develop an accurate forecast for COI, it was necessary to create several forecasts using existing data and to compile and compare existing forecasts from a variety of sources. A discussion of each source along with the pros and cons of each forecast are discussed below.

2007 Terminal Area Forecast (TAF) – The FAA's TAF forecast are developed for all active airports within the National Plan of Integrated Airport System (NPIAS). These forecasts are prepared to meet the budget and planning needs of FAA and provide information for use by state and local authorities, the aviation industry, and the public. The TAF forecast, however, for COI shows zero growth from the base year 2006 through 2025. As a result, this forecast was not considered in the development of the COI selected forecast.

2008 FAA Aerospace Forecast – The FAA Aerospace forecast is a forecast developed by the FAA for the years 2008 through 2025. The FAA forecast is a macro-level forecast that anticipates operational activity for the entire United States. Although not necessarily representative of regional activity, the FAA forecast is valid for comparison and development of new forecasts. Since the majority of activity at COI consists of general aviation operations, the following growth rates were applied based upon active GA and Air Taxi hours flown:

- 2007-10 – 2.837 percent
- 2010-20 – 3.136 percent
- 2020-25 – 2.77 percent

This resulted in an average annual growth rate for the period of 2007-25 of 2.984 percent. General Aviation assumptions were updated by the FAA based upon information received from industry experts during the October 2006 FAA/Transportation Research Board Workshop on General Aviation. Further, the business/corporate side of general aviation even in a somewhat weak economy is still expected to grow primarily as a result of limitations by commercial airlines and additional security measures. Business demand will also fuel growth in the micro jet market, which is anticipated to enter the market during 2007-2008.

2007 Florida Aviation System Plan (FASP) – The FASP forecast is developed by the FDOT and is specific to the local economies within Florida rather than the entire nation as with the FAA Aerospace Forecasts. FASP forecasts of operational activity are developed for all public-use airports within the state of Florida. The FASP forecast for COI denoted an average annual growth rate of 1.30%.

1993 Master Plan Forecast – The most recent master plan update that was completed in 1995 included a preferred forecast of operational activity. The master plan forecast was revealed to be the most aggressive forecast of all the forecasts presented. The growth rate provided for the period 2007-27 was 3.07 percent.

Market Share Forecast – The share analysis forecast applies historic general aviation operations at COI to FAA operational forecasts for the State of Florida and United States as a whole. The share analysis is a "top-down" system of forecasting since it applies the local share to a larger forecast to determine if a correlation exists. The share analysis is best used when the local market historically maintains a consistent share of the statewide or national market share. In the case of COI, operations during the past 10 years have averaged 1.25 percent of statewide operations and 0.10 percent of national GA/AT operations. Therefore, this was considered a reliable forecasting methodology providing an average annual growth rate of 1.57 percent and 1.20 percent based upon Florida and U.S. Growth, respectively, for the period 2007-27.

Gross Domestic Product – Economic growth and fuel prices not only impact commercial operations but general aviation operations as well. Historically a correlation exists nationwide between high fuel prices and sluggish economic growth to a decline in general aviation operations. Applying both the short and long-term economic growth rates of 2.69 percent and 2.66 percent, respectively, results in a forecast of 191,040 operations by the year 2027.

Historical Operational Activity Forecast – Historic activity was used as the basis of the historical forecast. Past growth trends taken during the years 1983 and 2007 were used and incorporated into a straight-line linear regression through the year 2027. The average annual growth rate for this period was 1.692 percent

Composite Forecast – The composite forecast was developed by taking the average of all other forecasts of aviation activity. The composite forecast resulted in an average annual growth rate of 2.13 percent through the forecast period.

Selected Forecast

After reviewing and comparing all forecasts, it was noticeable that all average annual growth rates fell within a range of 1.2 and 3.07 percent. However since COI is part of a system of airports, it was determined that the growth rate provided within the FASP forecast provides the most realistic forecast of future operations at COI. It was determined that the FASP considered such socio-economic events, such as increasing oil and fuel prices, the war in the Middle East, and severe weather events, in the development of its long-term forecast. Therefore, applying the growth rate of 1.3 percent to the base year operations of 113,500 results in a forecast of 146,956 operations in the year 2027. A comparison of all top-down and bottom up forecasts are provided in **Table 3-10**.

Table 3-10
Comparison of Total Operations Forecasts

Year	5010	Historic Growth	Market Share (FL)	Market Share (US)	1995 MPU	FASP	FAA Aerospace Forecast	GDP Growth	Average	Selected Forecast
1998	110,466	110,466	110,466	110,466	149,317	110,466	110,466	110,466	116,016	110,466
2003	113,500	113,500	113,500	113,500	172,248	113,500	113,500	113,500	121,893	113,500
2007	113,500	113,500	113,500	113,500	192,630	114,975	113,500	113,500	125,015	113,500
2008	-	115,420	114,417	115,505	198,090	116,470	116,720	116,782	127,629	114,975
2012	-	123,431	122,553	121,252	216,711	122,645	131,300	130,473	138,338	121,072
2017	-	134,232	132,766	128,499	253,067	130,827	153,220	149,269	154,554	129,149
2022	-	145,977	143,316	136,012	298,700	139,555	177,534	169,681	172,968	137,765
2027	-	158,750	155,052	144,013	352,563	148,865	203,526	191,040	190,489	146,956
Average Annual Growth Rate										
1998-07	0%	0.30%	0.30%	0.30%	2.87%	0.45%	0.30%	0.30%	0.83%	0.30%
2007-12	NA	1.69%	1.55%	1.33%	2.38%	1.30%	2.96%	2.83%	2.05%	1.30%
2012-17	NA	1.69%	1.61%	1.17%	3.15%	1.30%	3.14%	2.73%	2.24%	1.30%
2017-27	NA	1.69%	1.56%	1.15%	3.37%	1.30%	2.88%	2.50%	2.11%	1.30%
2007-27	NA	1.69%	1.57%	1.20%	3.07%	1.30%	2.96%	2.64%	2.13%	1.30%

Sources: Airport Records, 5010 Database, 1995 Master Plan Update, FAA Terminal Area Forecast Database, Florida Aviation System Plan (FDOT), FAA Aerospace Forecast, 2008-2025, and The LPA Group Incorporated, 2008

Local / Itinerant Operations Forecast

The operations forecast developed in **Table 3-10** is further broken down by local and itinerant activity in **Table 3-11**. A historic analysis of the TAF and 5010 data during the last five years revealed that COI's operations are comprised of 43.61 percent of itinerant activity and the remaining 56.39 percent was made up of local activity. Of the itinerant aircraft operations, approximately 3.03 percent is associated with Air Taxi operators. Since flight training activity is and is anticipated to remain a large portion of local and itinerant operations at COI in conjunction with the airport's role within the Titusville Airport System, it was anticipated that the percentages of local and itinerant operations would remain at historic levels throughout the planning period. The forecast of local/itinerant operations is shown in **Table 3-11**.

Table 3-11
Local Vs Itinerant Operations

Year	Air Taxi	Itinerant GA	Local GA	Total
2007	1,500	48,000	64,000	113,500
2008	1,519	48,624	64,832	114,975
2012	1,600	51,202	68,269	121,072
2017	1,707	54,618	72,824	129,149
2022	1,821	58,262	77,682	137,765
2027	1,942	62,149	82,865	146,956

Sources: FAA Terminal Area Forecast, 2007, 5010 Data 2007, and The LPA Group Incorporated, 2008

Aircraft Fleet Mix Forecast

An estimation of annual general aviation operations by type of aircraft was developed in support of the demand/capacity and facility requirements analysis provided in Chapter 4. Due to the absence of an air traffic control tower at COI, the aircraft operational fleet mix was determined through a combination of historic based aircraft and operational data in concert with the FAA national estimate of operations by aircraft type.

Every year the FAA generates the active general aviation forecast as part of the FAA Aerospace Forecast. This forecast breaks the general aviation aircraft into distinctive categories. A breakdown of the national activity fleet in 2007 included: 64.26 percent single-engine aircraft, 8.25 percent multi-engine piston, 3.64 percent turboprop, 4.89 percent turbojet, 4.30 percent rotorcraft and 14.67 percent other aircraft (i.e. experimental, sport, and other) as shown in **Table 3-12**.

Table 3-12
FAA Projected National Active Aircraft Fleet

Aircraft Type	2007	Overall Share	2025	Overall Share	Average Annual Growth Rate
Single-Engine - Piston	144,580	64.26%	157,400	54.94%	0.473%
Multi-Engine- Piston	18,555	8.25%	15,650	5.46%	-0.942%
Turboprop	8,190	3.64%	10,820	3.78%	1.56%
Turbojet	10,998	4.89%	29,515	10.30%	5.64%
Rotorcraft	9,685	4.30%	16,855	5.88%	3.13%
Other*	33,000	14.67%	56,260	19.6%	3.01%
Total	225,008	100.00%	286,500	100.00%	1.35%

Note: An active aircraft is one having a current registration that was flown at least one hour during the calendar year. Since the long range forecast does not segment piston and turbine engine categories, Single Engine and Multi Engine subcategories are given 70% and 30% split, respectively; Turbo Prop and Turbo Jet categories given equal 50% split.
** Other category includes experimental and light sport aircraft.*
Source: FAA Aerospace Forecast (Fiscal Years 2008-2025), 2008

An analysis of the active general aviation fleet data reveals certain trends. Single-engine and multi-engine piston aircraft have experienced a decline in recent years. However, single-engine piston will stabilize and grow through the year 2025, whereas multi-engine aircraft are anticipated to continue to decline as a result of turboprop and turbojet growth. Turboprops and turbojet aircraft continue to grow, and significant growth is expected to occur within the very light jet aircraft market and other aircraft associated with the newly developed Small Aircraft Transportation System (SATS).

Several reasons exist to support this anticipated growth. The use of business aircraft by smaller companies has escalated as various chartering, leasing, time-share, partnerships, and fractional ownership agreements have emerged. Businesses increasingly are choosing to use general aviation transport because it provides safe, efficient, flexible, and reliable transportation. Fractional ownership offers consumers a more efficient use of time by providing faster point-to-point travel times, the ability to conduct business while flying, as well as minimum enplaning and deplaning hassles. The continuing popularity of travel by general aviation aircraft is also due to the ability to use smaller, less-congested airports located closer to one's final destination. According to the National Business Aviation Association (NBAA), the number of individuals and companies in the U.S. that own a fractional share of an airplane increased by 52 percent from 2000 to 2002, from 3,834 to 5,827. In addition, new product offerings, such as the Eclipse 500 and the Cessna Mustang, lightweight jets featuring relatively low fuel consumption and having relatively low acquisition costs, will help to stimulate the markets in future years.

Finally, the introduction of light sport aircraft into the active fleet will have a profound effect on the development of this sector of aviation. Light sport aircraft are defined as simple, low-performance aircraft that are limited to 1,232 pounds maximum weight, two occupants, a single non-turbine powered engine, stall speed of 39 knots, maximum airspeed of 115 knots, and fixed landing gear. This category includes most existing ultra light aircraft, which the FAA has not registered in the past. To simulate general aviation

activity, the FAA recently approved new certification requirements for light-sport aircraft, pilots, and repairmen. The new certification addresses advances in sport and recreational aviation technology, and provides pilots with safe and cost-effective access to a growing segment of aviation. The new sport pilot certificate, which allows pilots to fly light-sport aircraft, is obtained with approximately 20 hours of flight training. In addition, sport pilots would only need either a third class medical certificate or a valid state driver's license to fly. The new rule will greatly reduce the barriers to becoming a pilot and an aircraft owner, thereby boosting general aviation activity and light aircraft sales.

Despite the significant increase in turbojet and other aircraft, single-engine and multi-engine aircraft still constitute approximately 60 percent of the national active general aviation aircraft in 2025. However, in reviewing historic based aircraft and operational data at COI, it was determined that 92.63 percent of total operations are attributed to single-engine and multi-engine piston aircraft primarily because of flight training operations and the airport's role within the Titusville System.

Like the FAA forecast, operations associated with multi-engine piston aircraft is likely to decrease as VLJs begin to enter the market starting in 2008. However, a significant increase in turboprop and jet traffic is unlikely to occur at COI unless additional runway facilities are provided to accommodate such aircraft. Based upon existing and current demand, **Table 3-13** illustrates the forecast annual operations fleet mix.

Table 3-13
Forecast Operations By Aircraft Type

	Years									
	2007		2012		2017		2022		2027	
	Percent Total Operations	Ops by Type	Percent Total Operations	Ops by Type	Percent Total Operations	Ops by Type	Percent Total Operations	Ops by Type	Percent Total Operations	Ops by Type
Single-Engine Piston	81.57%	92,578	81.93%	99,190	82.11%	106,045	82.11%	113,117	82.00%	120,504
Multi-Engine Piston	11.06%	12,553	10.18%	12,325	9.37%	12,101	8.62%	11,882	7.94%	11,666
Turboprop	3.69%	4,184	3.61%	4,375	3.54%	4,574	3.47%	4,782	3.40%	5,000
Jet Engine (VLJ)	0.00%	0	0.68%	828	1.47%	1,895	2.37%	3,260	3.31%	4,860
Rotorcraft	2.30%	2,615	2.30%	2,779	2.29%	2,952	2.28%	3,137	2.27%	3,333
Experimental	1.38%	1,569	1.30%	1,575	1.22%	1,581	1.15%	1,587	1.08%	1,593
Other	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0
Total		**113,500**		**121,072**		**129,149**		**137,765**		**146,956**

Sources: Airport Records, FAA Aerospace Forecast, 2008-25 and The LPA Group Incorporated, 2008

Based Aircraft Forecast

Based aircraft at COI historically have included a combination of single-engine, multi-engine piston, turboprop and rotorcraft aircraft used primarily for general aviation and limited air taxi operations. In order to forecast based aircraft at COI, historic and forecast data were obtained from several information sources including the FAA Terminal Area Forecast (TAF), the FAA Aerospace Forecast, the Florida Aviation System Plan (FASP) forecast, National Plan of Integrated Airport Systems (NPIAS) and the 1995 Master Plan Forecast. The NPIAS is a report by the Secretary of Transportation to the United States Congress pursuant to Section 47103 of title 49, United States Code. The plan identifies airports within the country that are significant to air transportation and therefore eligible to receive grants under the FAA's Airport Improvement Program (AIP). At COI, both the NPIAS and FAA Terminal Area Forecasts project stagnant growth in based aircraft operations. Although existing on-airport storage is currently limited, it is unlikely that based aircraft will remain flat through the twenty-year planning period. As a result, both forecasts were discounted.

In determining the based aircraft forecast, several forecast methodologies were used including historic linear growth, market share, pilot population growth, operations per based aircraft, and various local and national forecasts as shown in **Table 3-14**. The 1995 Master Plan forecast presumed an average annual growth of approximately 2.13 percent or 407 aircraft by the year 2027. Based upon current local and national economic indicators, based aircraft growth on this scale is unlikely to occur at COI through the twenty-year planning period.

Table 3-14
Based Aircraft Forecast

Year	Historic Growth	Market Share (US)	Pilot Population	FAA Aerospace	FASP	OPBA	Hangar Demand	Selected
1997	184	184	184	184	184	184	184	184
1998	184	184	184	184	184	184	184	184
2003	225	225	225	225	225	225	225	225
2007	217	217	217	217	227	217	217	217
2008	221	231	217	220	229	220	217	217
2012	236	239	219	232	238	231	242	242
2017	256	239	226	249	251	247	255	255
2022	278	260	237	266	263	263	268	268
2027	302	272	254	283	277	281	281	281
Average Annual Growth Rate								
1997-2007	1.66%	1.66%	1.66%	1.66%	2.12%	1.66%	1.66%	1.66%
2007-27	1.66%	1.13%	0.79%	1.34%	1.00%	1.30%	1.30%	1.30%

Sources: 5010 Database, FAA TAF, Airport Records (Based Aircraft N-Numbers), FAA Forecast of Pilot Population, FAA Aerospace Forecast, 2008-2025, Florida Aviation System Plan (FDOT) 2007, and The LPA Group Incorporated. 2008

As of this writing, the airport currently has a hangar waiting list of 105 individuals. Typically, at least one-third of the waiting list needs to be accommodated since individual aircraft owners are often on multiple airport waiting lists.

Further, in reviewing the airport's joint airport capital improvement projects (JACIP), two 10-unit T-hangar projects are funded in 2008 as well as an executive hangar. Since funding is expected to be distributed in August of 2008, applying engineering estimates, it was determined that the executive hangar storage would be available as early as 2009 providing storage for three (3) aircraft. The first 10-unit T-hangar would be available for use as of 2010 and the second in 2011 since it requires additional site preparation. This hangar development provides storage for approximately 23 aircraft, which accommodates approximately 22 percent of the current airport hangar waiting list.

From 2012 forward, the FASP average annual growth rate of 1.0 percent was applied to determine long-term demand. The FASP forecast considered local, state and national conditions in development of its forecast, and, therefore, is the most reliable forecast of long-term development at COI. Using this combined methodology, long-term based aircraft demand resulted in a forecast of 281 aircraft by the year 2027. However, this growth is highly dependent upon the Titusville-Cocoa Beach Airport Authority's ability to provide storage facilities to accommodate projected demand.

PROJECTED BASED AIRCRAFT FLEET MIX

Aside from determining the number of based aircraft, it is also vital to determine the aircraft fleet mix to develop appropriately sized facilities. Understanding the future fleet mix allows airport management to develop facilities to accommodate various types of aircraft forecast to operate at the airport during the twenty-year planning period. The future fleet mix was determined by studying the national fleet mix forecast and comparing it with the current based fleet mix at COI.

The FAA Aerospace Forecast (2008-2025) includes a fleet mix forecast for the nation as a whole; however, when compared to historic based aircraft data, inconsistencies were revealed. Since the FAA's forecast is representative of the entire country rather than specific to the types of activity that occur at COI, the FAA forecast could not be used to forecast the future fleet mix. Still it is logical to assume that the fleet mix at COI would remain consistent with levels witnessed during prior years; however, it is also practical to assume that the FAA's forecast is also realistic in some aspects due to their consideration of new aircraft and industry trends. The FAA's forecast denoted minimal growth in single engine and multi-engine aircraft (.47%, and -.94%) respectively; whereas, the largest areas of growth were recognized in the jet and rotorcraft categories.

Thus using historic fleet mix data and applying realistic historic trends, such as the decrease of multi-engine piston aircraft in favor of light turboprop and very light jets (VLJs), outlined in the FAA Aerospace Forecast provides a logical forecast of future

based aircraft as shown in **Table 3.14**. The anticipated average annual growth rates for both turboprop and jet aircraft as shown in **Table 3.15** could not be used indiscriminately primarily due to limited runway length and associated facilities, the airport's role within the TICO system, as well as flight training operations and demand.

Instrument Approach Activity

Although included in the total operations forecast, a separate forecast for IFR operations is also analyzed in this section. This analysis is important in that it supports the development of adequate facilities pertaining to aircraft operations under instrument meteorological conditions. An instrument approach is an actual instrument flight rules (IFR) approach conducted in IFR weather and differs from an instrument operation which may be conducted in either visual flight rules (VFR) or IFR weather. Instrument approaches available at COI include a non-precision global positioning system (GPS) approach and non-directional beacon (NDB) non-precision approach to Runway 11. The GPS approach can accommodate Category A and B aircraft with one-mile visibility minimums. The NDB approach can accommodate Category A with one-mile visibility and Category B with one and a quarter mile visibility standards on a straight in approach.

Instrument approach activity at COI is controlled by Space Coast Regional Airport (TIX) and weather conditions are reported on the local Unicom and AWOS frequencies. National Oceanic and Atmospheric Administration (NOAA) climatic data from NASA Space Shuttle Facility (KTTS) WMO 747946 for the years 1994-2007 shows that IFR conditions occur on average 2.5 percent of the year. However, IFR conditions that exceed the published minimums for the existing GPS and NDB approaches occurs only 0.5 percent of the year. As a result, actual IFR approach conditions occurs 2 percent annually.

Table 3-15
Forecast Based Aircraft by Type

	2007		2012		2017		2022		2027	
	Percent of Based Aircraft	Based Aircraft	Percent of Based Aircraft	Based Aircraft	Percent of Based Aircraft	Based Aircraft	Percent of Based Aircraft	Based Aircraft	Percent of Based Aircraft	Based Aircraft
Single Engine Piston	81.57%	177	82.51%	200	82.84%	211	82.58%	221	82.50%	232
Multi-Engine Piston	11.06%	24	9.49%	23	8.25%	21	7.47%	20	6.76%	19
Turboprop	3.69%	8	3.71%	9	3.93%	10	4.48%	12	4.62%	13
Jet Engine (VLJs)	0.00%	0	0.83%	2	1.57%	4	2.24%	6	2.84%	8
Rotorcraft	2.30%	5	2.06%	5	2.36%	6	2.24%	6	2.13%	6
Experimental	1.38%	3	1.24%	3	1.18%	3	1.12%	3	1.07%	3
Other	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0
Total		**217**		**242**		**255**		**268**		**281**

Sources: Based Aircraft Records (Aircraft N-Numbers) and The LPA Group Incorporated, 2008

Current FAA TAF data reports IFR activity at COI as zero since IFR activity has historically been reported as less than 1,000 operations annually. However based upon the anticipated fleet mix shift to more sophisticated aircraft in the later years of this forecast, it is anticipated that 2 percent of forecast operations from the years 2012 through 2027 would be associated with instrument operations as shown in **Table 3-16**.

Table 3-16
COI Instrument Flight Rules Operations

Year	Total Operations	Instrument Operations
2007	113,500	908
2012	121,072	2,421
2017	129,149	2,583
2022	137,764	2,755
2027	146,955	2,939

Notes: IFR operations based upon average annual IFR weather conditions for the period 1994-2007
Sources: NOAA Weather Station 747946 (KTTS), 1994-2007, airport historic data, and The LPA Group Incorporated, 2008

Peak Activity

Annual projections generally provide a good overview of the activity at an airport, but may not reflect operational characteristics of a facility. As such, peak forecasts are developed based on the fact that annual demand is typically not equally distributed throughout the entire year. In many cases, facility requirements are not driven by annual demand, but rather by capacity shortfalls and delays experienced during peak times.

Peak month and day operations were based upon the FAA's Air Traffic Activities System related to GA activity. An analysis of the activity between the years 2005 and 2007 revealed that the busy month typically occurred sometime during the winter of each year with January being one of the busiest months, and the busiest day typically was a Wednesday. Once the busy month and busiest day for each year was determined, the operations performed were divided by the annual operations and peak month operations, respectively, in order to establish a percentage of busy month and busy day operations as shown in **Table 3-17**.

Table 3-17
Historic Peak Month and Peak Day Percentages of Operations

Peak Month/Year	Peak Month Ops	Total Ops	% of Total Ops	Peak Day	% of Peak Month
Jan-05	17,518	113,500	15.43%	913	5.21%
Jan-06	18,592	113,500	16.38%	925	4.98%
Nov-07	15,596	113,500	13.74%	796	5.10%
		Average	15.19%		5.10%

Sources: FAA Air Traffic Activities System, 2005-2008, Airport Records, and The LPA Group Incorporated, 2008

These percentages were applied to forecast operations to determine the peak month and day operations over the forecast period. The peak hour activity is determined to establish airport facility requirements such as the spatial requirements of the terminal building and apron size and capacity. Peak hour activity typically ranges from 8 to 20 percent of the average day of the peak month. For the purposes of this study, 6.14 percent of the peak day was used to calculate the peak hour demand. This approximation is similar to peak hour activity at similarly sized GA airports without a control tower in operation. The results of these calculations for both historic and forecast years are shown in **Table 3-18**.

Table 3-18
Peak Hour Operations Breakdown

Year	Ops	Peak Month	Peak Day (5.10%)	Peak Hour (6.14% of Peak Day)	% Itinerant Ops	Itinerant Peak hour Ops	% Local Ops	Local Peak Hour Ops
2006	113,500	18,592	925	57	44%	25	56%	32
2007	113,500	15,596	796	49	43%	21	57%	28
2008	114,976	17,459	891	55	44%	24	56%	31
2012	121,072	18,385	938	58	44%	26	56%	32
2017	129,149	19,612	1,001	61	44%	27	56%	34
2022	137,765	20,920	1,068	66	44%	29	56%	37
2027	146,956	22,316	1,139	70	43%	31	57%	39

Sources: FAA Air Traffic Activity Systems, 2008 and The LPA Group Incorporated, 2008

Aircraft Parking

Aircraft parking demand is used to identify the need for improved or expanded apron facilities to accommodate both tie-down and transient parking over the twenty year planning period. Currently, 77 percent of based aircraft are stored in hangar facilities and 23 percent are stored on the airport apron. However, based upon the TICO Authority's plans to construct additional T-hangar and conventional hangar storage facilities, 79 percent of based aircraft are forecast to be stored in hangar facilities. Therefore, tie-down demand for based aircraft in 2027 is required for 59 aircraft (approximately 41 less than the airport currently has in place).

Assuming that aircraft hangar facilities can be constructed to accommodate forecast demand, aircraft parking requirements were determined based upon forecast tie-down requirements and one half of peak itinerant aircraft demand over the twenty year planning period. Unconstrained parking demand is provided in **Table 3-19**.

Table 3-19
Unconstrained Aircraft Parking Demand

Year	Based Aircraft	Hangared Aircraft (76.96%)	Based Tie-Down Aircraft (23.04%)	Peak Hour Itinerant Operations	Itinerant Tie-Down Aircraft	Total Aircraft Parking
2007	217	167	50	21	11	61
2008	217	167	50	24	12	62
2012	242	192	50	26	13	63
2017	255	202	53	27	14	67
2022	268	212	56	29	15	71
2027	281	223	59	31	16	75

Sources: Airport Records and The LPA Group Incorporated, 2008

General Aviation (GA) Passengers and Automobile Parking

Peak Passenger Demand

Since the airport is classified as a general aviation airport, the passenger forecast was based upon the ratio of pilots and GA passengers per GA activity at the airport. GA passengers were forecast using a formula of 0.9 passengers per local operation and three passengers per itinerant operation as indicated by the FAA's *Estimating the Economic Impact of Airports*. However, the airport also has limited air taxi operations, which average, eight enplanements based upon aircraft type. Therefore, applying the number of peak hour operations by the correct passenger coefficient, the number of peak hour passengers was determined as provided in **Table 3-20**. The forecast of peak passengers is used in the following chapter to determine FBO, parking facility, and access requirements through the remainder of the planning period.

Table 3-20
Peak Passenger Demand

Year	Air Taxi Peak Ops	Itinerant GA Peak Ops	Local GA Peak Ops	Air Taxi Peak Hour Passengers	Itinerant GA Peak Hour Passengers	Local GA Peak Hour Passengers	Total Peak Hour Passengers
2007	1	21	28	8	60	25	93
2008	1	24	31	8	69	28	105
2012	1	26	32	8	72	29	109
2017	1	27	34	8	78	32	118
2022	1	29	37	8	84	33	125
2027	1	31	39	8	87	35	130

Sources: The LPA Group Incorporated, 2008

Automobile Parking

Automobile parking was determined using a coefficient of 1.5 parking spaces per busy-hour passenger (or approximately 40 SY) as denoted in the Transportation Research

Board publication, *Measuring Airport Landside Capacity*. This forecast will be used to evaluate existing facilities in relation to forecast demand over the twenty-year planning period. Automobile parking requirements are outlined in **Table 3-21**.

Table 3-21
Forecast of Automobile Parking

Year	Passengers	Peak Hour Parking Spaces	Parking Area
2007	93	140	5,600
2008	105	158	6,320
2012	109	164	6,560
2017	118	177	7,080
2022	125	188	7,520
2027	130	195	7,800

Sources: The LPA Group Incorporated, 2008

SUMMARY

During the FAA's review of the forecasts provided, it is necessary to compare the TAF forecast of operations to the selected forecast of operations. Although the base year activity is the same, the TAF does not provide a reliable forecast of future operations at COI since it shows a "flat-line" growth as shown in **Table 3-22**. Using the approved FAA methodology outlined in Forecasting Aviation Activity by Airport, the average annual growth rate of 1.3 percent is consistent with forecast demand used by the FDOT and FAA for other similarly sized airports throughout the state.

Table 3-22
Comparison between TAF Forecasts and Airport Forecast

Total Operations	Year	Airport Forecast	2007 TAF	(% Difference)
Base yr.	2007	113,500	113,500	0.00%
Base yr. + 5yrs.	2012	121,072	113,500	6.67%
Base yr. + 10yrs.	2017	129,149	113,500	13.79%
Base yr. + 15yrs.	2022	137,764	113,500	21.38%
Base yr. + 20yrs.	2027	146,955	113,500	29.48%
AAGR	2007-27	1.30%	0.00%	

Sources: FAA Terminal Area Forecast, December 2007, and The LPA Group Incorporated, 2008

The forecasts presented in this study, as shown in **Table 3-23**, are considered to accurately reflect the activity anticipated at COI through 2027 provided facilities necessary to accommodate this demand are made available. Overall, the current activity at COI is expected to show moderate growth throughout the forecast period.

Table 3-23
Airport Planning Forecasts
Forecast Levels and Growth Rates

Airport Name: **Merritt Island Airport**
Base Year: 2007

	Base Yr Level	Base Yr. + 1 Yr	Base Yr. + 5yrs.	Base Yr. + 10yrs	Base Yr. + 15yrs	Base Yr. + 20yrs	Average Annual Compound Growth Rates: Base Yr. to +1	Base Yr. to +5	Base Yr. to +10	Base Yr. to +15	Base Yr. to +20
Operations:											
Itinerant											
Air Carrier	0	0	0	0	0	0	-	-	-	-	-
Air Taxi	1,500	1,520	1,600	1,707	1,821	1,942	1.30%	1.30%	1.30%	1.30%	1.30%
Regional/Commuter	0	0	0	0	0	0	-	-	-	-	-
General Aviation	48,000	48,624	51,202	54,618	58,262	62,149	1.30%	1.30%	1.30%	1.30%	1.30%
Military	0	0	0	0	0	0	-	-	-	-	-
Total Itinerant Operations	49,500	50,144	52,802	56,325	60,083	64,091	1.30%	1.30%	1.30%	1.30%	1.30%
Local											
General Aviation	64,000	64,832	68,270	72,824	77,682	82,865	1.30%	1.30%	1.30%	1.30%	1.30%
Military	0	0	0	0	0	0	-	-	-	-	-
Total Local Operations	64,000	64,832	68,270	72,824	77,682	82,865	1.30%	1.30%	1.30%	1.30%	1.30%
TOTAL OPERATIONS	**113,500**	**114,976**	**121,072**	**129,149**	**137,765**	**146,956**	**1.30%**	**1.30%**	**1.30%**	**1.30%**	**1.30%**
Instrument Operations	908	2,300	2,421	2,583	2,755	2,939	153.25%	21.67%	11.02%	7.68%	6.05%
Peak Operations											
Month	15,596	17,459	18,385	19,612	20,920	22,316	11.95%	3.35%	2.32%	1.98%	1.81%
Day	796	891	938	1,001	1,068	1,139	11.95%	3.35%	2.32%	1.98%	1.81%
Hour	49	55	58	61	66	70	11.95%	3.35%	2.32%	1.98%	1.81%
GA Operations Per Based Aircraft (OPBA)	523	530	499	507	515	523	1.30%	-0.92%	-0.31%	-0.11%	0.00%

Table 3-23
Airport Planning Forecasts
Forecast Levels and Growth Rates

Airport Name: **Merritt Island Airport**
Base Year: 2007

	Base Yr Level	Base Yr. + 1 Yr	Base Yr. + 5yrs.	Base Yr. + 10yrs	Base Yr. + 15yrs	Base Yr. + 20yrs	Average Annual Compound Growth Rates: Base Yr. to +1	Base Yr. to +5	Base Yr. to +10	Base Yr. to +15	Base Yr. to +20
Based Aircraft											
Single Engine (Piston)	177	177	200	211	221	232	0.00%	2.47%	1.77%	1.49%	1.36%
Multi Engine (Piston)	24	24	23	21	20	19	0.00%	-0.85%	-1.33%	-1.21%	-1.16%
Turboprop	8	8	9	10	12	13	0.00%	0.00%	0.00%	0.00%	0.00%
Turbojet (includes VLJs)	0	0	2	4	6	8	0.00%	0.00%	0.00%	0.00%	0.00%
Helicopter	5	5	5	6	6	6	0.00%	0.00%	1.84%	1.22%	0.92%
Experimental and Other	3	3	3	3	3	3	0.00%	0.00%	0.00%	0.00%	0.00%
TOTAL	217	217	242	255	268	281	0.00%	2.20%	1.63%	1.42%	1.30%
Operational Factors:											
Peak Aircraft Parking											
Based Aircraft	50	50	50	53	56	59	0.00%	0.20%	0.60%	0.73%	0.80%
Itinerant Aircraft	11	12	13	14	15	15	9.09%	3.40%	2.44%	2.09%	1.56%
TOTAL	61	62	63	67	71	74	1.64%	0.81%	0.95%	0.99%	0.94%
Peak Hour GA Passengers	93	105	109	118	125	130	12.90%	3.23%	2.41%	1.99%	1.69%
Peak Hour Automobile Parking Spaces	140	158	164	177	188	195	12.86%	3.22%	2.37%	1.98%	1.67%
Peak Hour Automobile Parking Area (SY)	5,600	6,320	6,560	7,080	7,520	7,800	12.86%	3.22%	2.37%	1.98%	1.67%

Notes:
Due to rounding or undisclosed editing, numbers may not sum up
Right hand side of worksheet has embedded formulas for average annual compound growth rate calculations
Sources: Airport Records and The LPA Group Incorporated, 2008