

CHAPTER 4. AVIATION ACTIVITY FORECASTS

Prudent planning for the long-term development of an airport requires a documented forecast of aviation activity anticipated at the facility over the planning period. Forecasts of general aviation activity were prepared for Fort Worth Meacham International Airport for the 2007, 2012 and 2022 time periods. A range of scenarios for Air Carrier activity have been developed for a ten-year period. (Air Cargo Forecasts will be added at a later date.) The forecasts will be used to evaluate facility needs for the short, intermediate and long-range planning periods. The forecasts will also provide a basis for financial planning and environmental evaluation.

GENERAL AVIATION FORECASTS

The forecast analysis includes projections of:

- Total based general aviation aircraft by type (single engine piston, multi-engine piston, turboprop, turbojet, and helicopters).
- Annual general aviation aircraft operations (takeoffs and landings) by type of operation (local versus itinerant).
- Aircraft operations in the peak hour.

Due to uncertainties in the aviation industry, long-term forecasting of airport activity is approximate in nature. The forecasts described here were developed using the best available information and will provide useful guidance on future airport facility needs.

It is important to note that the forecasts presented herein represent unconstrained potential or "market-driven" demand, without consideration of the physical, safety, noise, regulatory, institutional, or political constraints that could preclude development of facilities to fully serve the demand.

General aviation (GA) is defined as all civil flying not classified as air carrier and includes a variety of activity such as personal flying, transport by corporate-owned aircraft, air taxi, and agricultural application.

NATIONWIDE TRENDS IN GENERAL AVIATION GROWTH

The Federal Aviation Administration (FAA) annually projects nation-wide growth in aviation activity. The FAA Aerospace Forecast, Fiscal Years 2002-2013, published in March 2002, discussed recent trends in general aviation activity and the future of general aviation over the next ten years as seen by the FAA. The following material is taken from that report:

“The turnaround in the general aviation industry that began with the passage of the General Aviation Revitalization Act in 1994 appears to have slowed considerably in 2001. While the slowdown in U.S. economic activity can be partially blamed for the slowing of demand for general aviation products and services, the events of September 11th and their aftermath are expected to have the greatest and longest impact on the general aviation industry. Based on projections by the Aerospace Industries Association of America (AIAA), general aviation aircraft shipments are expected to decline for the first time since 1994 (down 8.8 percent to 2,556).

General aviation activity counts at FAA air traffic facilities were down significantly during most of 2001. Operations at combined FAA and contract towers were down 5.7 percent, with itinerant operations down 6.2 percent and local operations down 5.0 percent from 2000 activity levels. The one bright spot for general aviation is in the business/corporate segment of the industry where increased growth in fractional ownership companies and corporate flying has continued to expand the market for jet aircraft. The business/ corporate side of general aviation appears well situated to benefit from the stringent security restrictions imposed on flying by commercial aircraft. Safety concerns for corporate staff, combined with increased check-in and security clearance times at many U.S. airports appear to have increased the interest in fractional or corporate aircraft ownership as well as in on-demand charter flights. The current forecast assumes that business use of general aviation aircraft will expand much more rapidly than personal/sport use. This is due largely

to the expected continued rapid growth in fractional ownership and is reflected in the changing composition of the general aviation fleet mix.

The active general aviation fleet is projected to increase at an average annual rate of only 0.3 percent over the 12-year forecast period, growing from 216,150 to 225,260 aircraft in 2013. The more expensive and sophisticated turbine-powered fleet (including rotorcraft) is projected to grow at an average annual rate of 1.8 percent over the 12-year forecast period. However, the jet fleet is responsible for most of this growth. The number of jet aircraft is projected to increase from 7,150 in 2001 to 10,850 in 2013, an average annual increase of 3.5 percent.

Piston powered aircraft (including rotorcraft) are projected to increase from 171,700 in 2001 to 175,640 in 2013, an average increase of only 0.2 percent annually. This slow growth is due, in large part, to declining numbers during the 2002-2004 time period as pleasure/sport flying recovers from the impact of high avgas (aviation gasoline) prices, the U.S. economic recession, and the aftermath of the terrorist attacks. After 2004, the piston fleet is forecast to increase at an average annual rate of 0.4 percent.

The number of general aviation hours flown is projected to decline by 2.2 percent in 2002 and increase by only 0.4 percent in 2003, largely the result of declining U.S. economic activity and the lingering effects of the terrorist attacks. However, hours flown are expected to increase at an average annual rate of 1.5 percent during the last 10 years of the forecast period. Much of the increase over this latter period reflects increased flying by business/corporate aircraft and increases in the utilization of other general aviation aircraft.

The disturbing news for general aviation is that the number of student pilots is projected to decline by 4.5 percent in 2002 and an additional 1.2 percent in 2003. These declines reflect the uncertainties surrounding the restrictions imposed on flight school and pilot training. It has been estimated that as many as 20 percent of student pilots are foreign nationals and are now subject to increased scrutiny and lengthy background checks. Losses of this magnitude could result in the closure of many flight schools.”

The FAA forecast of nation-wide growth in general aviation aircraft is shown in Table 4-1.

Table 4-1. FAA Forecast of Active General Aviation Aircraft in the U.S. [a]

Year	Thousands of Aircraft			
	Fixed Wing		Helicopter	Total
	Piston	Turbine		
Historical				
1994	142.2	8.0	4.7	154.9
1995	152.8	9.6	5.8	168.2
1996	153.6	10.1	6.6	170.3
1997	156.1	10.8	6.8	173.7
1998	163.0	12.2	7.4	182.6
1999	171.9	12.7	7.4	192.0
2000	170.5	12.8	7.2	190.5
2001	169.0	12.9	7.2	189.1
Forecast				
2002	167.3	13.0	7.0	187.3
2003	166.7	13.2	7.0	186.7
2012	172.2	16.5	7.5	196.2
2013	172.7	16.8	7.5	197.0

[a] Source: Federal Aviation Administration, FAA Aerospace Forecasts, Fiscal Years 2002-2013, March 2002.

MEACHAM INTERNATIONAL AIRPORT SERVICE AREA

Meacham International serves primarily the greater Fort Worth area. Other towered airports serving general aviation in this area are Alliance (north of Fort Worth), Spinks (south of Fort Worth), and

Arlington (southeast of Fort Worth). To a lesser extent, the Fort Worth area is served by Addison Airport, Love Field, and Redbird in the Dallas area.

Socioeconomic Trends of the Region

The office of the Texas Comptroller of Public Accounts prepares an Economic Trends and Outlook report for each region of the state. The following is taken from the September 2002 report for the Dallas/Fort Worth Metroplex region.

The Dallas/Fort Worth Metroplex region experienced astounding growth over the last 30 years. According to the office of the Texas Comptroller of Public Accounts, gross regional product (in 1992 dollars) in the region — the sum total of all value added within the region — increased nearly four-fold, rising from \$49.3 billion in 1970 to \$193.2 billion in 2000, an average annual growth rate of 4.7 percent.

During this time, the population of the region more than doubled. As a result of strong growth in the value of production in the region compared to somewhat slower population growth, per capita real incomes rose dramatically over the last 30 years. In real terms (1992 dollars) disposable personal income — income not used to pay federal taxes — rose 88 percent over the period, meaning that the average person or household in the region had 88 percent more real purchasing power in 2000 than they did in 1970.

Job growth in this region was exceptional during much of the 1970s, early 1980s and after the nation started to recover from recession in 1992. Starting in 1993, employment growth in the region began growing at 3 to 5 percent each year, only recently slowing due to declines in the communications and transportation industries.

In terms of population, employment and regional product, the region has grown compared with the rest of Texas since 1970. In 2000, the region accounted for 25.9 percent of the state's population, 29.5 percent of the state's employment base and 31.9 percent of Texas' value of production.

Overall, the region is expected to grow more slowly than the rapid rate seen in the 1990s but still outperform the state as a whole. Through 2005, real gross regional product in the region — the total value added through production within the region — should expand at a 2.9 percent annual rate, compared to a 4.9 percent annual rate during the 1990s. This pattern is likely to be repeated in terms of employment. Through 2005, employment growth in the region is expected to average 1.7 percent annually, down from 3.2 percent from 1990 to 2000 in the region, but above the 1.6 percent expected for the state over the next five years. This level of economic growth is expected to accompany only moderate population gains.

Socioeconomic trends for Tarrant County and Fort Worth are generally expected to follow the regional pattern. Population in Fort Worth is projected to increase at an average annual rate of 0.9 percent from 2002 to 2025, compared to a rate of 1.7 percent from 1980 to 2002 (see Table 4-2).

Table 4-2. Socioeconomic trends in General Aviation Service Area.

Year	Tarrant County Population [a]	Fort Worth Population [b]	Fort Worth Employment [c]	Tarrant County Per Capita Personal Income [d]
Historic				
1980	860,880	385,164	--	10,921
1985	--	416,392	--	15,359
1990	1,170,103	447,619	218,134	19,150
1995	--	458,150	234,772	--
2000	1,450,600	535,694	265,044	30,110
2002	1,497,843	555,110	--	--
Forecast				

Year	Tarrant County Population [a]	Fort Worth Population [b]	Fort Worth Employment [c]	Tarrant County Per Capita Personal Income [d]
2005	1,567,500	--	--	--
2010	1,674,500	--	--	--
2015	1,791,700	--	--	--
2020	1,907,500	--	--	--
2025	2,021,500	675,600	--	--
2030	2,131,900	--	--	--

[a] Sources: Historic: North Central Texas Council of Governments (NCTCOG); forecast: State of Texas, Texas Comptroller's Winter 2001-2002 County Forecast.

[b] Sources: Historic: NCTCOG; forecast: NCTCOG Demographic Forecasts, June 8, 2001.

[c] Source: Texas Workforce Commission, Labor Market Information

[d] Sources: U.S. Bureau of Economic Analysis Estimates of Texas Per Capita Personal Income:, Calendar Years 1969 To 1994; State of Texas, Texas Comptroller of Public Accounts.

TRENDS IN GENERAL AVIATION ACTIVITY AT MEACHAM INTERNATIONAL

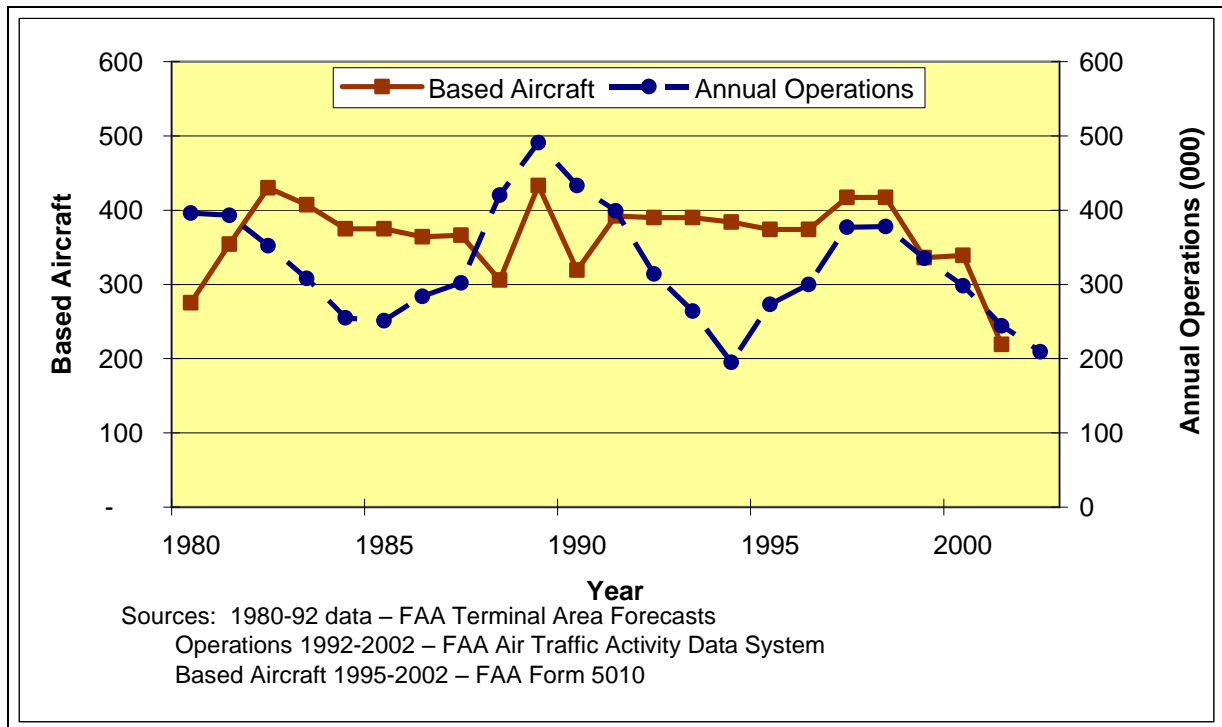


Figure 4-1. General Aviation Activity at Meacham, 1980 to 2002

General aviation activity at Meacham has fluctuated dramatically over the last 22 years (0). Based aircraft reached peaks in 1982, 1989, and 1997-98. More aircraft were based at the airport in 1989 (433 airplanes) than in any other year. Many of the past fluctuations in based aircraft are probably due to the shifting of airplanes from one airport to another within the region. In 2002, the new Meacham Airport Manager noted that the staff appeared to be double counting some based aircraft. No one is sure how long this double counting may have lasted. The manager initiated a new counting procedure which produced the count of 219 based aircraft in 2002. The 2002 count was used as the baseline for based aircraft forecasts

later in this chapter. General aviation operations at the airport have experienced cycles of growth and decline since 1980. These cycles are undoubtedly linked to local economic conditions and national trends in the general aviation industry. During good economic times, more flight training takes place and aircraft owners fly more frequently.

After 1998, the number of aircraft based at the airport and general aviation operations began a sharp decline. Several factors could be partially responsible for the decline:

The total number of active general aviation aircraft in the U.S. declined from 1999 to 2001 (and were forecast by the FAA to decline further in 2002) due to the slowdown in the national economy. The decline was mostly in the single engine piston segment, which is more vulnerable to economic conditions. This national effect could have been felt at Meacham, where much of the activity has consisted of flight training.

The number of general aviation aircraft based at the airports in the region that have significant general aviation activity increased overall since 1998.¹³ This suggests that aircraft based at Meacham were moved to other airports in the region. It has been estimated that perhaps 50 single engine aircraft and 28 helicopters engaged in training were relocated to nearby airports. Between 2000 and 2002, the based aircraft count at Meacham dropped from 339 to 219. The based aircraft forecasts in Table 4-3 used 219 aircraft for the base year.

Relatively lower costs of services at competing airports could be another factor contributing to movement of aircraft away from Meacham.

The continuing decline of training activity has been in part a result of new policies instituted after September 11, 2001. The large flight training schools at Meacham focused on foreign students – mostly from the Middle East. This activity has diminished substantially and two of the flying schools have closed. Most attribute the vast majority of the decline in operations to the decline in flight training.

One sector that has not declined at Meacham is business aviation. Jet fuel use is increasing. Texas Jet, the largest FBO in terms of fuel volume, confirms that business flying has remained steady or increased slightly through the last few years. Reed Pigman, President of Texas Jet, believes that the rapid growth in fractional ownership over the last five years is now slowing in part because of the dot-com downturn.

Many in the local aviation community feel that business aviation at Meacham will continue a steady growth for the foreseeable future and that training activity, after 2003 to 2004 will begin to grow again, perhaps following national trends.

FORECAST OF BASED AIRCRAFT

The level of general aviation activity at an airport is primarily driven by the number of aircraft based there. For this reason, the number of based aircraft is projected first, followed by estimates of aircraft operations. Based aircraft were projected using three alternative methods as described below.

Method 1: FAA Growth Rates for the U.S.

Under this approach, the growth in the number of aircraft based at Meacham is projected to parallel national trends in general aviation aircraft growth.

The number of general aviation fixed-wing piston and turbine powered aircraft and helicopters (exclusive of experimental and other aircraft) based in the nation is forecast by the FAA to grow from 189.1 million in 2001 to 196.2 million by 2012, an average annual increase of 0.3 percent (Table 1).

¹³ According to the FAA's 2001 Terminal Area Forecast, aircraft based at Addison, Alliance, Arlington, Love, Meacham, Redbird, and Spinks increased from 1913 in 1998 to 2126 in 2000.

The percentage growth in number of aircraft based at Meacham of each type from 2002 to 2012 is estimated to equal the national percentage growth during the same period projected by the FAA¹⁴ – a 0.17 to 0.5 percent annual increase in piston aircraft, a 0.42 to 0.51 percent annual increase in turboprop aircraft, a 2.65 to 4.96 percent annual increase in turbojet aircraft, and a 0.57 to 0.71 percent annual increase in helicopters. Between 2012 and 2022, based aircraft by type are estimated to increase at the percentage projected by the FAA in its long-range forecast¹⁵ - a 0.6 percent annual increase in single engine piston aircraft, a 0.6 percent annual increase in turboprop aircraft, a 3.1 percent annual increase in turbojet aircraft, and a 1.1 percent annual increase in helicopters. The resulting forecast of based aircraft is an increase from 219 in 2002 to 237 in 2007, 251 in 2012, and 291 in 2022 (Table 4-3).

The percentage of jet aircraft, under this approach, is expected to increase significantly by 2022 – from 26 percent in 2002 to 39 percent in 2022.

Table 4-3. Based Aircraft Forecast for FTW Based on Aircraft Growth Rates Projected by the FAA for the U.S.

Item	Existing	Forecast		
	2002	2007	2012	2022
Based Aircraft [a]				
Single Engine Piston	119	120	123	131
Multi-engine Piston	13	13	13	13
Turbo-prop	27	28	29	31
Turbo-jet	58	74	84	114
Helicopter	2	2	2	2
Total Based Aircraft	219	237	251	291
Average Annual Growth Rate [b]				
Single Engine Piston		0.17%	0.50%	0.60%
Multi-engine Piston		0.00%	0.00%	0.00%
Turbo-prop		0.42%	0.51%	0.60%
Turbo-jet		4.96%	2.65%	3.10%
Helicopter		0.57%	0.71%	1.10%

[a] Sources: existing: FAA Form 5010; forecast: DMJM Aviation analysis based on U.S. aircraft growth rates shown below.

[b] Source: FAA Terminal Area Forecast, Fiscal Years 2001 to 2015 (2007 and 2012 data).

Growth rates for 2012 to 2022 are estimated from FAA Long Range Aerospace Forecasts, Fiscal Years 2015 to 2025, June 2001.

Method 2: Based Aircraft per 1,000 Residents

Under the second approach, the numbers of aircraft based at Meacham were projected on the basis of the ratio of based aircraft to Fort Worth population (Table 4-4). The number of aircraft at Meacham per thousand residents ranged from 0.63 to 0.90 between 1980 and 2000. In 2002 it declined to 0.39 per thousand residents.

The based aircraft forecast under this approach assumes the ratio per thousand residents will increase slightly from 2002 to 0.4 per thousand, remaining well below the 2000 level. The resulting forecast of based aircraft is an increase from 219 in 2002 to 233 in 2007, 243 in 2012, and 264 in 2022.

¹⁴ Federal Aviation Administration, FAA Aerospace Forecasts, Fiscal Years 2002-2013, March 2002.

¹⁵ Federal Aviation Administration, FAA Long-Range Aerospace Forecasts, Fiscal Years 2015, 2020 and 2025, June 2001.

Table 4-4. Based Aircraft Forecast for FTW Based on Aircraft per 1,000 Residents

Year	Aircraft Based at Meacham [a]	Fort Worth Population [b]	Meacham Aircraft Per 1,000 Residents [c]
Historic			
1980	275	385,164	0.71
1985	375	416,392	0.90
1990	319	447,619	0.71
1995	374	458,150	0.82
2000	339	535,694	0.63
2002	219	555,110	0.39
Forecast			
2007	233	581,300	0.40
2012	243	607,500	0.40
2022	264	659,900	0.40

[a] Sources: 1980 - 1995: FAA Terminal Area Forecast, Fiscal Years 2001 to 2015; 2000 and 2002: FAA Form 5010.

[b] Source: Data for 2007-2022 were interpolated from the forecast for 2025 on a straight-line basis.

[c] Forecast percents estimated by DMJM Aviation on the basis that the based aircraft per 1,000 residents would remain about the same as the 2002 ratio. For comparison, the U.S. ratio of active based aircraft (excluding experimental aircraft, gliders, and ultralights) to population was approximately 0.69 in 2002 (194 million aircraft / 280 million people).

Method 3: Percent of Aircraft in FAA's Southwest Region

The third approach projects based aircraft at Meacham as a percent of the general aviation aircraft in the FAA's Southwest Region (Table 4-5). This region encompasses the states of New Mexico, Texas, Oklahoma, Arkansas, and Louisiana. Between 1980 and 2000, Meacham based between 1.5 and 2.1 percent of the aircraft on the Southwest Region. In 2002, that percentage dropped to 1.0 percent. Under this approach, it is assumed the percentage at Meacham will increase to 1.2 percent between 2002 and 2022. The resulting forecast of based aircraft is an increase from 219 in 2002 to 234 in 2007, 263 in 2012, and 303 in 2022.

Table 4-5. Based Aircraft Forecast for FTW Under Percent of Region Approach

Year	Aircraft Based at Meacham [a]	Aircraft Based in Southwest (ASW) Region [b]	Meacham Aircraft Percent of ASW Region [d]
Historic			
1980	275	18,413	1.5%
1981	354	19,840	1.8%
1982	430	21,467	2.0%
1983	407	21,830	1.9%
1984	375	22,377	1.7%
1985	375	24,259	1.5%
1986	364	23,555	1.5%
1987	366	22,243	1.6%
1988	306	20,973	1.5%
1989	433	20,705	2.1%
1990	319	20,010	1.6%
1991	392	20,122	1.9%
1992	390	19,954	2.0%

Year	Aircraft Based at Meacham [a]	Aircraft Based in Southwest (ASW) Region [b]	Meacham Aircraft Percent of ASW Region [d]
1993	390	19,954	2.0%
1994	384	19,678	2.0%
1995	374	19,970	1.9%
1996	374	21,104	1.8%
1997	417	21,424	1.9%
1998	417	22,238	1.9%
1999	336	21,814	1.5%
2000	339	22,569	1.5%
2001	[c]	22,698	[c]
2002	219	22,802	1.0%
Forecast			
2007	234	23,358	1.0%
2012	263	23,919	1.1%
2022	303	25,222	1.2%

[a] Sources: 1980 - 1998: FAA Terminal Area Forecast, Fiscal Years 2001 to 2015; 1999, 2000 and 2002: FAA Form 5010.

[b] Source: FAA Terminal Area Forecast, Fiscal Years 2001 to 2015. The growth in aircraft after 2015 was estimated to be the same as the average from 2012 to 2015, about 130 a year. The FAA's Southwest (ASW) Region covers the states of New Mexico, Texas, Oklahoma, Arkansas, and Louisiana.

[c] Data not available.

[d] Forecast percents estimated by DMJM Aviation on the basis that the percent would gradually increase above the 2002 level but remain well below historic levels.

Future Trends

The results of the three alternative approaches are compared in Table 4-6. The forecast resulting from the first approach generally falls between the others and is selected for the Master Plan forecast. Table 4-11 summarizes the based aircraft forecast. This forecast implies the following conditions regarding the long-term growth in general aviation activity at the airport:

- The growth in business flying, particularly by business jet aircraft, will continue to be strong.
- It is unlikely that flight training will return to pre-2001 levels.
- Due to a limited number of T-hangars and higher Aviation Gasoline prices, growth in based piston aircraft and operations will be low.
- Meacham is conveniently located to serve Fort Worth residents and businesses.

Table 4-6. Based Aircraft Forecasts for FTW Under Alternative Approaches and Comparison with FAA Terminal Area Forecast

Item	Existing [a]	Forecast [b]		
	2002	2007	2012	2022
Alternative Forecast Approach:				
Growth Rate Equal to FAA Forecast Growth for U.S.	219	237	251	291

Item	Existing [a]	Forecast [b]		
	2002	2007	2012	2022
Based Aircraft per 1,000 Residents	219	233	243	264
Percent of Aircraft in FAA Southwest Region	219	234	263	303
Based Aircraft per TAF [c]	303	369	394	na

[a] Source: FAA Form 5010.

[b] Source: DMJM Aviation analysis.

[c] Source: FAA Terminal Area Forecast, Fiscal Years 2001 to 2015. These forecasts were prepared before September 11, 2001 and do not reflect any impact of the September 11 terrorist attacks.

FORECAST OF ANNUAL GENERAL AVIATION OPERATIONS

Annual general aviation operations were projected on the basis that the number of operation per based aircraft experienced in the past will remain the same. Over the last 22 years, the number of operations per based aircraft has averaged approximately 950. Since 1997, this ratio has ranged from 879 to 997. A ratio of 950 operations per based aircraft is projected to continue through 2022. The resulting aircraft operations forecast is 225,000 in 2007, 238,000 in 2012, and 276,000 in 2022, compared with 208,507 operations in 2002 (Table 4-7).

Table 4-7. Forecast of General Aviation Operations for FTW.

Year	Based Aircraft [a]	General Aviation Operations [b]	General Aviation Operations per Based Aircraft [c]
Historic			
1980	275	395,513	1,438
1981	354	392,625	1,109
1982	430	351,671	818
1983	407	307,572	756
1984	375	254,730	679
1985	375	250,990	669
1986	364	284,178	781
1987	366	301,815	825
1988	306	420,032	1,373
1989	433	490,512	1,133
1990	319	432,542	1,356
1991	392	398,942	1,018
1992	390	313,518	804
1993	390	263,912	677
1994	384	194,505	507
1995	374	272,916	730
1996	374	299,505	801
1997	417	376,591	903
1998	417	377,861	906

Year	Based Aircraft [a]	General Aviation Operations [b]	General Aviation Operations per Based Aircraft [c]
1999	336	335,118	997
2000	339	298,021	879
2001	[d]	243,854	[d]
2002	219	208,507	952
Forecast			
2007	237	225,000	950
2012	251	238,000	950
2022	291	276,000	950

[a] Sources: 1980 - 1998: FAA Terminal Area Forecast, Fiscal Years 2001 to 2015; 1999, 2000 and 2002: FAA Form 5010 (no Form 5010 in 2001); forecast: DMJM Aviation.

[b] Sources: 1980-1991: FAA Terminal Area Forecast; 1992-2002: FAA Air Traffic Activity Data System; 2007-2022: forecast by DMJM Aviation.

[c] Forecast data estimated by DMJM Aviation on the basis that the ratio of annual operations to based aircraft will remain at about the 2002 level. The average ratio from 1980 to 2002 is 914.

[d] There is no FAA Form 5010 for 2001.

Local and Itinerant Operations

In 2001, about 51 percent of general aviation operations were local operations. Over the past 22 years, this percentage has averaged approximately 51 percent. Local operations are expected to average 51 percent through 2022 (Table 4-8).

Table 4-8. Forecast of General Aviation Itinerant and Local Operations

Year	General Aviation Itinerant Operations [a]	General Aviation Local Operations [a]	Total General Aviation Operations	Percent Local Operations [b]
Historic				
1980	180,377	215,136	395,513	54%
1981	175,317	217,308	392,625	55%
1982	157,894	193,777	351,671	55%
1983	142,754	164,818	307,572	54%
1984	127,102	127,628	254,730	50%
1985	127,139	123,851	250,990	49%
1986	133,493	150,685	284,178	53%
1987	141,472	160,343	301,815	53%
1988	179,810	240,222	420,032	57%
1989	215,040	275,472	490,512	56%
1990	230,022	202,520	432,542	47%
1991	210,766	188,176	398,942	47%
1992	159,338	154,180	313,518	49%
1993	138,251	125,661	263,912	48%
1994	114,799	79,706	194,505	41%
1995	140,446	132,470	272,916	49%
1996	151,299	148,206	299,505	49%

Year	General Aviation Itinerant Operations [a]	General Aviation Local Operations [a]	Total General Aviation Operations	Percent Local Operations [b]
1997	183,424	193,167	376,591	51%
1998	193,939	183,922	377,861	49%
1999	180,432	154,686	335,118	46%
2000	139,778	158,243	298,021	53%
2001	117,312	126,542	243,854	52%
2002	101,198	107,309	208,507	51%
Forecast				
2007	110,000	115,000	225,000	51%
2012	117,000	121,000	238,000	51%
2022	135,000	141,000	276,000	51%

[a] Sources: 1980-1991: FAA Terminal Area Forecast; 1992-2002: FAA Air Traffic Activity Data System; 2007-2022: forecast by DMJM Aviation based on the projected percentage of local operations.

[b] Source: 2007-2022: Projected by DMJM Aviation on the basis that the percent of local operations will remain approximately the same as 2002 (51%), which is also the average from 1980 to 2002.

COMPARISON WITH FAA TERMINAL AREA FORECASTS

The most recent FAA Terminal Area Forecast (TAF) was prepared in 2001 before the September 11, 2001 attacks and is under review at this time. The TAF forecast projects 394 based aircraft at Meacham in 2012. The Master Plan Update forecast for 2012 is about 64 percent of this. The TAF forecast projects 345,679 annual general aviation operations in 2012. The Master Plan Update forecast for 2012 is about 69 percent of this. The TAF forecasts for 2002 are 343 based aircraft and 273,269 annual general aviation operations, substantially higher than actual 2002 amounts (see Table 4-11). If the Meacham TAF forecasts were made today, undoubtedly they would be lower.

AIR SERVICE ACTIVITY ESTIMATES

To determine the impact on facility requirements, a series of slow and optimistic air service growth scenarios were formulated. This analysis is contained in Appendix B. Because there is not a consistent history of air carrier service at Fort Worth Meacham International Airport (FTW), the evolution of air service development scenarios in Appendix B is based on the markets and equipment identified in the preliminary Air Service Analysis in Chapter 3. In that study, the markets with the greatest short-term potential were Houston and Atlanta. The two markets with longer term potential were Denver and San Antonio. The study suggests that the Regional Jet is the most likely aircraft for these markets.

The following table identifies the total levels of airport activity that would be produced by the scenarios developed in Appendix B. This should be considered as a range of feasible activity if the City of Fort Worth decides to actively pursue development of air service at Meacham. In the summary table at the end of this chapter, it is assumed that the first year of air service starts in 2005. The level of activity shown in that table is an average of the low and high values in the following table.

Table 4-9. Total Levels of Low and High Airport Activity Based on Service Development Scenarios*.

Year	Maximum Daily Arrivals		Total Annual			
			Operations		Enplanements	
	Low	High	Low	High	Low	High
1	10	20	5,500	9,000	59,100	138,300
2	10	20	5,500	8,700	64,300	155,800

Year	Maximum Daily Arrivals		Total Annual			
			Operations		Enplanements	
	Low	High	Low	High	Low	High
3	10	25	5,500	12,200	69,400	211,200
4	13	25	7,400	12,200	96,600	225,800
5	13	31	7,600	16,000	106,000	268,300
6	20	32	11,800	16,300	139,700	277,700
7	20	32	11,800	16,500	143,400	293,700
8	21	33	12,000	17,200	155,100	319,400
9	22	36	12,800	18,800	171,700	345,400
10	22	36	12,800	18,800	178,900	369,800

* Totals of Operations and Enplanements from previous tables are rounded.

AIR CARGO

Today, Meacham Airport is a General Aviation Reliever airport and not primarily a cargo airport. There are two much larger cargo airports in the Fort Worth airport system, Dallas/Fort Worth International and Alliance Airport. However, cargo operators are very sensitive to operating costs. Cargo operators tend to check the landing fees and facilities available and go wherever the cost is less. Meacham Airport has existing operations of dedicated air cargo aircraft. The cargo operations at Meacham Airport would best be characterized as small operators using older aircraft. There are five cargo operators who regularly use Meacham Airport and one cargo operator, Alpine Air Express, who flies mail out of DFW Airport but parks the aircraft at Meacham Airport. There are no national cargo carriers or express package carriers that have scheduled cargo operations out of Meacham Airport.

Table 4-10. Current Cargo Operations

Cargo Operator	Type Aircraft	2002 Annual Operations
Murray Air	DC8 and DC9	4
USA Jet	DC9 and Falcon 20	56
Zantop International Airlines	L188	6
Ameriflight	Metroliner	186
Ameristar	B737 and Falcon 20	18

Meacham Airport reported 8.3 million pounds of dedicated air cargo landed gross weight in 2001 and 11.4 million pounds in 2002. An airport must report 100 million pounds of landed gross weight to become a qualifying airport to receive FAA entitlement funds for cargo operations. Alliance Airport reported 904 million pounds and DFW Airport reported 3,091 million pounds of landed gross weight in 2001.

A questionnaire was sent to community business that also included questions related to air cargo demand at Meacham Airport. Even though, 24 of 41 respondents said they would use regular or scheduled airfreight services if they were available at Meacham Airport, the consultant does not expect to see these services developed.

Assuming there are no political changes to encourage cargo operations at Meacham Airport, the numbers of cargo flights and cargo aircraft will remain relatively constant or have slight increases over time. There are significant industrial aviation activities on Meacham Airport that include refurbishing aircraft or installing systems on aircraft. The industrial activity itself brings very little flying activity to the airport but supports the economy with jobs and supporting activities including potential cargo operations. The growth in industrial activities may contribute to the growth of dedicated cargo operations in the future.

FORECAST SUMMARY

Table 4-11 is a summary of forecast and estimated activity for Meacham.

Table 4-11. Fort Worth Meacham International Airport - Aviation Activity Forecast Summary

Item	Existing [a]	Forecast [b]		
	2002	2007	2012	2022
General Aviation:				
Based Aircraft				
Single Engine Piston	119	120	123	131
Multi-engine Piston	13	13	13	13
Turbo-prop	27	28	29	31
Turbo-jet	58	74	84	114
Helicopter	2	2	2	2
Total Based Aircraft	219	237	251	291
Average Annual Growth Rate		1.5%	1.1%	1.4%
General Aviation Operations				
Itinerant Operations	101,198	110,000	117,000	135,000
Local Operations	107,309	115,000	121,000	141,000
Total GA Operations	208,507	225,000	238,000	276,000
Average Annual Growth Rate		1.4%	1.1%	1.4%
GA Comparisons with FAA TAF [c]:				
Based Aircraft per TAF	343	369	394	[d]
GA Operations per TAF	272,269	309,474	345,679	[d]
Master Plan Percent of TAF:				
Based Aircraft		64%	64%	
General Aviation Operations		73%	69%	
Air Carrier [e]:				
Annual Enplanements		140,000	237,000	[f]
Estimated Annual Operations		8,800	14,600	[f]
Maximum Daily Arrivals		18	27	[f]
Total Annual Operations [g]	208,507	234,000	252,000	276,000

[a] Sources: FAA Form 5010 (based aircraft); air traffic control tower data from FAA Air Traffic Activity Data System (operations).

[b] Source: DMJM Aviation analysis, except as noted.

[c] FAA, FAA Terminal Area Forecast, Fiscal Years 2001 to 2015. These forecasts were prepared before September 11, 2001 and do not reflect any impact of the September 11 terrorist attacks.

[d] TAF forecasts extend to 2015.

[e] Air service activity estimates were made to determine potential impact on airport facilities. Estimates are average of Low Growth and Optimistic Growth Scenarios. Air service assumed to start in 2005.

[f] Air service estimates made for 10 years (through 2015).

[g] Totals are rounded. Air Carrier Operations not included in 2022 estimates. The TAF does not estimate Air Carrier Operations and Enplanements based on scheduled service.

ADDENDUM TO FORECASTS: FAA'S 2003 TERMINAL AREA FORECASTS

After this Master Plan report was submitted in draft form for review, FAA released its 2003 Terminal Area Forecasts (TAF) dated February 18, 2004. The 2003 TAF is FAA's first set of national forecasts based on trends resulting from the September 11, 2001 disaster. These forecasts call for significantly lower short, medium, and long term general aviation activity at the national level. The national forecasts do, however, continue to show a healthy growth in the number of and hours flown by business jets.

Table 4-12. FAA's 2003 Terminal Area Forecast for Meacham (released February 18, 2004).

YEAR	Itinerant Operations*					Local Operations			Total Operations	
	AC	AT	GA	Mil	Total	GA	Mil	Total	All	Instrument
2003	458	5,875	80,631	442	87,406	64,554	783	65,337	152,743	28,961
2004	458	5,938	81,505	442	88,343	65,253	783	66,036	154,379	29,264
2005	458	6,002	82,379	442	89,281	65,953	783	66,736	156,017	29,566
2010	458	6,319	86,749	442	93,968	69,452	783	70,235	164,203	31,083
2015	458	6,638	91,119	442	98,657	72,951	783	73,734	172,391	32,599
2020	458	6,957	95,490	442	103,347	76,450	783	77,233	180,580	34,117

* AC - Air Carrier, AT - Air Taxi, GA - General Aviation, Mil - Military

Table 4-13. Actual 2002-03 Tower Count Data for Meacham from FAA's Air Traffic Activity Data System.

Year	Itinerant Operations*				Local Operations		Total Operations
	AC	AT	GA	Mil	GA	Mil	
2002	577	4,621	101,198	341	107,309	318	214,364
2003	482	6,700	80,203	498	55,937	715	144,571

* AC - Air Carrier, AT - Air Taxi, GA - General Aviation, Mil - Military

Table 4-12 summarizes the new TAF for Meacham. The forecast of about 152,743 annual operations for Meacham in 2003 has been confirmed by the actual tower count of 144,571 from FAA's ATADS data base (see Table 4-13). Given Meacham's 2003 performance, it appears that the TAF forecasts of activity are reasonable.

EFFECT OF THE 2003 TERMINAL AREA FORECASTS ON FACILITY REQUIREMENTS

Chapters 5 and 6 of this Master Plan identify the future facility requirements at Meacham, discuss alternatives for providing those requirements, and recommend a capital improvement program for providing those requirements. The major development recommended to accommodate new activity is hangars for new based business aircraft and hangars for new and expanding aviation industries. The requirement for these new hangar and industrial facilities is demand-driven. These facilities will be built by the private sector only when the demand for them materializes. Based on FAA's national forecasts, there will continue to be a healthy growth in business aviation activity, primarily business jets, through 2020. Based on the demand responsive nature of hangar facilities and FAA's continued optimism concerning business jet activity, there appears to be no reason to diminish the need for additional hangar facilities identified in Chapter 5 and the capital improvements needed to support new hangars identified in Chapter 6.