

CHAPTER TWO: AVIATION ACTIVITY LEVELS

Aviation activity levels at Chandler Municipal are recorded by the air traffic control tower (ATCT) and supplied to Airport management. The ATCT collects and report aircraft operations (takeoffs and landings). Aircraft operations are reported as either local or itinerant. Local operations are typically associated with touch-and-go or training operations. Itinerant operations are those performed by an aircraft with a specific origin or destination away from the airport.

Operational levels for the period 1996 through 2007, with an estimate for 2008¹, are presented in **Table 2.1**, including the number of operations that were itinerant and local. Total operations at Chandler Municipal have increased dramatically since 1996, with an additional 100,000 operations at the Airport over that time period. Since 2003, the average annual increase in operations is 4.0 percent. It is important to note that the estimate for 2008 was provided by FAA as part of its 2007 Terminal Area Forecast (TAF) and considers the monthly trends in activity and projected national trends.

In terms of itinerant and local, the character of the Airport's operations has changed with a decrease in itinerant activity in terms of the percentage, but an increase in the overall numbers. In 1996, itinerant activity accounted for 40 percent of total operations and only 34 percent in 2008.

For purposes of the FAR Part 150 Study, operational forecasts are needed to examine the future demand for aviation and the impact on noise exposure at the Airport. **Table 2.2** identifies estimated operations at Chandler Municipal for the year 2008 and forecast operations for the years 2013 and 2028. To develop the forecast, the FAA's TAF was consulted. As of May 2008, the TAF projected 309,423 total operations in 2013. The TAF only contains projections through 2025. Therefore, the average annual rate of growth between 2024 and 2025 was used to extrapolate the 2025 forecast to 2028. These forecasts are in line with those contained in Chandler Municipal Airport's Draft 2007 Airport Master Plan. While the total operations estimates from the TAF were used in the FAR Part 150, the breakout between air carrier, air taxi, general aviation (local and itinerant) and military (local and itinerant) were developed based on trends in these categories. The TAF breakouts were reviewed and considered, with slight revisions to reflect the anticipated changes in the types of activity at Chandler Municipal.

¹ Actual 2008 operations were not available when the forecast information was developed. A discussion of estimated versus actual operations is provided in Appendix D.

**Table 2.1
HISTORICAL OPERATIONS AT CHANDLER MUNICIPAL**

Year	Itinerant Operations	Local Operations	Total Operations
1996	61,041	93,384	154,425
1997	66,150	109,776	175,926
1998	68,285	127,601	195,886
1999	71,149	142,064	213,213
2000	78,104	166,883	244,987
2001	70,364	169,393	239,757
2002	67,420	158,066	225,486
2003	67,095	153,577	220,672
2004	65,396	167,823	233,219
2005	64,314	162,836	227,150
2006	80,189	187,904	268,093
2007	88,797	171,839	260,636
2008 (estimate)	91,541	176,644	268,185

SOURCE: FAA Air Traffic Activity System (ATADS)
PREPARED: June 2008

**Table 2.2
ACTUAL AND PROJECTED OPERATIONS**

	Year	Itinerant Operations	Local Operations	Total Operations
Estimated	2008	91,551	176,634	268,185
Projected	2013	97,855	211,567	309,423
Projected	2028	130,659	315,504	446,163

SOURCE: FAA Air Traffic Activity System, May 2008; FAA Terminal Area Forecast, Wilbur Smith Associates
PREPARED: June 2008

Aircraft Fleet Mix

The fleet mix of aircraft operating at Chandler Municipal was developed through the analysis of completed instrument flight rule (IFR) flight plan data from the FAA, discussions with airport and ATCT personnel and interviews with Airport tenants. An Airport tenant listing of all aircraft by make and model based at Chandler Municipal was also analyzed for this task.

During calendar year 2007, 2,060 IFR aircraft arrivals or departures to or from Chandler Municipal were identified from FAA records. The records contained the aircraft make

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and model and also identified the time the arrival or departure occurred. This information was used to develop the 2008 mix of aircraft operating at Chandler Municipal. Operations by military aircraft comprised less than 1 percent of the operations at Chandler Municipal, and were projected to remain constant. The 2008 aircraft fleet mix percentages were adjusted based on the projections of General Aviation and Air Taxi hours flown contained in the *FAA Aerospace Forecasts FY2008-2025*. The projected fleet mix percentages were then applied to the 2013 and 2028 forecast of operations presented above. The estimated 2008 and projected 2013 and 2028 aircraft operation fleet mixes at Chandler Municipal are presented in **Table 2.3**.

Table 2.3
CURRENT AND PROJECTED OPERATIONAL FLEET MIX

Year	2008	Percent of Total	2013	Percent of Total	2028	Percent of Total
Jet Local	-		-		-	
Jet Itinerant	950		1,384		4,838	
<i>Jet Total</i>	<i>950</i>	<i>0.35%</i>	<i>1,384</i>	<i>0.45%</i>	<i>4,838</i>	<i>1.08%</i>
Multi \Turbine Local	400		468		720	
Multi \Turbine Itinerant	7,600		8,391		16,952	
<i>Multi \Turbine Total</i>	<i>8,000</i>	<i>2.98%</i>	<i>8,859</i>	<i>2.86%</i>	<i>17,672</i>	<i>3.96%</i>
Single Engine Local	101,354		114,115		170,176	
Single Engine Itinerant	74,069		78,504		98,149	
<i>Single Engine Total</i>	<i>175,423</i>	<i>65.41%</i>	<i>192,619</i>	<i>62.25%</i>	<i>268,325</i>	<i>60.14%</i>
Helicopter Local	74,880		96,941		144,565	
Helicopter Itinerant	8,320		9,007		10,151	
<i>Helicopter Total</i>	<i>83,200</i>	<i>31.02%</i>	<i>105,948</i>	<i>34.24%</i>	<i>154,716</i>	<i>34.68%</i>
Military Itinerant	569		569		569	
Military Local	43		43		43	
<i>Military Total</i>	<i>612</i>	<i>0.23%</i>	<i>612</i>	<i>0.20%</i>	<i>612</i>	<i>0.14%</i>
Total Local	176,634	65.86%	211,567	68.37%	315,504	70.71%
Total Itinerant	91,508	34.12%	97,856	31.63%	130,659	29.29%
Total Operations	268,185		309,423		446,163	

SOURCE: FAA Air Traffic Activity System, May 2008 and Wilbur Smith Assoc.
PREPARED: May 2008

Time of Day Operations

The separation of aircraft activity into daytime and nighttime periods is important because the Integrated Noise Model (INM), which is used to develop the noise exposure contours and is discussed in a subsequent chapter, includes a noise penalty for aircraft operations during nighttime hours. FAR Part 150 defines nighttime as 10 p.m. to 7 a.m. Based on analysis of completed IFR flight plans and discussion with airport personnel, it was estimated that 97 percent of all aircraft operations occur during the daytime and 3 percent at night. This represents a typical day/night split for this type of airport. Military aircraft operations were modeled during the daytime only.

Aircraft Stage Lengths

An aircraft's "stage length" (or trip length) refers to the distance an aircraft flies to its next destination after departing an airport. The stage length is important in noise modeling, since the longer the distance an aircraft will travel to its destination the greater its fuel load and overall weight will be and, as a result, the louder its departure profile will be. Stage lengths in the INM include the following ranges:

- Stage length 1 – 0 to 500 miles
- Stage length 2 – 500 to 1000 miles
- Stage length 3 – 1000 to 1500 miles
- Stage length 4 – 1500 to 2500 miles
- Stage length 5 – 2500 to 3500 miles
- Stage length 6 – 3500 to 4500 miles

Although a small percentage of general aviation aircraft travel to destinations greater than 500 miles from Chandler Municipal, all aircraft in this study were assumed to be Stage length 1 as all general aviation aircraft in the INM database are stage length 1. Only large air carrier aircraft in the INM have stage lengths greater than 1.