CHAPTER 2
AVIATION ACTIVITY FORECAST

Aviation activity forecasts at the Airport are presented in this chapter for the period ending in 2027. The forecasts developed in this chapter provide needed input for the Study and are used to assess the improvements developed in the draft 2004 Master Plan.

Forecasting future activity involves both analytical techniques and subjective considerations. Regardless of the methodology used, assumptions must be made about how internal and external forces might change in the future. Factors that can influence aviation activity levels include regulatory policy on the local and national level, technological innovations, aviation industry trends, and local fluctuations in population and employment. The objective of forecasting is to develop a realistic measure of the potential for these changes so their effect can be estimated. The methods used to develop this forecast are commonly used and accepted. The activity forecast, and the NEMs prepared with the activity forecast, will be reviewed and approved by the FAA.

The Airport activity forecast methodologies and findings are presented in the following sections of this chapter:

- Historical Activity Review
- Factors Affecting Future Aviation Activity
- Forecast Sources
- Based Aircraft Forecast
- Annual Aircraft Operations Forecast
- Operations by Aircraft Type
- Instrument Approaches

A short summary section is provided at the end of this chapter that recaps the selected forecast elements.

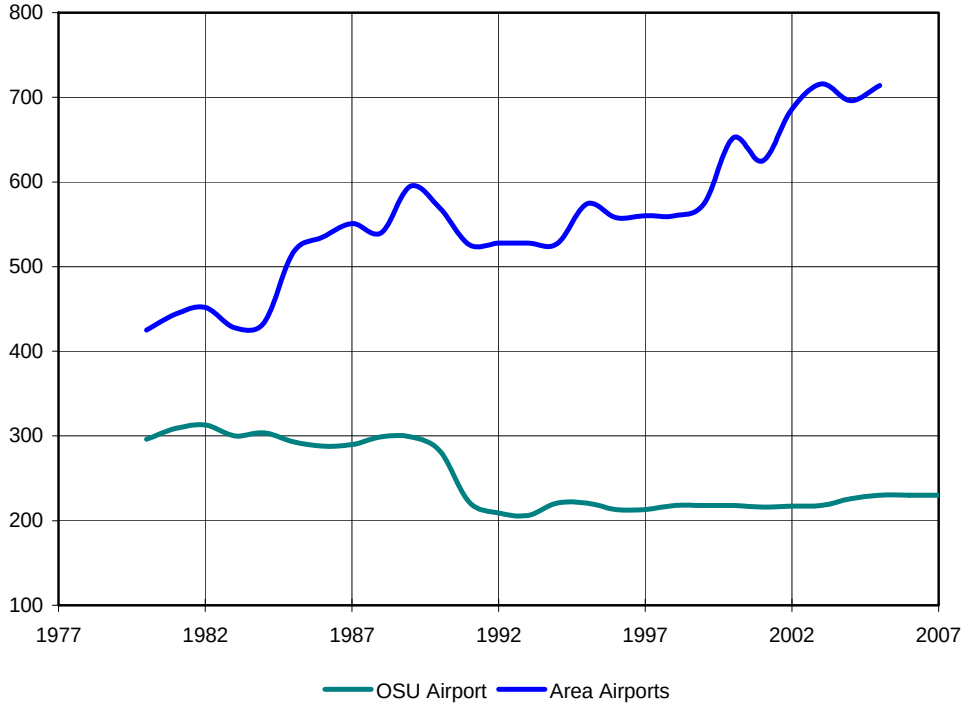
2.1 HISTORICAL ACTIVITY REVIEW

This section presents a brief review of long-term historical aviation activity in the key activity measures of based aircraft and aircraft operations.

2.1.1 Based Aircraft

Based aircraft at an airport represent the total number of active aircraft permanently located or projected to be located at an airport during a specific period. Based aircraft are commonly a basic metric used to correlate future activity levels at an airport. **TABLE 2-1** presents the historical based aircraft at the Airport. The historical based aircraft data sources are the FAA's Terminal Area Forecast (TAF) and Air Traffic Activity Data System (ATADS), and Airport 5010 Master Record Forms.

TABLE 2-1
HISTORICAL BASED AIRCRAFT



Year		OSU Airport	OSU and Area Airports	Percent OSU Airport
1982		313	452	69.2%
1987		290	551	52.6%
1992		209	528	39.6%
1997		213	560	38.0%
1998		218	560	38.9%
1999		218	574	38.0%
2000		218	652	33.4%
2001		216	625	34.6%
2002		217	686	31.6%
2003		218	716	30.4%
2004		226	696	32.5%
2005		230	714	32.2%
2006	(est.)	230	N.A.	N.A.
2007	(est.)	230	N.A.	N.A.

Sources: OSU Airport Master Record, 1980-1989. FAA TAF historical data available to FY 2005; data limited by availability of comparable data for all airports. OSU Airport FY 2006 and 2007 is forecast estimate based on hangar development constraint.

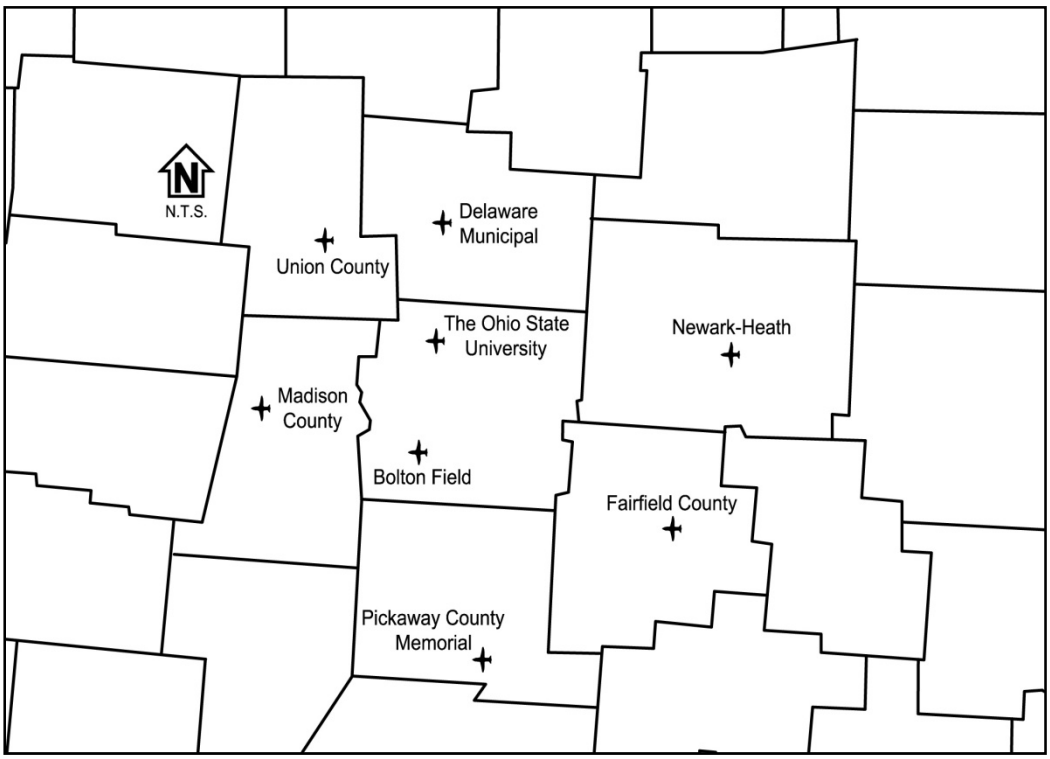
Note: Area Airports Total includes TAF records for the following airports: Ohio State University Airport, Union County, Delaware Municipal (airport data began in TAF in FY 1980), Newark-Heath (airport data began in TAF in FY 2000), Fairfield County, Bolton Field, Pickaway County, and Madison County

As can be seen in **Table 2-1**, the quantity of based aircraft has remained relatively constant through 1989. After 1989, the Ohio Army National Guard unit relocated to Rickenbacker Airport resulting in a reduction of 60 based aircraft.

The consistency in the number of based aircraft does not reflect demand, but results from the fact that no additional hangars have been built to accommodate demand. The Airport maintains a waiting list for hangar space. Since 2001 the wait list has increased by 15 to 27 aircraft per year. There were 147 aircraft on that waiting list as of October 30, 2007.

Table 2-1 also shows the historical total quantity of based aircraft at eight airports in the region, and shows the Airport's share of the total. **Figure 2-1** graphically depicts the locations of the eight regional airports. The table demonstrates a key factor considered in this forecast, which is the impact of the current hangar development constraint. The number of based aircraft in the Columbus area has been growing while the quantity at the Airport remains constant, and the Airport's share of the area total based aircraft has been declining. Delaware County and Madison County Airports, for example, have added hangars in recent years reflecting this regional demand.

FIGURE 2-1
REPRESENTATIVE REGIONAL AIRPORTS

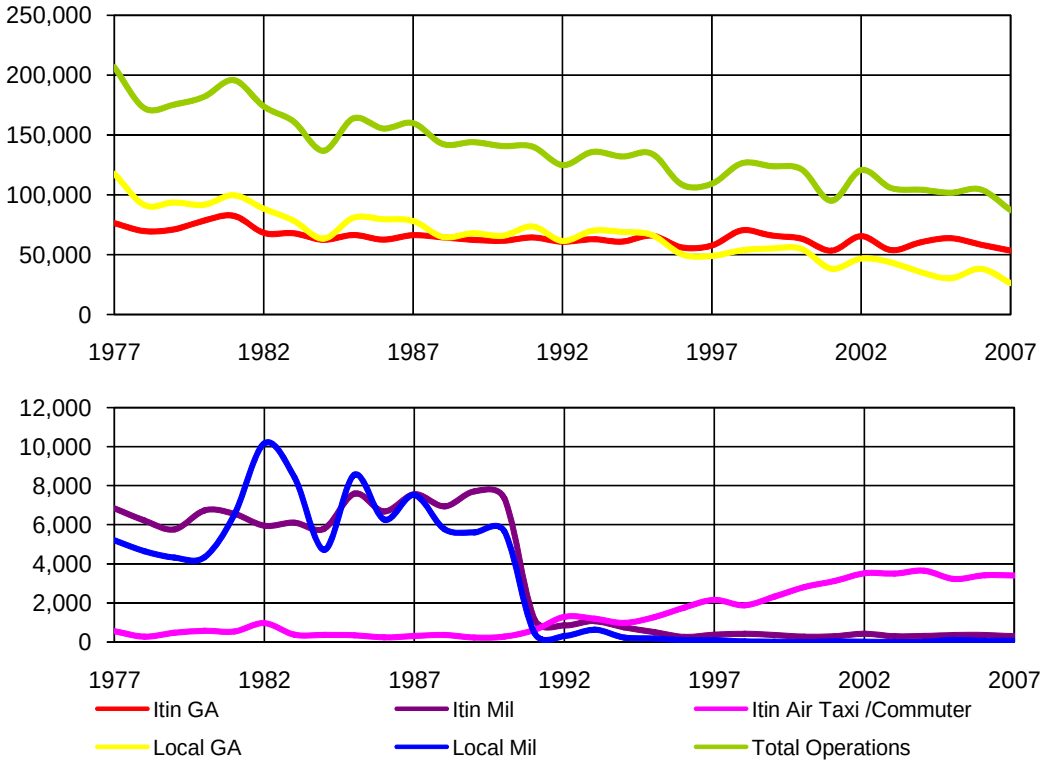


Sources: FAA Form 5010, RS&H

2.1.2 Annual Aircraft Operations

An aircraft operation is defined as either a takeoff or a landing. **Table 2-2** presents a long-term history of the annual aircraft operations recorded at the Airport in four categories: air carrier, air taxi and commuter, general aviation, and military. These categories are further divided into itinerant or

TABLE 2-2
HISTORICAL OPERATIONS



	TAF/Tower Data								
	Itinerant [1]				Local [2]				
Year	Air Carrier	Air Taxi / Commuter	GA	Military	GA	Military	Total	STARS	Total
1977	0	554	76,278	6,834	117,712	5,206	206,586		206,586
1982	0	962	68,258	5,948	88,518	10,165	173,851		173,851
1987	0	309	66,294	7,568	78,210	7,529	159,910		159,910
1992	0	1,283	60,859	851	61,529	301	124,823		124,823
1997	0	2,159	57,664	372	49,002	88	109,295		109,295
1998	0	1,872	70,322	423	53,752	22	126,391		126,391
1999	0	2,317	65,992	354	55,251	14	123,928		123,928
2000	0	2,816	63,393	268	54,929	0	121,406		121,406
2001	0	3,116	53,390	297	38,268	22	95,093		95,093
2002	0	3,518	65,477	428	46,822	10	116,255		116,255
2003	0	3,500	53,842	292	43,635	0	101,269		101,269
2004	0	3,647	60,446	301	35,411	4	99,809	4,545	104,354
2005	0	3,229	63,821	360	30,315	106	97,831	4,009	101,840
2006	0	3,416	58,456	363	38,306	67	100,608	3,960	104,568
2007	0	3,404	53,426	294	26,268	64	83,456	3,729	87,185

Source: FAA Terminal Area Forecast (FY76 - FY05), Air Traffic Activity Data System (FY06 - FY07), Airport Tower Records for Air Carrier Operations (FY77-FY07)
Notes: (1) and (2) See Appendix O for definitions

local operations. The table graphically depicts the total operations, and the local and itinerant general aviation operations on one graph, and the air taxi/commuter and military categories on a separate graph. This is done as the latter group has significantly fewer operations and a separate graph allows presentation at a larger, more legible scale.

An air carrier operation represents a takeoff or a landing of a commercial aircraft with seating capacity of more than 60 seats. While the Airport had air carrier operations in the 1970s provided by Wright Airlines, all scheduled air carrier service is currently provided at Port Columbus International Airport. Air carrier operations at the Airport were at their highest annual historical level in the mid-1970s, with approximately 300 annual operations. There are no air carrier operations at the Airport.

Air taxi and commuter operations represent scheduled commercial flights or non-scheduled for-hire flights, such as charter, for aircraft with 60 or fewer seats. Air taxi also includes a portion of the emergency medical response helicopter operations at the Airport. Air taxi and commuter operations have grown since 1990, increasing from approximately 275 to a peak of 3,647 operations in 2004. These operations are primarily for-hire, nonscheduled air taxi activity. There is no scheduled commuter activity at the Airport.

Military aircraft operations peaked in 1982 with over 16,000 annual operations. After 1990 and due to the relocation of the Army Guard unit operations to Rickenbacker Airport, there was a steep decline in military operations. Since 1996 there have consistently been 250 to 500 annual operations. In 2006 there were 430 military operations.

General aviation operations represent all aircraft takeoffs and landings not classified as air carrier, air taxi/commuter, or military. General aviation operations are further divided into itinerant and local categories. By FAA definition, aircraft operating in the traffic pattern or within sight of the tower, or aircraft known to be departing or arriving from flight in local practice areas, or aircraft executing practice instrument approaches at the Airport are considered local operations. These operations are typically training or pleasure flights. FAA reports all aircraft operations other than local operations as itinerant. Essentially, these represent takeoffs and landings of aircraft going from one airport to another. These operations represent a portion of the pleasure and training activity but also include the corporate and other service providers.

General aviation operations were at their highest annual level in 1977 with nearly 194,000 operations. Overall, total annual general aviation operations have generally declined. Separating general aviation into its sub-components shows that itinerant operations over the last 30 years have fluctuated in the range from 53,000 to 76,000 annual operations, with a total of 58,456 operations in 2006. Over the same period, local general aviation operations have been declining, with nearly 90,000 annual operations in the early 1980s, fluctuating but declining to levels between 30,000 and 47,000 annual operations over the last 5 years. The general observation is that itinerant general aviation activity, which represents more of the corporate and air taxi user group, has remained fairly stable. Conversely, local general aviation operations, representing more training and pleasure flying, have declined. The Ohio State University flight training program reflects this decline with a 51% drop in flight hours in FY 2005-2006 versus FY 1991-1992. The decline in pleasure flights is presumably due to increases in fuel costs.

There are multiple sources of operations data for the Airport. The primary source is the activity records from the Airport Traffic Control Tower (ATCT). The ATCT records are provided directly to the FAA and are included in the ATADS reports. These reports are used by the Airport and in the FAA TAF.

At the Airport the activity reports from the ATCT represent activity for only a portion of the day. The ATCT operates and records activity statistics from 7 am to 11 pm. For the period when the ATCT is closed, two additional data sources provide activity statistics. Port Columbus International Airport operates the Standard Terminal Automated Replacement System (STARS) that, amongst other functions, tracks all activity in the Columbus area, including aircraft into and out of the Ohio State University Airport. The STARS data from Port Columbus International Airport has been available since fiscal year 2004. The historical operations shown in **Table 2-2** represent the ATCT report data separate from the STARS data. The STARS data is separate as it does not provide the same aircraft type reporting categories as the ATCT records data. These categories are key in subsequent forecasts, so it is important to keep the two data sources separated.

The second data source is Flight Aware, a public commercial company providing flight tracking and activity statistics. The information provided by Flight Aware includes data on all aircraft operating at the Airport on an instrument flight plan

Table 2-3 presents the total annual operations at the Airport, the total annual operations at eight airports in the region (including the Airport), and shows the Airport's share of the total operations from the eight airports. Since the relocation of the Ohio Army National Guard from the Airport in 1989, the Airport's share of total operations from the eight regional airports has remained relatively constant, despite the Airport's decreasing share of regional based aircraft associated with the current hangar development constraints.

2.2 FACTORS AFFECTING FUTURE AVIATION ACTIVITY

A number of influencing factors are considered in the development of the aviation activity forecast. The factors affecting aviation activity can be divided into two sub-categories: factors affecting airport demand and factors affecting airport capacity.

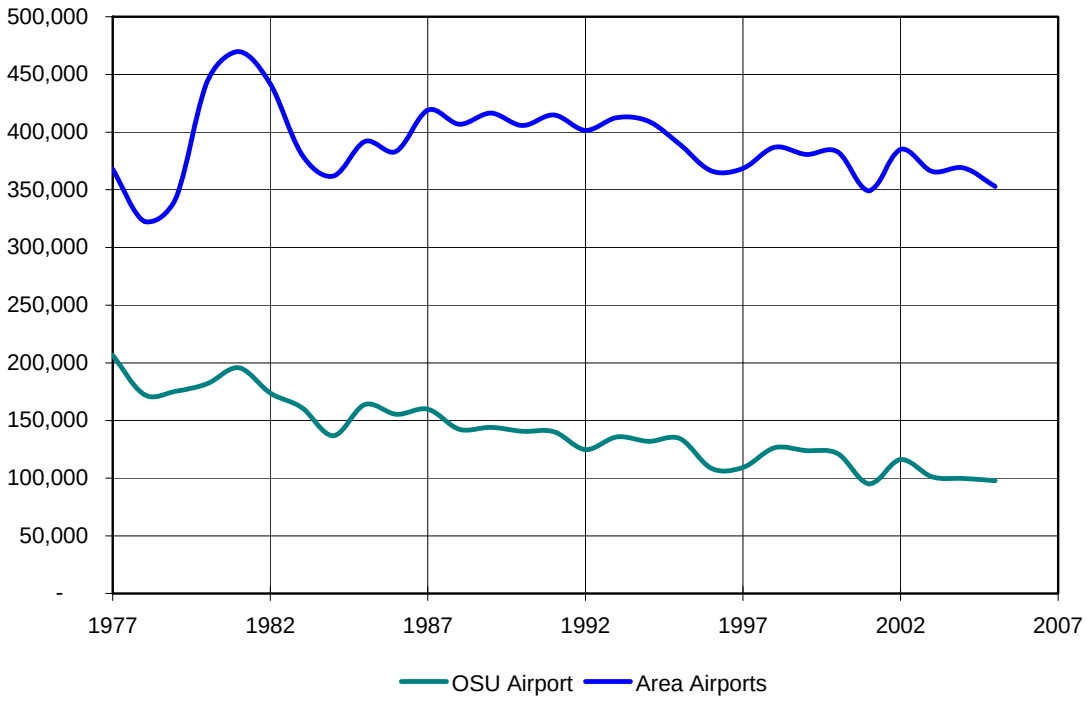
2.2.1 Factors Affecting Airport Demand

As noted in the previous section, there is strong existing demand for use of the facilities at the Airport. The Airport's waiting list (as of October 30, 2007) has 147 aircraft owners seeking hangar space. The waiting list has grown by 15 to 27 aircraft owners per year since 2001. Factors affecting airport demand include the effects of one-time events such as 9/11, general health of the economy and the travel industry, and emerging trends in aviation. Some of these factors do not have a quantifiable impact on aviation forecast methodologies. It is important, however, to understand and consider these factors and apply professional judgment and experience in determining which factors may influence the selection of a recommended forecast.

2.2.1.1 Local Demographic Factors

Consideration of a community's economic character is particularly important to the determination of business travel and general aviation activity. Prior to developing the aviation activity forecasts for the Airport, current and projected economic trends and population projections associated with the Airport's primary air service area were examined. **Figure 2-2** shows the Airport's primary service area, including the seven counties surrounding the Airport (Franklin, Delaware, Licking, Fairfield, Pickaway, Madison and Union). **Table 2-4** shows historical and projected population and employment information for the region surrounding the Airport, the State of Ohio, and the Nation.

TABLE 2-3
HISTORICAL OPERATIONS COMPARISON



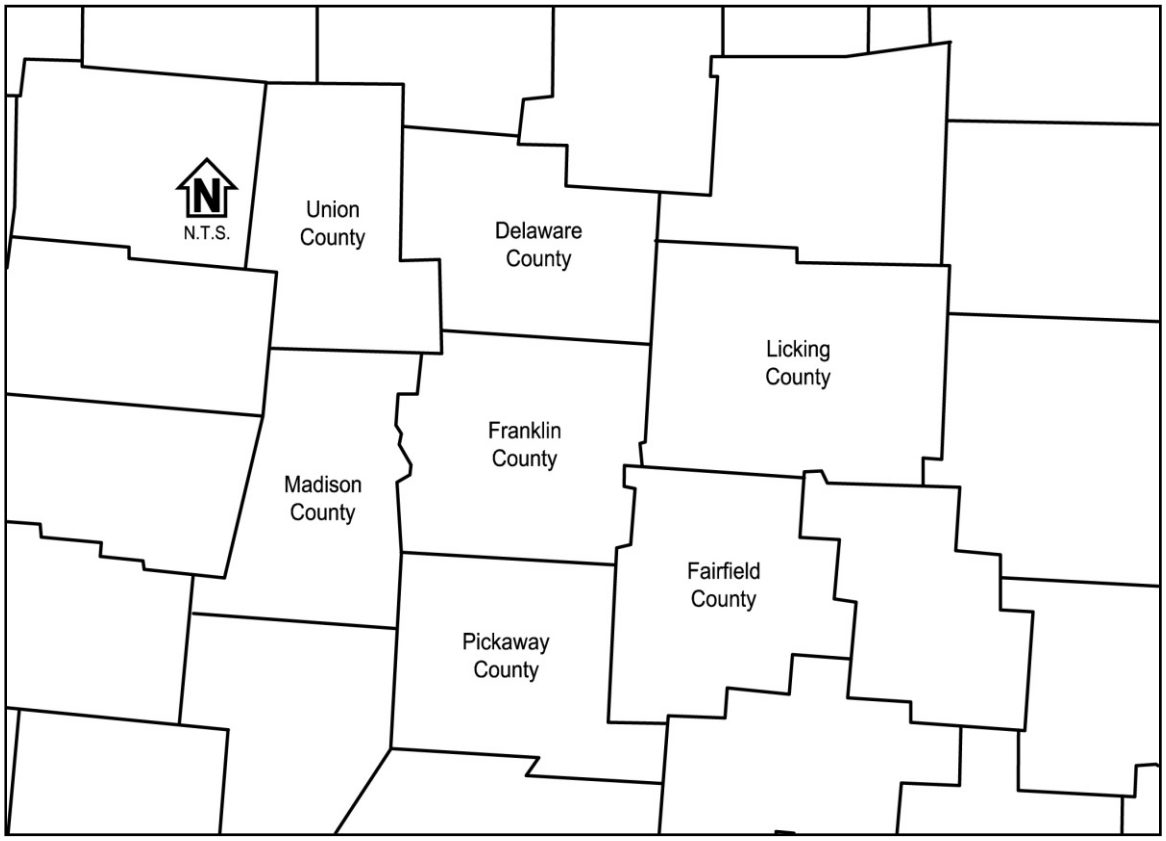
Year	OSU Airport	OSU and Area Airports	Percent OSU Airport
1977	206,586	367,886	56.2%
1982	173,851	441,723	39.4%
1987	159,910	419,086	38.2%
1992	124,823	401,556	31.1%
1996	108,504	366,399	29.6%
1997	109,295	368,507	29.7%
1998	126,391	386,984	32.7%
1999	123,928	380,726	32.6%
2000	121,406	382,983	31.7%
2001	95,093	349,157	27.2%
2002	116,255	385,051	30.2%
2003	101,269	365,919	27.7%
2004	99,809	369,005	27.0%
2005	97,831	352,864	27.7%

Sources: FAA TAF, Historical Records FY77 to FY05

Notes: Area Airports Total includes TAF records and forecasts for the following airports: Ohio State University, Union County, Delaware Municipal (Airport data began in TAF in FY1980), Newark-Heath (Airport data began in TAF in FY 2000), Fairfield County, Bolton Field, Pickaway County, and Madison County

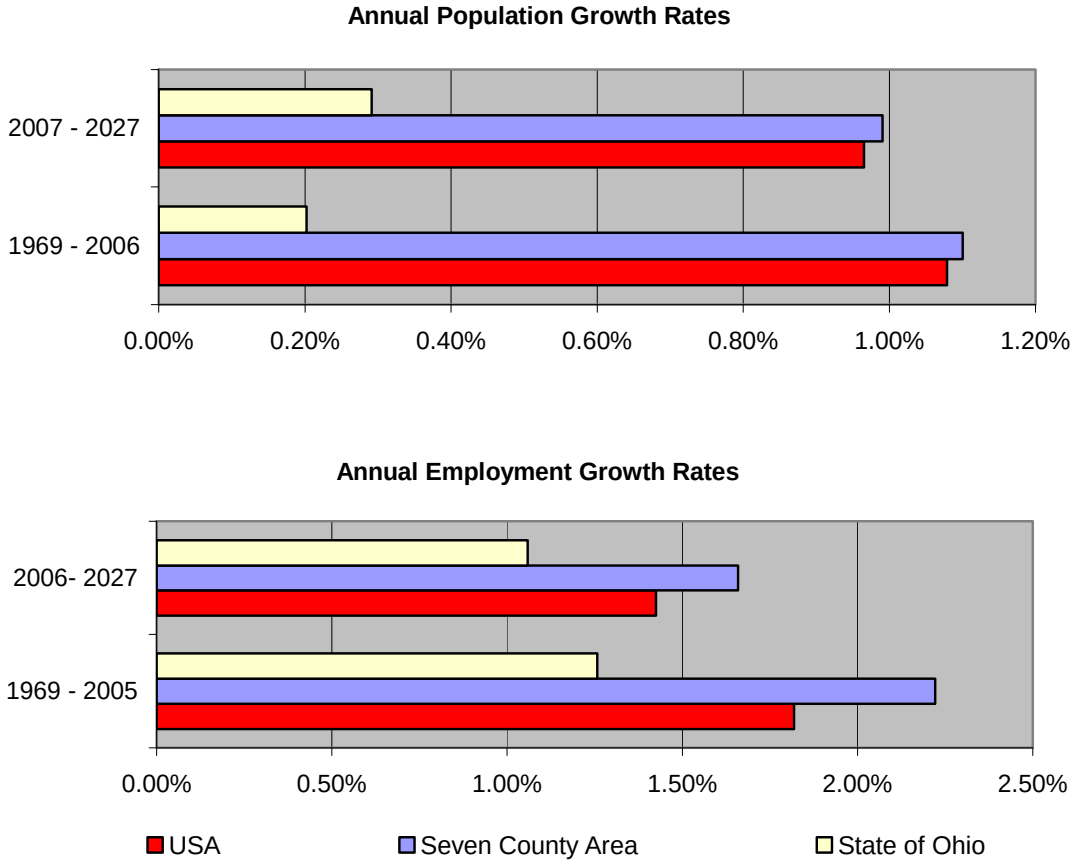
Operations Data limited through FY05 by availability of comparable data for all airports

FIGURE 2-2
AIRPORT PRIMARY SERVICE AREA



Source: RS&H

TABLE 2-4
HISTORICAL AND FORECAST DEMOGRAPHIC INFORMATION



Note: Population historical data is 1969-2006, Employment historical data is 1969-2005.
Source: Woods & Poole

General observations regarding the demographic information depicted in **Table 2-4** are as follows:

- The historical population and employment growth rates for the Columbus metropolitan region have been greater than those for the State and Nation.
- Projected population growth rates in the Columbus metropolitan region are greater than the rates projected for the State and Nation.
- Projected employment growth rates in the Columbus metropolitan region are greater than the rates projected for the State and Nation.

The local socioeconomic picture derived from examination of the historical trends and forecasts presented in **Table 2-4** presents positive outlooks for the Airport service area. Population and the economy will continue to grow at a moderate rate, supporting growth in activity at the Airport.

It is also important to note that the fastest growing areas in the region are northwest Franklin County, the location of the Airport, and parts of Union and Delaware Counties, both near the Airport. This growth supports projections for increased airport activities. **Figure 2-3** depicts the

business or residential locations of individuals which have aircraft based at the Airport or are on the waiting list for hangar space as of October 30, 2007.

2.2.1.2 Impact of September 11, 2001

The tragic events of September 11th had a profound impact on all airports, some more than others. At airports such as OSU, general aviation was initially affected by the complete nationwide stoppage of activity. Subsequently, access restrictions to specific airports limited activity, particularly in urban areas. Most access restrictions have since been lifted.

Security restrictions on commercial service have had a positive effect on general aviation activity, particularly on business travel. Heightened security has increased the total commercial passenger travel time making the use of general aviation, in many cases, more efficient and cost effective. The segments of general aviation that typically represent business aviation reflect this growing activity throughout the forecast period.

2.2.1.3 Economy

The health of the local and national economy has a direct correlation to activity at the Airport. A healthy economy supports and promotes activity by all user groups at the Airport. Accordingly, a correlation exists between general aviation activity and the strength or weakness of the economy. For example, a strong economy supports business which correlates to growth in corporate aviation activity. A strong economy also supports growth in the airline industry which correlates to increased demand for pilots and flight training activity.

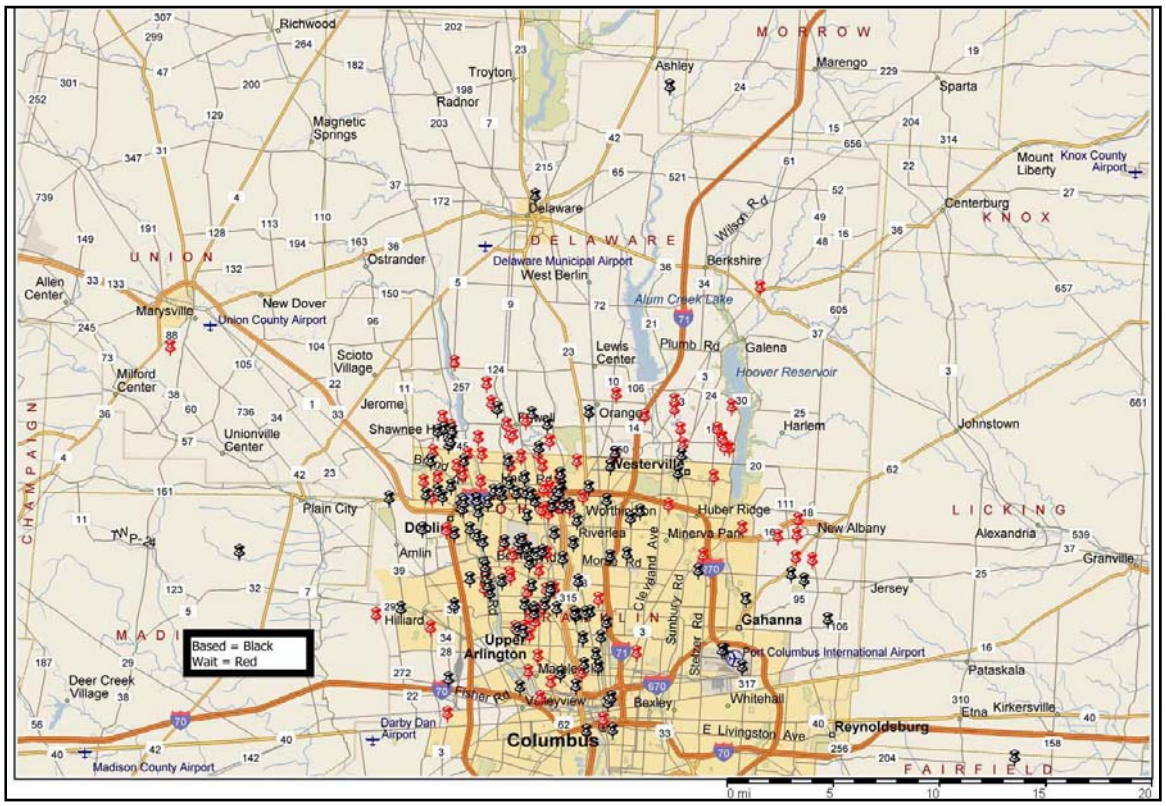
2.2.1.4 Weather

The weather can directly affect the activity at the Airport. Poor weather conditions generally reduce activity, and typically have a greater impact on the small, general aviation aircraft operator. For activity forecasting, the assumption is made that the weather conditions and impacts will remain essentially the same as those associated with historical activity which is used as the basis for the forecasting effort.

2.2.1.5 Airline Recovery

Since 9/11, many of the nation's airlines suffered great financial loss, went into bankruptcy, or ceased operations. The airline industry as a whole is currently in a recovery. The health of airlines has a direct impact on aircraft activity at the Airport. Airlines are an important segment of the industry that employs graduates of the University flight-training program. A healthy airline industry will support training activity at the Airport. However, the typically cyclical nature of airline financial health and employment is currently having a negative impact on activity at the Airport. There is a great demand for airline pilots resulting in a decreased supply of flight instructors. As a result, the University has had to turn away prospective students until the demand for flight instructors can be met.

FIGURE 2-3
BASED AIRCRAFT OWNERS AND HANGAR WAITING LIST LOCATION MAP



Source: Ohio State University Airport (as of October 30, 2007)

The availability of commercial airline service and the cost of the service have a direct correlation to general aviation activity, particularly business aviation. The number of cities served from Columbus via commercial carriers, the frequency of service, and cost of the service will directly affect the use of business aircraft. Non-commercial corporate aviation has the advantages of efficiency and access to remote service areas. These qualities ensure that business aircraft activity will remain a robust sector at the Airport.

2.2.1.6 Very Light Jets

In 2006 the first models of a new class of business jet aircraft, collectively called Very Light Jets (VLJ), entered the active fleet. These jets have speed, range, and operating altitude comparable to typical corporate jets, but at acquisition and operating costs similar to propeller aircraft. These aircraft are anticipated to be used in the conventional business transport role. These aircraft will also be used for a growing air taxi market, providing on-demand point-to-point transport.

FAA national forecasts indicate that as many as 7,500 of these aircraft will be delivered through 2025. However, their introduction will be gradual, and these aircraft are similar to existing types and do not require changes to existing regulatory policies or Airport operating procedures.

VLJs will likely operate at the Airport. These aircraft, which do not require any additional facilities than what exist already at the Airport, are significantly quieter than other jet and some propeller aircraft.

2.2.1.7 Fuel Cost

Aviation fuel costs have escalated to record levels with no indications of significant reductions. The increase in cost has a direct correlation with a stagnation or decline in the small aircraft segment of general aviation activity. This is reflected in FAA forecasts with little growth in this small aircraft segment of general aviation activity over the next twenty years. Corporate business aviation has less sensitivity to the fuel costs and the corporate business segment of general aviation will continue to grow.

2.2.1.8 Sport Aircraft

In recent years, the FAA created a new class of aircraft, Sport Aircraft, and a related level of pilot certification. This new class includes light, small general aviation aircraft, and has made flying and aircraft accessible to more of the public. Sport aircraft are less sophisticated and require a skill level that is appropriate for limited operations in controlled airspace. Therefore, this forecast assumes that the Sport Aircraft segment of aviation will only operate at the smaller non-towered airports that have less high performance aircraft activity.

2.2.2 Factors Affecting Airport Capacity

The 1990 Master Plan and the draft 2004 Master Plan includes the development of new airport facilities to meet projected future activity. This proposed development includes new hangars and a runway extension. **Figure 2-4** depicts the areas of potential hangar development and the proposed runway extension.

This forecast of aviation activity includes these specific facility improvements as they have a direct impact on the activity forecast. In addition, the complete analysis of future noise impacts requires inclusion of planned Airport development.

2.2.1.9 Hangar Development

In order to accommodate the October 30, 2007 waiting list for 147 additional based aircraft, the Airport has a phased hangar development plan. Initially, hangar space for up to 50 aircraft would be available in 2012. Additional hangar space for another 80 aircraft is assumed on the north side of the Airport as needed throughout the remainder of the forecast period.

2.2.1.10 North Runway Improvement

The draft 2004 Master Plan identified a need to provide a 6,000-foot long runway at the Airport to more safely and adequately serve aircraft types already using the Airport. The draft 2004 Master Plan identified several alternatives and recommended the preferred alternative of extending the North Runway, (Runway 9L-27R), from 2,993 feet to 6,000 feet. The extension would be completed with a 1,807-foot extension to the west end of the North Runway, and a 1,200-foot extension to the east end of the North Runway. This forecast addresses the proposed runway development in two ways.

FIGURE 2-4
FUTURE AIRPORT DEVELOPMENT

First, this section reviews the existing aircraft fleet mix and aircraft activity to verify the need for the runway extension. Second, this forecast assesses the affect of the longer runway on future airport activity.

In order to verify the need for the extension of the North Runway, data regarding specific aircraft types using the Airport was collected. This information was obtained from Flight Aware, a public commercial company providing flight tracking and activity statistics. The information provided by Flight Aware includes data on aircraft operating at the Airport on an instrument flight plan. For this analysis, it is assumed that the runway length requirement will be based on the activity of jet aircraft using the Airport. It is also assumed for this analysis that all jet aircraft operate on instrument flight plans. This is important in that Flight Aware tracks aircraft operating on instrument flight plans and provides a representative data source of the jet types and number of operations.

Table 2-5 presents a summary of corporate jets operating at the Airport in 2006 on an instrument flight plan. The table also presents the landing and takeoff runway length requirements for each aircraft type at design maximum payload and full fuel, and further divides these requirements under both dry runway and contaminated runway conditions (i.e., heavy standing water, snow, ice). A contaminated runway typically increases the runway length requirement. The table also presents the number of annual aircraft operations by each type at the Airport.

TABLE 2-5
CORPORATE JET RUNWAY LENGTH REQUIREMENTS

	Dry Runway				Contaminated Runway				
Aircraft Type	Take Off Dist. (Ft.)	Landing Dist. (Ft.)	Operations Requiring >5,000 Ft.	Operations Requiring >6,000 Ft.	Take Off Dist. (Ft.)	Landing Dist. (Ft.)	Operations Requiring >5,000 Ft.	Operations Requiring >6,000 Ft.	Total Annual Operations
Dassault Falcon 900	5,844	7,307	33	17	7,597	8,403	33	33	33
Embraer EMB 145	8,367	5,777	18	9	10,877	6,644	18	18	18
Gulfstream II	6,539	3,516	16	16	8,501	4,043	16	16	32
Gulfstream IV	6,783	4,028	25	25	8,818	4,632	25	25	50
Gulfstream V	7,331	3,736	7	7	9,530	4,296	7	7	14
Bombardier CL-600 Challenger	7,087	3,522	80	80	9,213	4,050	80	80	160
Cessna 750 Citation X	6,405	4,296	58	58	8,327	4,940	58	58	116
Astra 1125	6,600	4,406	26	26	8,580	5,067	51	26	51
Cessna 500 Citation	3,711	2,709	0	0	4,824	3,115	0	0	687
Cessna 560 Citation Encore	4,479	3,632	0	0	5,823	4,177	61	0	122
Cessna 560 Citation V Ultra	4,016	2,987	0	0	5,221	3,435	166	0	332
Cessna 650 Citation III/VI	6,417	3,675	25	25	8,342	4,226	25	0	50
Dassault Falcon 20	6,600	4,047	28	28	8,580	4,654	28	0	55
Galaxy 1126	6,844	4,406	16	16	8,897	5,067	31	16	31
Learjet 25	4,159	NA	0	0	5,407	NA	53	0	105
Learjet 35/36	6,234	3,675	417	417	8,104	4,226	417	417	834
Mitsubishi MU-300 Diamond	5,381	4,040	1,286	0	6,995	4,646	1,286	1,286	2,572
Raytheon 390 Premier	4,762	4,162	0	0	6,191	4,786	7	7	13
Raytheon/Hawker 125-1000 Horizoı	6,539	2,992	8	8	8,501	3,441	8	8	16
Sabreliner 65	6,783	4,217	1	1	8,818	4,850	1	1	1
		Total:	2,042	731		**Total:**	2,369	1,996	5,292

Sources: FAA *Design Standards for Business Jet Aircraft*; Aircraft Manufacturer Specifications; The Ohio State University Airport 2006 Flight Aware data

The aircraft in **Table 2-5** represent only a portion of the total annual operations at the Airport. Nonetheless, this table shows an aggregate of 731 annual operations, by aircraft needing at least 6,000 feet of runway to operate at design capacity and range. Runway length requirements are based on the individual aircraft performance specifications and the Airport specific operating characteristics such as elevation and average temperature. This total exceeds the 500 annual operations by the design aircraft needed to satisfy FAA improvement justification requirements. The table also shows 1,311 operations by aircraft needing runway length between 5,000 feet and 6,000 feet. These quantities represent dry runway conditions. Under wet or contaminated conditions, the runway length requirement increases and number of justifying operations of aircraft needing at least 6,000 feet in length increases to 1,996 operations.

It should also be noted that the aircraft in this analysis are currently operating at the Airport with the existing available runway length. The analysis indicates these aircraft are periodically taking an operational penalty in payload or flight range (through reduced fuel) due to the runway length limitations.

2.3 FORECAST SOURCES

Numerous data sources are used in the development of this aviation activity forecast. This section presents these sources.

2.3.1 Terminal Area Forecast

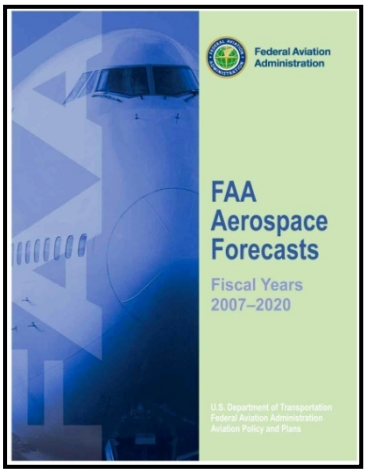
The FAA's TAF is the official forecast of aviation activity at FAA facilities. These forecasts are prepared to meet the budget and planning needs of the FAA and provide information for use by state and local authorities, the aviation industry, and the public. The TAF includes forecasts for:

- FAA towered airports
- Federally contracted towered airports
- Nonfederal towered airports

- Non-towered airports

Detailed forecasts are prepared for major users of the National Aviation System (NAS) including air carrier, air taxi and commuter, general aviation, and military. The TAF includes forecasts for active airports in the National Plan of Integrated Airport System (NPIAS).

2.3.2 FAA Aerospace Forecast



The FAA Aerospace Forecast is the fiscal year forecast of aviation activity at FAA facilities. This is a companion document to the TAF. This aerospace forecast includes airports with FAA and contract traffic control towers, air route traffic control centers, and flight service stations. Detailed forecasts are developed for the major users of the NAS:

- Air carriers
- Air taxi/commuters
- General aviation (GA)
- Military

These forecasts are prepared to meet the budget and planning needs of the constituent units of the FAA and to provide information that can be used by State and local authorities, the aviation industry, and the general public.

2.3.3 Airport Master Plan

The most recent update to the Airport Master Plan was prepared in 2002, and a revised draft was proposed in 2004. The draft 2004 Master Plan, its forecast of aviation activity, and the resulting development plan serve as data sources for this forecast. One purpose for this forecast is to validate the draft 2004 Master Plan forecasts and verify specific elements of the development plan.

2.3.4 Interviews

As needed, interviews were conducted to obtain supplemental information needed for the forecast. Interviews were conducted with representatives of the ATCTs from the Airport and Port Columbus International Airport, and with Airport users.

2.4 BASED AIRCRAFT FORECAST

Based aircraft at an airport represent the total number of active aircraft permanently located or projected to be located at an airport during a specific period. Based aircraft categories include single-engine, multi-engine, jet, and helicopter.

Table 2-6 presents the based aircraft forecast for the Airport. The table identifies three forecast scenarios. The first scenario is the forecast presented by the FAA TAF. This forecast shows a growth throughout the forecast period, increasing by 77 based aircraft for a total of 307 by 2027. The TAF does not reflect the effects of the current constraint on hangar development, which limits growth in the number of based aircraft at the Airport.

The second scenario incorporates the recommended Airport development plan for new hangars as defined in the draft 2004 Master Plan. As of October 30, 2007, the Airport has a waiting list for

hangars for 147 aircraft. Since 2001 the number of aircraft on the list has had annual increases ranging from 15 to 27 aircraft. The hangar development plan includes availability of 50 hangars on the south side of the Airport in 2012, and the forecast assumes 100 percent occupancy of these hangars. The balance of the waiting list is nearly 100 aircraft. These hangars would be occupied during the remainder of the forecast period. While the balance of the waiting list is nearly 100 aircraft, experience suggests not all of the individuals and aircraft remaining on the waiting list would actually base an aircraft at the Airport. The forecast assumes that of the remaining wait list, 80 percent, or approximately 80 aircraft, will base at the Airport. With this scenario, there would be 360 based aircraft at the end of the forecast period.

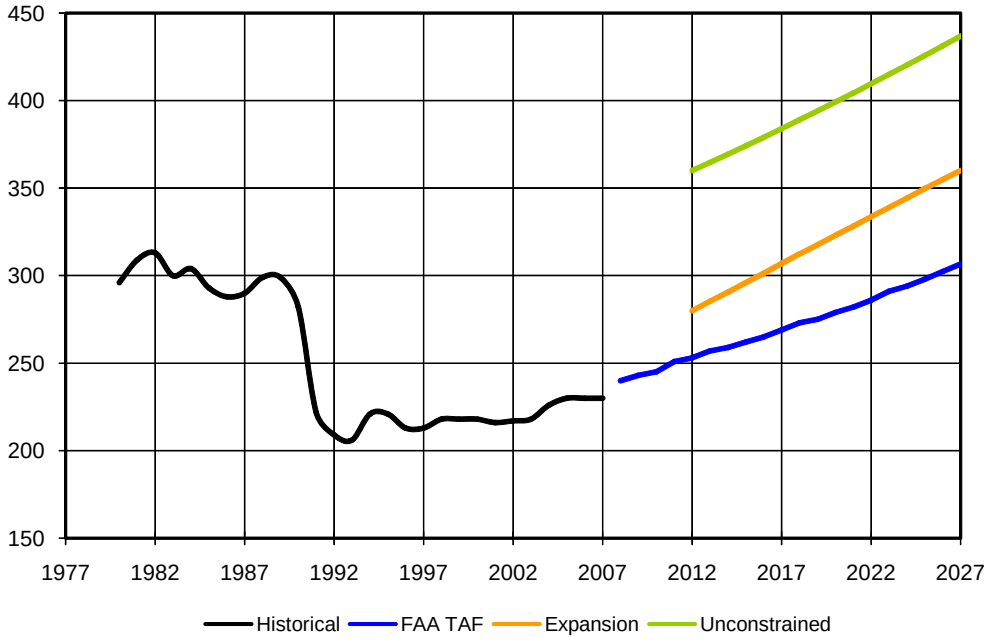
The third scenario is an unconstrained forecast based on the immediate removal of the hangar development constraint, resulting in full occupancy of 50 new hangar spaces, plus development for an assumed 80 percent of the balance of the waiting list, or approximately 80 aircraft. In all 130 additional aircraft would be based at the Airport in 2012. The quantity of based aircraft would then grow at the 1.3% average annual growth rate of the FAA TAF. Under this scenario, at the end of the forecast period there would be 437 based aircraft.

The second "hangar expansion" scenario is recommended for planning and Part 150 Study purposes. This scenario is the most likely growth scenario best illustrates potential increases in based aircraft which should be accounted for in the Study. The analysis is based on the phased hangar expansion that provides facilities for the hangar waiting list. With this forecast, the number of based aircraft would grow to 360 at the end of the forecast period. This forecast best reflects the result of removal of the current development constraints at the Airport, supported by the existing waiting list for additional based aircraft.

Table 2-7 shows the recommended forecast of based aircraft at the Airport. This table also shows the combined FAA TAF-based forecasts for based aircraft at the eight Columbus area airports first discussed in **Section 2.1**, and shows the Airport's share of the total. This graphic demonstrates that with removal of the hangar development constraints and the associated addition of based aircraft, the Airport's share of total based aircraft in the region would increase. However, the forecast share would remain within the historical range of share demonstrating a reasonableness of the recommended forecast.

Table 2-8 compares the recommended forecast of based aircraft with those from the TAF and the draft 2004 Master Plan. The recommended forecast, as anticipated, is greater than the TAF. This is due to the inclusion of the additional based aircraft associated with the future hangar development. The recommended forecast closely tracks the draft 2004 Master Plan forecast.

TABLE 2-6
BASED AIRCRAFT FORECAST

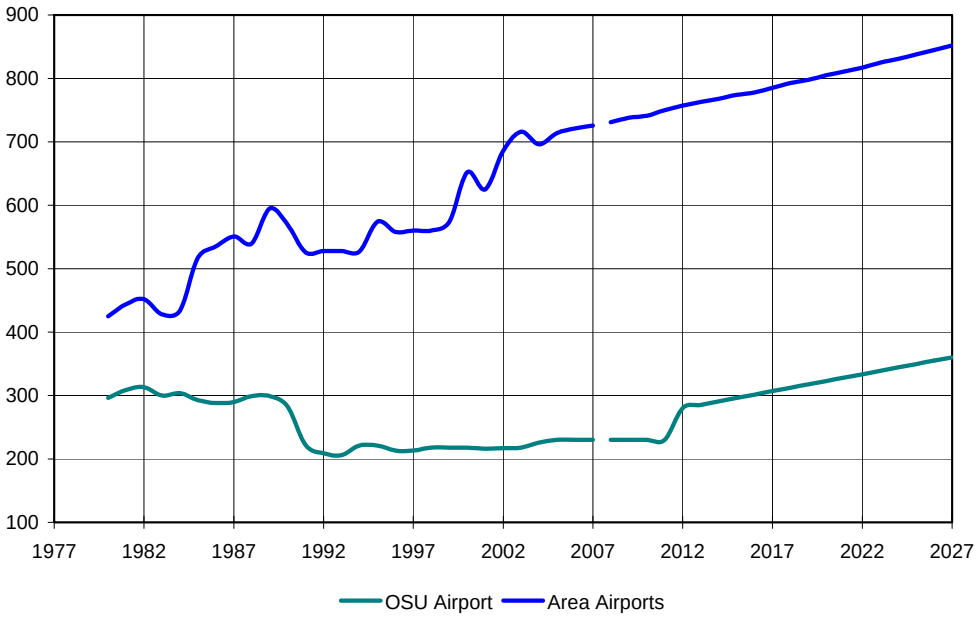


Year		Historical	FAA TAF	Hangar Expansion	Unconstrained
1982		313			
1987		290			
1992		209			
1996		213			
1997		213			
1998		218			
1999		218			
2000		218			
2001		216			
2002		217			
2003		218			
2004		226			
2005		230			
2006	(est)	230			
2007	(est)	230			
2012			253	280	360
2017			269	307	384
2027			307	360	437

Sources: FAA TAF; OSU Airport Hangar Waiting Lists (October 30, 2007); Airport 5010 Master record; RSH

Notes: FY 2006 is estimate (est) from TAF; FY 2007 is forecast estimate based on hangar development constraint.

TABLE 2-7
BASED AIRCRAFT SHARE COMPARISON

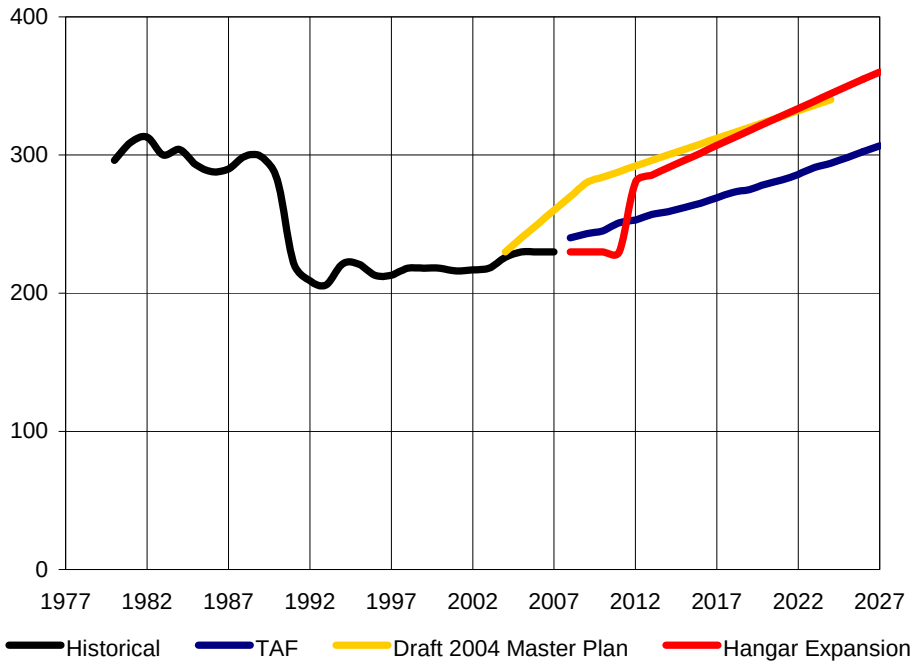


Year		OSU Airport	OSU and Area Airports	Percent OSU Airport
1982		313	452	69.2%
1987		290	551	52.6%
1992		209	528	39.6%
1996		213	558	38.2%
1997		213	560	38.0%
1998		218	560	38.9%
1999		218	574	38.0%
2000		218	652	33.4%
2001		216	625	34.6%
2002		217	686	31.6%
2003		218	716	30.4%
2004		226	696	32.5%
2005		230	714	32.2%
2006	(est)	230	721	31.9%
2007	(est)	230	726	31.7%
2012		280	757	37.0%
2017		307	785	39.1%
2027		360	852	42.3%

Sources: OSU Airport Master Record, 1980-1989. FAA TAF historical data available to FY 2005; data limited by availability of comparable data for all airports. OSU Airport FY 2006 and 2007 is forecast estimate based on hangar development constraint. For Area Airports, FAA TAF Forecast data used for FY 2006 through 2027

Note: Area Airports Total includes TAF records and forecasts for the following airports: Ohio State University Airport, Union County, Delaware Municipal (airport data began in TAF in FY 1980), Newark-Heath (airport data began in TAF in FY 2000), Fairfield County, Bolton Field,Pickaway County, and Madison County

TABLE 2-8
BASED AIRCRAFT FORECAST COMPARISON



Year	Historical	TAF	Draft 2004 Master Plan	Hangar Expansion
1982	313			
1987	290			
1992	209			
1996	213			
1997	213			
1998	218			
1999	218			
2000	218			
2001	216			
2002	217			
2003	218			
2004	226			
2005	230			
2006 (est)	230			
2007 (est)	230			
2012		253	296	280
2017		269	316	307
2027		307		360

Sources: FAA TAF (2027 is extrapolated from TAF forecast), draft 2004 Airport Master Plan; Airport Master Record 1980-1989, RS&H

Continued constraints on hangar development are reflected in the recent years and near-term future. However, the planned hangar development program brings the recommended forecast in line with the draft 2004 master plan in the latter years of the forecast period.

2.5 ANNUAL AIRCRAFT OPERATIONS FORECAST

The forecast of aircraft operations is presented in this section. By definition, an operation is either one landing or one take off. For this effort the operations forecasts are prepared separately for each ATCT category. Preparing individual forecasts for each ATCT category allows application of the method that best represents each category.

The following sections describe each ATCT category. The sections also present the forecast methodology used for each ATCT category. In general, an operations-per-based aircraft ratio is the predominant technique employed in the preparation of these forecasts. Historical local trends in the ratios were examined and future ratios were selected based on those trends in combination with the application of experience and professional judgment.

- Air Carrier - The air carrier category includes commercial aircraft with seating capacity of more than 60 seats. While the Airport has had air carrier operations in the past, all scheduled air carrier service for the region is currently provided at Port Columbus International Airport. There are no air carrier operations at the Airport. Consequently, there are no forecast operations in this category.

- Air Taxi and Commuter - Operations in this category represent scheduled commuter flights or nonscheduled for-hire flights, such as charter, for aircraft with 60 or fewer seats. These operations are primarily for-hire, nonscheduled air taxi activity. There is no scheduled commuter activity at the Airport. The forecast for this category of aircraft uses a ratio of operations per based aircraft, and assumes growth in the for-hire market segment, projecting a trend of continued growth but at a slowing rate. The ratio grows from 14.8 in 2007 to 29.8 in 2017, and then remains constant beyond 2017.

  The air taxi category also includes growth associated with the extension of the North Runway. An extensive analysis was conducted to determine if the extension would generate additional activity at the Airport. For this analysis, interviews were conducted with NetJets, a frequent user of the airport. Based on NetJets' review of activity at the Airport over the previous seven years through October 2007, 20% of their aircraft operating at the Airport would have benefited from the extension of the North Runway. Example benefits include avoiding reduced payload or aircraft range limitations necessitated by the existing runway length. NetJets also indicated that the number of operations by the specific aircraft that would benefit from an extension would increase by approximately 15% with the extension of the North Runway. The NetJets fleet mix includes virtually all sizes of corporate jets. This forecast assumes the methodology based on NetJets requirements and increase in operations associated with an extended runway is applicable to determine total growth at the Airport associated with the extension to the North Runway. Applying these percentages to the ATCT estimates of existing jet operations at the Airport yields approximately 1,480 existing jet operations that would benefit from the extension of the North Runway, and the Airport would experience approximately 220 additional annual jet operations. These totals are used to establish an operations-per-based aircraft ratio for forecasting. The 220 additional operations and the current 230 based aircraft results in an operations-per-based-aircraft ratio of approximately 1.0. This ratio is assumed constant for this group of aircraft through the remainder of the forecast period.

- General Aviation – The forecast of general aviation activity uses the operations per based aircraft method. Over the past 25 years, itinerant general aviation operations at the Airport have ranged in operations per based aircraft ratios from a low of 205 in 1984 to a high of 322 in 1998. In 2006 the ratio was 232.3 operations per based aircraft. This forecast assumes a constant ratio of 232.3 throughout the forecast period.

  For local operations over the past 25 years, the ratio of operations per based aircraft has ranged from a low of 114 in 2007 to a high of 332 in 1991. The current low is indicative of the trend in decreasing general aviation local operations despite the number of based aircraft remaining nearly constant. However, the 114 ratio is well outside of the historical range of ratios and is not considered representative of the likely future condition. The recommended forecast is based on the average of the ratios for the 2003 through 2007 period (153.9). This is the assumed ratio throughout the forecast period.

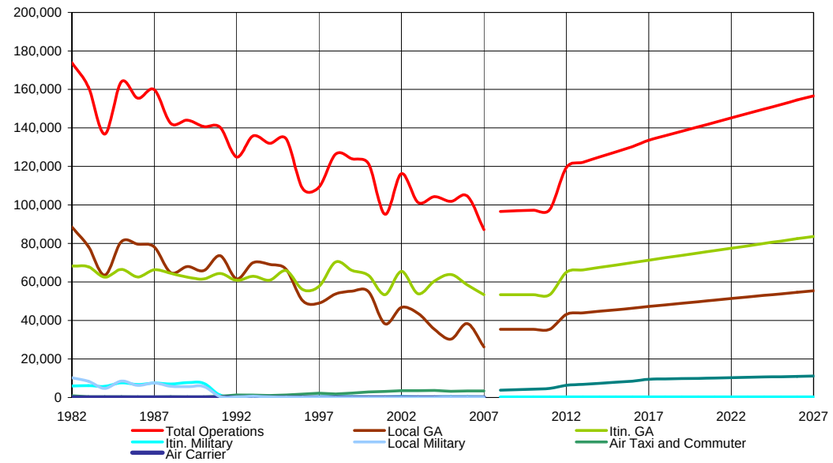
  It should be noted the existing hangar waiting list includes operators of corporate jets. Currently these users base their aircraft at other airports. When operating, they fly into the Airport, pick-up their passengers, and leave for their destination airport. On the return trip they land at the Airport, disembark passengers, and then depart for the airport at which the aircraft is based. Under this scenario, one trip results in four operations at the Airport. The construction of new hangars and the opportunity to base these aircraft at the Airport leads to a reduction in the number of operations for this sample trip to two. This forecast does not quantify this scenario but considers it in the assessment of the benefits of hangar development.

- Military aircraft – Military operations are forecast to remain at current levels throughout the forecast period. Following the relocation of the Army Guard base from the Airport in 1990, the annual quantity of military operations declined quickly to current levels that have remained fairly constant. Accordingly, no ratio is assumed for military operations. Instead, the current number of operations is held constant.

- STARS - The STARS data is used to account for activity when the ATCT is closed, 11:00 p.m. to 7 a.m. local time. STARS has been operational for nearly four years and during that time the activity recorded by STARS represented between 6.4 and 7.1 percent of total civil itinerant operations at the Airport. The selected forecast uses the aggregate activity reported by STARS for the four-year period as a percent of the total operations over the four-year period, which is 6.5 percent. This percent is assumed constant throughout the forecast period.

Table 2-9 presents the resultant forecast of aviation activity. Total annual operations are forecast to grow from 87,185 in 2007 to 156,630 in 2027.

TABLE 2-9
AIRCRAFT OPERATIONS FORECASTS



			Air Traffic Control Tower Operations																	
			Itinerant Operations									Local Operations								
			Air Taxi / Commuter						General Aviation				General Aviation					STARS		
				Base Growth		Runway Growth													% of Civil Itin. Ops		
Year	Based Aircraft	Air Carrier	Historical Ops.	Ops/Based Aircraft Ratio	Ops.	Ops/Based Aircraft Ratio	Ops.	Total	Historical Ops.	Ops/Based Aircraft Ratio	Ops.	Military	Historical Ops.	Ops/Based Aircraft Ratio	Ops.	Military	Total	Ops.	Percent	Ops.	Grand Total
1982	313	0	962	3.1					68,258	218.1		5,948	88,518	282.8		10,165	173,851	-			173,851
1987	290	0	309	1.1					66,294	228.6		7,568	78,210	269.7		7,529	159,910	-			159,910
1992	209	0	1,283	6.1					60,859	291.2		851	61,529	294.4		301	124,823	-			124,823
1997	213	0	2,159	10.1					57,664	270.7		372	49,002	230.1		88	109,285	-			109,285
1998	218	0	1,872	8.6					70,322	322.6		423	53,752	246.6		22	126,391	-			126,391
1999	218	0	2,317	10.6					65,992	302.7		354	55,251	253.4		14	123,928	-			123,928
2000	218	0	2,816	12.9					63,393	290.8		268	54,929	252.0		0	121,406	-			121,406
2001	216	0	3,116	14.4					53,390	247.2		297	38,268	177.2		22	95,093	-			95,093
2002	217	0	3,518	16.2					65,477	301.7		428	46,822	215.8		10	116,255	-			116,255
2003	218	0	3,500	16.1					53,842	247.0		292	43,635	200.2		0	101,269	-	0.0%		101,269
2004	226	0	3,647	16.1					60,446	267.5		301	35,411	156.7		4	99,809	4,545	7.1%		104,354
2005	230	0	3,229	14.0					63,821	277.5		360	30,315	131.8		106	97,831	4,009	6.0%		101,840
2006	230	0	3,416	14.9					58,456	254.2		363	38,306	166.5		67	100,608	3,960	6.4%		104,568
2007	230	0	3,404	14.8					53,426	232.3		294	26,268	114.2		64	83,456	3,729	6.6%		87,185
2012	280	0		21.6	6,050	1.0	280	6,330		232.3	65,040	290		153.9	43,090	60	114,810		6.5%	4,640	119,450
2017	307	0		29.8	9,150	1.0	307	9,460		232.3	71,320	290		153.9	47,250	60	128,380		6.5%	5,250	133,630
2027	360	0		29.8	10,730	1.0	360	11,090		232.3	83,630	290		153.9	55,400	60	150,470		6.5%	6,160	156,630

Sources: FAA TAF, Flight Aware, OSU Airport ATCT, Standard Terminal Automated Replacement System (STARS), Port Columbus Intl Airport ATCT, Airport User Interviews, RS&H

Table 2-10 compares the recommended forecast of aviation activity, with those from the TAF and the draft 2004 Master Plan. It should be noted that the draft 2004 Master Plan describes a maximum 162,997 annual operations that is associated with a "full build" scenario for proposed Airport facilities. The draft 2004 Master Plan does not specifically identify a year associated with its "full-build" scenario. This forecast assumes 2023 as the year representing "full-build" in the draft 2004 Master Plan.

The recommended forecast, as anticipated, is greater than the TAF. When compared to the draft 2004 Master Plan forecast, the recommended forecast is more conservative. Much of the future activity growth in the recommended forecast is tied to hangar development and associated based aircraft. Continued constraints on hangar development are reflected in the recent years and near-term future. Consequently, growth would be correlated in large part to constraint removal in the last year of the five-year Part 150 forecast period.

2.6 OPERATIONS BY AIRCRAFT TYPE

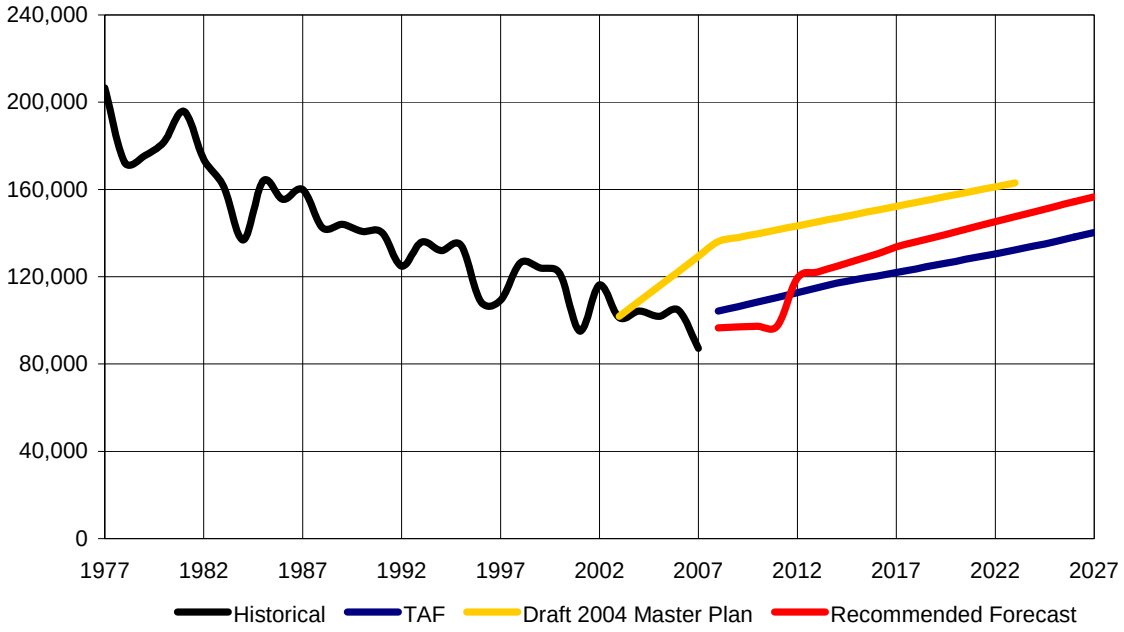
Annual aircraft operations forecasts developed in the previous sections were further refined into estimates of operations by aircraft type (fleet mix) and by period of INM-day or INM-night. This information forms a basic input to the noise modeling effort and is presented on **Table 2-11.** The five summary aircraft sub-categories presented on this table are made up of aircraft that actually operate at the Airport, and are summarized for report purposes only. The detailed analysis underlying the summary table and the subsequent noise modeling considers the actual aircraft operating at the Airport. Aircraft in each of the sub-categories are presented in **Table 2-12.**

While the number of annual operations by general user group at the Airport is well established, the types of aircraft performing the operations, or fleet mix, must be estimated using several techniques because there is no single source of information that precisely identifies the type of aircraft associated with every annual operation in a given year at the Airport. This is true with all airports in the United States with general aviation activity. There are, however, multiple sources of partial information that can be used to develop an estimate of the distribution of total operations across the fleet of aircraft known to use the airport (the "fleet mix"). The sources used for this process include: records of actual operations; lists of based aircraft; and interviews with aircraft operators, tenants and air traffic control tower personnel. These are well-established standard industry data sources.

Flight Aware is a well-established industry source for operations data for Part 150 Studies and other purposes, and is commonly used for studies at airports like OSU. The Flight Aware data is comprised of aircraft that have filed Instrument Flight Rules (IFR) flight plans, which are only a portion of the overall operations at the Airport. Visual Flight Rule (VFR) operations comprise the majority of the aircraft operations at the Airport. The Flight Aware database for the annual period of July 24, 2006 through July 23, 2007 used to develop the initial aircraft fleet mix INM input contained 14,977 records; each record is one aircraft operation. The total number of actual operations (both IFR and VFR) at the Airport for FY2007 was over 87,000. The ratio of Flight Aware records to actual operations is considered typical for a general aviation airport, and standard methodologies were initially used to formulate the aircraft fleet mix from the Flight Aware data and other supplemental sources.

As a result of questions and comments raised at the January 17, 2008 Technical Subcommittee meeting, additional sources of information for use in establishing the FY2007 operational fleet mix

TABLE 2-10
OPERATIONS FORECASTS COMPARISON



	Historical			Forecast		
Year	TAF	STARS	TOTAL	TAF	Draft 2004 Master Plan	Recommended Forecast
1982	173,851	-	173,851			
1987	159,910	-	159,910			
1992	124,823	-	124,823			
1997	109,295	-	109,295			
1998	126,391	-	126,391			
1999	123,928	-	123,928			
2000	121,406	-	121,406			
2001	95,093	-	95,093			
2002	116,255	-	116,255			
2003	101,269	-	101,269			
2004	99,809	4,545	104,354			
2005	97,831	4,009	101,840			
2006	100,608	3,960	104,568			
2007	83,456	3,729	87,185			
2012				112,639	143,322	119,450
2017				121,959	152,265	133,630
2027				140,308		156,630

Sources: FAA TAF, 2004 Master Plan, Port Columbus Standard Terminal Automated Replacement System (STARS), RS&H

Note: TAF 2007 is based on ATADS reported data.

TABLE 2-11
TOTAL DAY/NIGHT OPERATIONS BY AIRCRAFT FLEET MIX CATEGORY

2007

	Itinerant		Local		Total	
Aircraft Sub-Category	**Day**	**Night**	**Day**	**Night**	**Operations**	**Percent**
Jet	7,209	479	-	-	7,688	8.8%
Multi-engine/Turboprop	15,419	2,722	430	7	18,578	21.3%
Single Engine	25,083	2,741	24,584	372	52,780	60.5%
Helicopter	6,107	1,675	-	-	7,782	8.9%
Military Aircraft	226	68	64	-	358	0.4%
TOTAL	54,044	7,685	25,078	379	87,186	100.0%
INM-Day					79,122	90.8%
INM-Night					8,064	9.2%
TOTAL					87,186	100.0%

2012

	Itinerant		Local		Total	
Aircraft Sub-Category	**Day**	**Night**	**Day**	**Night**	**Operations**	**Percent**
Jet	9,303	617	-	-	9,920	8.3%
Multi-engine/Turboprop	20,047	3,518	709	10	24,284	20.3%
Single Engine	30,235	3,809	40,320	612	74,976	62.8%
Helicopter	7,785	2,135	-	-	9,920	8.3%
Military Aircraft	222	68	60	-	350	0.3%
TOTAL	67,592	10,147	41,089	622	119,450	100.0%
INM-Day					108,681	91.0%
INM-Night					10,769	9.0%
TOTAL					119,450	100.0%

2027

	Itinerant		Local		Total	
Aircraft Sub-Category	**Day**	**Night**	**Day**	**Night**	**Operations**	**Percent**
Jet	14,219	957	-	-	15,176	9.7%
Multi-engine/Turboprop	26,525	4,664	909	14	32,112	20.5%
Single Engine	36,580	4,608	51,844	784	93,816	59.9%
Helicopter	11,909	3,267	-	-	15,176	9.7%
Military Aircraft	222	68	60	-	350	0.2%
TOTAL	89,455	13,564	52,813	798	156,630	100.0%
INM-Day					142,268	90.8%
INM-Night					14,362	9.2%
TOTAL					156,630	100.0%

Sources: Columbus Regional Airport Authority Noise Office Data for July 2006 to July 2007, OSU ATCT, Port Columbus Standard Terminal Automated Replacement System (STARS), RS&H

TABLE 2-12
AIRCRAFT FLEET MIX CATEGORIES

Fleet Mix Sub-Category	Model Combinations	INM Aircraft
Jet	Astra 1125	IA1125
	Bae-125 (1000 Series)	LEAR35
	BAe-125 (400 Series)	LEAR35
	BAe-125 (800 Series)	LEAR35
	Beechjet 400	MU3001
	Canadair BD-100	CNA750
	Cessna 750	CNA750
	Challenger 600	CL600
	Citation 525/500	CNA500
	Citation 550/560	MU3001
	Citation 650	CIT3
	Citation 680	LEAR35
	CRJ-200	CL600
	CRJ-700	GV
	Dornier 328	CL600
	ERJ 135/140	EMB145
	Falcon 10	LEAR35
	Falcon 20	CL600
	Falcon 2000	CL600
	Falcon 50	FAL50/900
	Falcon 900	FAL50/900
	Gulfstream 150	LEAR35
	Gulfstream 200	GII
	Gulfstream II	GII
	Gulfstream III	GIIB
	Gulfstream IV	GIV
	Gulfstream V	GV
	Lear 24/25	LEAR25
	Lear 31/35/40/45/55/60	LEAR35
	Mitsubishi MU300	CNA500
	Raytheon 390	LEAR35
	Sabreliner	LEAR35
	Westwind 1124	IA1125
	VLJ's	CNA750
Military Helicopter	H-47 Chinook 234	CH47D
	UH-60 Blackhawk	S70
Multi-	Bae-3200 Jetstream	DHC6
	Bae-3200 Jetstream Super 31	DHC6
	Beech 1900	1900D
	Beech King Air	CNA441
	Beech Super King Air	DHC6
	Cessna Caravan II	GASEPM
	Cessna Conquest	CNA441
	Diamond Twin Star	BEC58P
	EMB-120	EMB120
	Gulf Aero Commander	CNA441
	Mitsubishi MU2	DHC6
	Multiple Aircraft (1)	BEC58P
	P180 Avanti	C12
	Partinavia P68	BEC58P
	Piper Aerostar	BEC58P
	Piper Cheyenne	CNA441
	Piper Chieftain	PA31
	Piper Comanche	PA30
	Rockwell Turbo Commander	CNA441
	Swearingen Merlin 3	CNA441
	Swearingen Merlin 4	DHC6
Single Engine	Cessna 150/152/172/172RG/177	CNA172
	Cessna 180/182/206/210	CNA206
	Multiple Aircraft (2)	GASEPV
	Multiple Aircraft (3)	GASEPF
	Pilatus PC12	SD330
	Piper Warrior	PA28
Helicopter	Aerospatiale AS-350	SA350D
	Eurocopter EC-135	EC130
	Robinson Helicopter R22 Beta	R22
	Sikorsky S-76A	S76
	UH-1 Huey	B212
	Dauphin	SA3365N

Sources: Columbus Regional Airport Authority Noise Office Data for July 2006 to July 2007, Ohio State University Airport Based Aircraft and Hangar Waiting Lists, October 2007.

were investigated. Additional interviews were conducted with aircraft operators, and the feasibility was examined of obtaining operational data for the OSU Airport from the Columbus Regional Airport Authority (CRAA) Noise Office for the same time period as the previously collected Flight Aware data. Those inquiries revealed that the CRAA Noise Office data contained over 55,000 records for the subject time period. This larger source of data would be expected to yield more accurate results without the need for as many allocation assumptions as are required with a smaller database. Therefore, OSU initiated the coordination required to get permission from the FAA to allow the CRAA Noise Office to release the data for use in the Part 150 Study. These additional data were collected and processed, and a revised operational fleet mix for FY2007 was formulated and is presented in summary form in **Table 2-11**.

The 2007 aircraft fleet mix served as the foundation for preparation of the 2012 and 2027 aircraft operational fleet mix forecasts. The introduction of Very Light Jets (VLJs) is expected to change the fleet mix at the Airport by slightly reducing the proportion of multi-engine turboprop activity; and by capturing growth that would have otherwise occurred in the small jet category. The VLJ are targeted at this segment of general aviation. Civilian helicopters are expected to continue to follow the FAA's predicted national trends, thus capturing an expanded future share of the Airport's fleet

mix. The replacement of aging jet aircraft is limited in the 2027 fleet mix estimates to primarily those aircraft that have been out of production for several decades. The estimates of the fleet mix at the Airport for 2027 must be viewed as very long range estimates and act as a general indicator of the 20-year future.

2.7 INSTRUMENT APPROACH FORECAST

An instrument approach, as defined by the FAA for towered airports, is an approach to an airport by an aircraft with an instrument flight plan where visibility is less than three miles or the ceiling is at or below the minimum initial approach altitude. Instrument approaches are used by the FAA to determine an airport's eligibility for enhanced instrument approach capability and additional navigational aids. They are only recorded when an approach is conducted in instrument conditions. The forecast of instrument approaches was derived by establishing historical instrument approaches as a percentage of total itinerant approaches. Itinerant approaches are used as the base as, in general, local operations do not conduct instrument approaches. There will be a limited number of local instrument approaches associated with training activity at the Airport, but they are assumed to be sufficiently low in quantity to be inconsequential. The historical and the forecast instrument approaches are shown in **Table 2-13**.

Instrument approaches as a percentage of total itinerant approaches have varied greatly, ranging from 2.9% up to 11.6%. For the historical period from 1995 to 2004, instrument approaches were an average of 6.0% of total itinerant approaches. For this forecast, it is assumed that instrument approaches will be 6.0% of total itinerant approaches. With application of this percentage, total instrument approaches will increase to 2,870 annual instrument approaches at the end of the forecast period.

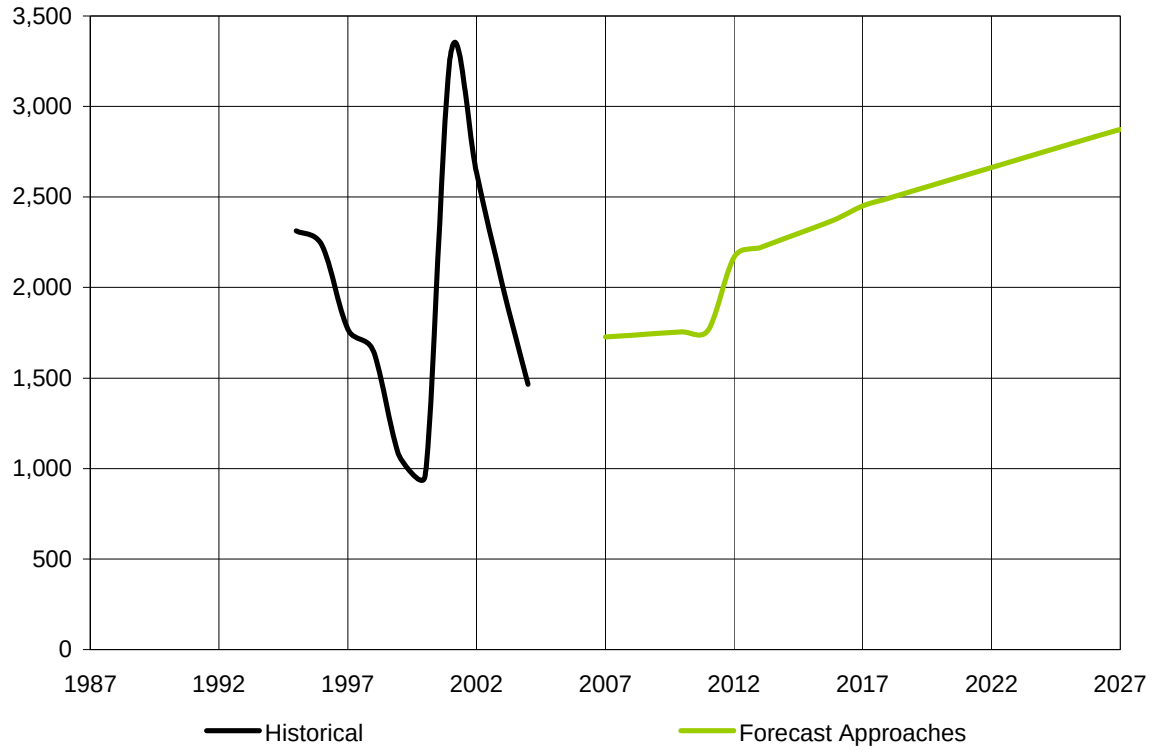
2.8 SUMMARY

Table 2-14 presents the recommended forecast to be used in the remainder of the Study. Total annual operations are forecast to grow to 156,630 at the end of the forecast period, reflecting an average annual growth rate of 3.0 percent. The largest rate of growth comes in the air taxi/commuter section that reflects a strong growth in business aviation and charter activity.

The rate of growth in the number of instrument approaches is slightly higher than the rate in growth of total operations. Considering that itinerant aircraft operations have historically grown faster than local aircraft operations, this higher growth rate is reasonable. Itinerant operations tend to be more business and air taxi operations on instrument flight plans, while local operations tend to be more visual operations.

Based aircraft will grow to 360 reflecting recommended hangar development to accommodate demand.

TABLE 2-13
TOTAL INSTRUMENT APPROACHES



Year	Instrument Approaches	Itinerant Approaches	% Instrument Approaches
1995	2,314	33,842	6.8%
1996	2,236	29,059	7.7%
1997	1,770	30,098	5.9%
1998	1,647	36,309	4.5%
1999	1,071	34,332	3.1%
2000	961	33,239	2.9%
2001	3,291	28,402	11.6%
2002	2,636	34,712	7.6%
2003	2,021	28,817	7.0%
2004	1,465	32,197	4.6%
2012	2,170	35,830	6.0%
2017	2,450	40,531	6.0%
2027	2,870	47,503	6.0%

Source: FAA Air Traffic Activity Data System, Flight Aware, OSU Airport ATCT, RS&H.
Note: Itinerant approaches are itinerant operations divided by two.

TABLE 2-14
FORECAST SUMMARY

Description	2007		2012	2017	2027	Average Annual Growth (2007 - 2027)
ANNUAL AIRCRAFT OPERATIONS						
Itinerant						
Air Carrier	0		0	0	0	0.0%
Air Taxi/Commuter	3,488		6,529	9,736	11,422	6.1%
General Aviation	57,068		69,478	76,290	89,453	2.3%
Military	297		293	294	295	0.0%
Subtotal	60,853		76,300	86,320	101,170	
Local						
General Aviation	26,268		43,090	47,250	55,400	3.8%
Military	64		60	60	60	0.0%
Subtotal	26,332		43,150	47,310	55,460	
Total	87,185		119,450	133,630	156,630	3.0%
ANNUAL INSTRUMENT APPROACHES						
Runway and Hangar Based	1,727	(est)	2,170	2,450	2,870	2.6%
BASED AIRCRAFT	230		280	307	360	2.3%

Sources: FAA TAF, FAA Air Traffic Activity Data System, Flight Aware, OSU ATCT, Port Columbus Standard Terminal Automated Replacement System (STARS), RS&H