Chapter 3
Aviation Activity Forecasts

3.0 INTRODUCTION

A critical component of any effective planning process is the development of future demand projections. In order to assess the future aviation facility needs for the England Airpark and Alexandria International Airport (AEX), there must be an understanding of potential levels of aviation activity that the airport is likely to serve over the next 20 years and is the regional commercial service airport for Central Louisiana. AEX is designated as a disaster relief site by the Louisiana Department of Transportation Division (LaDOTD) and as an intermediate staging base (ISB) for the Joint Readiness Training Center (JRTC) through its commercial lease with the United States Army (US Army). The long-term vision of the England Authority is to further expand on these operations as well as become an intermodal transportation hub and business center for the State of Louisiana. Thus, this chapter focuses on forecasting future aviation activity in terms of commercial, general aviation, military and air cargo activity. The approved FAA forecasts were used to determine the facility requirements and associated development provided in the remaining chapters of this report.

3.1 NEEDS AND BENEFITS

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

It is acknowledged that human vision generally does not reach 20 years into the future, and that significant modifications to the forecasts are likely in the out-years of the planning term. Nevertheless, experience in public policy proves it more cost-effective to modify an existing long-term vision that is based on sound planning principles, rather than to attempt to deal reflexively and inconsistently with inevitable changes in policy and physical environment. For this reason, most airport master plans are updated generally within 10 years of completion of the preceding plan. In some instances, unforeseeable changes in social, political or economic factors may require an even earlier update to the forecasts, with subsequent modifications to previously expected facility improvements as early as 5 years into the 20-year term.

A primary objective of forecasting is to provide information needed to determine whether existing airport facilities would adequately serve future needs. In most growth scenarios, the

estimated levels of future demand may suggest the expansion, renewal, strengthening, or other improvements to airport structures or facilities.

Furthermore, by projecting the most likely extents, high and low, of future numbers of passengers, aircraft, aircraft types, frequency of operations and types of operations, any constraints on existing infrastructure can be pinpointed. Comparing existing and future demand with existing facilities reveals potentially critical deficiencies before they become hazards, or are otherwise problematic.

Airport management uses activity forecasts to develop capital investment strategies to resolve potential future airfield and landside access problems. At the same time, placement and construction of any specialized facilities desirable to accomplish the Authority's particular vision and mission can either be programmed or modified to harmonize with changes in social and economic trends.

The final benefit of developing a set of realistic forecasts is to ensure that the airfield and passenger terminal areas, as well as technical facilities, remain in accord with FAA standards. In addition as aviation technology continues to evolve, existing facilities are kept in alignment with industry trends and the airport remains responsive to economic and market needs.

Forecasts of future demand not only reveal potential future facilities' needs, but also quantify them. Airport management is thereby supplied with sufficient information regarding the need and approximate timing of capital expenditures. This process helps ensure that the airport itself remains functionally and aesthetically a valued community asset, a generator of local economic activity, provides continuing effective and convenient service to the public, and continues to provide an important link in the national air transportation system. Ultimately, all of these benefits combine to bring people, products and services together to improve the productivity of the nation.

3.2 FORECASTING LIMITATIONS

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

The combined planning wisdom and forecasting includes allowances for differing viewpoints, which depend in part on the employers, be they federal and state government agencies, which exert a conservative influence (this includes the power to reject forecasts submitted on behalf of individual airports), private consultants who collect information in the field that may be unavailable to the government agencies, thereby influencing changes in the accepted wisdom at any specific place and time, and also by airport and aircraft operators, who tend to be optimistic and favor growth. Forecasts for a specific airport are an amalgamation of all of these viewpoints, tempered by years of observation and professional experience. In addition

to judgment and experience, science is one of the final arbiters in the development of aeronautical activity forecasts.

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

Therefore, forecasts are not predictions, rather more correctly developed estimates. Forecasts are the best estimates of a range of future activity levels that are most likely to occur at the Alexandria International Airport (AEX), should a set of assumptions about the stability of the economic and political environment hold true for any stated planning horizon. Forecasting of aviation activity levels may also be viewed as contingency planning. Today's forecasting methods provide a variety of pathways that an airport can follow, based upon factors unique to the airport and on set planning scenarios, designed to provide airport management flexibility in response to differing degrees of demand for aviation services.

Acknowledging the limitations and caveats listed above, this chapter presents and analyzes recent and ongoing aviation industry trends, including the impacts of September 11, 2001, and projections of aviation demand at AEX. This information was assembled to project likely future levels of demand for air carrier/charter, air taxi/regional carrier, general aviation and military operations. Historically, military and general aviation activity predominates at AEX. Therefore, additional attention was given to the factors that affect these sectors of the market.

3.3 PREVIOUS AVIATION ACTIVITY FORECASTS

In preparing an assessment of projected aviation activity and demand, it was necessary to review any existing and previous forecasts for accuracy and insight. These forecasts often provide both methodologies and benchmark comparisons. Further, specialized sources and databases such as the U.S. Department of Transportation's (U.S. DOT) Form 41, Federal Aviation Administration's Air Carrier Activity Information System (ACAIS), Aerospace Forecasts, and Terminal Area Forecasts, as well as industry forecasts provided by EADS, Honeywell, General Electric (GE) and JP Airlines Fleets International were used to develop both short and long-range forecasts of aviation activity.

3.3.1 FAA Approved 2007 FAR Part 150

In 2007, the Alexandria International Airport and England Airpark completed a noise compatibility study under Federal Aviation Regulation (FAR) Part 150. This study contained FAA approved forecasts of general aviation (GA), military and commercial (scheduled and non-scheduled) aviation activity. This comprehensive forecast carefully analyzed several factors including historical activity and socioeconomic conditions. The level of detail

provided in the forecast, in addition to its recent approval, makes the Part 150 forecast a credible benchmark for forecasts developed as part of this master plan update.

TABLE 3-1
FAR PART 150 ENPLANEMENTS FORECAST

Year	Air Carrier	Commuter	Total
2004	29,073	118,905	147,978
2009	32,073	134,333	166,406
2014	41,073	149,525	190,598
2019	41,073	166,434	207,507

Sources: FAR Part 150, URS Corporation, 2005 and the LPA Group Incorporated. 2007

3.3.2 Terminal Area Forecast

Every year, or as necessary, the FAA releases a Terminal Area Forecast (TAF) for airports in the National Plan of Integrated Airport Systems (NPIAS). This forecast typically lacks an in-depth analysis of specific airport issues in its composition. However the TAF is used by FAA as a benchmark in evaluating detailed airport forecasts. The TAF includes a forecast of commercial enplanements, based aircraft and aviation activity segregated by the type, including commercial, military and general aviation local and itinerant operations.

While the 2007/08 TAF is described in detail below, for the purposes of summarizing study area historical airport enplanement data, it is important to recognize that TAF historical data is derived from the U.S. Department of Transportation's T-100 database. This database is comprised of enplanement data that is supplied directly by the airlines with regard to the airports at which they operate. However, occasionally this data can run contrary to the data gathered by the airports themselves. **Table 3-3** displays the historical and forecast data for AEX from the FAA TAF issued in December 2007.

TABLE 3-2
FAA APPROVED FAR PART 150 OPERATIONS FORECAST

Year	Air Carrier	Comm./AT	Total Comm.	GA Itinerant	Military Itinerant	Total Itinerant	GA Local	Military Local	Total Local	Total Operations
2004	2,013	8,985	10,998	5,534	3,419	19,951	22,531	8,551	31,082	51,033
2009	2,346	9,599	11,945	5,874	5,007	22,826	24,392	47,212	71,604	94,430
2014	2,490	10,242	12,732	6,235	5,007	23,974	26,200	47,423	73,623	97,597
2019	2,490	10,928	13,419	6,618	5,007	25,044	28,086	47,693	75,779	100,822

Sources: FAR Part 150, URS Corporation, 2005, and The LPA Group Incorporated 2007

TABLE 3-3
FAA TERMINAL AREA FORECAST

	Enplanements			Itinerant					Local				
Year	Air Carrier	AT & Commuter	Total	Air Carrier	AT & Commuter	GA	Military	Total	GA	Military	Total	Total Ops	Based Aircraft
1996	21,827	8,089	29,916	412	3,039	11,946	10,368	25,765	7,690	3,581	11,271	37,036	51
1997	19,254	77,430	96,684	1,011	13,825	6,987	2,914	24,737	15,358	12,362	27,720	52,457	51
1998	20,052	84,870	104,922	1,399	14,026	5,664	2,193	23,282	21,602	10,002	31,604	54,886	51
1999	24,424	95,727	120,151	1,507	13,221	5,415	3,031	23,174	23,902	7,888	31,790	54,964	51
2000	16,123	101,801	117,924	1,649	13,528	5,637	3,067	23,881	23,152	11,160	34,312	58,193	51
2001	35,697	93,250	128,947	1,969	10,764	5,462	3,457	21,652	27,085	11,737	38,822	60,474	41
2002	17,863	85,976	103,839	1,428	9,689	5,008	3,803	19,928	25,305	12,382	37,687	57,615	41
2003	3,562	94,444	98,006	1,414	9,622	5,439	3,290	19,765	27,170	8,135	35,305	55,070	41
2004	11,665	111,373	123,038	1,669	9,068	5,471	3,146	19,354	24,632	7,626	32,258	51,612	52
2005	5,699	122,519	128,218	2,049	8,249	5,421	4,099	19,818	24,661	15,952	40,613	60,431	48
2006	2,120	120,320	122,440	1,469	8,549	5,193	3,661	18,872	28,499	7,174	35,673	54,545	43
2007	2,485	128,173	130,658	1,743	10,484	5,006	3,951	21,184	24,077	5,486	29,563	50,747	43
2008	2,485	132,081	134,566	1,743	10,667	5,287	3,951	21,648	24,414	5,486	29,900	51,548	44
2009	2,485	136,110	138,595	1,743	10,853	5,584	3,951	22,131	24,755	5,486	30,241	52,372	44
2010	2,485	140,262	142,747	1,743	11,042	5,898	3,951	22,634	25,101	5,486	30,587	53,221	44
2011	2,485	144,539	147,024	1,743	11,234	6,229	3,951	23,157	25,452	5,486	30,938	54,095	45
2012	2,485	148,948	151,433	1,743	11,431	6,577	3,951	23,702	25,808	5,486	31,294	54,996	45
2013	2,485	153,491	155,976	1,743	11,630	6,947	3,951	24,271	26,167	5,486	31,653	55,924	45
2014	2,485	158,173	160,658	1,743	11,833	7,337	3,951	24,864	26,532	5,486	32,018	56,882	45
2015	2,485	162,997	165,482	1,743	12,040	7,530	3,951	25,264	26,903	5,486	32,389	57,653	46
2016	2,485	167,968	170,453	1,743	12,250	7,729	3,951	25,673	27,280	5,486	32,766	58,439	46
2017	2,485	173,091	175,576	1,743	12,463	7,933	3,951	26,090	27,662	5,486	33,148	59,238	46
2018	2,485	178,370	180,855	1,743	12,680	8,142	3,951	26,516	28,048	5,486	33,534	60,050	47
2019	2,485	183,811	186,296	1,743	12,900	8,358	3,951	26,952	28,440	5,486	33,926	60,878	47
2020	2,485	189,417	191,902	1,743	13,125	8,579	3,951	27,398	28,838	5,486	34,324	61,722	47
2021	2,485	195,194	197,679	1,743	13,355	8,805	3,951	27,854	29,242	5,486	34,728	62,582	48
2022	2,485	201,147	203,632	1,743	13,589	9,038	3,951	28,321	29,650	5,486	35,136	63,457	48
2023	2,485	207,282	209,767	1,743	13,826	9,277	3,951	28,797	30,065	5,486	35,551	64,348	48
2024	2,485	213,604	216,089	1,743	14,068	9,522	3,951	29,284	30,484	5,486	35,970	65,254	50
2025	2,485	220,119	222,604	1,743	14,314	9,773	3,951	29,781	30,909	5,486	36,395	66,176	52

Sources: 2007 FAA Terminal Area Forecast, December 15, 2007

3.3.3 NPIAS

The National Plan of Integrated Airport Systems (NPIAS) report is submitted to the U.S. Congress by the FAA and outlines the five year development needs for over 3,400 of the U.S.'s most critical airports. While the plan provides five-year projection of enplanements and based aircraft, it does not include a base year. While not more than a general forecasting guide, the NPIAS is helpful in assessing an airport's state and national role.

TABLE 3-4
NPIAS FORECAST OF ANNUAL AVIATION GROWTH (2005-2017)

Aviation Activity	FY 2005	FY 2017	Annual Growth
Enplanements (millions)			
Domestic	669.8	948.4	2.9%
International	68.9	123.1	5.0%
Total	738.7	1071.5	3.1%
Aircraft Operations (millions)			
Air Carrier	13.5	18	2.4%
Commuter/Air taxi	12.6	16.7	2.4%
General Aviation	34.1	42.7	1.9%
Military	2.9	2.9	0.1%
Total	63.1	80.3	2.0%

Sources: FAA National Plan of Integrated Airport Systems, 2005-2017, released 2006, and The LPA Group Incorporated. 2007

According to the NPIAS, AEX is designated as a Commercial Service Primary Airport. This designation coincides with the England Authority's vision of the airport as an intermodal transportation hub in conjunction with its role as an ISB joint readiness facility for the US Army and a disaster relief site as designate by the LaDOTD.

3.3.4 FAA Aerospace Forecast

Recently, the FAA released an aerospace forecast for the fiscal years 2007 through 2020. This forecast covers national trends for all types of aviation activity from GA to scheduled service, as well as scheduled commercial aircraft load factors, fuel sales and demand, etc. However, these forecasts do not includes any specific airport activity, rather it identifies national and international trends and provides growth rates which are useful in evaluating potential growth.

TABLE 3-5 FAA AEROSPACE FORECASTS, 2007-2030								
Calendar Year	Enplanements		Itinerant Operations				Local Operations	
	Air Carrier	Regional/Air Taxi	Air Carrier Operations	Air Taxi/Commuter Operations	General Aviation	Military	General Aviation	Military
2000-06	-1.39%	11.39%	-1.18%	1.72%	0.71%	5.38%	0.60%	3.87%
2006-10	3.25%	3.30%	3.18%	0.87%	3.44%	1.84%	4.00%	-0.41%
2010-20	3.56%	3.03%	3.36%	1.23%	2.02%	0.00%	1.33%	0.00%
2020-25	3.08%	2.97%	2.72%	2.24%	1.95%	0.00%	2.06%	0.00%
2025-30	3.02%	3.00%	2.80%	2.02%	1.77%	0.00%	2.04%	0.00%

Sources: Tables 10, 24, 40 & 41, FAA Aerospace Forecasts, 2007-2020 and FAA Long-Range Aerospace Forecasts, 2020, 2025 and 2030.

3.3.5 Background Data Sources

A variety of sources were used to provide baseline data for the enplanement and operational forecasts. The following section briefly describes some of the more specialized sources for aeronautical data.

Form 41/T-100

Each major airline and most regional airlines are required to report passenger traffic data to the U.S. DOT, which then becomes available to the public. Data from all reporting carriers at AEX was pulled and analyzed for load factor, enplanement, equipment and diversion trends. Although this provides historical data only, Form 41/T-100 data provides a comprehensive profile of commercial airline activity at the airport.

ACAIS

The FAA collects enplanement data through the Air Carrier Activity Information System (ACAIS) and publishes the data for all U.S. airports with commercial enplanements. This data sometimes does not match other historical data sources, but it does provide a comparison of historical enplanement data.

ATADS

The FAA has created the Air Traffic Activity Data System (ATADS) which contains data and statistics for air traffic centers, airports, and instrument and approach counts. The ATADS data is used to compare other historical data sources for accuracy, and well as provide accurate peak day and instrument operations data.

Airport Data

The most comprehensive source for historical data is the airport itself, which compiles and maintains records from airlines, general aviation, cargo carriers, and air traffic control counts and any other airport relevant data. Data compiled from Alexandria International Airport's Comparative Air Traffic Reports and Air Traffic Control information provided by the Louisiana Air National Guard's Air Traffic Control Squadron (259th ATC Squadron) is presented in the following sections. This information in conjunction with FAA ACAIS and ATADS data were used as the primary source for both enplanement and operational data.

3.4 HISTORIC AIR CARRIER/CHARTER ACTIVITY

3.4.1 Enplanements

Air carrier enplanements are comprised exclusively of non-scheduled operations, primarily composed of aircraft charter flights associated with JRTC operations related to the US Army's commercial lease. Although historic non-scheduled activity also includes operations associated with the U.S. Marshal's service, prison transfers are not recorded as commercial enplanements or deplanements.

Since AEX is designated as an ISB by the US Army, two nearby military bases, Ft. Polk and Camp Beauregard, utilize the airport to conduct numerous troop movements utilizing large (B737, B747 and B757) commercial transport aircraft. While the exact purpose of each flight may not be known, all air carrier activity at AEX is non-scheduled. **Table 3-6** displays the historical air carrier passenger activity at AEX.

TABLE 3-6
HISTORIC AIR CARRIER/CHARTER ENPLANEMENTS

Calendar Year	Enplanements	Deplanements	Total Passengers
2000	30,117	26,874	56,991
2001	34,467	39,112	73,579
2002	17,906	25,829	43,735
2003	24,416	17,404	41,820
2004	37,048	34,559	71,607
2005	22,638	22,855	45,493
2006	14,963	17,600	32,563
2007	16,765	12,139	28,904

Source: AEX Comparative Air Traffic Reports (2000-2007) and FAA ACAIS, 2007/08

3.4.2 Fleet Mix

The current commercial fleet mix is comprised of a combination of narrow and wide-body commercial aircraft associated with commercial military charters, US Marshal's service, as well as limited maintenance and aircraft diversions. Delta Air Lines was the only airline ever to offer mainline flights to the Alexandria market (at ESF) in the late 1970's using Boeing

727 aircraft offering flights between Alexandria and Dallas/Ft. Worth and also Baton Rouge (continuing onto Atlanta).

Airlines like Ryan Air, America Trans Air (ATA), Omni Air, and World Airways, etc. specialize in military troop transport using a variety of commercial aircraft including the B747, B737, DC10, MD11, B757, A340, etc. The airport historically has accommodated on-demand large cargo operations, as well as heavy transport aircraft associated with disaster relief operations as demonstrated by Hurricane's Katrina, Rita and Gustav.

In reviewing historic U.S. DOT Form 41 data, it was noted that AEX accommodated numerous diversions over the course of the base year, 2007, with a typical month having between two and twenty diversions. The geographical location of the airport makes it a convenient alternate airport for Houston (Intercontinental and Hobby), New Orleans, and Baton Rouge, which are each located less than 200 nautical miles (NM) from AEX. Diversions can occur at any time and for a multitude of reasons. Therefore, the exact aircraft type cannot be predicted, although historically most diversions were associated with regional jets and an occasional narrow body Boeing 737 aircraft. Houston's Intercontinental Airport accommodates aircraft ranging in size from Saab 340's to Boeing 747s.

In addition to diversions and charter flights, historical air carrier activity includes aircraft operations associated with the U.S. Marshals Service and Pride Aviation maintenance flights. Historical operations data identifies over 100 annual operations in 2006 on older aircraft such as the Boeing 727-200 utilizing maintenance services then provided at AEX by Pride Aviation, which is no longer in business. Historic air carrier operations by aircraft for the years 2004 through 2007 are provided in **Table 3-7**.

TABLE 3-7 HISTORIC AIR CARRIER OPERATIONS				
Aircraft*	**2004**	**2005**	**2006**	**2007**
Boeing 727 (100/200)	713	199	149	0
Boeing 737 (200/300/400/500/700/800)	591	724	1,129	1,370
Boeing 747 (200/300/400)	138	50	35	47
Boeing 757 (200/300)	190	476	166	2
Boeing 767 (300)	101	11	14	89
Boeing 777 (200)	32	39	0	0
DC-10/MD11	170	144	78	39
Other (MD80, A319, B717, AN124, L1011 etc.)	77	122	90	148
Total Air Carrier	**2,013**	**1,764**	**1,661**	**1,695**
*Notes: *includes passenger and cargo aircraft operations* *Source: GCR Associates, FAA Form 41 Data, AEX Historic Data, FAA Air Traffic Enhanced Management System, 2000, 2007 & 2008, 259th ATC 2007 & 2008 Data, JP Airline Fleets International, 2007 & 2008*				

3.4.3 Load Factor

Because the air carrier operations at AEX are not scheduled, load factors associated with these flights will vary depending on the type of operation. Cargo operations and maintenance flights are assumed to have no passengers on board, while the military charters are typically at or near 100 percent full. The load factor on diverted flights is not relevant to this study because passengers typically remain onboard the aircraft.

In reviewing 2007 ACAIS Enplanement and DOT 2007 Form 41 Data, the average air charter load factor percentage was 112 percent or 180 enplanements. This anomaly can only be traced to under or over reported aircraft departures or enplanements to FAA. Thus, based upon discussions with charter operators and the US Army, a load factor of 100 percent was utilized to forecast air charter enplanements. Based upon the fleet mix evaluation for non-scheduled commercial aircraft, the average seats per departure in 2007 were calculated at approximately 161. Military charter passengers, however, are processed through the military passenger processing center adjacent to the Military/Air Cargo apron. Therefore, since charter passengers do use the Passenger Terminal facility, air carrier load factor issues only need to be revisited if scheduled air carrier activity is initiated.

3.4.4 Operations

All of the current air carrier traffic at AEX is associated with non-scheduled activity. Commercial military charters, U.S. Marshals Service, cargo transport, diversions, and maintenance have all provided a steady level of air carrier aircraft activity at AEX. While the amount of activity has fluctuated from year to year, air carrier operations continue to exceed the FAA planning design threshold of 500 annual itinerant operations. **Table 3-8** illustrates historic air carrier operations for the years 2000 through 2007. It is significant to note that

surges in air carrier activity in both 2001 and 2004 were associated with the international deployment of troops related to the September 11, 2001 terrorist attacks and the Iraq War.

TABLE 3-8
HISTORIC AIR CARRIER OPERATIONS

Year	Air Carrier Operations
1996	503
1997	1,094
1998	1,399
1999	1,416
2000	1,719
2001	2,006
2002	1,429
2003	1,293
2004	2,013
2005	1,764
2006	1,661
2007	1,695

Source: AEX Comparative Air Traffic Reports, 1996-2007 and FAA ACAIS Report, 2007/08.

3.5 HISTORIC COMMUTER/AIR TAXI ACTIVITY

3.5.1 Enplanements

All scheduled commercial activity at AEX is associated with regional, commuter or air taxi operations. The bulk of commercial enplanements and operations are associated regional/commuter activity. Historically Continental Express/Connection was the primary commuter operator accommodating nearly 40 percent of all commercial passengers. The remaining commuter activity is provided by a Delta Connection carrier and Atlantic Southeast Airlines. **Table 3-9** displays historic commuter enplanement activity from 1996 through 2007.

TABLE 3-9 HISTORIC COMMUTER/AIR TAXI ENPLANEMENTS			
Calendar Year	**Enplanements**	**Deplanements**	**Total Passengers**
1996	71,095	70,994	142,089
1997	79,538	79,058	158,596
1998	88,501	87,903	176,404
1999	99,349	98,436	197,785
2000	103,803	103,061	206,864
2001	89,299	87,005	176,304
2002	89,900	87,999	177,899
2003	95,891	96,233	192,124
2004	118,770	116,620	235,390
2005	118,312	114,344	232,656
2006	118,815	113,614	232,429
2007	129,005	127,911	256,916

Source: AEX Comparative Air Traffic Reports (1996-2007) and FAA ACAIS, 2007/08

3.5.2 Fleet Mix

Over the past five years, the fleet mix has fluctuated between a mix of turboprop aircraft and regional jets. Much of this fluctuation occurred as a result of fleet modifications by the operating airline. For example, Atlantic Southeast Airlines (flying for Delta Connection), was serving AEX with 30-seat Embraer 120 aircraft, and later switched to Canadair Regional Jets, while Continental Express was flying all Embraer Regional Jets, and recently changed to the Saab 340 turboprop aircraft. However, based upon data provided by JP Airlines Fleet International, American Eagle, Atlantic Southeast Airlines (ASA) and Comair (a Delta Connection carrier) have firm orders for delivery of the CRJ-700s as early as 2008. As a result, it is anticipated that air taxi/commuter operations may decrease while enplanements increase as a direct result of more available seats. Historic commuter operations by aircraft are provided **Table 3-10**.

TABLE 3-10 HISTORICAL COMMUTER AIRCRAFT OPERATIONS								
Aircraft	**2004**		**2005**		**2006**		**2007**	
	Ops.	**% of Ops**	**Ops**	**% of Ops**	**Ops**	**% of Ops**	**Ops**	**% of Ops**
CRJ-200	3,501	38.97%	2,180	26.52%	2,476	28.28%	3,230	30.04%
CRJ-700/900	2	0.02%	4	0.05%	5	0.06%	7	0.07%
ERJ 135/145	3,235	36.00%	3,210	39.04%	2,979	34.03%	2,050	19.06%
Saab 340	2,243	24.96%	2,728	33.18%	3,270	37.35%	5,466	50.83%
Other	4	0.05%	99	1.21%	25	0.29%	0	0.00%
Total Commuter	**8,985**	**100%**	**8,222**	**100%**	**8,754**	**100%**	**10,753**	**100.00%**

Sources: FAA GCR Data, 2004-2006, AEX Comparative Air Traffic Reports (2004-2007),FAA ACAIS, and air carrier data, 2007

3.5.3 Load Factor

In reviewing FAA and US DOT recorded data for the years 2000 through August 2008, the load factors were steadily increasing. The average seats per air taxi departure in 2007 were 41. In reviewing air taxi enplanement data for 2007, an average load factor of 59.26 percent or 24 enplanements per departure was determined. In the long-term, air taxi operators to obtain higher economies of scale are transitioning to larger turboprop and regional jets. As a result, it is anticipated that the load factor would continue to increase in the short to mid-term and declining in the long-term with the introduction of larger aircraft.

3.5.4 Operations

Any commercial flight, both scheduled and unscheduled on an aircraft with less than 60 seats is considered to be an air taxi/commuter operation. The air taxi operations account for all of the scheduled aircraft into AEX such as the Saab 340, Canadair Regional Jet, and Embraer Regional Jets. The bulk of the commuter/air taxi operations at AEX are directly correlated to the scheduled flights into and out of AEX, and the overall counts will fluctuate as airlines adjust flights and frequencies in their schedule based upon current demand and operating costs.

TABLE 3-11 HISTORIC REGIONAL/AIR TAXI OPERATIONS	
Year	**Commuter/Air Taxi Operations**
1996	6,344
1997	23,676
1998	14,035
1999	13,249
2000	13,404
2001	10,098
2002	9,466
2003	9,472
2004	8,985
2005	8,222
2006	8,754
2007	10,753

Source: AEX Comparative Air Traffic Records, 1995-2007.

3.6 HISTORIC MILITARY

As mentioned earlier, AEX is not a joint use facility. The US Army continues to operate at AEX through a commercial lease with the England Authority. Since England Authority receives state and federal funding, it is obligated under funding grant assurances and **49 CFR Part 21** to provide economic non-discrimination. As such, the Authority must make the airport available as an airport for public use on reasonable terms and without unjust discrimination to all types, kinds and classes of aeronautical activity. Since the US Army is a commercial tenant, military operations of any kind (commercial or GA) cannot be discriminated against and, therefore, should be consider as part of AIP eligibility.

Historic military activity is primarily associates with military training and transport operations. Military activity is designated as either local or itinerant, even though no military aircraft are based at the airport, due to the amount of training operations performed within the airport flight pattern. Military operations are attracted to AEX due to the proximity of several military bases, the Joint Readiness Training Command and surrounding special use airspace consisting of both military operations areas and restricted areas. Also, Precision Approach Radar (PAR) has recently been installed adjacent to Runway 14-32 to assist in military training exercises.

3.6.1 Fleet Mix

The 2007 FAA approved *FAR Part 150 Noise Compatibility Study* indicated that several large military aircraft, including the C-5, C-17, C-130 and C-141, use AEX on a regular basis.

These larger aircraft use the airport for transport, including during disaster relief, and training exercises. In addition to transport aircraft, a variety of small aircraft, such as the T-38 and T-1, as well as rotorcraft also use AEX as shown in **Table 3-12**. Fixed wing aircraft conduct approximately 60 percent of the military activity, with helicopters comprising the other 40 percent.

TABLE 3-12
MILITARY AIRCRAFT FLEET MIX

Itinerant		Local	
Jet Fixed Wing			
C-130	23.44%	C130	41.43%
C-5	7.81%	C141	0.28%
C-141	1.80%	C17A	8.32%
C-135	1.20%	C135	2.10%
C-17A	15.02%	T38A	0.70%
T-38A	3.61%	T37B	0.70%
T-37A	2.40%	T1A	6.90%
T-1A	4.81%		
Total Fixed Wing	**60.10%**	**Total Fixed Wing**	**60.43%**
Helicopters			
CH-47	3.99%	CH47	3.96%
UH-1	4.00%	UH1	3.96%
UH-60	9.97%	UH60	9.89%
AH-64	9.97%	AH64	9.89%
H-58	11.97%	H58	11.87%
Total Helicopter	39.90%	Total Helicopter	39.57%
Total Itinerant	**100.00%**	**Total Local**	**100.00%**

Source: Alexandria International Airport and England Airpark FAR Part 150 Noise Compatibility Report, June 2005

3.6.2 Operations

Military operations occurring at AEX fluctuate from year to year, though they typically comprise over 20 percent of the airport's total operational activity. The transport activity at AEX is classified as itinerant, while the training is considered to be primarily local. As displayed in **Table 3-13**, the itinerant military activity has historically been stable over the past 10 years. Local military activity, however, has fluctuated primarily due to specific training requirements. Based upon discussions with the 259th ATC Squadron, it is anticipated that the installation of the new PAR approach will result in a significant increase in local military operations.

TABLE 3-13 HISTORIC MILITARY OPERATIONS			
Year	**Itinerant**	**Local**	**Total Military**
1996	9,541	4,352	13,893
1997	2,650	12,596	15,246
1998	2,405	10,827	13,232
1999	2,846	7,966	10,812
2000	3,181	11,465	14,646
2001	3,642	11,548	15,190
2002	3,536	12,107	15,643
2003	3,208	7,181	10,389
2004	3,412	8,507	11,919
2005	3,996	15,451	19,447
2006	3,856	7,326	11,182
2007	4,435	5,697	10,132

Source: AEX Comparative Air Traffic Reports, 1995-2007.

3.7 HISTORIC AIR CARGO

In addition to the transportation of people, the airport can stimulate commerce and the surrounding economy with the transportation of cargo. Presently, there is no scheduled air cargo activity into or out of AEX, though on-demand and charter cargo flights are operated periodically throughout the year. In addition to chartered cargo flights, the commercial airlines often transport small packages and mail onboard the scheduled flights.

3.7.1 Commercial

On a day to day basis, small packages and light cargo can be transported onboard the scheduled commercial flights. The smaller regional and turbo prop aircraft that serve AEX are limited in what can be transported due to the size and payload limitations of the smaller aircraft. On occasion, larger aircraft can be brought in to transport larger items/shipments as needed. A review of U.S. DOT Form 41 activity revealed that the Russian Antonov-124, one of the largest specialized cargo aircraft in the world, has visited AEX several times over the past several years. Several commercial cargo Boeing 747s have also been documented throughout the recent years.

3.7.2 Military

With the military being a key user of the airport for both transport and training, cargo from military operations has become a notable part of the operations at AEX. Many of the military cargo flights are conducted in association with the same mission profiles as the charter flights for military troop movements. A summary of the air cargo activity at AEX is displayed in **Table 3-14**.

TABLE 3-14 HISTORIC AIR CARGO LOADS (IN POUNDS)			
Calendar Year	**Commercial**	**Military**	**Total**
1996	238,935	0	238,935
1997	215,595	0	215,595
1998	185,157	0	185,157
1999	186,188	0	186,188
2000	156,339	0	156,339
2001	127,320	0	127,320
2002	165,272	0	165,272
2003	150,427	0	150,427
2004	148,049	20,827,322	20,975,371
2005	135,206	16,947,732	17,082,938
2006	69,571	12,808,100	12,877,671
2007	79,047	11,992,100	12,071,147

Source: AEX Comparative Air Traffic Records, 1995-2007

3.8 HISTORIC GENERAL AVIATION

While much of the infrastructure and facilities at AEX support commercial service and military activity, general aviation accounts for over half of the airport's flight operations. General aviation demand is also supported by surrounding airports such as the Esler Regional Airport (ESF) which offers a 6,000 ft runway and an ILS, and the Pineville Regional Airport which accommodates approximately 25,000 annual general aviation operations. Of the three primary public airports serving the Alexandria area, AEX accommodated roughly half of the general aviation demand. This demand, however, is primarily associated with itinerant aircraft since the airport only accommodates 40 based aircraft as a result of competition from nearby GA airports.

3.8.1 Fleet Mix

As mentioned in the previous inventory chapter, there are 40 aircraft based at AEX, 28 single-engine, 3 multi engine, 8 jets and 1 helicopter. The based aircraft mix ranges from single engine Cessna aircraft to Learjet 35 and Israeli Westwind Jets. The fleet of general aviation aircraft is much more diverse than that of commercial and military aircraft. Some of the more common general aviation aircraft utilizing AEX are displayed in **Table 3-15**.

TABLE 3-15 COMMON GENERAL AVIATION AIRCRAFT	
Local	**Itinerant**
Cessna 172	Beech Kingair (200/250/350)
Cessna 182	Bombardier Challenger (300/600)
Diamond 40	Cessna 402/414/441
Piper Cherokee	Cessna Citation (550/650/750)
Piper Seneca	Learjet (24/25/35/45/60)
Piper Seminole	Raytheon Hawker 125

Source: Alexandria International Airport Data, FAA/GCR Data, 2004-2006, and The LPA Group Incorporated, 2007

3.8.2 Operations

General aviation activity at AEX has ranged from aircraft training using a Cessna 172 to international business operations associated with a Gulfstream V. General aviation operations were stable over the previous 10 years, although no real growth trend could be determined. **Table 3-16** displays the local and itinerant general aviation operations over the past 10 years.

TABLE 3-16 HISTORIC GENERAL AVIATION OPERATIONS			
Year	**Itinerant**	**Local**	**Total General Aviation**
1996	10,076	8,489	18,565
1997	6,790	15,631	22,421
1998	5,697	21,544	27,241
1999	5,511	20,617	26,128
2000	5,781	22,974	28,755
2001	5,302	28,662	33,964
2002	5,236	23,519	28,755
2003	5,288	30,230	35,518
2004	5,527	22,515	28,042
2005	5,464	26,255	31,719
2006	5,098	26,902	32,000
2007	5,013	23,025	28,038

Source: AEX Comparative Air Traffic Data, 1995-2007

3.9 Factors and Opportunities Impacting Activity

Reviewing the previous 20 years, many of the developments and changes that have since occurred were not anticipated in any forecast at that time. Evolution of technology and business practices has resulted in gradual changes, while political events and natural disasters also impacted demand. Many of these factors cannot be forecast; however, they should be considered.

3.9.1 Operational and Fleet Mix Changes

Changes in the operating characteristics such as aircraft type are unlikely to occur in the form of sudden changes but rather more of a gradual shift over time. Small changes such as a shift to larger regional jets (i.e. CRJ-700), additional military training, or more general aviation jets, likely will only require minor changes, if any, to the airport operating practices, whereas more notable changes may result in additional airport improvements required.

Commercial Service

Operating practices of the commercial airline industry have been ever changing since deregulation occurred in 1978. The 1980's saw the development of the hub-and-spoke system and a significant number of mergers and acquisitions. The 1990's introduced the regional jet, which changed the commercial service profile at smaller airports throughout the country. Recent years are plagued with airline bankruptcies, domestic capacity reduction, international expansion, and fare increases to offset rapidly rising fuel costs.

The financial difficulties of the industry have placed incredible pressure on the relationship between airline management and labor, as well as the relationship between air carriers and outside suppliers. Every carrier in the industry is continually striving to cut its controllable costs. Consequently, the airlines have sought wage and benefit concessions from employees and have employed outside contractors for aircraft maintenance, baggage handling, ticketing, and gate agent duties at airports where activity is limited. In an effort to lower their ticket sales costs, airlines have ceased the practice of paying travel agent commissions and are using the Internet to sell their tickets directly to passengers.

The industry has also turned to airports to reduce their costs for landing fees, leases, and ground operation fees. It is important to note that these costs have been trending upward as many airports, facing large capital improvement and maintenance programs, utilize airline fees to help maintain their financial self-sufficiency. As the relationships between the airlines and the airports have become more tenuous, airports have had to take a role in advertising and in some instances subsidizing their own air service.

While U.S. air carriers have struggled financially, growth in annual commercial airline passengers has continued. According to the FAA's *Aerospace Forecasts Fiscal Years 2007-2020*, domestic passenger totals in 2004 rebounded to pre-9/11 levels, and passenger growth is projected to exceed 3.5 percent on a compound annual basis through 2020.

However, increases in fuel costs have reduced the economic efficiency of some older aircraft especially on short-haul routes. Recent aircraft orders have surged for more efficient aircraft such as the 70-90 seat regional jets, the narrow body Boeing and Airbus products, and the new fuel efficient Boeing 787. Quieter and more fuel efficient turboprop aircraft such as Bombardier's Q400 have also seen an increase in sales with the fuel increases.

Military

Even after the conversion of the airpark from military to civilian use back in 1993, the U.S. military has consistently utilized the airport through a commercial lease with the Authority for transport and training needs. Unlike commercial airlines, itinerant military operations have been rather stable with only minor changes in activity and aircraft use. However, local operations have fluctuated from high of 15,451 in 2005 to a low of 5,697 in 2007. This fluctuation in local military operations may be directly attributed to Hurricanes Katrina, Rita and Gustav as well as continued conflict in the Middle East.

General Aviation

Despite the large scope of activity, general aviation has not experienced many major changes in its operating characteristics over the past decade. Technological improvements using GPS technology has resulted in instrument approaches to smaller airports that may have been previously limited to exclusively visual approaches.

Until recently, the general aviation fleet has been largely unchanged, primarily consisting of single-engine and multi-engine piston aircraft. However, based upon changes in technology, including the certification of several micro jet aircraft, it is anticipated that growth in the turbine engine market will be significant. These micro jets or very light jets (VLJs) such as the Eclipse Jet and Cessna Citation Mustang, seat 4-6 people and have a much lower acquisition cost than the current fleet of business jets. Several new operators have proposed offering 'per-seat, on-demand" charter service charging rates similar to full fare commercial airline tickets. While this increase in jets has not yet been demonstrated, it is anticipated, and is also reflected in the most recent FAA forecasts. Trends in the very light jet aircraft market should be considered as part of the general aviation fleet mix forecast for AEX.

3.9.2 Political, Economic, and Natural Events

Unlike emerging trends and gradual shifts, some events have the potential to cause sharp changes in activity either positively or negatively. These events are often harder to predict, and more difficult to plan for within the normal operating actions of an airport. Aviation is a global industry, meaning the effects of some events from across the world can impact local demand.

Terrorism/Security

As evidenced with the events of September 11, 2001, and the British bomb plot in 2006 with the proceeding liquids ban, terrorism and security issues are a current and serious threat to aviation demand. Commercial service demand has recovered to pre-9/11 demand, but both events have impacted airport security procedures. The level and type of threats impacting commercial aviation is ever changing, therefore, airport security is in a state of flux. As a result, security procedures have and will continue to impact commercial aviation demand which cannot be accurately forecast beyond short-term demand.

Fuel Prices

All modes of transportation from automobiles to aircraft are adversely impacted by the sharp increase in energy prices in recent years. Some increases are considered short-term demand "spikes" though the overall trend reveals fuel costs increasing at an alarming rate. **Table 3-17** displays jet fuel costs as reported by the Air Transport Association which reveals a 115 percent increase in the cost of jet fuel since 2000. The table references an average price if $1.94 for the first half of 2007; however, the average price in early December 2007 is $2.61 per gallon.

TABLE 3-17
HISTORIC UNITED STATES JET FUEL PRICES

Year	U.S. Jet Fuel (¢ per gallon)
2000	90
2001	75
2002	70.8
2003	88.2
2004	120.8
2005	172.2
2006	196.8
2007 (First Half)	194
2007 (First Half) vs. 2000	115.60%

Source: Air Transport Association, 2007

Economic Conditions

Through the years, economic conditions have fluctuated over time, though the long-term trend is gradual growth. An economic recession is defined as three consecutive quarters experiencing a decline in national Gross Domestic Product (GDP). Over the past several years there have been a few negative quarters, but not three consecutive. The rapidly rising fuel costs have created some concerns about the economy going into 2008. Periods of fluctuation should be anticipated throughout the planning period. A balanced fiscal and planning approach to airport operations and development will help AEX perform better during slower economic times.

Natural Disasters

In recent years, the gulf coast region has suffered the effects of three major hurricanes, Hurricane Katrina (August 2005), Rita (September 2005) and Gustav (August 2008), which devastated the area and crippled the region. Natural disasters such as hurricanes can have a dual impact on airports. Large scale disasters can result in suspended or reduced air service; however, inland airports such as AEX can play a vital role in recovery and relief efforts through the transportation of people, goods, and relief supplies needed during the response effort. AEX filled this role as a disaster relief site when emergency relief agencies staged

their operations at AEX in response to all three hurricanes. As a result, the LaDOTD has designated AEX as a disaster relief site for the State.

As a result, the runway extension program at AEX continues to be one of the priority objectives addressed in the Alexandria International Airport Master Plan Update. AEX's role as a disaster resupply and support facility for the region supports the airport's runway extension program as originally recommended in the FAA approved *1998 Alexandria International Airport Master Plan.* The needs associated with this role are addressed in subsequent facility requirement and alternatives analyses.

3.10 SOCIOECONOMIC CONDITIONS

In assessing potential growth at an airport, it is common to compare past growth to various socioeconomic variables such as population, per capita income and employment. Socioeconomic conditions are reviewed as part of the master plan process to determine if there is the existence of a relationship between demand for aviation travel services and changes in the local economy. A relationship may exist if growth occurs in one or more of the social and economic variables selected (i.e. population, employment, and per capita income) in tandem with the demand for aviation services. However, in order to determine if a correlation exists, the strength of the relationship between demand and changes in the local economy must be determined. It is important to note that some items such as unemployment and personal income cannot accurately be forecast beyond five years; therefore, these variables primarily provide a snapshot of current economic conditions influencing the airport.

3.10.1 Population

The population of the surrounding area is one of the most critical factors in assessing aviation demand since they directly support the airport. Facilities, infrastructure, geography and climate are all features which make an airport attractive, but mean nothing without the support of the local users and those requiring the aviation services in the surrounding area. **Table 3-18** compares the Alexandria MSA population to the State of Louisiana. Both the State of Louisiana and the Alexandria MSA show a decline in population from 1984 through 1996, with slow growth from 1997 through 2005.

TABLE 3-18 HISTORIC POPULATION		
Year	**Alexandria MSA**	**Louisiana**
1984	136,903	4,400,474
1985	136,340	4,408,113
1986	136,579	4,406,922
1987	135,563	4,344,151
1988	133,729	4,288,859
1989	132,559	4,252,896
1990	131,494	4,221,563
1991	131,562	4,253,279
1992	130,127	4,293,003
1993	124,681	4,316,428
1994	125,547	4,347,481
1995	126,207	4,378,779
1996	125,726	4,398,877
1997	125,767	4,421,071
1998	125,860	4,440,344
1999	126,104	4,460,811
2000	126,437	4,469,529
2001	126,311	4,463,421
2002	126,565	4,470,543
2003	127,012	4,480,928
2004	127,494	4,495,706
2005	127,887	4,507,331

Sources: United States Census Bureau, 1984-2005 and The LPA Group Incorporated, 2007

However, based upon census estimates for 2006, both the State and Alexandria MSA have experienced a decline of approximately 4 percent and 1.4 percent, respectively. This is considered a direct result of Hurricane Katrina, and its impact on the overall economy of the state.

3.10.2 Employment

Local and regional employment/unemployment is considered to be one of the more widely used economic indicators for economic performance. Lower unemployment levels are consistent with stronger economic conditions, more prosperity and disposable income for economic stimulation. A review of the historical employment data for the Alexandria MSA (Rapides and Grant Parishes) and the state of Louisiana is displayed in **Table 3-19**. The Alexandria MSA performed near that or slightly worse than the state average in the late 1990's but had outperformed the state average in recent years. This recent improvement in unemployment rates indicates a stronger local economy, which in turn indicates stronger demand for aviation services.

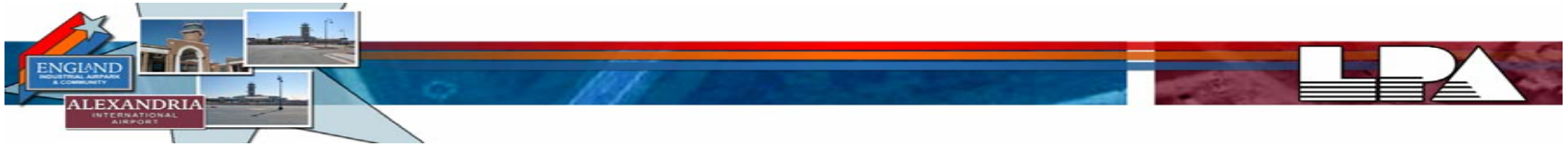

TABLE 3-19
HISTORIC EMPLOYMENT DATA

Alexandria MSA					Louisiana				
Year	**Labor Force**	**Employment**	**Unemployment**	**Unemployment Rate**	**Year**	**Labor Force**	**Employment**	**Unemployment**	**Unemployment rate**
1997	63,633	59,883	3,750	5.9	1997	2,004,792	1,890,102	114,690	5.7
1998	64,636	61,300	3,336	5.2	1998	2,027,265	1,918,907	108,358	5.3
1999	66,447	63,610	2,837	4.3	1999	2,022,162	1,926,732	95,430	4.7
2000	63,518	60,236	3,282	5.2	2000	2,031,292	1,930,662	100,630	5
2001	63,611	59,999	3,612	5.7	2001	2,030,887	1,922,110	108,777	5.4
2002	63,940	60,135	3,805	6.0	2002	2,010,850	1,892,636	118,214	5.9
2003	62,566	58,437	4,129	6.6	2003	2,025,006	1,899,642	125,364	6.2
2004	64,627	61,181	3,446	5.3	2004	2,039,182	1,926,594	112,588	5.5
2005	68,019	64,126	3,893	5.7	2005	2,077,123	1,938,280	138,843	6.7
2006	68,708	66,268	2,440	3.6	2006	1,990,120	1,910,348	79,772	4.0

Sources: United States Bureau of Labor Statistics, 2006 and The LPA Group Incorporated, 2007

3.10.3 Per Capita Personal Income

Outside of the core aviation services vital to the local community, most aviation activity requires some sort of disposable income from the users, whether it is purchasing airline tickets, chartering an airplane, or taking flight lessons. Per capita personal income measures the average income for the sum of the population. **Table 3-20** reveals that Rapides Parish has been countering the negative trend in per capita personal income and was actually ranked 4th in the state for the highest PCPI. This stronger PCPI indicates economic strength in comparison to most other areas within the state which will likely result in increased demand for aviation services.

TABLE 3-20
HISTORIC PER CAPITA INCOME

Area name	2003	2004	2005
Louisiana	25,819	27,088	24,664
Louisiana Metropolitan Portion	27,427	28,780	25,365
Rapides	26,458	28,533	30,203

Sources: United States Department of Commerce Bureau of Economic Analysis, 2007 and The LPA Group Incorporated, 2007

3.11 FORECASTING APPROACH

Two primary considerations influencing activity forecasts at an airport include historical and industry trends. By tracing historical trends, it is possible to determine the impact that economic fluctuations, as well as changes in the market or in airline business practices, have on airport activity. Likewise, applying recent or anticipated industry trends allows educated assumptions on how a market may be served or activity may be affected in the future. These considerations play a key role in the forecast of enplanements and operations presented in this chapter.

A key element in the forecast process is the identification of national and local trends that enhance the potential for new or expanded service by existing commercial operators, as well as the potential for the airport to secure new service and users. Several sources of data were utilized to identify both national and local trends. In addition to the historic data and previous studies (i.e. FAA approved *England Airpark Reuse Plan*, FAA approved 1*998 Master Plan*, and FAA approved *2007 FAR Part 150 Study*) conducted, national and local industry information was collected from the current FAA Aerospace Forecasts, the FAA Terminal Area Forecast, airline reports, and industry periodicals. Moreover, interviews were conducted with airport management, air traffic control, fixed base operators, and other airport tenants.

Using the information gathered, assumptions were made with respect to how aviation activity may change in the future based specifically on emerging aviation trends. This included evaluating AEX's role in the nation's aviation transportation network. Along these lines, many different factors were considered which might influence the course in which activity at

an airport develops. The primary goal of the analysis was to develop an approach that gives reasonable consideration to these factors while at the same time providing a rational basis for the forecasting process.

Since the entire aviation industry has undergone dynamic changes since 2001, including new federal requirements for airport design, airport funding debates, reformed airline business structures, and emerging aircraft and navigational technologies. These considerations, including relevant trends and airpark management's specific goals and objectives, were considered in the development of forecast scenarios.

3.11.1 Forecast Range & Scenarios

Most future events influencing airline bookings and other air travel services are unknowable. Therefore, a range of scenarios were developed using FAA growth rates, market share, trend analyses methodologies and information provided by the airport and its primary users. This data will allow airport management to make critical decisions relative to expenditures for facility improvements, based on which of the scenarios most closely matches actual airline activity variables. Examples of such variables of particular concern to the operators include the number of aircraft passenger seat bookings, service improvements, schedule frequencies, fleet composition, and related information.

The ultimate goal of forecasting, therefore, lies much less in predicting any precise level of activity, than to anticipate the greater or lesser order of magnitude in demand for service. First, this helps the England Authority and FAA prevent traffic bottlenecks, whether inside the terminal or in the airways leading to or from the airport. Second, it reduces the possibility of over-investment of public air transportation funding in facilities whose need did not materialize, and allows funding to be diverted to other projects which can be demonstrated to have a greater priority, either at AEX or airports elsewhere within the national system.

Any number of events can trigger an upward, downward or steady trend in passenger demand, whether it is a series of bad weather events, a suddenly surging economy – or the reverse – labor problems, fuel prices, and other concerns. The preceding is a short list among a host of other factors that influence the public's decisions to fly to any given destination, and the operators' decisions about which aircraft, flight schedules, fares, and other related factors that dictate service levels (aircraft type/seating capacity, scheduled frequency of service, and the many other variables that must be considered).

Related factors include the aircraft size, weight, and number of types in the future fleet, as well as the aircraft's physical dimensions and schedule frequency which all play a key role in airport development decisions. Forecasts almost always are based upon estimates of the size of the future market, and they make basic assumptions that airline operators will respond to the market. Airport management's role is to make the airport as safe, as efficient and as effective as it can, according to standards developed by the Federal Aviation Administration, in order to accommodate the public and the aircraft operators.

3.11.2 Aviation Activity Peaking

Peak operational activity such as peak month, peak day, and peak design hour forecasts are used in airport planning to determine the airfield's ability to accommodate projected demand and for the sizing of facilities. There are a number of different peaking analyses that can be conducted. For example, airfield evaluations require that every annual aircraft operation be considered, while passenger terminal facilities need only those operations associated with commercial passenger airlines. To properly plan, size, and design passenger terminal facilities, peaking analyses need to also include the level of enplanements. Basically commercial service airports experience peaks in both passenger airline operations as well as passenger enplanements, although these do not necessarily occur at the same time. Therefore, each of these peaking elements must be evaluated separately since peak airline operations define the demand for airside facilities (gates and ramp), while peak enplanements pose a direct impact on landside facilities (terminal and parking). The following sections provide individual peaking analyses for total airport operations, passenger enplanements, and passenger operations. These projections are based on the historic monthly schedules and airline traffic reports provided by the Authority.

3.12 COMMERCIAL AIR SERVICE

In evaluating commercial air service at AEX, which historically consisted of a combination of air charter and regional/air taxi operations, it is necessary to apply both current commercial industry and socio-economic trends to the historic enplanement information in order to provide a relatively realistic forecast of future commercial demand. In recent history, the airline industry has been characterized by mergers, bankruptcies and fare wars. This led to the growth of a variety of low-cost start-up operations and the emergence of regional carriers.

With the maturation of the hub-and-spoke system, growth in the regional airline industry occurred. Regional carriers returned to point-to-point service using small, efficient and high-technology turboprops and regional jets to secondary markets. These regional airports although not usually located within a large city are favored by many travelers due to their smaller scale, less crowding and ability to process passengers with relative ease.

The FAA continues to note an inverse relationship in air traffic within these segments of the airline industry. These are documented by the FAA in its annual National Aerospace Activity Forecast Conferences, where officials repeatedly noted during the initial years of the new century, that whenever operational, economic or political events cause a downturn in passenger statistics among the major carriers, an upturn in traffic among the regional carriers can be observed in mandated traffic reports to the agency from air traffic control towers and airline operations and enplanements traffic reports.

Another significant trend is the increase in regional jet capacity from 10 - 30 seats to 50 - 90 seat aircraft. This is a direct result of rising fuel costs, airline consolidations, and higher load

factors. Due to these variables, the FAA continues to forecast average annual passenger demand to continue to outgrow commercial operations.

3.12.1 Correlation between Historic and Forecast Air Service

Regression analysis is the strongest scientifically based method available to establish: first, the existence of a relationship between demand for aviation travel services and changes in the local economy that drive this demand; and, second, the overall strength of that relationship. In this study, enplanements were used as the key variable since typically the magnitude of growth prompts airline operators to consider the type of service, aircraft and fare levels to offer. Airline choices, in turn, impact airport facilities including terminal space and gates, aircraft apron space, runway and taxiway requirements, as well as landside parking and fueling needs.

In order to determine if a true correlation exists between key social and economic variables at least 10 years of data is needed. Also, a strong statistical relationship must be determined between demand for airport services and independent economic indicators including population, employment and per capita income.

In an effort to determine if a correlation exists between commercial enplanements and population forecasts, a regression analysis was performed. **Tables 3-21**, *Commercial Charter Enplanements Regression Analysis* and **3-22**, *Commuter/Air Taxi Enplanement Regression Analysis*, illustrates that a strong statistical relationship ($\geq$1) was not found to exist between historic economic indicators and commercial (air carrier and air taxi) enplanements. This could be attributed to a variety of variables including fuel prices, conflicts in the Middle East, the impact of Hurricane Katrina, etc. Thus, this lack of correlation does not justify the use of regression analysis to accurately forecast commercial service demand over the twenty-year planning period.

3.12.2 Air Carrier Charter Activity Forecasts

Historically, air carrier activity at AEX was generated from military charters, the U.S. Marshals Service and air carrier aircraft maintenance provided by Pride Aviation. All three types of activity were performed on a non-scheduled basis. As of 2007, heavy aircraft maintenance and refurbishment activities are no longer performed at AEX as a result of Pride Aviation ceasing operations. However, operations associated with the U.S. Marshals Service and military air charters in support of deployments and local exercises still occur.

TABLE 3-21 COMMERCIAL CHARTER ENPLANEMENT REGRESSION ANALYSIS		
Year	**AEX MSA Population (X-Value)**	**Historic Charter Enplanements (Y-Value)**
1984	136,903	
1985	136,340	
1986	136,579	
1987	135,563	
1988	133,729	
1989	132,559	
1990	131,494	
1991	131,562	
1992	130,127	
1993	124,681	
1994	125,547	
1995	126,207	
1996	125,726	15,912
1997	125,767	26,859
1998	125,860	27,147
1999	126,104	27,860
2000	126,437	30,117
2001	126,311	34,467
2002	126,565	17,906
2003	127,012	24,416
2004	127,494	37,048
2005	127,887	22,638
2006	128,158	14,963
2007	128,429	16,765

Sources: US Census Data and The LPA Group Incorporated, 2008

TABLE 3.21
SUMMARY OUTPUT
COMMERCIAL CHARTER REGRESSION ANALYSIS

Regression Statistics:								
Multiple R	0.309878949							
R Square	0.096024963	Below 1 discount						
Adjusted R Square	0.005627459							
Standard Error	7394.253843							
Observations	12							
ANOVA								
	df	*SS*	*MS*	*F*	*Significance F*			
Regression	1	58078637.75	58078637.75	1.062252	0.326985109			
Residual	10	546749898.9	54674989.89					
Total	11	604828536.7						
	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*Lower 95.0%*	*Upper 95.0%*
Intercept	326883.8033	293330.0652	1.114389018	0.291179	-326696.3087	980463.9153	-326696.3087	980463.9153
X Variable 1	-2.383948271	2.313039091	-1.030656283	0.326985	-7.537720513	2.769823971	-7.537720513	2.769823971

Source: The LPA Group Incorporated, 2008

TABLE 3-22 AIR TAXI REGRESSION ANALYSIS		
Year	**AEX MSA Population (X-Value)**	**Historic Air Taxi Enplanements (Y-Value)**
1984	136,903	
1985	136,340	
1986	136,579	
1987	135,563	
1988	133,729	
1989	132,559	
1990	131,494	
1991	131,562	
1992	130,127	
1993	124,681	
1994	125,547	
1995	126,207	
1996	125,726	71,095
1997	125,767	79,538
1998	125,860	88,501
1999	126,104	99,349
2000	126,437	103,803
2001	126,311	89,299
2002	126,565	89,900
2003	127,012	95,891
2004	127,494	118,770
2005	127,887	118,312
2006	128,158	118,815
2007	128,429	128,812

Sources: US Census Data and The LPA Group Incorporated, 2008

TABLE 3-22
SUMMARY OUTPUT
COMMUTER/AIR TAXI REGRESSION ANALYSIS

Regression Statistics:								
Multiple R	0.920259							
R Square	0.846876	below 1.0 discount						
Adjusted R Square	0.831564							
Standard Error	7327.158							
Observations	12							
ANOVA								
	df	*SS*	*MS*	*F*	*Significance F*			
Regression	1	2969254500	2969254500	55.30652094	2.21849E-05			
Residual	10	536872406.6	53687240.66					
Total	11	3506126906						
	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*Lower 95.0%*	*Upper 95.0%*
Intercept	-2061422	290668.363	-7.092006056	3.327E-05	-2709071.261	-1413772.321	-2709071.261	-1413772.321
X Variable 1	17.0456	2.292050375	7.436835412	2.21849E-05	11.93859493	22.15260787	11.93859493	22.15260787

Source: The LPA Group Incorporated, 2008

Typically forecast operations are based upon a correlation to forecast enplanements. At AEX, however, air carrier operations and enplanements are driven largely by military and prisoner transportation requirements. Further, military transport activity will and has varied based upon several external factors including: military spending, deployment demands, specific events (i.e. Iraq War), as well as training requirements.

As stated earlier, previous forecasts, including the most recent FAA approved *2007 Part 150 Study*, projected a level of participation based upon the following assumptions and information:

- 120 monthly operations associated with the U.S. Marshals Service and Pride Aviation
- 59 percent of air carrier operations in 2004 were associated with Pride Aviation and the U.S. Marshals Service.
- An increase of 253 non-scheduled military charter operations was expected between 2005 and 2020.
- Due to operational increases based upon exercises at Fort Polk, ISB Management (military air carrier) anticipates an additional 80 annual charter air carrier operations through 2010 resulting in 3 battalions or 3,000 enplanements annually.
- After 2010, the Joint Readiness Training Command (JRTC) plans to add 3 additional exercises per year which would add 144 charter operations annually and approximately 9,000 enplanements.
- After 2010, air carrier operations were forecast to flat line through the remainder of the planning period.

In reviewing enplanement and operations data from 2004 through 2007, there was a significant increase in air carrier enplanements in 2004 in conjunction with the Iraq War and troop surge. Enplanements declined the following year and continued through 2006 and have recently started to recover in 2007 with 16,765 enplanements.

Passenger Enplanement Projections

Enplanements are passengers that board commercial aircraft; deplanements are passengers leaving an arriving flight. For most airports, the number of enplanements and deplanements are similar. Together enplanements and deplanements represent an airport's total passengers. Enplanements are most often projected in a planning study such as this because that help to determine facilities needed to accommodate future demand.

The projection of passenger enplanements provides a beginning point for the determination of future commercial service aircraft operations. Projected passenger enplanements are considered in conjunction with other factors that influence the forecast level of airline operations, which include the aircraft type (fleet mix) and number of seats available on a per departure basis. This data is then coupled with the average load factor to determine the number of departures required to meet anticipated enplanements. Fleet mix data and the historic load factors for AEX were derived from the airport's consolidated monthly schedules

and traffic reports. Load factors were calculated for each airline serving the airport based on enplanements versus total available seats as reported by the airlines to the airport on a monthly basis.

Traditional forecasting methodologies examine past trends to predict the future. As a result, standard projection techniques have more limited application for this study's forecasting effort. While traditional methodologies were considered in developing projections of future air charter passenger demand for the study area, other non-standard approaches were also used. In total, approximately 9 different forecasting approaches were tested as shown in **Table 3-23**.

TABLE 3-23
AIR CARRIER ENPLANEMENT FORECAST

Calendar Years	TAF	LAASP	U.S. Market Share	Louisiana Market Share	FAA Projected Growth	Growth by U.S. GDP	Form 41 Linear Trend	FAR Part 150	Preferred Air Charter Forecast
2007	2,485	16,765	16,765	16,765	16,765	16,765	2,616	32,073	16,765
2008	2,485	17,310	26,437	15,290	17,309	17,263	0	32,073	19,409
2012	2,485	19,318	29,525	21,771	19,788	19,393	0	36,295	33,117
2017	2,485	22,252	33,893	28,340	23,571	22,407	0	41,073	33,117
2022	2,485	26,207	38,913	32,677	27,815	25,873	0	41,073	42,117
2027	2,485	31,080	42,282	37,656	32,327	29,849	0	41,073	42,117
Average Annual Growth Rate									
2007-12	0.00%	2.88%	11.98%	5.36%	3.37%	2.95%	NA	2.50%	14.59%
2012-17	0.00%	2.87%	2.80%	5.42%	3.56%	2.93%	NA	2.50%	0.00%
2017-22	0.00%	3.33%	2.80%	2.89%	3.37%	2.92%	NA	0.00%	4.93%
2007-27	0.00%	3.47%	1.67%	2.88%	3.05%	2.90%	NA	0.00%	0.00%

Sources: FAA Terminal Area Forecasts (AEX, U.S. & Louisiana), Louisiana Aviation System Plan, FAA Aerospace Forecast (2007-2020), DOT Part 41 Air Carrier Data, FAA approved URS FAR Part 150, 2005, and The LPA Group Incorporated

Information to support the preferred forecast was based upon data provided by the 259 ATCS/AT with regard to planned military operations (**Appendix C**) as well as data outlined in the FAA approved *2007 FAR Part 150 Study*. Since Fort Polk is home to the Joint Readiness Training Center, 4th Brigade of the 10th Mountain Division, and the Warrior Brigade of which AEX is the national and international deployment center, the increase in anticipated operations in conjunction with both military deployment and exercises is realistic.

Although enplanements showed a marked decrease from the previous years, the upswing of enplanements in 2007 shows that air charter activity will likely grow to its previous levels based upon projected national and statewide growth, projected GDP and military spending, and the anticipated withdrawal from Iraq. Further, it is expected that enplanements associated with JRTC will still occur after 2010 as originally outlined in the FAA approved *2007 FAR Part 150 Study*.

Thus, applying the assumptions of military activity as outlined in the FAA approved *FAR Part 150 Study* to historic 2007 base year operations, the preferred air charter enplanement forecast shows that air charter enplanements from 2007-20 will increase at an average annual

rate of approximately 7 percent. However, based upon limited information, air charter enplanements are forecast to remain unchanged from 2020 through 2027. The TAF Forecast was not used since it assumes no growth in air carrier enplanements from the year 2007 through 2027, which was considered unrealistic.

Air Charter Fleet Mix Assumptions

Aircraft departure load factors are often used to determine the likely number of operations based upon historic and forecast fleet mix and available seats. In the case of AEX, the average load factor based upon data provided to FAA was 112 percent. This anomaly, as mentioned earlier, is likely caused by over or under reporting of enplanement or operations data. Further based upon the air charter fleet mix, average seats per departure were 161. Therefore, based upon discussions with military personnel and airport staff, it was determined that a load factor of 100% was realistic based upon existing and anticipated operations.

Although prisoner enplanements are not considered as part of the Air Carrier/Charter Enplanement forecast, operations associated with the Air Marshals Service and any designated cargo carriers must be included in the operational forecast. Historically, the Air Marshal's service has operated a combination of MD-11 and B737 aircraft. Since MD-11 aircraft have been retired from production, it is anticipated that the Air Marshal's operations will continue to shift to newer B737 series aircraft.

Air Charter Operations Projections

As stated in the FAA approved *FAR Part 150 Study*, aircraft operations associated with the US Marshals Service and Pride Aviation were anticipated to increase from 80 to 120 operations starting in 2004. In addition, ISB management, through its commercial lease with the Authority, outlined plans to increase the number of air carrier operations associated with annual exercises at Fort Polk starting in 2003. In reviewing historic activity from 2003 through 2007 compared to the FAA approved *FAR Part 150 forecast* as shown in **Table 3-24**, air charter operations were lower than projected. This decrease in air carrier operations can be attributed a decrease in training exercises due to the Iraqi War as well as the end of Pride Aviation services at the airport.

TABLE 3-24
HISTORIC AIR CHARTER OPERATIONS

Year	Part 150 Forecast	Actual Air Charter Operations
2003	1,293	1,293
2004	2,013	2,013
2005	2,346	1,764
2006	2,346	1,661
2007	2,346	1,695

Sources: URS FAR Part 150 Study, 200, AEX Comparative Air Traffic Report, 2003 through 2007, and FAA ACAIS, 2007/08

Since future operations associated with the Air Marshals Service and air cargo operations could not be predicted with any certainty, operations remained at the year 2007 levels of 1,506 and two (2), respectively.

In addition to information provided by the 259th ATC and FAA approved *2007 FAR Part 150 Study*, events both nationally and internationally illustrate that a decrease in the number of troops in Iraq is likely in the short-term. Still troops are likely to be shifted to Afghanistan in an attempt to flush out Al Qaeda insurgents; therefore, it is believed that operations are unlikely to return to pre-war levels in the short or intermediate term. Thus, applying data provided by Air Traffic Control and JRTC in conjunction with FAA approved forecast methodologies, a conservative forecast of Air Charter operations was developed as illustrated in **Table 3-25**. It is important to note that operations could not be forecast with any certainty beyond the year 2020. Therefore, a flat-lined forecast is shown for the long-term.

TABLE 3-25
AIR CHARTER OPERATIONS FORECAST PROJECTIONS

Year	Historic Operations	Part 150 Study	Form 41 LF	TAF	Air Traffic Forecast	Preferred (conservative approach)	Notes
Historic							
2003	1,293	1,293	1,293	1,414	1,293	1,293	
2004	2,013	2,013	2,013	1,669	2,013	2,013	Iraq War
2005	1,764	2,346	1,764	2,049	1,764	1,764	
2006	1,661	2,346	1,661	1,469	1,661	1,661	
2007	1,695	2,346	1,695	1,743	1,695	1,695	Troop Surge/Pride Aviation stops operations at AEX
Forecast							
2008		2,346	1,732	1,743	1,719	1,719	Troops anticipated to start returning to US
2012		2,417	1,891	1,743	1,780	1,780	JRTC Increase in Operations - Exercises (80 ops)
2017		2,490	1,891	1,743	1,780	1,780	
2022		2,490	1,996	1,743	1,924	1,924	2021 JRTC Increase in Operations (144 ops)
2027		2,490	1,996	1,743	1,924	1,924	
AAGR 2007-20		**0.30%**	**0.82%**	**0.00%**	**0.64%**	**0.64%**	

Sources: U.S. DOT Form 41 Data, FAR Part 150 Study, AEX Comparative Traffic Reports, FAA Terminal Area Forecast, JRTC and 259th ATC, and The LPA Group Incorporated, 2008

Air Charter Peaking Activity

With air carrier activity being unscheduled, peak activity is more difficult to forecast since the demand can vary and flights can occur during various days, times, and months as they are needed. The air carrier operations conducted as part of military troop movements use a separate military processing facility at the airport, and, therefore, the enplanements and operations will not affect the requirements for the commercial service passenger terminal.

Peak Hour Enplanements

Peaking related to both Air Charter enplanements and operations is difficult, if not impossible, to accurately forecast due to a number of variables including fluctuations in military exercises and US Air Marshal operations. As a result, forecast peak month air charter enplanements were based upon the average percent of peak month enplanements to total enplanements for the years 2000-2007. This resulted in an average peak month percentage of 22.84 percent. Further, since no historic peak day or peak hour data was available, the average day of the peak month was forecast but air charter peak hour enplanements were not. Since air charter passengers do not use the commercial passenger terminal facility, it was deemed unnecessary and unrealistic to try to forecast peak hour air charter enplanement demand.

TABLE 3-26
AIR CHARTER ENPLANEMENT PEAKING

Year	Air Carrier/Charter Enplanements	Peak Month (22.84%)	Average Day of Peak Month
2007	16,765	3,465	116
2008	19,409	4,433	146
2012	33,117	7,563	249
2017	33,117	7,563	249
2022	42,117	9,618	316
2027	42,117	9,618	316
2007	16,765	3,465	116

Sources: AEX historic data, FAA ATADS peak month reports, 2000-2007, and The LPA Group Incorporated 2007

Peak Hour Operations

Peak month and day air charter operations were forecast for the planning period since historic data obtained from the airport and air traffic historic records as well as *FAA Peak Day Air Traffic Activity System* was available for the years 2000 through 2007. Applying the average percentages for the peak month and peak day operations, respectively, to forecast air charter operations allowed peak month and day air charter operations to be forecast for the planning period. However, again, since no reliable historic data exists with regard to peak hour air charter operations, peak hour air charter operations were not forecast.

TABLE 3-27 AIR CHARTER OPERATIONS PEAKING					
Year	**Air Carrier/Charter Enplanements**	**Peak Month (12.69%)**	**Peak Day (12.65%)**	**Peak Day Air Marshal**	**Peak Day JRTC**
2007	1,695	185	21	19	2
2008	1,719	218	28	24	3
2012	1,780	226	29	24	4
2017	1,780	226	29	24	5
2022	1,924	244	31	24	7
2027	1,924	244	31	24	7

Sources: AEX historic data, FAA ATADS peak day reports, 2000-2007, and The LPA Group Incorporated 2008

3.12.3 Regional Air Carrier/Air Taxi Activity Forecasts

Commercial aircraft operations (landings and takeoffs) at an airport are defined by the FAA as the sum total of air carrier operations (including commuter) and air taxi/charter operations. Air carriers are those operators that generally fly larger aircraft (more than 60 seats), while commuter/regional operators utilize smaller aircraft (60 seats or less). Regional air service at AEX initiated in 1996 and has grown at an average annual growth rate of approximately 5 percent annually. Commuter air service at AEX is currently provided by Atlanta Southeast Airlines (ASA), Continental Express/Expressjet, Colgan, and Chataqua Airlines, Mesaba (Northwest Airlink), and American Eagle. Historically, Continental Express provides the highest level of service carrying approximately 40 percent of total commuter passengers.

Currently, direct commuter service is provided to Atlanta, Dallas/Ft. Worth, Houston and Memphis. In reviewing historic data, enplanements from 2004 through 2006 remained relatively constant. However, based upon data for 2007, enplanements increased to 129,005 representing over an eight percent increase.

Since regional operations according to the NPIAS, TAF, FAA Aerospace Forecast and Louisiana State Aviation System Plan are forecast to continue to trend upward, it is anticipated that enplanements at AEX will also likely increase. Since the forecast growth rates outlined in **Table 3-28** appear to similarly forecast future enplanements at AEX, an average annual growth rate of 3.30 percent, the average of the other six forecast scenarios, was applied to historic enplanements to provide the preferred forecast. This is considered a logical method of determining future growth since regional enplanements could fluctuate 0.1 or 0.2 percentage points either way over the course of the planning period.

TABLE 3-28 FORECASTS OF REGIONAL ENPLANEMENTS							
Year	**TAF-AEX**	**NPIAS**	**FAA Aerospace**	**Part 150**	**U.S. Market Share**	**Louisiana State Aviation System Plan**	**Preferred Enplanement Forecast**
Historic							
2003	94,444	95,891	95,891	95,891	95,891	95,891	95,891
2004	111,373	118,770	118,770	118,905	118,770	118,770	118,770
2005	122,519	118,312	118,312	121,842	118,312	118,312	118,312
2006	120,320	118,815	118,815	124,851	118,815	118,815	118,815
2007	128,173	129,005	129,005	127,935	129,005	129,005	129,005
Forecast							
2008	132,081	132,746	133,263	131,095	133,358	135,610	133,026
2012	148,948	148,828	150,954	143,678	152,209	163,606	151,370
2017	173,091	171,696	175,256	159,690	179,760	206,170	177,610
2022	201,147	194,258	203,226	177,090	212,694	265,633	209,008
2027	233,751	219,785	235,377	196,385	251,951	344,630	246,980
AAGR 2007-27	**3.05%**	**2.70%**	**3.05%**	**2.17%**	**3.40%**	**5.04%**	**3.30%**

Sources: 2007 FAA TAF, FAA Aerospace Forecast, 2007-2020, 2007 U.S. TAF, Louisiana State Aviation System Plan 2000, 2004 Alexandria International Airport Part 150 Comparative Noise Study, and The LPA Group Incorporated 2007

The FAA Aerospace Forecasts show an average annual growth nationwide of approximately three percent throughout the forecast period. Therefore, the preferred forecast, which is a composite of the other six, appears to be a reasonable prediction of regional passenger demand throughout the forecast period.

Regional/Commuter Fleet Mix Assumptions

To project air carrier operations, it was necessary to make assumptions regarding average load factor (the relationship of enplanements per seats on the aircraft) and size or seating capacity of aircraft that typically serve the airport. Historic regional commuter aircraft include a combination of regional jets, CRJ-200 and ERJ 135/145, and turboprop aircraft, Saab 340. Based upon existing demand, it is anticipated that the destinations and aircraft fleet mix will remain relatively the same throughout the planning period. Although it is anticipated nationwide that regional jet activity will increase, it is believed on short-haul feeder routes that the use of turbojet aircraft is more cost effective.

Another factor influencing fleet operating characteristics is aircraft load factor on a given trip. The load factor at AEX is the number of available airplane seats that are filled by paying customers on each flight. In scheduled airline service, the FAA estimates the U.S. regional domestic fleet load factor to equal 75.7 percent in the base year 2007. However, at AEX, where commercial business travelers dominate, load factors are approximately 59 percent as shown in **Table 3-29**. Load factors were confirmed based upon information provided by air service operators.

TABLE 3-29 COMPARISON OF FAA AEROSPACE FORECAST REGIONAL LOAD FACTOR TO AEX DEPARTURE LOAD FACTOR					
	FAA Aerospace Forecast, 2007-2020		**Alexandria International Airport**		
Calendar Year	**Average Seats/ Operations**	**% Load Factor**	**Average Seats/ Operations**	**% Load Factor**	**Total Average Seats per Departure**
2007	51	75.70%	24	59.26%	41
Projected					
2012	54	76.40%	30	72.14%	41
2017	57	76.90%	36	87.81%	41
Extrapolated by LPA					
2022	60	77.60%	42	70.31%	60
2027	63	78.80%	53	89.00%	60
AAGR 2007-2027	**1.06%**	**0.20%**	**4.08%**	**2.05%**	

Sources: FAA Aerospace Forecasts, 2007-2020, Tables, respectively, AEX Comparative Air Traffic Report and The LPA Group Incorporated, 2008

According to JP Airlines Fleet International, several airlines operating at AEX have orders to upgrade to slightly larger regional jet aircraft (CRJ-700). It was, therefore, anticipated that a combination of regional jets and turboprop aircraft will continue in the short and mid-term, but seats available per departure will likely increase in the long-term.

Regional Aircraft Operations Projections

Aircraft operations are dependent on two primary factors: the number of passengers that must be served, and the average size of the aircraft that carries them. The larger the average aircraft in a given fleet at a specific airport, the fewer the number of operations needed to carry the same number of passengers. Regional and Air Taxi operations at AEX have typically consisted of a combination regional jet and turbojet aircraft providing service to Dallas/Ft. Worth, Atlanta, Memphis and Houston.

The preferred projection is based upon a ratio between aircraft seat configurations modified for AEX for domestic operations, the passenger enplanement forecast, and the historical percentage of departure operations (48.4 percent of total regional aircraft operations). Thus, utilizing the preferred enplanement forecast divided by the average passengers per departure (average load factor multiplied by average seats per departure) multiplied by two, resulted in 10,950 operations in 2008. It is anticipated that the load factor and seats per departure will continue to increase during the planning period. As a result, even as passenger enplanements increase, it is anticipated that operations will decrease in conjunction with the use of larger aircraft as shown in **Table 3-30**.

TABLE 3-30 FORECASTS OF REGIONAL AIRCRAFT OPERATIONS						
Year	**TAF Forecast**	**NPIAS**	**FAA Aerospace**	**Part 150**	**5-Year Historic**	**Load Factor (Preferred)**
2007	10,484	10,753	10,753	9,348	10,753	10,753
Forecast						
2008	10,667	11,011	10,846	9,473	11,031	10,950
2012	11,431	12,107	11,308	9,982	12,215	10,646
2017	12,463	13,631	12,020	10,649	13,876	10,262
2022	13,589	15,050	13,034	11,364	15,762	9,909
2027	14,816	16,616	14,499	12,130	17,905	9,250
AAGR 2007-27	**1.74%**	**2.20%**	**1.51%**	**1.31%**	**2.58%**	**-0.75%**

Sources: 2007 FAA TAF, 2007-2012 NPIAS, FAA Aerospace Forecasts, 2007-20, Alexandria International Airport Part 150 Noise Compatibility Study, 2004, URS, AEX historic data, and The LPA Group Incorporated 2007

Like the preferred passenger enplanement forecast, any major changes (i.e. introduction of new carrier, geo-political events, etc.) in the market would require that this projection be modified to provide an accurate predictor of future operations, and thus, infrastructure. It is recommended that the average aircraft size used in these projections be updated frequently due to the comparative immaturity and inherent volatility of the regional domestic market.

Regional Aircraft Peaking Activity

Unlike air carrier, the regional/air taxi operators are all scheduled, making it much easier to identify periods of peak activity. One of the key areas analyzed using peak demands is the passenger terminal, this analysis was conducted in the facility requirements chapter. Peak activity with regional/air carrier activity will affect things such as ticket counter space, security checkpoint size, passenger lobby area, aircraft gates, and baggage claim facilities.

Peak Hour Enplanements

This methodology is employed to derive the peaks in passenger enplanements. Monthly airline schedules were evaluated to identify trends during the peak month. Over the past year, the airline schedule has remained consistent from month to month; however, the peak month has fluctuated from month to month over the past several years. Since June was the peak month for the base year, it was used to characterize the peak month for the planning period. A review of the passenger enplanements for the base year revealed that 9.50 percent of regional/air taxi passenger enplanements were conducted in June. Since data was not available to accurately predict the peak day, the average day of the peak month was determined which was 403 enplanements in 2007.

The peak hour was based upon historic data from the years 2000-2007 obtained from the FAA ATADS database and air carrier information. This data illustrated that the peak hour was 20.7 percent of the average day of the peak month. Thus, applying these factors to the preferred enplanement forecast, as shown in **Table 3-31**, anticipates 159 peak hour enplanements by the year 2027.

TABLE 3-31 PEAK REGIONAL/AIR TAXI ENPLANEMENTS				
Year	**Regional/Air Taxi Enplanements**	**Peak Month (9.4%)**	**Average Day of Peak Month**	**Peak Hour (20.7% of Avg Day)**
2007	129,005	12,258	403	83
2008	133,026	12,640	416	86
2012	151,370	14,383	473	98
2017	177,610	16,876	555	115
2022	209,008	19,860	653	135
2027	246,980	23,468	771	159

Sources: AEX historic data, FAA ATADS peak day reports, 2000-2007, and The LPA Group Incorporated 2007

Peak Hour Operations

The peak hour forecasts were based upon historic data provided in the AEX Comparative Reports (1996-2007), FAA ACAIS, FAA ATADS and DOT Form 41 data. This data confirmed that of the 10,753 operations in 2007, 986 operations occurred in the peak month (June) representing 9.17%. As with the peak regional/air taxi enplanements, it is assumed that the level of passenger operations conducted during the busiest month will remain consistent over the planning period. Both the peak day and peak hour percentages are based upon historic data from 2000 through 2007.

In reviewing historic schedules and operations at AEX, the peak hour operations historically occur between 1100-1200 and 1900-2000. Thus, applying the established load factors to the peak hour enplanements resulted in approximately four operations per peak hour. In the long-term, however, in conjunction with the introduction of larger air taxi aircraft, it is anticipated that the peak hour operations will decrease from four (4) to three (3) per peak hour as illustrated in **Table 3-32**.

TABLE 3-32 PEAK REGIONAL/AIR TAXI OPERATIONS				
Year	**Total Ops**	**Peak Month (9.17%)**	**Peak Day (5.98%)**	**Peak Hour (6.78%)**
2007	10,753	986	59	4
2008	10,950	1004	60	4
2012	10,646	976	58	4
2017	10,262	941	56	4
2022	9,909	909	54	4
2027	9,250	848	51	3

Sources: AEX Air Traffic Activity Data, 2000-07, FAA ATADS peak day reports, 2000-2007, and The LPA Group Incorporated 2007

3.13 MILITARY FORECASTS

Military operations include aircraft operations that are conducted by an official branch of the U.S. military services. Military operations are the most difficult to predict since, unlike commercial or general aviation operations, they operate independently from socioeconomic trends. Military operations are impacted by a variety of factors including: national

economics, politics, Department of Defense mission requirements and spending, base activation or closure, troop deployments, training, etc. The U.S. military does not provide official data related to aviation activity, nor does the FAA provide any forecast methodology. The TAF is the only generalized forecast of military operations. In order to forecast military operations, information provided by the actual users must be acquired. Furthermore, it is important to note that FAA funding for aviation projects is distributed without regard for military activity.

The England Authority has had a long-standing relationship with the U.S. Military through a commercial lease with the US Army. Although there are no military aircraft based at AEX, both local and itinerant military operations are recorded. These operations are primarily in support of ISB military exercises, various training missions, and staging in support of military activity overseas. The airpark is attractive to military activity since AEX ATCT is operated by the Louisiana Air National Guard's 259th Air Traffic Control Squadron through a joint use agreement. Further, AEX is also desirable due to its proximity to Fort Polk and military operating areas as well as flight training navigational aids and U.S. Army ISB facilities located at the airpark. The addition of a precision approach radar (PAR) in early 2008 is anticipated to increase both local and itinerant training operations since it will be the only instrument approach of its kind within the region. As such, when aircraft arrive or depart the airfield, many will take the opportunity to practice flying the various instrument approaches available.

3.13.1 Local Operations

The total number of military operations at AEX has fluctuated over the last ten years primarily as result of decreased military exercises and training associated with military activity overseas. Local operations at AEX specifically refer to aircraft flying to a military range or restricted area located 8 to 10 miles to the southwest and west of AEX and also to aircraft flying in the local radar or visual pattern of the airport.

During that ten year period, the percentage of local operations has varied from a high of 83 percent in 1997 to a low of 57 percent in 2007. However, based upon information provided in the FAA approved *FAR Part 150 study* as well as from the 259th Air Traffic Control Squadron, local training operations are expected to increase by more than 40,000 operations as a result of the following information:

- As noted in the FAA approved *2007 FAR Part 150*, the 172nd Airlift Wing (AW) will increase C-17 and C-5 operations by approximately 37,440 annually (2 aircraft x 6 times a week x 30 patterns x 2 operations x 52 weeks). The majority of these operations will be conducted by C-17s with the remaining two percent conducted by C-5s.
- 41 percent of local operations are associated with C-130 operations. C-130 operations from Little Rock AFB and C-17 operations from Jackson MS will utilize AEX for Night Vision Goggle Training. According to military personnel, at full capacity, 50 VFR military operations per week or 2000 annual operations.

TABLE 3-33 FORECAST OF C-130 OPERATIONS	
Calendar Year	**Operations**
2007	2,336
2008*	3,307
2009**	3,628
2010**	4,336

Notes:
**30% increase in C130 operations in 2008*
***19.5% annual increase in 2009 and 2010.*
Sources: US Army, 259th ATC, FAA Approved 2007 FAR Part 150 Study, and The LPA Group Incorporated 2008

- Based upon discussions with pilots assigned to Barksdale AFB flying A-10 aircraft and Instructor Pilot flying T-1 aircraft from Columbus AFB, the Military Precision Approach Radar (PAR) approach is still within class syllabus for pilot training.
- PAR is estimated to increase IFR military operations in 2008 by 28%; adding an estimated 1,600 military operations annually through 2013.
- It is further anticipated that T-1 training operations will show a steady increase associated with the PAR approach which was estimated at approximately 5 percent annually. Training operations are anticipated to equal 2,551 of total local military operations as shown in **Table 3-34**.

TABLE 3-34 FORECAST OF T-1 AND A-10 TRAINING OPERATIONS	
Calendar Year	**Operations**
2008	1,999
2009	2,099
2010	2,204
2011	2,314
2012	2,430
2013	2,551

Notes:
**133 monthly PAR operations in 2008;*
***T-1 Operations represent 7% of total local military operations.*
****Estimate increase of at least 5% annually through 2013.*
Sources: US Army and US Air Force data, 259th ATC, FAA Approved FAR Part 150 Study, and The LPA Group Incorporated, 2008

Table 3-35 highlight anticipated local military operations compared to the FAA Approved 2007 and 2004 FAR Part 150 forecast.

TABLE 3-35 LOCAL MILITARY OPERATIONS			
Calendar Year	**FAA TAF**	**FAR Part 150**	**Recommended Forecast**
Historic			
2004	7,626	8,551	8,507
2005	15,952	47,077	15,451
2006	7,174	47,111	7,326
2007	5,486	47,144	5,697
Forecast			
2008	5,486	47,178	48,172
2012	5,486	47,336	49,902
2017	5,486	47,582	50,024
2022	5,486	47,755	50,024
2027	5,486	48,124	50,024
AAGR 2004-27	**-1.42%**	**7.80%**	**8.01%**
AAGR 2007-27	**0.00%**	**0.10%**	**11.47%**

Sources: FAA TAF 2007, FAA Approved URS AEX FAR Part 150 Noise Compatibility Study, AEX ATCT, Assumptions and Estimates for Aircraft Operations, Stacy Basham-Wagner, 2003, and The LPA Group Incorporated, 2007

As stated earlier, the FAA does not forecast military operations. The FAA approved *2007 FAR Part 150 Comparative Noise Study* stated based upon discussions with the AEX ATCT and U.S. Army ISB personnel that in 2005:

- The PAR approach would be operational,
- The 172nd Airlift Wing, operating C-141B and C-17 aircraft from Jackson, MS would perform random steep approach maneuvers at AEX, and
- Local C-130 operations will increase by 30 percent due to Night Vision Goggle training.

This resulted in an estimated increase in local operations of 38,526 in 2005 with an estimated five percent increase in training operations through the year 2010.

However since the PAR approach was not implemented until 2008 based upon information provided by AEX ATCT and historic data, it was forecast that operations originally intended to occur in 2005 will start in 2008. Further, the FAA approved FAR Part 150 did not consider, conservatively, the anticipated increase in T-1 and A-10 training operations associated with the installation of the PAR. Based upon information obtained from AEX ATCT, T-1/A-10 operations were expected to start as early as February 2008 since no other PAR approach is within the region. A five percent growth rate in T-1 and A-10 training operations is considered a moderate growth rate through the year 2013. Based upon information we received from 259th ATC, it can only realistically forecast operations through the year 2013. Training requirements beyond this point cannot be realistically forecast since they are impacted by geopolitical conditions worldwide.

3.13.2 Itinerant Operations

With the exception of 2007, historically itinerant military operations have accounted for less than 30 percent of total military operations at AEX. Itinerant operations at AEX have typically consisted of the transport of equipment and personnel related to military exercises as well as exercise participant aircraft and transient training aircraft. As such, when these aircraft arrive or depart the airfield, many will take the opportunity to practice flying various instrument approaches available. In 2004 according to the FAA approved *2007 FAR Part 150 Comparative Noise Study*, military itinerant operations at AEX were expected to increase by approximately 340 annual operations. Further, based upon discussions with JRTC and the 259th ATC, 1,248 annual random steep itinerant aircraft training operations were expected to occur as a result of the PAR installation. Lastly, three additional training exercises per year were expected to begin in 2010. The FAA approved *FAR Part 150* could not calculate the anticipated increase in itinerant military operations beyond 2010; therefore, itinerant military operations were assumed to remain constant from 2005 through 2025.

Since the PAR approach was not operational until early 2008, previously forecast itinerant military operations did not occur. Initially, 1,200 annual itinerant operations are anticipated with the installation of the PAR in 2008 increasing by approximately 5% annually. Thus, itinerant military forecast operations from 2008-2010 are anticipated to increase from 4,435 to 6,193 as shown in **Table 3-36**.

TABLE 3-36
ITINERANT MILITARY OPERATIONS

Calendar Year	FAA TAF	FAR Part 150	Recommended Forecast
Historic			
2003	3,290	3,208	3,208
2004	3,146	3,419	3,412
2005	4,099	5,007	3,996
2006	3,661	5,007	3,856
2007	3,951	5,007	4,435
Forecast			
2008	3,951	5,007	5,683
2012	3,951	5,007	6,193
2017	3,951	5,007	6,193
2022	3,951	5,007	6,193
2027	3,951	5,007	6,193
AAGR 2004-27	**1.00%**	**1.67%**	**2.63%**
AAGR 2007-27	**0.00%**	**0.00%**	**1.68%**

Sources: FAA TAF 2007, URS AEX FAR Part 150 Noise Compatibility Study, AEX ATCT, Assumptions and Estimates for Aircraft Operations, Stacy Basham-Wagner, 2003, and The LPA Group Incorporated, 2007

Further, airlift operations and associated training were expected to increase with the addition of three more military exercises in 2011. This equals approximately 510 additional annual operations. From the year 2011 through 2027, itinerant military operations were assumed to remain at the 2011 level since no additional data was available regarding future military

operations at AEX. Anticipated itinerant military operations compared to the 2007 FAA TAF and FAA approved *2007 Part 150 Noise Compatibility Study* are provided in **Table 3-36.**

3.13.3 Peaks in Military Aviation Activity

Previous military aviation activities were evaluated to identify trends during the peak month. Over the past 10 years, peaks in monthly military activity fluctuated. Since March or April historically represent the peak month for total military operations, it is used to depict typical peaking characteristics for the planning period. Peak day military operations were determined using the ATADS Top 5 Peak Days Report for military operations at AEX. No historical data was available to determine the peak hour operations. Therefore, based upon information obtained from ATC, 7 percent of the peak day would best representative the number of peak hour military operations. The results for the peak military activity forecast are depicted in **Table 3-37**.

TABLE 3-37
PEAK MILITARY AVIATION ACTIVITY

Year	Total Military Operations	Peak Month (29%)	Peak Day (3%)	Peak Hour (7%)
2007	10,132	2,938	88	6
2008	53,855	15,618	469	33
2012	56,095	16,268	488	34
2017	56,217	16,303	489	34
2022	56,217	16,303	489	34
2027	56,217	16,303	489	34

Sources: AEX historic data, Air Traffic Activity Data, 2000-07, and The LPA Group Incorporated 2007

3.14 AIR CARGO FORECAST

Global Air Cargo Trends

According to The International Air Cargo Association (TIACA), the air cargo industry transports approximately 40 percent of the world's trade by value, but a mere two percent by weight. The air cargo industry typically transports goods that are of high value, time-sensitive and lightweight in nature, which typically include:

- Aerospace - Equipment & Parts
- Automotive - Equipment & Parts
- Pharmaceuticals
- Computers & Computer Components
- Diagnostic Equipment
- Medical Equipment
- Software
- Textiles - Garments
- Consumer Electronics
- Perishables - Flowers, Fruit, Vegetables & Seafood
- Economically Perishable Materials - Printed Material

- Telecommunications Equipment - Cell Phones, Blackberries, etc.
- Photographic Film

In 2006, the domestic air freight and express market was valued at $33 billion, whereas the international air freight/express market was valued at $65 billion. Combined, the worldwide air cargo industry was valued at $98 billion in 2006. Globally, 85 percent of airline revenues come from passengers and 15 percent from cargo.

According to the most recent Boeing air cargo forecast, worldwide freight traffic is anticipated to grow approximately six to seven percent annually. This would represent a growth of more than 50 percent every ten years. Currently, 50 percent of all air cargo shipped worldwide is carried in passenger aircraft as belly freight, with the remaining 50 percent being shipped by freighter aircraft operators (i.e. Atlas and Polar Air Cargo) or by integrated express carriers (i.e. DHL, FedEx, and UPS).

3.14.1 Commercial Air Cargo Forecast

Three airports in Louisiana accommodate the majority of air cargo activity in the State: New Orleans (71 percent), Shreveport (25 percent) and Baton Rouge (3 percent). According to the Louisiana State Aviation System Plan, air cargo activity at AEX represents less than one percent of total commercial air cargo tonnage. It is anticipated that New Orleans International will continue to be the departure point for most regional international air cargo associated with Louisiana. Typically, international gateway airports attract air cargo from markets as far as 600 miles away.

According to *FAA Aerospace Forecast, 2007-2020*, air cargo activity has coincided with gross domestic product (GDP). Factors which have impacted air cargo traffic include improved productivity and globalization as well as declining real yields. Structural changes which have impacted the air cargo industry include the implementation of air cargo security regulations, domestic market maturation, the modal shift from air to other forms of transportation, fuel costs, open skies agreements as well as the growth of all-cargo carriers.

In determining commercial air cargo growth at AEX, the following assumptions were considered:

- Air cargo security restrictions will remain in place.
- The percentage of air cargo will continue to shift from passenger aircraft belly freight to freighter aircraft and integrated express carrier operators, and
- Long-term cargo activity will be tied to economic growth.

Further, the FAA predicts that domestic cargo revenue tons per mile (RTMs) will increase to 2.7 percent in 2007 and 4.7 percent in 2008 driven by anticipated growth in the U.S. economy. From 2008 through 2020, domestic cargo RTMs are anticipated to grow at a rate of 3.35 percent which coincides with anticipated U.S. economic growth.

Another forecast trend used to evaluate commercial growth at AEX was based upon the growth factors outlined in the Boeing World Air Cargo Forecast. The Boeing forecast provides three annual growth rates for the U.S. Domestic air cargo market. The three average annual growth rates are: low 3.3 percent, base 3.8 percent and high 4.2 percent.

Since commercial air cargo tonnage has historically been tied to domestic and worldwide growth, long-term U.S. Economic Growth estimates and FAA forecasts of gross domestic product by world region are outlined in **Table 3-38**.

TABLE 3-38
GROSS DOMESTIC PRODUCT GROWTH RATES

Year	U.S. Gross Domestic Product	U.S. Economic Growth Rate*
2000-05	2.5%	2.9%
2006	2.5%	2.9%
2007	2.9%	2.9%
2008	3.1%	2.9%
2009-10	3.0%	2.9%
2010-20	2.9%	2.9%
2006-20	2.9%	2.9%
2020-2030	3.0%	2.9%

*Note: * U.S. Long Term Growth based upon Price Index for 2006 as reported by the Bureau of Economic Analysis.*
Sources: Gross Domestic Product by World Region, FAA Aerospace Forecasts, 2007-2020, and Price Indexes for U.S. Domestic Market, 2006, Bureau of Economic Analysis, 2007

Applying these respective forecasts as well as a market share forecast related to anticipated statewide commercial air cargo growth, a moderate and high growth commercial air cargo forecast were developed as outlined in **Table 3-39**.

TABLE 3-39
COMMERCIAL AIR CARGO FORECASTS (IN POUNDS)

Year	Nat'l Domestic Growth	Market Share of LA	Adjusted Market Share	FAA Forecast	GDP Growth	Boeing Moderate Growth Rate for Domestic Cargo	Preferred Mid Growth	Preferred High Growth
Historic								
2006	69,571	69,571	69,571	69,571	69,571	69,571	69,571	69,571
2007	79,047	79,047	79,047	79,047	79,047	79,047	79,047	79,047
Forecast								
2008	81,497	188,658	153,448	82,762	81,395	82,051	82,762	82,367
2012	91,551	224,760	182,813	94,419	91,489	95,252	94,419	97,101
2017	105,780	279,904	227,665	111,326	105,708	114,778	111,326	119,279
2022	122,383	349,405	284,196	135,785	122,136	138,307	135,785	146,521
2027	141,875	437,510	355,857	174,414	141,118	166,660	174,414	179,986
AAGR 2007-27	**2.97%**	**8.93%**	**7.81%**	**4.04%**	**2.94%**	**3.80%**	**4.04%**	**4.20%**

Sources: FAA Aerospace Forecasts, 2007-2020, Bureau Economic Analysis, 2007, Louisiana State Aviation System Plan, 2000, Louisiana Department of Transportation, updated forecasts, 2004, Boeing World Air Cargo Report, 2006-2008, Alexandria Comparative Air Traffic Reports, 2006 and 2007, The LPA Group Incorporated 2007

Commercial air cargo tonnage at AEX is primarily provided through a combination of belly freight and air freight operators (i.e. Polar Air Cargo). However, it is anticipated based upon current trends that continued commercial air cargo growth will require a shift from belly freight to air freight operators and express carriers. This is primarily associated with anticipated higher load factors on commercial aircraft, FAA security standards related to the transportation of freight on commercial flights as well as the continued air freight and express carrier growth nationwide.

3.14.2 Military Air Cargo Forecast

Based upon information obtained from the airport, air cargo associated with military operations began in 2004. Total inbound and outbound air cargo equaled 20,827,822 pounds (approximately 9,447 tons). Based upon itinerant military operations, this equaled approximately 6,000 pounds per itinerant operation. However, military inbound and outbound cargo at AEX from 2004 through 2007 has decreased on average 22 percent annually. This coincides with a decrease in military exercises as a result of the Iraq War and combat missions in Afghanistan. However, military air cargo is expected to increase when military rotations resume at AEX.

Military air cargo is difficult, at best to forecast, since it is tied to a variety of factors. However, a typical methodology is to tie military air cargo growth to military spending. Using military spending forecasts provided by the Government Electronics Information Association (GEIA) and limited data from the U.S. Department of Defense via the Center of Defense Spending, military spending is forecast to decrease at an average annual growth rate of approximately 2 percent. In 2007, military spending was approximately 3.5 percent of total federal spending. Applying the military spending percentages to total military air cargo at AEX resulted in an average annual growth of approximately 2.95 percent as shown in **Table 3-40**.

TABLE 3-40
MILITARY AIR CARGO FORECAST

Year	Estimated DOD Spending Percentage	Total Military Air Cargo (Lbs)	Total Military Air Cargo (Metric Tons*)
Historic			
2006	3.2%	12,808,100	5,810
2007	3.5%	11,992,100	5,440
Forecast			
2008	3.42%	12,411,824	5,630
2012	3.10%	14,131,100	6,410
2017	2.75%	16,348,447	7,416
2022	2.75%	18,723,441	8,493
2027	2.75%	21,443,458	9,727
AAGR 2007-27	**-2.38%**	**2.95%**	**2.95%**

**Note: One metric ton equals 2204.62 pounds.*
Sources: Government Electronics and Information Association Military Spending Forecast, December 2007, Center of Defense Spending, December 2007 and The LPA Group Incorporated, 2007

3.14.3 Air Cargo Conclusions

Projections indicate that air cargo at AEX by the end of the twenty-year forecast period will increase from 12,071,147 lbs (~5,475 metric tons) to 21,617,872 lbs (~9,806 metric tons) in 2027 as shown in **Table 3-41**.

TABLE 3-41
AIR CARGO FORECAST

Calendar Year	Moderate Commercial Air Cargo Forecast	Military Air Cargo Forecast	Total Air Cargo (in Pounds)	Total Air Cargo (in Metric Tons)
Historic				
2006	69,571	12,808,100	12,877,671	5,841
2007	79,047	11,992,100	12,071,147	5,475
Forecast				
2008	82,762	12,411,824	12,494,586	5,667
2012	94,419	14,131,100	14,225,519	6,453
2017	111,326	16,348,447	16,459,773	7,466
2022	135,785	18,723,441	18,859,226	8,554
2027	174,414	21,443,458	21,617,872	9,806
AAGR 2007-27	**4.04%**	**2.95%**	**2.96%**	**2.96%**

Sources: U.S. GDP Growth, U.S. Military Spending, AEX Historic Data, and The LPA Group Incorporated, 2007

On a per day basis, this is the equivalent to 59,227 pounds per day. Given that a Boeing 727-200A cargo jet can typically accommodate 40,000 pounds per flight, by 2027, the equivalent of two daily B727s could accommodate the projected range of air cargo lift capacity for the AEX.

As cargo activity to and from AEX increases, air cargo transport could shift from belly freight to express or all-cargo carriers. Military air cargo will likely continue to be transported primarily in cargo type aircraft, such as C-5, C-17, and C-130 aircraft. It is anticipated, depending upon the type of aircraft, that at least one commercial and military cargo operations could occur daily. This is equal to approximately 1,460 annual operations ((365 days x 2 aircraft) x 2 operations). Since the majority of air cargo activity is associated with military operations, it will likely have a relatively minimal impact at AEX from an operational standpoint on the airport's longer-term needs. The bigger impact could be on the landside (buildings and aircraft ramp) facilities that may be needed to support both commercial and military air cargo operations. Interface with highway/interstate highways will also be important, as will overall ground access.

3.15 GENERAL AVIATION FORECASTS

General aviation activity experienced growth in the mid and late-1990s as a result of the Enactment of the General Aviation Revitalization Act (GARA). Statistics indicate that with the passage of GARA, the active general aviation aircraft fleet, general aviation activity and shipment of fixed wing general aviation aircraft all increased.

However, following the terrorist attacks of September 11, 2001, general aviation activity saw a significant decline as a result of restrictions placed on both commercial and general aviation operations nationwide. Since forecasts of general aviation are typically generated using a basic trend analysis, current and anticipated nationwide and local trends were evaluated.

General Aviation Industry Trends

Following the events of September 11, business aviation growth has become one of the fastest growing components of the GA sector. Companies and individuals are drawn to business aircraft as a result of improved business efficiency and productivity. Further, companies can control their travel, itineraries can be changed as needed, and the aircraft can fly to destinations not served by scheduled commercial airlines.

The National Business Aviation Association's (NBAA) Business Aviation Fact Book indicates that at least 75 percent of all Fortune 500 businesses operate general aviation aircraft and that 92 of the Fortune 100 companies operate general aviation aircraft. Business use of general aviation aircraft ranges from small, single-engine aircraft rentals to multiple aircraft corporate fleets supported by dedicated flight crews and mechanics. Business use of general aviation aircraft by smaller companies has increased as a result of various chartering, leasing, time-sharing, fractional ownership, interchange agreements, partnerships, and management contracts. NBAA estimated that the 2,591 companies that used fractional ownership arrangements in 1999 had grown to 6,217 companies by 2004, more than doubling over the five-year period.

Other growing segments of the business related general aviation aircraft fleet include "business liners" and "very light jets" (VLJ). Business liners are large business jets, such as the Boeing Business Jet (BBJ) and Airbus ACJ, which are reconfigured versions of commercial passenger aircraft. VLJs are a relatively new product line of small jets (5 to 6 seats) that cost substantially less than typical business jet aircraft in terms of both acquisition and operating costs.

Another factor in the growth of general aviation is the availability of advanced technologies, such as GPS navigation systems, glass cockpits, and carbon composites. Historically, this type of technology was only previously found in high end aircraft. As of 2006, 89 percent of piston-engine aircraft delivered had glass cockpits, and 50 percent of piston-engine airframes are composed of composites.

In the *FAA Aerospace Forecasts, 2007-2020*, general aviation activity rose slightly nationwide between 2000 and 2006 as a result of primarily turbine powered aircraft. As shown in **Table 3-42,** the number of active aircraft increased at a compound annual growth rate (CAGR) of 0.7 percent between 2000 and 2006. The number of both single-engine and multi-engine piston aircraft declined between 2000 and 2006, dropping at a rate of 0.1 percent and 1.4 percent, respectively.

TABLE 3-42 FAA ACTIVE GENERAL AVIATION AIRCRAFT					
Aircraft Category	**Aircraft (in Millions)**				
	2000	**2006**	**CAGR (2000-2006)**	**2020**	**CAGR (2006-20)**
Single Engine	149,422	148,236	-0.1%	155,570	0.3%
Multi-engine	21,091	19,364	-1.4%	18,817	-0.2%
Turbo-Prop	5,762	8,026	5.7%	8,761	0.6%
Turbo-Jet	7,001	10,032	6.2%	16,497	3.6%
VLJ	0	0	0.0%	6,300	100.0%
Piston Rotor	2,680	3,367	3.9%	7,363	5.7%
Turbine Rotor	4,470	5,865	4.6%	7,868	2.1%
Experimental	20,407	24,541	3.1%	33,891	2.3%
Sport	NA	400	0.0%	13,200	28.4%
Other Aircraft	6,700	6,592	-0.3%	6,647	0.1%
Total	**217,533**	**226,422**	**0.7%**	**274,914**	**1.4%**

Sources: FAA Aerospace Forecasts Fiscal Years 2007-2020, Table 27

The growth in the overall number of jets is an important trend that illustrates a movement in the general aviation community toward higher-performing, more demanding aircraft. Growth in general aviation turbine aircraft is projected to significantly outpace growth in all other segments of the general aviation aircraft fleet through the planning period. However, with respect to single engine aircraft, only modest growth is expected with a projected yield of 0.3 percent (CAGR) through 2020, while multi-engine aircraft are expected to decline in numbers, resulting in a CAGR of negative 0.2 percent.

Hours flown is another valuable aviation activity indicator since it captures aircraft utilization, frequency of use, and duration of use. This indicator shows that hours flown in general aviation aircraft dropped significantly in 2001, in large part because of how long general aviation was grounded after 9/11, as well as from corresponding flight restrictions that resulted. As shown in **Table 3-43**, hours flown by piston engine aircraft have not recovered to pre-9/11 levels, while hours flown by turbine aircraft have exceeded 2000 levels.

TABLE 3-43 FAA GENERAL AVIATION AND AIR TAXI HOURS FLOWN (THOUSANDS)					
Aircraft Category	**2000**	**2006**	**CAGR (2000-06)**	**2020**	**CAGR (2006-20)**
Single-Engine	18,089	13,854	-4.3%	16,143	1.1%
Multi-Engine	3,400	2,684	-3.9%	2,796	0.3%
Turboprop	1,986	2,143	1.3%	2,414	0.9%
Turbojet*	2,755	3,884	5.9%	13,587	9.4%
Piston Rotor	531	755	6.0%	1,770	6.3%
Turbine Rotor	1,777	2,526	6.0%	3,634	2.6%
Experimental	1,307	1,398	1.1%	2,071	2.8%
Sport	NA	22	0.0%	1,146	32.6%
Other Aircraft	374	277	-4.9%	299	0.5%
Total	30,219	27,543	-1.5%	43,860	3.4%

*Note: * VLJ hours are included in the Turbojet category*
Source: FAA Aerospace Forecasts Fiscal Years 2007-2020, Table 28.

As projected by the FAA, the CAGR for hours flown nationally from 2006 to 2020 is expected to be 3.4 percent, compared to the forecasted average annual growth rate for the general aviation active fleet of 1.4 percent. The projected increase in hours flown reflects the anticipated increase in aircraft utilization. Hours flown by general aviation aircraft are projected to reach approximately 43.9 million by 2020, compared to 27.5 million in 2006. Some of this growth is attributed to the introduction of the "sport" aircraft classification and the introduction of VLJs.

The FAA provides two forecasts (Terminal Area Forecast and FAA Aerospace Forecasts) related to future general aviation activity. FAA forecasts of general aviation activity were based upon discussions with industry experts relating to aircraft fleet size, GA hours flown and aircraft utilization. Further, both the TAF and FAA Aerospace Forecasts consider local and national trends when applying anticipated growth to baseline assumptions. FAA GA measures as outlined in the *FAA Aerospace Forecast 2007-2020* and Alexandria International Airport TAF (AEX TAF) are shown in **Table 3-44**.

TABLE 3-44
FAA GENERAL AVIATION FORECASTS

Growth Measure	CAGR
FAA Aerospace Forecasts 2007-2020	
Single Engine	0.3%
Multi-Engine	-0.2%
Turboprop	0.6%
Total Multi-Engine	4.1%
Turbojet*	6.0%
Total Fleet	1.4%
General Aviation Hours Flown	3.4%
General Aviation Pilots	0.6%
Alexandria International Airport TAF	
Itinerant GA	3.79%
Local GA	1.4%
Average	1.9%
Composite Average	**1.8%**

Sources: FAA Aerospace Forecasts 2007-2020, FAA Terminal Area Forecasts.

Due to the cyclical nature of GA activity, low, moderate and high projections of general aviation operational demand were developed for AEX.

3.15.1 Itinerant General Aviation Operations

Itinerant operations are defined by FAA as all GA operations that occur outside the airport pattern (approximately 20 miles). Itinerant GA operations at AEX from 1996 to 2007 have declined on average approximately 6.15 percent annually. However, the FAA TAF forecast anticipates a significant increase in itinerant GA operations at AEX primarily due to increased demand for business jets, the introduction of VLJs as well as the installation of the PAR

approach on Runway 14. The FAA TAF average annual growth rate from 2007 to 2027 is 3.79 percent at AEX. Applying the FAA average annual growth rates to historic GA activity at AEX provided the high forecast of GA operations.

The FAA Aerospace Forecast 2007-2020 forecasts GA growth nationwide to increase by 1.4 percent annually. The FAA Aerospace Forecast does not differentiate between itinerant and local operations. The FAA forecast growth rate was applied to actual itinerant GA operations at AEX to derive the low growth forecast.

Another forecasting methodology useful in determining itinerant operations is the market share forecast. Historically, itinerant operations at AEX represent 1.9 percent of total itinerant general aviation operations for the state of Louisiana. Applying this percentage to FAA and Louisiana Department of Transportation forecasts, the average annual growth from 2007-2027 was 2.13 percent, which represents the moderate growth scenario.

The FAA approved *2007 FAR Part 150 Noise Compatibility Study* itinerant GA operations forecast was based upon the expected national level of growth, which at the time was 1.2 percent. A comparison of all five forecasts is provided in **Table 3-45**.

TABLE 3-45
ITINERANT GENERAL AVIATION FORECAST

Year	FAA TAF	FAR Part 150	Low	Moderate	High (Preferred)
Historic					
2006	5,193	5,667	5,098	5,098	5,098
2007	5,006	5,735	5,013	5,013	5,013
Forecast					
2008	5,287	5,804	5,083	5,103	5,203
2012	6,577	6,088	5,374	5,839	6,037
2017	7,933	6,462	5,761	6,545	7,269
2022	9,038	6,860	6,175	7,072	8,753
2027	10,526	7,281	6,620	7,643	10,541
AAGR 2007-27	**3.79%**	**1.20%**	**1.40%**	**2.13%**	**3.79%**

Sources: FAA Terminal Area Forecast, URS FAR Part 150, FAA Aerospace Forecasts 2007-20, Louisiana DOT Transportation Plan and TAF Forecast, and The LPA Group Incorporated 2007

Although all three forecasts may be relevant, discussions with Millionaire, the FBO, airport staff and air traffic control suggests that the high forecast of itinerant GA operations at AEX over the planning period was determined to be the most realistic.

3.15.2 Local General Aviation Operations

From 1996 through 2006, the average annual growth rate for local general aviation operations was 12 percent. Growth of this magnitude is typically linked to expansion of airport facilities, such as hangars. However, this level of growth is unlikely to be sustainable throughout the long-term planning period. Further, AEX sustained a 14 percent decrease in local GA

operations from 2006 through 2007 primarily as a result of increased fuel costs and limited economic growth in 2007.

Still growth in local GA operations is likely since AEX provides the only precision instrument approach capability within the local region. As discussed in the itinerant operations forecast, three forecasts of local GA development were produced (low, moderate, and high) based upon national and local growth rates. The low growth rate was based upon the FAA Terminal Area Forecast for local operations at AEX. This growth rate assumes that local operations will not increase to the degree of itinerant because of the GA trends toward business and fractional ownership.

The moderate growth rate is based upon the composite growth rate shown in **Table 3-46** which is based upon the average FAA Aerospace Forecast Growth and FAA Terminal Area Growth for Alexandria International Airport. The high forecast is based upon the market share trend forecast. Historically, local GA operations accounted for approximately 12.34 percent (the average of 2001-07) of total local GA operations within the state. Applying this percentage to forecast statewide operations resulted in an average annual growth rate of approximately 2.07 percent for the twenty-year planning period. A comparison of the TAF, FAR Part 150, low, moderate and high forecasts is provided in **Table 3-46.**

TABLE 3-46
LOCAL GENERAL AVIATION FORECAST

Year	FAA TAF	FAR Part 150	Low (Preferred Forecast)	Moderate	High
Historic					
2006	28,499	23,257	26,902	26,902	26,902
2007	24,077	23,630	23,025	23,025	23,025
Forecast					
2008	24,414	24,008	23,347	23,439	27,103
2012	25,808	25,481	24,683	25,173	28,474
2017	27,662	27,315	26,459	27,522	30,305
2022	29,650	29,282	28,364	30,090	32,278
2027	31,779	31,390	30,406	32,897	34,690
AAGR 2007-27	**1.40%**	**1.43%**	**1.40%**	**1.80%**	**2.07%**

Sources: FAA Terminal Area Forecast, URS FAR Part 150, FAA Aerospace Forecasts 2007-20, Louisiana DOT Transportation Plan, Louisiana Statewide TAF Forecast, and The LPA Group Incorporated, 2007

Again, as shown in the itinerant GA forecast, the type of local operations at AEX will remain somewhat minimal, and, therefore, the low forecast was determined as the most realistic forecast.

3.15.3 Peak General Aviation Operations

It is important to analyze peak general aviation operations to identify areas of infrastructure that may require improvement. By forecasting peak activity levels, facility requirements can be properly planned for and addressed to prevent excess congestion and delay. Airport

facilities that are affected by peak demands are often those associated with itinerant general aviation, primarily apron space and FBO facilities.

Using historic peak month, day and hour data obtained from AEX records and the ATADs database, the peak month represents approximately 5 percent of total annual GA operations. Applying the peak day percentage of 3.4 percent obtained from the ATADs database, forecast peak day operations in 2027 would be approximately 73. Limited historic peak hourly data was available to determine the peak hour percentage. However through discussions with the local FBO, it was estimated that 5 percent of the peak month would be a reasonable representation of peak hour operations. Peak month, day and hourly forecasts of moderate GA activity are provided in **Table 3-47**.

TABLE 3-47
PEAK GENERAL AVIATION ACTIVITY

Year	Total GA Operations	Peak Month (5.1%)	Peak Day (3.4%)	Peak Hour (7.4%)
2007	28,038	1,447	50	4
2008	28,550	1,473	51	4
2012	30,719	1,585	54	4
2017	33,729	1,741	60	4
2022	37,118	1,916	66	5
2027	40,947	2,113	73	5

Sources: AEX historic data, Air Traffic Activity Data, 2000-07, and The LPA Group Incorporated, 2007.

3.15.4 Operational Fleet Mix

In discussions with ATCT personnel, it was determined that current and anticipated GA operations are inline with the fleet mix breakdown shown in the FAA approved *FAR Part 150 Noise Compatibility Study*. Using this information in conjunction with the FAA forecast growth rates outlined in *FAA Aerospace Forecasts, Fiscal Years 2007-2020*, resulted in the following fleet mix breakdown shown in **Table 3-48.**

TABLE 3.48
GENERAL AVIATION FLEET MIX FORECAST

Year	Single Engine*	Multi-Engine*	Turboprop	Jet	VLJ	Rotorcraft
Historic						
2006	27,596	2,365	1,275	765	0	0
2007	23,853	2,139	1,243	752	0	50
Forecast						
2008	24,168	2,153	1,251	927	0	52
2012	25,468	2,212	1,281	1,622	76	59
2017	27,197	2,292	1,320	2,570	281	70
2022	29,048	2,377	1,360	3,265	985	83
2027	31,030	2,470	1,401	4,268	1,680	98
AAGR 2007-27	**1.32%**	**0.72%**	**0.60%**	**9.07%**	**100.00%**	**3.40%**

Notes: Single and Multi-engine aircraft include local and itinerant operations.*
Sources: AEX Historic Reports, 2005 FAR Part 150 Noise Compatibility Report, URS, and The LPA Group Incorporated, 2008

Local GA operations at AEX are limited to single-engine and multi-engine piston aircraft, which typically perform training operations within the airport flight pattern. Although turbine aircraft and rotorcraft are physically based at the airport, their operations are not considered local since their operations typically occur outside the 20 NM radius of the airport.

3.15.5 Based Aircraft

Based aircraft at AEX have fluctuated between 40 in 2007 to 52 in 2004. According to airport records, 40 aircraft were based at the airport in 2007. Of those aircraft, 29 were single-engine piston, 3 multi-engine piston, 8 turbine and 1 helicopter. Growth in based aircraft is dependent upon a number of factors, including pilot population, disposable income, employment, Airport fees, fuel, and available facilities. In order to obtain an accurate demand of future GA facilities, it was necessary to determine the number and type of aircraft that would be based at AEX.

Several factors and trend analyses were considered in the development of the based aircraft forecasts including local operations, available facilities and historic growth. Both FAA national and local forecasts of based aircraft demand anticipate an annual average growth of approximately 1 percent throughout the planning period. Historical based aircraft demand statewide has been around 1.17 percent.

Since historic based aircraft has fluctuated significantly from 2000 through 2007, a more moderate growth rate similar to the TAF was used to identify the likely number of based aircraft at AEX in the year 2027 as shown in **Table 3-49**.

TABLE 3-49
BASED AIRCRAFT FORECAST

Year	TAF	Historic	Part 150	LAASP	Preferred
Historic					
2005	48	48	53	48	48
2006	43	43	53	43	43
2007	43	40	54	40	40
Forecast					
2008	44	40	54	40	40
2012	45	41	56	42	42
2017	46	42	59	45	44
2022	48	43	63	48	47
2027	53	44	67	50	49
AAGR 2007-27	**1.01%**	**0.49%**	**1.06%**	**1.17%**	**1.01%**

Sources: FAA TAF, 2007, FAA Aerospace Forecasts Fiscal Year 2007-2020, URS FAR Part 150 Noise Compatibility Study, Louisiana Aviation System Plan, Wilbur Smith, AEX historic reports, and The LPA Group Incorporated, 2007.

Based Aircraft Fleet Mix

Table 3-50 presents the forecast of based aircraft by type. Utilizing the historic breakdown of based aircraft as a guide in conjunction with the GA aircraft growth rates provided in the FAA Aerospace Forecast, 2007 through 2020, the future based aircraft fleet mix was determined.

Based upon this assumption, the estimated distribution of based aircraft for the base year 2007 are as follows:

- 70 percent single-engine piston
- 7.5 percent multi-engine piston
- 20 percent turbine
- 2.5 percent helicopter (rotorcraft)

TABLE 3-50
BASED AIRCRAFT FLEET MIX

Year	Single Engine	Multi Engine	Turbine	VLJ	Helicopter	Total
Historic						
2004	29	17	6	0	0	52
2005	29	13	6	0	0	48
2006	28	7	7	0	1	43
2007	28	3	8	0	1	40
Forecast						
2008	28	3	8	0	1	40
2012	29	3	9	1	1	42
2017	29	3	9	2	1	44
2022	30	3	9	3	2	47
2027	30	3	10	4	2	49

Sources: AEX historic data, FAA Aerospace Forecasts Fiscal Years 2007-2020 and The LPA Group Incorporated, 2007.

3.16 AIRCRAFT INSTRUMENT OPERATIONS

Instrument operations are conducted as a component of pilot training, during commercial operations, and during inclement weather. Historically, AEX has witnessed a steady increase in instrument operations over the past ten years. The *FAA Aerospace Forecast, 2007-2020* and *FAA Long Range Forecasts, 2020, 2025 and 2030,* both predict that instrument operations will continue to increase at an average annual rate of 2.30 percent. Historic information obtained from the airport and FAA ATADs Instrument Operations Report showed that:

- 100 percent of air carrier and air taxi operations are filed as an instrument operation.
- 17 percent of total GA operations are designated as instrument, and
- 34 percent of total military operations are designated as instrument.

Applying the FAA average annual growth rate to the GA percentage of total operations increases the percentage from 17 percent in 2006 to 27.41 percent in 2027.

The percent of military instrument operations to total military operations has historically been approximately 34 percent. However, with the addition of the PAR, the percent of instrument operations is forecast to increase to approximately 86 percent due to the following:

- 1200 annual operations associated with T-1 and A-10 Training Operations
- 30 percent increase (approximately 701 operations) of C-130 night vision training operations
- 37,440 additional annual night vision goggle training associated with C-17 and C-5 operations ((((2 aircraft x 6 times per week) x 30 patterns) x 2 operations) x 52 weeks)
- 1,248 annual random steep approach training operations
- 173 instrument operations associated with military exercises beginning in 2011, and
- An anticipated five percent increase in T-1 and A-10 training through 2013.

Based upon these assumptions, **Table 3-51** outlines the instrument operations forecast at AEX for the twenty-year planning period.

3.17 SUMMARY OF AVIATION ACTIVITY FORECASTS

The preceding chapter presented a comprehensive discussion of the historical and current trends relating to passenger airline, general aviation, military and air cargo demand. Specific information related to the history of these activities at AEX was also provided. This information was utilized as input to develop comprehensive forecast scenarios designed to provide projections of anticipated growth over the twenty-year planning period. These projections will be considered in the next chapter where they will be compared to existing and planned airport facilities at AEX. The intent of this comparison will be to determine the ability of current/planned facilities to meet projected demand.

Each of the peak elements of enplanements and operations will be considered in the facility requirements chapter to identify potential shortcomings in airport infrastructure over the planning period. Special circumstances such as natural disasters may place additional demand upon the airport, but planning for normal peak activity will better prepare the airport for any additional unforeseen demand.

Tables 3-52 and **3-53** provide a summary of the aviation activity forecasts for AEX.

TABLE 3-51
FORECAST OF INSTRUMENT OPERATIONS

Calendar Year	Air Carrier Operations*	Air Taxi Operations*	GA Operations	Military Operations*	Total Instrument Operations	Percentage of Total Operations
Historic						
2006	1,661	8,754	32,000	11,182	19,009	35%
2007	1,695	10,753	28,038	10,132	16,048**	32%
Forecast						
2008	1,719	10,950	28,550	53,855	65,047	68%
2012	1,780	10,646	56,095	56,095	67,761	68%
2017	1,780	10,262	56,217	56,217	68,641	67%
2022	1,924	9,909	37,118	56,217	69,806	66%
2027	1,924	9,250	40,947	56,217	70,804	65%
AAGR 2006-27	**0.70%**	**0.26%**	**1.18%**	**7.99%**	**6.46%**	**2.95%**

*Notes: *Commercial and military air cargo is included in the Air Carrier, Air Taxi and Military operations forecasts.*
***ATADS Data, 2007/2008*
Sources: AEX Historic Data, 1995-2007, ATADS Instrument Operations, 2000-2006, and The LPA Group Inc. 2007

TABLE 3-52
COMPARISON BETWEEN TAF AND AIRPORT FORECAST
ALEXANDRIA INTERNATIONAL AIRPORT

	Year	Airport Forecast	TAF Forecast	AF/TAF Difference	Adjusted TAF Forecast[1]	Adjusted AF/TAF Difference[2]
Passenger Enplanements						
Base yr.	2007	145,770	130,658	11.57%	145,770	0.00%
Base yr. + 5yrs.	2012	184,487	151,433	21.83%	169,023	9.15%
Base yr. + 10yrs.	2017	210,727	175,576	20.02%	195,985	7.52%
Base yr. + 15yrs.	2022	251,125	203,632	23.32%	227,247	10.51%
Base yr. + 20yrs.	2027	289,097	236,236	22.38%	263,497	9.72%
Commercial Operations						
Base yr.	2007	12,448	12,227	1.81%	12,448	0.00%
Base yr. + 5yrs.	2012	12,426	13,174	-5.68%	13,427	-7.45%
Base yr. + 10yrs.	2017	12,042	14,206	-15.23%	14,483	-16.85%
Base yr. + 15yrs.	2022	11,832	15,332	-22.83%	15,621	-24.26%
Base yr. + 20yrs.	2027	11,174	16,559	-32.52%	16,850	-33.68%
Total Operations[3]						
Base yr.	2007	50,618	50,747	-0.25%	50,618	0.00%
Base yr. + 5yrs.	2012	99,241	54,996	80.45%	54,492	82.12%
Base yr. + 10yrs.	2017	101,987	59,238	72.17%	58,662	73.86%
Base yr. + 15yrs.	2022	105,167	63,457	65.73%	63,151	66.53%
Base yr. + 20yrs.	2027	108,338	67,863	59.64%	67,984	59.36%

Notes:
[1]The Adjusted TAF Forecast applies the 2007 TAF Forecast Growth Rates for Passenger Enplanements, Commercial Operations and Total Operations using the historic 2007 base year data for AEX.
[2]The Adjusted AF/TAF Difference determines the percentage difference between the Airport Forecast and the Adjusted TAF Forecast.
[3]The key difference in total operations between the 2007 TAF and Airport Forecast is primarily attributed to growth in military operations. The TAF assumes that both local and itinerant military operations will remain at the 2007 forecast throughout the planning period. However, based upon information obtained from the England Airpark Authority, JRTC, and 259th ATC Squadron, both local and itinerant military operations are expected to increase by more than five times total 2007 military operations.

Source: FAA TAF, December 2007, and The LPA Group Incorporated, 2008

It is important to note that the significant discrepancy in total operations is primarily due to the TAF showing no growth in air carrier operations as well as local and itinerant military operations. Typically military operations are not forecast unless specific factual information is available to reasonably forecast future activity. At AEX, this information was provided by the JRTC and 259th Air Traffic Control. Since air carrier activity at AEX is also tied to military activity, information provided from these two sources was also used to develop the air carrier enplanement and operational forecasts for the twenty- year planning period.

TABLE 3-53
AIRPORT PLANNING FORECASTS
FORECAST LEVELS AND GROWTH RATES

Alexandria International Airport England Authority	**Specify Base Year: 2007**						**Average Annual Compound Growth Rates**				
	Base Yr. Level	**Base Yr. + 1yr.**	**Base Yr. + 5yrs.**	**Base Yr. + 10yrs.**	**Base Yr. + 15yrs.**	**Base Yr. + 20yrs.**	**Base yr. to +1**	**Base yr. to +5**	**Base yr. to +10**	**Base yr. to +15**	**Base yr. to +20**
Passenger Enplanements											
Domestic Commercial (Charter)	16,765	19,409	33,117	33,117	42,117	42,117	97.54%	14.59%	7.04%	6.33%	4.71%
International Commercial (Charter)	0	0	0	0	0	0	0.00%	0.00%	0.00%	0.00%	0.00%
TOTAL CHARTER PASSENGER ENPLANEMENTS	**16,765**	**19,409**	**33,117**	**33,117**	**42,117**	**42,117**	**15.77%**	**14.59%**	**7.04%**	**6.33%**	**4.71%**
Commercial Regional/Commuter Enplanements	129,005	133,026	151,370	177,610	209,008	246,980	3.12%	3.25%	3.25%	3.27%	3.30%
TOTAL PASSENGER ENPLANEMENTS	**145,770**	**152,435**	**184,487**	**210,727**	**251,125**	**289,097**	**4.57%**	**4.82%**	**3.75%**	**3.69%**	**3.48%**
Operations											
Itinerant											
Air Carrier	1,695	1,719	1,780	1,780	1,924	1,924	1.41%	0.98%	0.49%	0.85%	0.64%
Air Taxi	10,753	10,950	10,646	10,262	9,909	9,250	1.83%	-0.20%	-0.47%	-0.54%	-0.75%
Regional/Commuter	5,013	5,203	6,037	7,269	8,753	10,541	3.79%	3.79%	3.79%	3.79%	3.79%
General Aviation	4,435	5,683	6,193	6,193	6,193	6,193	28.14%	6.91%	3.40%	2.25%	1.68%
Military	**21,896**	**23,555**	**24,656**	**25,504**	**26,779**	**27,908**	7.58%	2.40%	1.54%	1.35%	1.22%
Total Itinerant Operations	1,695	1,719	1,780	1,780	1,924	1,924	1.41%	0.98%	0.49%	0.85%	0.64%
Local											
General Aviation	23,025	23,347	24,683	26,459	28,364	30,406	1.40%	1.40%	1.40%	1.40%	1.40%
Military	5,697	48,172	49,902	50,024	50,024	50,024	745.57%	54.35%	24.27%	15.59%	11.47%
Total Local Operations	**28,722**	**71,520**	**74,585**	**76,483**	**78,388**	**80,430**	**149.01%**	**21.03%**	**10.29%**	**6.92%**	**5.28%**
TOTAL OPERATIONS	**50,618**	**95,075**	**99,241**	**101,987**	**105,167**	**108,338**	**87.83%**	**14.41%**	**7.26%**	**5.00%**	**3.88%**

Instrument Operations*	16,048	65,047	67,761	68,641	69,806	70,804	305.33%	33.39%	15.64%	10.30%	7.70%
Cargo/Mail (Exported and Imported Tons)	5,475	5,667	6,453	7,466	8,554	9,806	3.51%	3.34%	3.15%	3.02%	2.96%

*Note: *Instrument operations are forecast to increase significantly due to the implementation of the PAR approach and increased military training activity.*

Based Aircraft											
Single Engine (Piston)	28	28	29	29	30	30	0.40%	0.40%	0.40%	0.40%	0.40%
Multi Engine (Piston)	3	3	3	3	3	3	-0.20%	-0.20%	-0.20%	-0.20%	-0.20%
Turboprop	0	0	0	0	0	0	0.00%	0.00%	0.00%	0.00%	0.00%
Turbojet (includes VLJs)	8	8	9	11	12	14	3.30%	3.16%	3.00%	2.86%	2.74%
Helicopter	1	1	1	1	2	2	3.40%	3.40%	3.40%	3.40%	3.40%
Other	0	0	0	0	0	0	0.00%	0.00%	0.00%	0.00%	0.00%
TOTAL	40	**40**	**40**	**42**	**44**	**47**	**49**	**1.01%**	**0.84%**	**1.01%**	**1.01%**

TABLE 3-53
AIRPORT PLANNING FORECASTS
FORECAST LEVELS AND GROWTH RATES

Alexandria International Airport **England Authority**	**Specify Base Year: 2007**						**Average Annual Compound Growth Rates**				
	Base Yr. Level	**Base Yr. + 1yr.**	**Base Yr. + 5yrs.**	**Base Yr. + 10yrs.**	**Base Yr. + 15yrs.**	**Base Yr. + 20yrs.**	**Base yr. to +1**	**Base yr. to +5**	**Base yr. to +10**	**Base yr. to +15**	**Base yr. to +20**
Operational Factors											
Average aircraft size (seats)											
Air Carrier - Domestic	161	184	244	244	203	203	14.63%	8.71%	4.26%	1.56%	1.17%
Air Carrier - International	0.00	0.00	0.00	0.00	0.00	0.00	0.00%	0.00%	0.00%	0.00%	0.00%
Regional/Commuter	41	41	41	41	60	60	1.14%	0.23%	0.11%	2.65%	1.98%
Average Enplaning Load Factor											
Air Carrier - Domestic	112.31%	100.00%	100.00%	100.00%	100.00%	100.00%	-10.96%	-2.29%	-1.15%	-0.77%	-0.58%
Air Carrier - International	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Regional/Commuter	59.26%	61.64%	72.14%	87.81%	70.31%	89.00%	4.01%	4.01%	4.01%	1.15%	2.05%
GA Operations Per Based Aircraft (OPBA)	701	707	736	763	798	837	0.81%	0.99%	0.85%	0.87%	0.89%

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