Airport Master Plan Update

DRAFT Chapter 5

FORECAST

Ormond Beach Municipal Airport

City of Ormond Beach, Florida

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CHAPTER 5: FORECAST

5.0 INTRODUCTION

The purpose of this chapter is to establish and present the forecasted aviation activity, as well as the assumptions associated with developing the forecast.

Forecasts should be realistic, based upon the latest available data, and supported by information presented in the study. In addition, forecasts of aviation activity provide the basis of evaluating the adequacy of existing airport facilities and their capability to handle increased traffic levels or different types of traffic. Forecasts are the foundation for effective decisions in airport planning, such as if and when improvements are needed, the level of capital improvements, and the timing of the necessary investments. Therefore, the forecast should be adjusted periodically based on actual aviation activity and after a change in a driver of aviation activity.

The first step in aviation activity forecasting is to review existing forecasts and to modify them according to changed local conditions. The Federal Aviation Administration (FAA) Aerospace Forecast, Terminal Area Forecast (TAF), and the Florida Department of Transportation (FDOT) Florida Aviation System Plan were reviewed.

Year 2014 has been selected as the base year for all of the projections. However, based on the analysis of the available aviation activity data, it was determined that the data published in the FAA data systems for Fiscal Year (FY) 2014 is not representative of the typical aviation activity at the airport. Extraordinary circumstances during FY 2014 limited flight operations at the Ormond Beach Municipal Airport (OMN). A slightly larger percentage of Instrument Meteorological Conditions (IMC) limited normal flight training activities[1]. During a short period of time fuel availability was limited due to issues with an FBO beyond the sponsor's control. Closure of Euro American School of Aviation (EASA), which provided flight training for European pilot certification drastically reduced the number of training operations at OMN until Sunrise Flight Academy acquired the facilities and aircraft of EASA. FAA temporarily imposed a limitation on night instrument approaches at OMN due to tree penetrations of the approach surfaces. Therefore, based on local knowledge of the characteristics of aircraft operations at OMN, a more realistic or typical 2014 Base Year was established by selecting the FY 2013 annual operations (124,695 total operations) as the baseline from which the growth rates are applied.

This chapter presents projections of aviation activity at OMN for three future time periods: short-term forecasts (2015-2019), medium-term forecasts (2020-2024), and long-term

[1] Based on Analysis of the National Climatic Data Center (NFDC) surface data and information provided by the tower manager.

forecasts (2025-2034). Short-term forecasts (up to 5 years) justify near-term development and support operational planning and environmental improvement programs. Medium-term forecasts (from 6 to 10-years) are usually used in planning capital improvements. Long-term forecasts (beyond 10 years) provide information for general planning.[2] The purpose of this forecast is to estimate, with reasonable accuracy, future aviation activity at OMN for the period (2014-2034).

General Aviation (GA) airport forecasts are typically based on historical data and broadly accepted industry and governmental estimates of aviation activity, and the primary socio-economic drivers of GA activity.

5.2 NECESSITY OF NEW FORECASTS

General aviation activity is shaped by a number of national and regional trends in the political, socio-economic, and technological areas; and at the local level is largely a function of factors including changes in population and income, numbers of pilots and aircraft, accessibility of airports, the number of based aircraft at the airport, and the number of aircraft based at other airports in the area.[3] Since the forecasts presented in the 2004 Ormond Beach Airport Master Plan (AMP), some of the factors have changed considerably. The aging of the GA pilot population, the increased costs associated with flying, including the significant rise in the cost of AVGAS, and the addition of new air traffic control towers at OMN and Flagler County Airport have a combined effect on the current OMN forecast. The previous 2004 AMP was developed in a very different environment that no longer exists.

5.1 FACTORS AFFECTING AVIATION ACTIVITY

Aviation activity at any given airport is dependent upon the economic, demographic, and geographic characteristics of the area surrounding the airport. Several studies have found statistically significant relationships between certain “local factors” and operations at general aviation airports.[4] These “local factors” include, but are not limited to, population, per capita income, employment, airport prominence, complexity of the airport’s based aircraft, presence of a certificated flight school, and the region in which the airport is located. Demographic characteristics of the population have an influence on the level, composition, and growth of aviation demand. Per capita disposable income has proven to be an indicator of general aviation aircraft purchase and use.[5] The “prominence” of an

[2] FAA AC 150/5070-6B, July 29, 2005
[3] GRA, Inc. *Forecasting Aviation Activity by Airport*. Report prepared for FAA Office of Aviation Policy and Plans Statistics and Forecast Branch (APO-110), (July 2001).
[4] GRA, Inc. Model for *Estimating General Aviation Operations at Non-towered Airports Using Towered and Non-towered Airport Data*. Report prepared for FAA Office of Aviation Policy and Plans Statistics and Forecast Branch (APO110), (July 2001).
[5] FAA AC 150/5070-6B, July 29, 2005

airport can be defined as the proportion of its based aircraft to the total based aircraft of the airport service area, or its “attractiveness” to pilots. A prominent airport usually has adequate support and service activities including Fixed Base Operators (FBOs), hangars, fuel services, airfield lighting, and instrument approach procedures that make the airport more attractive to local and transient users. The “complexity” of the airport’s based aircraft is defined as the ratio of single engine piston based aircraft to all the based aircraft. Airports with instrument approaches and longer runways tend to provide services to owners of larger and more complex aircraft, such as high performance multi-engine airplanes. The presence of an FAR Part 141 certificated pilot training school at an airport, or at a nearby airport, is another factor that can significantly increase the number of local operations. Various destinations including military facilities, branches of regional, national or international businesses, air museums, national parks and theme parks in or near the airport service area are also a factor in forecasting aviation activity.

Major “point” attractions near Ormond Beach include the abutting airport industrial park, nearby Daytona Speedway and the east Florida beaches among other potentially significant attractions for GA travelers. The desirability of the area for seasonal and retirement homes is a meaningful attractant in its own right.

5.1.1 Flight Training Activity

Florida’s mild climate provides good flying weather year round. The relatively uncongested airspace makes Florida an ideal location for flight training.

Flight training activity at OMN is most likely the primary driver of aircraft operations counts according to the air traffic control tower supervisor. This assumption is validated by the local traffic counts from the FAA’s databases. There are currently two flight schools located at OMN representing approximately 25% of the based aircraft. OMN is used for practice instrument approaches, and practice touch-and-go operations by other flight schools in the vicinity, such as Embry-Riddle Aeronautical University. More distant flight schools may use OMN as a destination or intermediate stop on cross country practice flights.

One of the flight schools located on OMN provides helicopter flight training services, from initial helicopter ratings through advanced ratings. The flight school uses a combination of piston and turbine helicopters. The other flight school provides airplane flight training services from initial pilot ratings through advanced multi-engine aircraft ratings. The majority of the training is performed in single engine piston aircraft. However, training in advanced, complex piston multiengine aircraft including the Piper PA-44 Seminole and turbine powered multi-engine Beechcraft King Air 100 is also offered.

In aviation, visual meteorological conditions (VMC) refers to meteorological conditions in which aircraft operations under Visual Flight Rules (VFR) are permitted, that is, conditions

in which pilots have sufficient visibility, cloud ceilings, and cloud clearances to maintain visual separation from terrain and other aircraft. When instrument meteorological conditions (IMC) exist, pilots may not be able to maintain adequate visual separation from terrain and other aircraft. During IMC conditions, pilots must adhere to Instrument Flight Rules (IFR). The boundary between VMC and IMC is defined by visibility, cloud ceilings, and cloud clearances. The exact requirements vary by type of airspace.

The vast majority of flight training operations occur during VMC. As shown in **Table 5-1**, VMC conditions prevail at OMN which makes OMN very attractive for initial flight training. More advanced training, such as training for instrument ratings is generally conducted in simulated conditions during VMC.

Table 5-1 shows a slight increase of the percentage of IMC observations when compared to the previous years. This may have affected the number of flight training operations during FY 2014.

In late 2013, the Euro American School of Aviation (EASA) closed after its certificate was suspended and then revoked by the European Aviation Agency. This affected the number of flight training operations at OMN. Sunrise Flight Academy purchased the facilities and aircraft from EASA. During this transition period, the number of flight training operations was affected.

Table 5-1 – VMC vs. IMC

Fiscal Year	Visual Meteorological Conditions (VMC)	Instrument Meteorological Conditions (IMC)
2005	93%	7%
2006	94%	6%
2007	94%	6%
2008	93%	7%
2009	95%	5%
2010	95%	5%
2011	94%	6%
2012	95%	5%
2013	93%	7%
2014	90%	10%

Source: National Climatic Data Center (NCDC)
Station Ormond Beach Municipal Airport, USAF 722341, WBAN 92822

5.1.2 Economic and Demographic Characteristics

The economic characteristics of the community surrounding an airport generally will affect the demand for aeronautical services. Regions with strong economic growth tend to have a stronger demand for aviation services. The City of Ormond Beach and surrounding area has a strong economy and steady demographic growth. However, based on statistical analysis the economic and demographic characteristics of the region do not show a strong correlation with the aviation activity at the airport. Therefore, it was decided that, a trend and statistical regression analysis forecast model would not be appropriate for forecasting aeronautical activity at OMN.

The City of Ormond Beach Economic Development Department is actively engaged in attracting businesses to the area, particularly the Airport Business Park and Airpark. The Ormond Beach Airport Business Park is situated on 176 acres and provides an attractive location for businesses of all kinds including manufacturing, assembly, back office, communication, and engineering. It is expected that continued economic development efforts may increase the demand for aeronautical services, particularly services associated with business jet aircraft. In addition, businesses providing aeronautical services such as aircraft maintenance have seen increased demand for services by operators of larger aircraft.

5.1.3 Availability of Facilities and Services

The availability of facilities at an airport that support, service, and maintain aircraft can have a major impact on the basing of aircraft and the use of the airport by itinerant travelers. A well run FBO with adequate supplies of market priced fuel and friendly service develops a reputation that encourages initial and repeat business from airport users. Likewise, an airport with a reputation for erratic or spotty service or high prices with less than easy access, tight parking, or an unwelcoming atmosphere will quickly become known among the public as a less than preferred alternative when services are needed. The City of Ormond Beach is continuously working with the airport's FBOs and businesses to improve the facilities and services at OMN.

5.1.4 Aviation Industry Trends

Business activity, changes in the aviation industry, and local aviation actions can markedly affect the demand for airport services. Local actions may include the availability of FBO services, on-field pricing structure, airfield configuration, and noise abatement policies. General aviation saw a significant decrease in activity beginning in 2007 when a

major recession began. The recession has abated but the economic damage that was done along with the spike in AVGAS prices has contributed to a lackluster rebound in the owner flown small piston market. Fortunately, the growth in the world market for qualified pilots has increased the demand for training schools and the flight schools at and around OMN have benefitted from the need to produce more pilots. In addition, business aviation has rebounded more quickly from the recession than the recreational flyer.

5.3 REVIEW OF AVIATION FORECASTS

The Federal Aviation Administration (FAA) Terminal Area Forecast (TAF), Aerospace Forecast, and the Florida Department of Transportation (FDOT) Florida Aviation System Plan (FASP) forecast were reviewed. The purpose of this review was to identify published aviation activity forecasts suitable for the development of a derived forecast of aviation activity for the OMN Master Plan.

5.3.1 FAA AEROSPACE FORECAST FISCAL YEARS 2014-2034

The FAA Aerospace Forecast contains projections of future aviation demand at the national level. This forecast publication provides a 21-year outlook and is updated every year in March. It is the official FAA view of the immediate future for aviation. The FAA Aerospace Forecast report examines future trends expected in the aerospace industry. The publication includes aggregate level forecasts of the following:

- Passenger enplanements, revenue passenger miles, fleet, and hours flown for large air carriers and regional/commuters;
- Cargo revenue ton miles and cargo fleet for large air carriers;
- Fleet, hours flown, and pilots for general aviation; and
- Activity forecasts for FAA and contract towers by major user category.

The FAA Aerospace Forecast also explores the economics of the aviation industry in general, as well as trends expected to affect the commercial and general aviation community. The FAA Aerospace Forecast was reviewed to ascertain the general health and prosperity of the general aviation industry as a whole and to provide a sense of future aviation activity growth that may occur at OMN throughout the 20-year Master Plan Update planning period.

In the FAA Aerospace Forecasts, the general aviation forecasts rely heavily on discussions with industry experts conducted at industry meetings, including four Transportation Research Board (TRB) meetings of Business Aviation and Civil Helicopter Subcommittees in May 2013 and January 2014 along with the results of the 2012 General Aviation and Part 135 Activity Survey. The General Aviation and Part 135 Activity Survey is conducted by the FAA to collect information on general aviation and on-demand Part 135 aircraft activity to monitor the general aviation fleet, anticipate and meet demand for

National Airspace System facilities and service, evaluate the impact of safety initiatives and regulatory changes, and build more accurate measures of the safety of the general aviation community.

According to the FAA Aerospace Forecast, the general aviation industry continues its modest growth, with strong growth in rotorcraft, multi-engine piston aircraft, and the agricultural aircraft segment of the turboprop market, as well as moderate growth in the single-engine piston sector. Slow economic recovery and economic uncertainties continued to impact the turbojet market. Based upon the FAA Aerospace Forecast report regarding the manufacture and utilization of general aviation aircraft within the U.S., it can be assumed that the slow annual growth of general aviation activity at OMN will continue. The forecast assumes that OMN will experience continued growth in the number of locally-based aircraft and similar increases in local and itinerant aircraft operations.

The FAA Aerospace Forecast indicates that the numbers of single and multi-engine piston aircraft are expected to decline between 2013 and 2034 at a compound annual growth rate (CAGR) of -0.4 and -0.5 respectively. However, at OMN initial flight training is one of the major aeronautical activities at the airport. Single and multi-engine piston aircraft are generally used for initial flight training. Therefore, a decline in piston aircraft consistent with the FAA Aerospace Forecast is not expected at OMN.

In addition, the FAA Aerospace Forecast indicates a significant growth in experimental and light sport aircraft. Typically, these types of aircraft do not operate at general aviation reliever airports such as OMN. However, OMN staff is currently working with a light sport aircraft (LSA) business team to locate LSA sales and maintenance FBOs at OMN. It is expected that these existing businesses will bring their national clientele to the area.

5.3.2 FAA Terminal Area Forecast (TAF) Fiscal Years 2014-2040

The FAA Terminal Area Forecast (TAF) is a detailed FAA forecast planning database that the FAA Office of Aviation Policy and Plans (APO) produces each year covering airports in the National Plan of Integrated Airport Systems (NPIAS). The TAF contains both historical and forecast data and is prepared to assist the FAA in meeting its planning, budgeting, and staffing requirements. The TAF forecasts are made at the individual airport level and are based in part on the national FAA Aviation Forecast. **Table 5-2** shows the historical and forecast aviation activity published in the TAF for OMN.

The TAF assumes a demand driven forecast for aviation services, based upon local and national economic conditions as well as conditions within the aviation industry. In other words, an airport's forecast is developed independent of the ability of the airport and the air traffic control system to furnish the capacity required to meet demand. However, if the airport historically functions under constrained conditions, the FAA forecast may reflect those constraints since they are embedded in historical data. In statistical terms, the

relationships between economic growth data and data representing growth in aviation activity reflect those constraints.

Although updated and published each year to reflect annual changes in levels of aircraft operations and based aircraft counts, the TAF generally does not reflect accurate forecasts of future activity levels for many small, public use general aviation airports and airparks. However, since the construction of the airport traffic control tower in 2004, more accurate operational data for OMN is available via the FAA Operations and Performance Data Systems.

As shown in **Table 5-2**, for total operations and general aviation operations the TAF is very conservative. However, it is important to note the following:

- OMN is not a *Title 14 CFR – Part 139* certificated airport, therefore there are no air carrier operations and there are no plans to serve air carrier operations in the future.
- Local military operations are not expected except during an emergency condition such as a hurricane, when OMN may be used as a rescue operations staging field.
- The number of based aircraft is not accurate according to a based aircraft survey performed in December 2014.

5.3.3 FLORIDA AVIATION SYSTEM PLAN (FASP) 2025

The FDOT, in cooperation with the FAA and Florida's public airports, through the Continuing Florida Aviation System Planning Process (CFASPP), developed the FASP 2025. The FASP incorporates the traditional aviation system planning elements that are typically included in most state aviation system plans. The FASP forecast includes an analysis of the intermodal aspects of the state transportation system and a strategic planning element which identifies strategic goals, approaches, measurements, and recommendations to achieve these goals. The FASP also includes a statewide aviation database, called the Florida Aviation Database (FAD).

Each year, as part of the CFASPP, the FDOT Aviation Office develops and updates forecasts of based aircraft and operational activity levels for each Florida public-use

Table 5-2 - FAA Terminal Area Forecast

Fiscal Year	Itinerant					Local			Total Operations	Based Aircraft
	Air Carrier	Air Taxi	General Aviation	Military	Total	Civil	Military	Total		
2005	2	58	70,546	59	70,665	65,925	180	66,105	136,770	169
2006	728	20	81,046	307	82,101	61,757	128	61,885	143,986	169
2007	719	15	79,746	24	80,504	69,689	120	69,809	150,313	169
2008	0	5	72,987	2	72,994	74,068	2	74,070	147,064	107
2009	0	5	77,768	9	77,782	88,758	8	88,766	166,548	99
2010	31	6	68,352	13	68,402	55,246	28	55,274	123,676	99
2011	51	2	68,707	10	68,770	64,431	12	64,443	133,213	100
2012	0	0	66,603	12	66,615	54,771	10	54,781	121,396	100
2013	32	5	67,726	1	67,764	56,915	16	56,931	124,695	99
2014	0	3	58,436	5	58,444	50,999	4	51,003	109,447	103
2015	0	3	58,947	5	58,955	49,368	4	49,372	108,327	106
2016	0	3	59,241	5	59,249	49,615	4	49,619	108,868	111
2017	0	3	59,537	5	59,545	49,864	4	49,868	109,413	114
2018	0	3	59,835	5	59,843	50,113	4	50,117	109,960	118
2019	0	3	60,134	5	60,142	50,363	4	50,367	110,509	123
2020	0	3	60,434	5	60,442	50,614	4	50,618	111,060	126
2021	0	3	60,736	5	60,744	50,866	4	50,870	111,614	130
2022	0	3	61,040	5	61,048	51,120	4	51,124	112,172	134
2023	0	3	61,345	5	61,353	51,375	4	51,379	112,732	138
2024	0	3	61,651	5	61,659	51,632	4	51,636	113,295	142
2025	0	3	61,959	5	61,967	51,890	4	51,894	113,861	146
2026	0	3	62,269	5	62,277	52,150	4	52,154	114,431	149
2027	0	3	62,580	5	62,588	52,411	4	52,415	115,003	153
2028	0	3	62,892	5	62,900	52,673	4	52,677	115,577	156
2029	0	3	63,206	5	63,214	52,936	4	52,940	116,154	160
2030	0	3	63,522	5	63,530	53,201	4	53,205	116,735	164
2031	0	3	63,839	5	63,847	53,467	4	53,471	117,318	167
2032	0	3	64,158	5	64,166	53,735	4	53,739	117,905	171
2033	0	3	64,479	5	64,487	54,004	4	54,008	118,495	175
2034	0	3	64,801	5	64,809	54,275	4	54,279	119,088	178

Source: FAA Terminal Area Forecast (TAF) Fiscal Years 2014-2040

airport or airpark. **Table 5-3** summarizes the FDOT FASP report of historical levels of based aircraft and aircraft operations data through 2012, and lists projections for based aircraft and annual aircraft operations at OMN through the year 2032. Year 2034 was extrapolated from the existing data. As shown in **Table 5-3**, the FASP is very optimistic.

Table 5-3 – FDOT Aviation System Plan (2012-2031)

Year	Based Aircraft	Aircraft Operations
2005	169	143,642
2006	169	148,987
2007	113	145,884
2008	99	162,352
2009	169	153,957
2010	169	127,000
2011	169	132,016
2012	171	134,155
2013	172	136,328
2014	174	138,536
2015	176	140,781
2019	182	150,127
2024	191	162,688
2034	212	191,052

Source: FDOT Aviation System Plan (2012-2031)
Note: 2034 was extrapolated form the available data

5.3.4 PREVIOUS MASTER PLAN FORECASTS

The 2004 Airport Master Plan Update (AMPU) developed forecasts that spanned the typical twenty-year period starting with baseline data from 2001. **Table 5-4** shows the 2004 AMPU summary forecast approved by the FAA. A significant difference between the 2004 AMPU forecast and the current forecast update is the availability of aviation activity data available via the FAA Operations Network (OPSNET). This data is collected by airport traffic control towers and submitted monthly to an FAA database system. The OMN airport traffic control tower was open for only a portion of year 2004.

Table 5-4 – 2004 Airport Master Plan Forecast

	Years			
	2001	**2006**	**2011**	**2021**
Based Aircraft				
Single Engine Piston	142	184	238	399
Multi Engine Piston	16	21	27	45
Multi Engine Turboprop	3	4	5	8
Jet	4	5	7	11
Rotorcraft	4	5	7	11
Total	**169**	**219**	**284**	**474**
Itinerant Operations				
Air Taxi	538	571	611	602
General Aviation	58,175	62,293	66,713	76,518
Military	52	55	58	67
Sub-Total	**58,765**	**62,919**	**67,382**	**77,187**
Local Operations				
General Aviation	68,235	72,981	78,159	89,645
Military	0	0	0	0
Sub-Total	**68,235**	**72,981**	**78,159**	**89,645**
Total Annual Operations	**127,000**	**136,011**	**145,663**	**167,069**
Total Annual Instrument Operations	**10,192**	**10,906**	**11,680**	**13,396**

Source: Adapted from the 2004 Ormond Beach Municipal Airport Master Plan

5.4 HISTORICAL BASED AIRCRAFT AND AVIATION ACTIVITY

A key factor in attempting to predict future trends affecting aircraft operations at OMN is understanding and analyzing current and past trends at the airport. This section examines and documents those trends and provides the basis for the forecasts presented in the following section. Historical data was obtained from airport management records, air traffic control records, and the Federal Aviation Administration (FAA).

5.4.1 HISTORICAL BASED AIRCRAFT

Historical based aircraft information is generally available through the FAA from the FAA Master Record 5010 form and the National Based Aircraft Inventory Program. After a

review of the available data, it was determined the available data was inaccurate. Therefore, in November 2014 airport management staff conducted a comprehensive survey of based aircraft. The results of this survey shown in **Table 5-5**, established the 2014 baseline of based aircraft at OMN from which the forecast was derived. The National Based Aircraft Inventory Program database has been updated to reflect these figures.

Table 5-5 – Baseline Based Aircraft

	Baseline Based Aircraft				
Year	**Single Engine**	**Multi Engine**	**Jet**	**Helicopter**	**Total**
2014	126	26	2	9	163

Source: National Based Aircraft Inventory Program, as of December 2014

5.4.2 HISTORICAL ANNUAL AIRCRAFT OPERATIONS

Historical operations were obtained from the FAA Operations Network (OPSNET). The OPSNET is the official source of National Airspace System (NAS) air traffic operations and delay data. The data collected through OPSNET is used to analyze the performance of the FAA's air traffic control facilities. OPSNET data has been available for OMN since the installation of the Airport Traffic Control Tower (ATCT) in 2004. **Table 5-6, Table 5-7, Figure 5-1, and Figure 5-2** summarize the historical aviation activity on an annual, fiscal year basis.

The ATCT operates during a 12-hour time period from 7:00am to 7:00pm. Therefore, data captured in the OPSNET does not take into account operations that occur between 7:00pm and 7:00am. Based on local knowledge, flight training activity generally continues at a reduced operational pace in the time period from 7:00pm to 10:00pm, even though the ATCT is closed.

It was assumed that for planning purposes, operations between 7:00pm and 10:00pm would not affect the order of magnitude of the aviation activity on a fiscal year level. Therefore no attempt was made to adjust the OPSNET aircraft operations data.

Figure 5-1 shows that the number of local operations are significant. This is due to the flight training activity at the airport. **Figure 5-2** shows that the number of aircraft operations conducted under visual flight rules (VFR) is significantly greater than the aircraft operations conducted under instrument flight rules (IFR).

5.4.2.1 AIR CARRIER AND AIR TAXI

OMN is a public regional general aviation reliever airport. Within this role, OMN does not support air carrier operations as defined by *Title 14 CFR Part 139*, and there are no plans to support air carrier operations within the planning horizon of this master plan (2014-2034). **Table 5-6** shows air carrier operations. However, based on discussion with the ATCT staff, there are no air carrier operations at OMN.

In relation to air taxi operations, certain operations such as medical evacuation (MEDEVAC) may be classified as an air taxi. MEDEVAC aircraft may vary in size and type from small single engine airplanes to larger jet aircraft. In addition, at least two of the current FBO's offer periodic *Title 14 CFR – Part 135* charter operations. One of the FBO's is currently performing renovations to its facilities in order to support additional air taxi operations.

5.4.2.2 CARGO OPERATIONS

There are no air cargo aircraft operations at OMN, and there are no plans to support air cargo operations within the planning horizon of this master plan (2014-2034).

5.4.2.3 GENERAL AVIATION OPERATIONS

General aviation includes all non-scheduled flights other than military conducted by non-commercial aircraft. General aviation covers local recreational flying to business transport that is not operating under the FAA regulations for commercial air carriers[6]. The vast majority of the operations at OMN are performed by smaller general aviation aircraft, turboprops, and business jets that are not operating under the FAA regulation for commercial air carriers or military aircraft.

5.4.2.4 MILITARY

Military aircraft may occasionally stop at OMN. Military operations at OMN may occur due to the following reasons: re-fueling stop, practice instrument approach, or to support emergency operations. For example, Coast Guard helicopters may stop for refueling during normal patrolling operations along the coast. Tomlinson Aviation has provided limited maintenance services for U.S. Navy Helicopters.

[6] FAA AC 150/5300-13A – Airport Design Section 102.ll

Table 5-6 – Historical Itinerant vs. Local Operations

Fiscal Year	Itinerant					Local			Total Operations
	Air Carrier	Air Taxi	General Aviation	Military	Total	Civil	Military	Total	
2005	2	58	70,546	59	70,665	65,925	180	66,105	136,770
2006	728	20	81,046	307	82,101	61,757	128	61,885	143,986
2007	719	15	79,746	24	80,504	69,689	120	69,809	150,313
2008	0	5	72,987	2	72,994	74,068	2	74,070	147,064
2009	0	5	77,768	9	77,782	88,758	8	88,766	166,548
2010	31	6	68,352	13	68,402	55,246	28	55,274	123,676
2011	51	2	68,707	10	68,770	64,431	12	64,443	133,213
2012	0	0	66,603	12	66,615	54,771	10	54,781	121,396
2013	32	5	67,726	1	67,764	56,915	16	56,931	124,695
2014	0	3	58,436	5	58,444	50,999	4	51,003	109,447

Source: FAA Operations Network (OPSNET)

Table 5-7 – Historical IFR vs. VFR Operations

Fiscal Year	IFR Itinerant					VFR Itinerant				
	Air Carrier	Air Taxi	General Aviation	Military	Total	Air Carrier	Air Taxi	General Aviation	Military	Total
2005	0	18	7,479	4	7,501	2	40	63,067	55	63,164
2006	0	14	8,608	2	8,624	728	6	72,438	305	73,477
2007	0	11	9,331	3	9,345	719	4	70,415	21	71,159
2008	0	1	8,590	1	8,592	0	4	64,397	1	64,402
2009	0	5	8,919	7	8,931	0	0	68,849	2	68,851
2010	31	6	7,810	7	7,854	0	0	60,542	6	60,548
2011	0	2	7,864	5	7,871	51	0	60,843	5	60,899
2012	0	0	8,232	9	8,241	0	0	58,371	3	58,374
2013	32	5	7,121	0	7,158	0	0	60,605	1	60,606
2014	0	2	7,451	1	7,454	0	1	50,985	4	50,990

Source: FAA Operations Network (OPSNET)

Figure 5-1 – Historical Itinerant vs. Local Operations

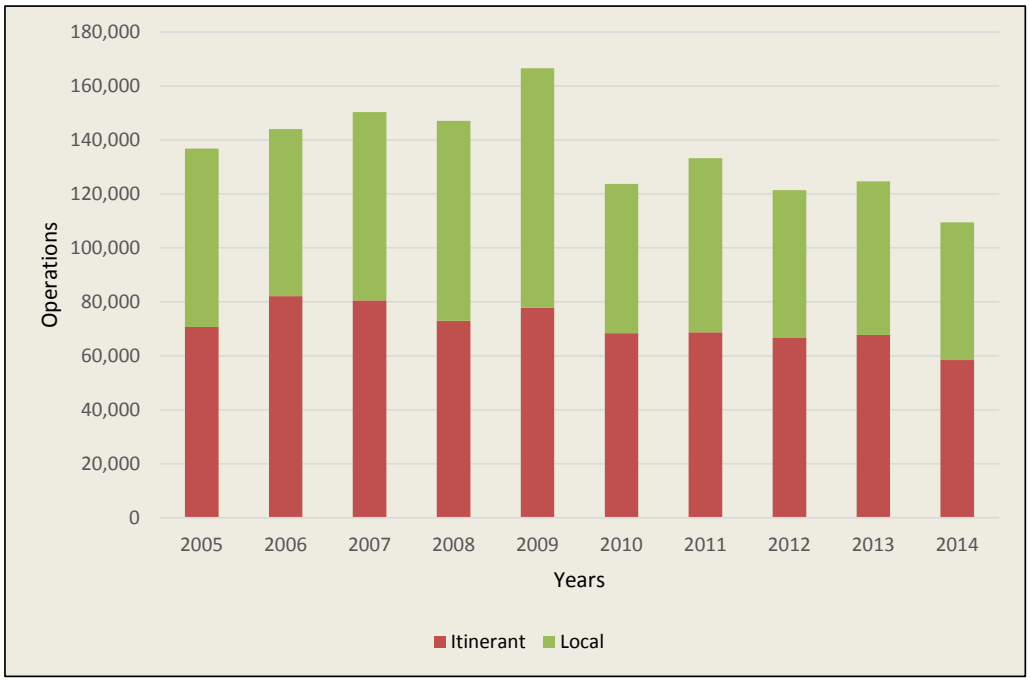

Figure 5-2 - Historical IFR vs. VFR Operations

Note: Visual Flight Rules (VFR); Instrument Flight Rules (IFR)

5.5 FORECAST METHODOLOGIES

There are several appropriate methodologies for forecasting based aircraft and aviation activity at airports. The selection and application of appropriate methodologies and techniques requires professional judgment. Typical forecasting methodologies include: regression analysis, trend analysis and extrapolation, market share analysis or ratio analysis, and smoothing. Even though these techniques are appropriate for certain airports where sufficient historical aviation activity and demographic data is available, after an evaluation of the reasonableness of the results it was determined that these methodologies were not appropriate for forecasting at OMN.

It is important to understand that the forecast methodologies do not take into account any drastic changes, such as opening or closure of a flight school, which would significantly change the number of based aircraft and number of operations. The preferred forecast also does not take into account any current capacity constraints, such as tie-down and hangar space. In addition, forecasts may be sensitive to the factors presented in Section 5.1. For example, the addition of a full service FBO catering to itinerant and business traffic may increase the attractiveness of the airport, hence increasing aviation activity.

The forecast methodology is based on the analysis and application of compound annual growth rates (CAGR) published in other accepted and published forecasts. A preferred or derived forecast is then developed based on historical and local knowledge of the characteristics of the aeronautical activity at OMN.

5.6 TERM OF AVIATION FORECASTS

Forecasts are prepared for short-, medium-, and long term periods. Short-term forecasts, for up to five years, are used to justify near-term development and support operational planning and environmental improvement programs. Medium-term forecasts over a 6 to 10 year time frame are typically used in planning capital improvements. Long-term forecasts over 11 to 20 years are used for general planning.

5.7 BASED AIRCRAFT FORECAST

Table 5-8 shows three scenarios for based aircraft. The low forecast is based on the FDOT FASP compound annual growth rate (CAGR) of approximately 0.96% over the 20-year time period. The based aircraft TAF forecast CAGR was estimated at 1.43%. The derived forecast was defined as the average between the FDOT growth rate and the FAA TAF growth rate. It was assumed that OMN would continue to support local flight schools which utilize primarily single engine aircraft. Therefore, the increase in based single engine aircraft and helicopters seems reasonable. As additional facilities are developed at OMN, jet and multi-engine based aircraft may increase at a higher rate than forecasted

in **Table 5-8**. Therefore, the based aircraft forecast should be revised as construction design plans are developed.

Table 5-8 – Based Aircraft Forecast

	Low Forecast - FDOT Growth Rate					Forecast - Derived					High Forecast - FAA TAF Growth Rate				
Fiscal Year	Single Engine	Multi Engine	Jet	Helo	Total	Single Engine	Multi Engine	Jet	Helo	Total	Single Engine	Multi Engine	Jet	Helo	Total
2015	127	26	2	9	164	128	26	2	9	165	128	26	2	9	165
2016	128	27	2	9	166	129	27	2	9	167	130	27	2	9	168
2017	130	27	2	9	168	130	27	3	9	169	131	27	2	9	169
2018	131	27	2	9	169	131	27	3	9	170	133	28	2	10	173
2019	132	27	2	9	170	132	28	4	10	174	135	28	2	10	175
2020	133	28	2	10	173	133	28	4	10	175	137	28	2	10	177
2021	135	28	2	10	175	135	28	4	10	177	139	29	2	10	180
2022	136	28	2	10	176	136	29	5	10	180	141	29	2	10	182
2023	137	28	2	10	177	136	29	6	10	181	143	30	2	10	185
2024	139	29	2	10	180	136	29	8	10	183	145	30	2	10	187
2025	140	29	2	10	181	138	30	8	10	186	147	30	2	11	190
2026	141	29	2	10	182	139	30	8	10	187	149	31	2	11	193
2027	143	29	2	10	184	140	30	9	11	190	152	31	2	11	196
2028	144	30	2	10	186	142	31	9	11	193	154	32	2	11	199
2029	145	30	2	10	187	143	31	10	11	195	156	32	2	11	201
2030	147	30	2	10	189	144	31	10	11	196	158	33	3	11	205
2031	148	31	2	11	192	146	32	10	11	199	160	33	3	11	207
2032	150	31	2	11	194	147	32	11	11	201	163	34	3	12	212
2033	151	31	2	11	195	150	33	11	11	205	165	34	3	12	214
2034	153	31	2	11	197	151	33	12	11	207	167	35	3	12	217

Source: Hoyle, Tanner, & Associates Derived Forecast

5.8 AIRCRAFT OPERATIONS FORECAST

The number of operations in FY 2014 are significantly lower than expected. The reasons for this include a slightly higher percentage of Instrument Meteorological Conditions (IMC) that limited normal visual flight training activities, a period of time when fuel availability was limited due to issues with an FBO beyond the sponsor's control, closure of one of the flight schools, and an FAA imposed limitation on night instrument approaches. Based on this, it is assumed that 109,447 operations in FY 2014 do not represent the typical or baseline number of operations at OMN. Therefore, FY 2014 will be assumed as a baseline year with 124,695 operations, the same as in FY 2013.

Table 5-9 and **Table 5-10** summarize the derived aircraft operations forecast. Three forecast scenarios were developed. The first scenario is based on the estimated 20-year FAA TAF CAGR of approximately 0.33%. The second scenario is based on the FDOT FASP CAGR of 1.62%. The third scenario was derived by estimating the average between the first two scenarios. The CAGR of the derived forecast was estimated at approximately 1% and it is considered a reasonable growth rate for total annual operations at OMN. It was also assumed that the distribution of itinerant vs. local and VFR vs. IFR would remain constant as in previous years.

Table 5-9 – Forecasted Itinerant vs. Local Operations

Fiscal Year	Itinerant					Local			Total Operations
	Air Carrier	Air Taxi	General Aviation	Military	Total	Civil	Military	Total	
2015	0	69	69,178	4	69,251	56,660	0	56,660	125,910
2016	0	70	69,855	4	69,929	57,215	0	57,215	127,144
2017	0	71	70,542	4	70,617	57,777	0	57,777	128,394
2018	0	71	71,239	4	71,314	58,348	0	58,348	129,661
2019	0	72	71,945	4	72,021	58,926	0	58,926	130,947
2020	0	87	72,647	4	72,738	59,513	0	59,513	132,251
2021	0	88	73,373	4	73,465	60,108	0	60,108	133,573
2022	0	89	74,109	4	74,203	60,711	0	60,711	134,914
2023	0	90	74,856	4	74,950	61,323	0	61,323	136,273
2024	0	91	75,614	4	75,709	61,944	0	61,944	137,653
2025	0	107	76,367	4	76,478	62,573	0	62,573	139,051
2026	0	108	77,146	4	77,259	63,212	0	63,212	140,470
2027	0	109	77,936	4	78,050	63,859	0	63,859	141,909
2028	0	110	78,738	4	78,853	64,516	0	64,516	143,368
2029	0	112	79,551	4	79,667	65,182	0	65,182	144,849
2030	0	121	80,368	4	80,493	65,858	0	65,858	146,350
2031	0	122	81,204	4	81,330	66,543	0	66,543	147,873
2032	0	123	82,052	4	82,180	67,238	0	67,238	149,418
2033	0	125	82,913	5	83,042	67,943	0	67,943	150,985
2034	0	126	83,786	5	83,916	68,659	0	68,659	152,575

Source: Hoyle, Tanner, & Associates Derived Forecast

Table 5-10 – Forecasted IFR vs. VFR Operations

Fiscal Year	IFR Itinerant					VFR Itinerant					Total Itinerant
	Air Carrier	Air Taxi	General Aviation	Military	Total	Air Carrier	Air Taxi	General Aviation	Military	Total	
2015	0	55	6,918	3	6,976	0	14	62,260	1	62,274	69,251
2016	0	56	6,986	3	7,045	0	14	62,870	1	62,884	69,929
2017	0	56	7,054	3	7,114	0	14	63,488	1	63,503	70,617
2018	0	57	7,124	3	7,184	0	14	64,115	1	64,130	71,314
2019	0	58	7,194	3	7,255	0	14	64,750	1	64,766	72,021
2020	0	70	7,265	3	7,338	0	17	65,382	1	65,400	72,738
2021	0	71	7,337	3	7,411	0	18	66,036	1	66,054	73,465
2022	0	71	7,411	3	7,485	0	18	66,698	1	66,717	74,203
2023	0	72	7,486	3	7,561	0	18	67,371	1	67,390	74,950
2024	0	73	7,561	3	7,637	0	18	68,053	1	68,072	75,709
2025	0	86	7,637	3	7,726	0	21	68,730	1	68,753	76,478
2026	0	87	7,715	3	7,805	0	22	69,432	1	69,454	77,259
2027	0	87	7,794	3	7,884	0	22	70,143	1	70,165	78,050
2028	0	88	7,874	3	7,966	0	22	70,864	1	70,887	78,853
2029	0	89	7,955	3	8,048	0	22	71,596	1	71,619	79,667
2030	0	97	8,037	4	8,137	0	24	72,331	1	72,356	80,493
2031	0	98	8,120	4	8,222	0	24	73,084	1	73,109	81,330
2032	0	99	8,205	4	8,307	0	25	73,847	1	73,873	82,180
2033	0	100	8,291	4	8,395	0	25	74,622	1	74,647	83,042
2034	0	101	8,379	4	8,483	0	25	75,407	1	75,433	83,916

Source: Hoyle, Tanner, & Associates Derived Forecast

5.9 PEAK PERIOD FORECASTS

Forecasts of annual aircraft operations in some cases may not adequately describe the needs of individual airport facilities. Annual forecasts assume that aviation activity is evenly distributed over the hours, days, and months of a particular airport's facility operation. However, in some cases peak demand surpasses the average levels.

The baseline peak month, peak day, and peak hour data was provided by the ATCT manager. The future peak month, peak day, and peak hour were estimated by maintaining the proportion between the annual operations and each period constant. **Table 5-11** summarizes the peak period forecast.

Table 5-11 – Peak Period Forecast

Year	Annual	Peak Month	Peak Day	Peak Hour
2014	124,695	13,240	624	110
2015	125,911	13,850	693	113
2016	127,144	13,986	699	114
2017	128,394	14,123	706	116
2018	129,661	14,263	713	117
2019	130,947	14,404	720	118
2020	132,251	14,548	727	119
2021	133,573	14,693	735	120
2022	134,914	14,841	742	121
2023	136,273	14,990	750	123
2024	137,653	15,142	757	124
2025	139,051	15,296	765	125
2026	140,470	15,452	773	126
2027	141,909	15,610	780	128
2028	143,368	15,771	789	129
2029	144,849	15,933	797	130
2030	146,350	16,099	805	132
2031	147,873	16,266	813	133
2032	149,418	16,436	822	134
2033	150,985	16,608	830	136
2034	152,575	16,783	839	137

Source: Hoyle, Tanner, & Associates Derived Forecast

5.10 CRITICAL AIRCRAFT FORECAST

Planning improvements to an existing airport requires the selection of one or more "design aircraft" or "critical aircraft". In the case of a private airport, the critical aircraft can take the form of one particular aircraft, and frequency of operations may not be a consideration.

The critical aircraft is the most demanding aircraft that will make substantial use of the airport. Substantial use means either 500 or more annual itinerant operations, or scheduled commercial service.[7] The critical aircraft may be a single aircraft or a composite of the most demanding characteristics of several aircraft. The critical aircraft (or composite aircraft) is used to identify the appropriate Airport Reference Code for airport design criteria.

In most cases, the critical aircraft for the purposes of airport geometric design is a composite aircraft representing a collection of aircraft classified by three parameters: Aircraft Approach Category (AAC), Airplane Design Group (ADG), and Taxiway Design Group (TDG).

The existing Airport Layout Plan (ALP) drawing (i.e., the official ALP of record on file at the FAA - conditionally approved in 2004) lists the Beechcraft King Air 200 for the existing condition, and the Cessna Citation VI for the future condition as the airport's critical aircraft. The Beechcraft King Air 200 is representative of an Airport Reference Code (ARC) B-II, where the Cessna Citation VI represents an ARC C-II.

OMN, within its role as a general aviation reliever to the Daytona Beach International Airport (DAB) should plan to eventually service small to mid-size jets. With the exception of the single engine and light twin aircraft typically used for flight training, there is no aircraft model that currently meets the requirements of substantial use. However, a Cessna Citation 525 business jet is currently based at OMN.

Data from the FAA Enhanced Traffic Management System Counts (ETMSC) was used to review the existing fleet mix at OMN. The ETMSC provides information on traffic counts by airport for flights that operate under IFR and are captured by the FAA's enroute computers. Most VFR traffic is excluded from this system. In addition, a customized report was purchased from FlightAware™ which provides similar information to the ETMSC data. Based on the review of this data, the most demanding aircraft currently operating at OMN in terms of airfield geometry requirements are the Cessna Citation C525, C550, and C560.

With the runway/taxiway configuration improvements completed since the last master plan update in 2004, the existing runway and taxiway separation currently meets the

[7] Order 5080.3C *Field Formulation of the National Plan of Integrated Airport Systems,* Section 3-4

design requirements of an Airport Reference Code (ARC) C-II. Future development of the business park and the southwest quadrant of the airport supports the need for C-II standards for the long term development of the airport. Therefore, it is recommended that near- and medium-term development continues to support B-II standards and the long-term development continues to support C-II design standards. **Table 5-12** shows the critical aircraft forecast.

Table 5-12 – Critical Aircraft Forecast

Crical Aircraft	2015	2019	2024	2029	2034
Aircraft Approach Category (AAC)	B	B	B	B	C
Airplane Design Group (ADG)	II	II	II	II	II
Taxiway Design Group (TGG)	1B	1B	1B	1B	1B
Typical Aircraft	Cessna Citation 525	Cessna Citation 525	Cessna Citation 525	Cessna Citation 525	Gulfstream G150

Source: Hoyle, Tanner, & Associates Derived Forecast

5.11 FORECAST SUMMARY, REVIEW, AND APPROVAL

Table 5-13 presents the aviation demand elements required to be forecasted. Acceptable forecasting analysis and consistency with the TAF are the general requirements for FAA approval of the forecast.

At reliever airports, the FAA considers a forecast to be consistent with the TAF when:

- Forecasts differ by less than 10 percent in the 5-year forecast and less than 15 percent in the 10-year period, or
- Forecasts do not affect the timing or scale of an airport project, or
- Forecasts do not affect the role of the airport as defined in the current version of FAA Order 5090.3, *Field Formulation of the National Plan of Integrated Airport Systems*.

The FAA approved the forecasts on April 6, 2015. A copy of the FAA forecast approval letter is located in Appendix F-1.

Table 5-13 – Forecast Summary

		Years				
	Base yr	Base+1 yr	Base+5 yr	Base+10 yr	Base+15 yr	Base+20 yr
	2014(*)	2015	2019	2024	2029	2034
Based Aircraft						
Single Engine Piston	126	128	132	136	143	151
Multi Engine Piston	25	25	26	27	29	30
Multi Engine Turboprop	1	1	2	2	2	3
Jet	2	2	4	8	10	12
Rotorcraft	9	9	10	10	11	11
Total	**163**	**165**	**174**	**183**	**195**	**207**
CAGR %	--	1.23%	1.31%	1.16%	1.20%	1.20%
FAA TAF	103	106	123	142	160	178
Difference	36.8%	35.8%	29.3%	22.4%	17.9%	14.0%
Itinerant Operations						
Air Carrier	0	0	0	0	0	0
Air Taxi	5	69	72	91	112	126
General Aviation	67,754	69,178	71,945	75,614	79,551	83,786
Military	5	4	4	4	4	5
Sub-Total	**67,764**	**69,251**	**72,021**	**75,709**	**79,667**	**83,916**
CAGR %	--	2.19%	1.23%	1.11%	1.08%	1.07%
Local Operations						
General Aviation	56,931	56,660	58,926	61,944	65,182	68,659
Military	0	0	0	0	0	0
Sub-Total	**56,931**	**56,660**	**58,926**	**61,944**	**65,182**	**68,659**
CAGR %	--	-0.48%	0.69%	0.85%	0.91%	0.94%
Touch and Go	22,772	22,664	23,570	24,778	26,073	27,464
CAGR %	--	-0.48%	0.69%	0.85%	0.91%	0.94%
Total Annual Operations	**124,695**	**125,911**	**130,947**	**137,653**	**144,849**	**152,575**
CAGR %	--	0.98%	0.98%	0.99%	1.00%	1.01%
FAA TAF	109,447	108,327	110,509	113,295	116,154	119,088
Difference	12%	14%	16%	18%	20%	22%
Helicopter Operations	6,235	6,296	6,547	6,883	7,242	7,629
Operations per Based Aircraft (OPBA)	765	763	753	752	743	737
Peak Period						
Peak Month	13,240	13,850	14,404	15,142	15,933	16,783
Average Day Peak Month	624	693	720	757	797	839
Average Day Peak Hour	110	113	118	124	130	137
Annual Instrument Operations	**7,454**	**7,616**	**7,921**	**8,327**	**8,762**	**9,229**
CAGR %	--	2.17%	1.22%	1.11%	1.08%	1.07%
Critical Aircraft						
Aircraft Approach Category (AAC)	B	B	B	B	B	C
Airplane Design Group (ADG)	II	II	II	II	II	II
Taxiway Design Group (TGG)	1B	1B	1B	1B	1B	1B

Source: Hoyle, Tanner, & Associates Derived Forecast

Note: Compound Annual Growth Rate (CAGR) calculated from the base year 2014

Appendix F-1

U.S. Department
of Transportation
**Federal Aviation
Administration**

ORLANDO AIRPORTS DISTRICT OFFICE
5950 Hazeltine National Dr., Suite 400
Orlando, Florida 32822-5003
Phone: (407) 812-6331 Fax: (407) 812-6978

April 6, 2015

Mr. Steven R. Lichliter
Airport Manager
Ormond Beach Municipal Airport
22 South Beach Street
Ormond Beach, FL 32174

Dear Mr. Lichliter:

RE: Ormond Beach Municipal Airport, Ormond Beach, Florida
AIP 3-12-0059-017-2014
Approval of Airport Forecasts for Airport Master Plan Update

This letter responds to your submittal of the revised "Chapter 5: Forecast" for the Ormond Beach Municipal Airport dated April 2015. The based aircraft and operations forecasts shown in Table 5-13 of the report are approved to be used in your on-going master planning efforts.

If you have any questions, please feel free to contact me at (407) 812-6331, ext. 117.

Sincerely,

Original Signed By

Marisol C. Elliott
Program Manager/Community Planner

cc: Hans Dorries, Hoyle, Tanner & Associates, Inc.