

## CHAPTER FIVE: AIRPORT OPERATIONAL DATA

### EXISTING OPERATIONAL ACTIVITY AND FLEET MIX

The existing (2008) operational activity and fleet mix were presented in Chapter 2. The activity is reported in the following categories: air taxi, itinerant general aviation, local general aviation, helicopter, and local helicopter. This data was then divided by 365, to obtain the number of operations by category for the annual-average day. A summary of these operations is listed in **Table 5.1**.

**TABLE 5.1  
2008 ANNUAL OPERATIONS  
CHANDLER MUNICIPAL AIRPORT  
14 CFR PART 150 STUDY**

	Air Carrier	Air Taxi	Itinerant General Aviation	Local General Aviation	Helo	Local Helo	Total
Yearly Totals	0	4,101	78,556	101,718	8,884	74,926	268,185
Average 24-Hour Day	0	11.24	215.22	278.68	24.34	205.27	734.75

Source: Wilbur Smith Assoc., ESA Airports

As presented in Table 5.1, the total number of operations that occurred for 2008 was 268,185; or an average of 735 operations per day. The breakdown of operations by aircraft type and fleet mix for 2008 is presented in **Table 5.2**; local (touch-and-go) operations are presented in **Table 5.3**.

The aircraft identifiers in Table 5.2 are codes for the representative aircraft types used in the INM. Several aircraft that operate at the Airport are not in the INM nor do they have an official substitution in the INM. The FAA was contacted to provide aircraft substitutions for these aircraft in the modeling effort. The FAA determines substitute aircraft based on the noise signature of the aircraft in question taking into account the operating parameters of the aircraft and number and type of engines used. The appropriate substitutions, as determined by the FAA, were used in the modeling effort. The approved substitution aircraft provided by the FAA can be found in **Appendix B**.

# Chandler Municipal Airport/FAR Part 150 Study

**TABLE 5.2  
2008 ANNUAL-AVERAGE DAY FLEET MIX (ITINERANT OPERATIONS)  
CHANDLER MUNICIPAL AIRPORT  
14 CFR PART 150 STUDY**

Category	Sub-Category	INM Aircraft	Arrivals			Departures		
			Day	Night	Total	Day	Night	Total
Itinerant General Aviation	Jets	CL600	0.02	--	0.02	0.02	--	0.02
		CNA500	0.58	0.06	0.64	0.61	0.03	0.64
		CNA55B	0.01	--	0.01	0.01	--	0.01
		IA1125	0.01	--	0.01	0.01	--	0.01
		LEAR35	0.07	--	0.07	0.05	0.02	0.07
		MU3001	0.50	0.05	0.55	0.52	0.03	0.55
		<b>Subtotal</b>	<b>1.19</b>	<b>0.11</b>	<b>1.30</b>	<b>1.22</b>	<b>0.08</b>	<b>1.30</b>
	Multi Engine/ Turboprop	BEC58P	2.93	0.12	3.05	2.99	0.06	3.05
		CNA441	1.93	0.02	1.95	1.84	0.11	1.95
		DHC6	3.50	0.37	3.87	3.69	0.18	3.87
		GASEPV	1.01	--	1.01	0.99	0.02	1.01
		PA31	0.52	--	0.52	0.52	--	0.52
		SD330	0.02	--	0.02	0.02	--	0.02
		<b>Subtotal</b>	<b>9.91</b>	<b>0.51</b>	<b>10.42</b>	<b>10.05</b>	<b>0.37</b>	<b>10.42</b>
	Single Engine	CNA172	14.56	0.45	15.01	14.57	0.44	15.01
		CNA206	20.16	0.74	20.90	20.17	0.73	20.90
		GASEPF	19.33	0.69	20.02	19.36	0.64	20.02
		GASEPV	45.36	1.41	46.77	45.36	1.41	46.77
			<b>Subtotal</b>	<b>99.41</b>	<b>3.29</b>	<b>102.70</b>	<b>99.48</b>	<b>3.22</b>
Helo	Non-Military	R22	9.97	0.28	10.25	9.97	0.26	10.25
		H500D	1.89	0.03	1.92	1.89	0.03	1.92
		<b>Subtotal</b>	<b>11.86</b>	<b>0.31</b>	<b>12.17</b>	<b>11.86</b>	<b>0.31</b>	<b>12.17</b>
<b>Total</b>			<b>122.37</b>	<b>4.22</b>	<b>126.59</b>	<b>122.37</b>	<b>3.98</b>	<b>126.35</b>

Source: Wilbur Smith Assoc., ESA Airports

# Chandler Municipal Airport/FAR Part 150 Study

**TABLE 5.3  
2008 ANNUAL-AVERAGE DAY FLEET MIX (LOCAL OPERATIONS)  
CHANDLER MUNICIPAL AIRPORT  
14 CFR PART 150 STUDY**

<i>Category</i>	<i>Sub Category</i>	<i>INM Aircraft</i>	<i>Touch and Go</i>		
			<i>Day</i>	<i>Night</i>	<i>Total</i>
General Aviation	Multi Engine	BEC58P	1.05	0.05	1.10
		<b>Subtotal</b>	<b>1.05</b>	<b>0.05</b>	<b>1.10</b>
	Single Engine	CNA172	49.06	1.54	50.60
		CNA206	38.73	1.20	39.93
		GASEPF	78.64	2.48	81.12
		GASEPV	102.86	3.17	106.03
		<b>Subtotal</b>	<b>269.29</b>	<b>8.39</b>	<b>277.68</b>
	Helo	R22	179.29	5.47	184.77
		H500D	19.90	0.61	20.51
		<b>Subtotal</b>	<b>199.19</b>	<b>6.08</b>	<b>205.27</b>
<b>Total</b>			<b>469.53</b>	<b>14.52</b>	<b>484.05</b>

Source: Wilbur Smith Assoc., ESA Airports

As indicated in Table 5.1, the greatest level of aircraft activity at the Airport during 2008 was the Local General Aviation category of aircraft, amounting for approximately 38 percent of the overall activity with Itinerant General Aviation and Local Helicopter operations accounting for an additional 29 percent and 28 percent respectively. Helicopters (itinerant) traffic accounted for approximately three percent of operations at the Airport and the Air Taxi operations contributed approximately two percent of the total operations.

## **FUTURE OPERATIONAL ACTIVITY AND FLEET MIX (2013 AND 2028)**

Projections for future aircraft operations in 2013, shown in **Table 5.4**, were presented previously in Chapter 2. The requirements for the FAR Part 150 program state that the future condition to be analyzed is five years from the year of submittal. Future condition for this Study will be the year 2013.

# Chandler Municipal Airport/FAR Part 150 Study

**TABLE 5.4  
2013 ANNUAL OPERATIONS  
CHANDLER MUNICIPAL AIRPORT  
14 CFR PART 150 STUDY**

	Air Carrier	Air Taxi	Itinerant General Aviation	Local General Aviation	Helo	Local Helo	Total
Yearly Totals	0	5,580	82,698	114,581	9,577	96,987	309,423
Average 24-Hour Day	0	15.29	226.57	313.92	26.24	265.72	847.73

Source: Wilbur Smith Assoc., ESA Airports

As shown in Table 5.4, total operations at the Airport for the future year 2013 are projected to be 309,423 per year, or 848 per average annual day. A breakdown of 2013 itinerant operational activity and fleet mix that is used as the basis for the preparation of 2013 noise contours is presented in **Table 5.5** with a breakout of local operations in **Table 5.6**.

In addition to the 2013 future case, projections for future aircraft operations in 2028 also were completed and presented previously in Chapter 2. While not required, or recognized by FAR Part 150 as part of the NEM process, the Airport wanted to present a full build-out scenario for the Airport to aid in future land use decisions for the local jurisdictions. The full build-out takes into account the proposed project of extending Runway 4R-22L along with anticipated hangar development around the Airport. The projections for future aircraft operations in 2028 are presented in **Table 5.7**.

As shown in Table 5.7, total operations at the Airport for the future year 2028 are projected to be 446,163 per year, or 1,222 per average annual day. A breakdown of 2028 itinerant operational activity and fleet mix that is used as the basis for the preparation of 2028 noise contours is presented in **Table 5.8** with a breakout of local operations in **Table 5.9**.

## RUNWAY UTILIZATION

### Existing Conditions

Runway utilization at Chandler Municipal depends primarily on wind conditions and secondarily on aircraft destination or arrival location into the local airspace. Based on ATCT estimates, the Airport currently operates to the west (arrivals from the east and departures to the west) approximately 50 percent of the time and to the east (arrivals from the west and departures to the east) approximately 50 percent. While the Airport currently has two runways, the majority of itinerant operations occur on runway 4R-22L while the local operations (touch-and-go) occur equally on both parallel runways. A comprehensive breakdown of runway use, by aircraft category, is shown in **Table 5.10**.

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**TABLE 5.5**  
**2013 ANNUAL-AVERAGE DAY FLEET MIX (ITINERANT OPERATIONS)**  
**CHANDLER MUNICIPAL AIRPORT**  
**14 CFR PART 150 STUDY**

Category	Sub-Category	INM Aircraft	Arrivals			Departures		
			Day	Night	Total	Day	Night	Total
Itinerant General Aviation	Jets	CL600	0.03	--	0.03	0.03	--	0.03
		CNA500	0.76	0.07	0.83	0.79	0.04	0.83
		CNA55B	0.11	0.01	0.12	0.12	--	0.12
		IA1125	0.01	--	0.01	0.01	--	0.01
		LEAR35	0.08	0.01	0.09	0.07	0.02	0.09
		MU3001	0.74	0.07	0.81	0.78	0.03	0.81
		<b>Subtotal</b>	<b>1.73</b>	<b>0.16</b>	<b>1.89</b>	<b>1.80</b>	<b>0.09</b>	<b>1.89</b>
	Multi Engine/ Turboprop	BEC58P	3.03	0.12	3.15	3.08	0.07	3.15
		CNA441	2.00	0.02	2.02	1.91	0.11	2.02
		DHC6	3.64	0.37	4.01	3.82	0.19	4.01
		GASEPV	1.06	--	1.06	1.04	0.02	1.06
		PA31	0.55	--	0.55	0.55	--	0.55
		SD330	0.04	0.01	0.05	0.05	--	0.05
		<b>Subtotal</b>	<b>10.32</b>	<b>0.52</b>	<b>10.84</b>	<b>10.45</b>	<b>0.39</b>	<b>10.84</b>
	Single Engine	CNA172	14.84	0.48	15.32	14.84	0.48	15.32
		CNA206	20.82	0.78	21.60	20.95	0.65	21.60
		GASEPF	20.91	0.74	21.65	20.98	0.67	21.65
		GASEPV	47.48	1.49	48.97	47.48	1.49	48.97
			<b>Subtotal</b>	<b>104.05</b>	<b>3.49</b>	<b>107.54</b>	<b>104.25</b>	<b>3.29</b>
Helo	Non-Military	R22	10.80	0.31	11.10	10.80	0.31	11.10
		H500D	1.98	0.03	1.23	1.98	0.03	1.23
		<b>Subtotal</b>	<b>12.78</b>	<b>0.34</b>	<b>13.12</b>	<b>12.78</b>	<b>0.34</b>	<b>13.12</b>
<b>Total</b>			<b>128.88</b>	<b>4.51</b>	<b>133.39</b>	<b>129.28</b>	<b>4.11</b>	<b>133.39</b>

Source: Wilbur Smith Assoc., ESA Airports

# Chandler Municipal Airport/FAR Part 150 Study

**TABLE 5.6**  
**2013 ANNUAL-AVERAGE DAY FLEET MIX (LOCAL OPERATIONS)**  
**CHANDLER MUNICIPAL AIRPORT**  
**14 CFR PART 150 STUDY**

Category	Sub Category	INM Aircraft	Touch and Go		Total
			Day	Night	
General Aviation	Multi Engine	BEC58P	1.24	0.05	1.29
		<b>Subtotal</b>	<b>1.24</b>	<b>0.05</b>	<b>1.29</b>
	Single Engine	CNA172	55.23	1.74	56.97
		CNA206	44.77	1.39	46.16
		GASEPF	88.54	2.78	91.32
		GASEPV	114.66	3.53	118.19
		<b>Subtotal</b>	<b>303.20</b>	<b>9.44</b>	<b>312.64</b>
	Helo	R22	232.09	7.08	239.17
		H500D	25.76	0.79	26.55
		<b>Subtotal</b>	<b>257.85</b>	<b>7.87</b>	<b>265.72</b>
<b>Total</b>		<b>562.29</b>	<b>17.36</b>	<b>579.65</b>	

Source: Wilbur Smith Assoc., ESA Airports

**TABLE 5.7**  
**2028 ANNUAL OPERATIONS**  
**CHANDLER MUNICIPAL AIRPORT**  
**14 CFR PART 150 STUDY**

	Air Taxi	Itinerant General Aviation	Local General Aviation	Helo	Local Helo	Total
Yearly Totals	13,314	106,620	170,897	10,723	144,609	446,163
Average 24-Hour Day	36.48	292.11	468.21	29.38	396.19	1,222.36

Source: Wilbur Smith Assoc., ESA Airports

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**TABLE 5.8  
2028 ANNUAL-AVERAGE DAY FLEET MIX (ITINERANT OPERATIONS)  
CHANDLER MUNICIPAL AIRPORT  
14 CFR PART 150 STUDY**

<i>Category</i>	<i>Sub-Category</i>	<i>INM Aircraft</i>	<i>Arrivals</i>			<i>Departures</i>			
			<i>Day</i>	<i>Night</i>	<i>Total</i>	<i>Day</i>	<i>Night</i>	<i>Total</i>	
Itinerant General Aviation	Jets	CL600	0.10	--	0.10	0.10	--	0.10	
		CNA500	2.53	0.24	2.77	2.66	0.13	2.79	
		CNA55B	0.51	0.04	0.55	0.53	0.01	0.54	
		GII	0.01	--	0.01	0.01	--	0.01	
		IA1125	0.04	--	0.04	0.04	--	0.04	
		LEAR35	0.32	0.02	0.34	0.26	0.08	0.34	
		MU3001	2.55	0.24	2.79	2.67	0.11	2.78	
		<b>Subtotal</b>	<b>6.06</b>	<b>0.54</b>	<b>6.60</b>	<b>6.27</b>	<b>0.33</b>	<b>6.60</b>	
		Multi Engine/ Turboprop	BEC58P	6.25	0.29	6.54	6.39	0.15	6.54
			CNA441	4.29	0.04	4.33	4.09	0.24	4.33
			DHC6	7.58	0.75	8.33	7.96	0.37	8.33
			GASEPV	2.54	--	2.54	2.49	0.05	2.54
			PA31	1.24	--	1.24	1.24	--	1.24
			SD330	0.13	0.06	0.19	0.17	0.02	0.19
			<b>Subtotal</b>	<b>22.03</b>	<b>1.14</b>	<b>23.17</b>	<b>22.34</b>	<b>0.83</b>	<b>23.17</b>
		Single Engine	CNA172	18.54	0.60	19.14	18.55	0.59	19.14
			CNA206	26.04	0.98	27.02	26.19	0.83	27.02
			GASEPF	25.34	0.92	26.26	25.46	0.80	26.26
			GASEPV	60.18	1.85	62.03	60.22	1.81	62.03
				<b>Subtotal</b>	<b>130.10</b>	<b>4.35</b>	<b>134.45</b>	<b>130.42</b>	<b>4.03</b>
Helo	Non-Military	R22	12.17	0.35	12.52	12.17	0.35	12.52	
		H500D	2.13	0.04	2.17	2.13	0.04	2.17	
			<b>Subtotal</b>	<b>14.30</b>	<b>0.39</b>	<b>14.69</b>	<b>14.30</b>	<b>0.39</b>	<b>14.69</b>
<b>Total</b>			<b>171.71</b>	<b>6.42</b>	<b>178.91</b>	<b>172.55</b>	<b>5.58</b>	<b>178.13</b>	

Source: Wilbur Smith Assoc., ESA Airports

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**TABLE 5.9  
2028 ANNUAL-AVERAGE DAY FLEET MIX (LOCAL OPERATIONS)  
CHANDLER MUNICIPAL AIRPORT  
14 CFR PART 150 STUDY**

Category	Sub Category	INM Aircraft	Touch and Go		
			Day	Night	Total
General Aviation	Multi Engine	BEC58P	1.90	0.07	1.97
		<b>Subtotal</b>	<b>1.90</b>	<b>0.07</b>	<b>1.97</b>
	Single Engine	CNA172	82.37	2.59	84.96
		CNA206	65.04	2.02	67.06
		GASEPF	130.36	4.10	134.46
		GASEPV	174.38	5.38	179.76
		<b>Subtotal</b>	<b>452.15</b>	<b>14.09</b>	<b>466.24</b>
	Helo	R22	346.05	10.56	356.61
		H500D	38.41	1.17	39.58
		<b>Subtotal</b>	<b>384.46</b>	<b>11.73</b>	<b>396.19</b>
<b>Total</b>			<b>838.51</b>	<b>25.89</b>	<b>864.40</b>

Source: Wilbur Smith Assoc., ESA Airports

**TABLE 5.10  
EXISTING PERCENTAGE RUNWAY UTILIZATION  
CHANDLER MUNICIPAL AIRPORT  
14 CFR PART 150 STUDY**

Operation Type	Aircraft Category	Runway				Total
		04L	04R	22L	22R	
Arrivals	Jets	5.0	45.0	45.0	5.0	100.00
	Multi Engine/Turboprop	30.0	20.0	20.0	30.0	100.00
	Single Engine Prop	20.0	30.0	30.0	20.0	100.00
Departures	Jets	5.0	45.0	45.0	5.0	100.00
	Multi Engine/Turboprop	30.0	20.0	20.0	30.0	100.00
	Single Engine Prop	20.0	30.0	30.0	20.0	100.00
Local Pattern	Multi Engine/Turboprop	30.0	20.0	20.0	30.0	100.00
	Single Engine Prop	20.0	30.0	30.0	20.0	100.00

Source: CHD ATCT; ESA Airports

## Future Conditions

The future condition (2013) at the Airport does not include any changes to the airfield and therefore the runway use percentages, shown in **Table 5.11**, are expected to remain the same as existing conditions. The future condition (2028) includes an extension to Runway 4R/22L. With the completion of this extension, it is anticipated the

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**TABLE 5.11  
FUTURE 2013 PERCENTAGE RUNWAY UTILIZATION  
CHANDLER MUNICIPAL AIRPORT  
14 CFR PART 150 STUDY**

Operation Type	Aircraft Category	Runway				Total
		04L	04R	22L	22R	
Arrivals	Jets	5.0	45.0	45.0	5.0	100.00
	Multi Engine/Turboprop	30.0	20.0	20.0	30.0	100.00
	Single Engine Prop	20.0	30.0	30.0	20.0	100.00
Departures	Jets	5.0	45.0	45.0	5.0	100.00
	Multi Engine/Turboprop	30.0	20.0	20.0	30.0	100.00
	Single Engine Prop	20.0	30.0	30.0	20.0	100.00
Local Pattern	Multi Engine/Turboprop	30.0	20.0	20.0	30.0	100.00
	Single Engine Prop	20.0	30.0	30.0	20.0	100.00

Source: CHD ATCT; ESA Airports

runway use percentages will slightly change. The jets and multi-engine/turboprop aircraft will increase their use of Runway 4R/22L, and the single-engine aircraft will shift more operations to Runway 4L/22R. The expected future (2028) runway utilization, by aircraft category, is shown in **Table 5.12**.

**TABLE 5.12  
FUTURE 2028 PERCENTAGE RUNWAY UTILIZATION  
CHANDLER MUNICIPAL AIRPORT  
14 CFR PART 150 STUDY**

Operation Type	Aircraft Category	Runway				Total
		04L	04R	22L	22R	
Arrivals	Jets	2.0	48.0	48.0	2.0	100.00
	Multi Engine/Turboprop	10.0	40.0	40.0	10.0	100.00
	Single Engine Prop	35.0	15.0	15.0	35.0	100.00
Departures	Jets	2.0	48.0	48.0	2.0	100.00
	Multi Engine/Turboprop	10.0	40.0	40.0	10.0	100.00
	Single Engine Prop	35.0	15.0	15.0	35.0	100.00
Local Pattern	Multi Engine/Turboprop	30.0	20.0	20.0	30.0	100.00
	Single Engine Prop	20.0	30.0	30.0	20.0	100.00

Source: CHD ATCT; ESA Airports

## FLIGHT TRACKS

### Existing Condition

The location of flight tracks (flight corridor centerlines) is an important factor in determining the geographic distribution of noise contours on the ground. The locations of the current arrival and departure tracks into and out of Chandler Municipal were

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developed through discussions with ATCT and verified using data obtained from the Phoenix Terminal Radar Approach Control and from the flight tracking system located at Phoenix Sky Harbor International Airport. Flight tracks utilized by arriving and departing aircraft, in both east and west flow conditions, were reviewed and a series of centerlines of flight corridors were established. Since aircraft do not follow a single track in the sky, flight corridors are developed to closely replicate the actual splay of aircraft as per the dispersion indicated in the data obtained and sub-track use percentages were assigned accordingly.

Primary single engine aircraft arrival and departure flight corridors for a west-flow condition are shown on **Figure 5.1** and for east-flow on **Figure 5.2**. The flight tracks shown on these figures, extending both east and west of the Airport, are itinerant operations of single engine aircraft and represent the approximate centerline of flight corridors for arriving and departing aircraft and the natural splay of the aircraft corridors. It should be noted that no two aircraft would fly exactly the same path due to such factors as aircraft type, differences in equipment, pilot technique, instrumentation, location in relation to other aircraft, and weather conditions.

The training pattern flight corridors used at Chandler Municipal are shown on **Figure 5.3**. These training patterns include local touch-and-go patterns for both fixed wing and helicopter activity. The fixed wing training patterns occur both north and south of the Airport depending on which runway is being used. The helicopter training pattern occurs almost exclusively to the south of the Airport.

The itinerant helicopter arrival and departure corridors are shown in **Figure 5.4**. The flight tracks shown on these figures, extending both north and south of the Airport, are itinerant operations of helicopters and represent the approximate centerline of flight corridors for arriving and departing aircraft and the natural splay of the aircraft corridors. It should be noted that no two helicopters would fly exactly the same path due to such factors as helicopter type, differences in equipment, pilot technique, instrumentation, location in relation to other helicopters, and weather conditions.

The flight corridor maps presented in this section represent only a small fraction of the flight tracks used in the development of the existing noise contours. All flight tracks used in the development of the existing noise contours, extending out to 30,000 feet from the ends of the runways, can be seen in **Appendix C**, where they are presented with the noise exposure maps.

### **Future Condition**

As mentioned previously, no airfield changes are anticipated for the future year 2013 condition. Because no airfield changes are anticipated for 2013, the flight tracks are not expected to change and will remain the same as the existing flight tracks.