

CHAPTER 5 AIRPORT OPERATIONAL DATA

5.1 EXISTING OPERATIONAL ACTIVITY AND FLEET MIX

The existing (2007) operational activity and fleet mix were presented in Chapter 2. The activity is reported in the following categories: air carrier, air taxi, itinerant general aviation, itinerant military, local general aviation, and local military. 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
2007 ANNUAL OPERATIONS**

	Air Carrier	Air Taxi	Itinerant General Aviation	Local General Aviation	Itinerant Military	Local Military	Total
Yearly Totals	0	3,488	57,068	26,268	297	64	87,185
Average 24-Hour Day	0	9.56	156.35	71.97	.81	.17	238.86

Source: RS&H

As presented in **Table 5-1**, the total number of operations that occurred for 2007 was 87,185; or an average of 239 operations per day. The breakdown of operations by aircraft type and fleet mix for 2007 is presented in **Table 5-2**; local (touch-and-go) operations are presented in **Table 5-3**. Local operations for modeling purposes differ from local operations for forecasting purposes. For forecasting, local operations include training (touch-and-go) operations as well as operations that remain within the local airspace. From a modeling standpoint, local operations are only operations that remain within the training (touch-and-go) pattern at the airport. Operations from the forecast that remain within the local airspace, and do enter the training pattern, were modeled as itinerant operations.

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 C**.

As indicated in **Table 5-1**, the greatest level of aircraft activity at the Airport during 2007 was the Itinerant General Aviation category of aircraft, amounting for approximately 65 percent of the overall activity with Local General Aviation operations accounting for an additional 30 percent. Air Taxi traffic accounted for approximately four percent of operations at the Airport and the combined Military operations contributed approximately one percent of the total operations.

TABLE 5-2
2007 ANNUAL-AVERAGE DAY FLEET MIX (ITINERANT OPERATIONS)

			Arrivals			Departures		
<i>Category</i>	<i>Sub-Category</i>	<i>INM Aircraft</i>	<i>Day</i>	<i>Night</i>	<i>Total</i>	<i>Day</i>	<i>Night</i>	<i>Total</i>
Itinerant	Jets	IA1125	0.090	--	0.090	0.087	0.003	0.090
General Aviation		LEAR35	1.901	0.121	2.022	1.863	0.159	2.022
		FAL50/900	0.186	0.003	0.189	0.186	0.003	0.189
		MU3001	4.126	0.301	4.427	4.266	0.161	4.427
		CNA750	0.918	0.068	0.986	0.926	0.060	0.986
		CL600	1.058	0.156	1.214	1.088	0.126	1.214
		CNA500	1.013	0.066	1.079	1.033	0.047	1.080
		CIT3	0.088	--	0.088	0.082	0.005	0.087
		GV	0.041	--	0.041	0.041	--	0.041
		EMB145	0.033	--	0.033	0.030	0.003	0.033
		GII	0.066	0.005	0.071	0.066	0.005	0.071
		GIIB	0.027	--	0.027	0.025	0.003	0.028
		GIV	0.132	0.003	0.135	0.134	--	0.134
		LEAR25	0.123	0.005	0.128	0.121	0.008	0.129
	<i>Subtotal</i>		9.802	0.728	10.530	9.948	0.585	10.531
	Multi Engine/ Turboprop	DHC6	6.450	0.671	7.121	6.608	0.512	7.120
		1900D	0.013	0.003	0.016	0.016	--	0.016
		CNA441	1.841	0.274	2.115	1.953	0.162	2.115
		GASEPM	--	0.003	0.003	0.003	--	0.003
		BEC58P	5.723	0.608	6.331	5.915	0.416	6.331
		EMB120	0.008	--	0.008	0.008	--	0.008
		PA31	6.469	2.441	8.910	6.548	2.362	8.910
		PA30	0.203	0.008	0.211	0.211	--	0.211
		C12 (P180)	0.137	--	0.137	0.137	--	0.137
	<i>Subtotal</i>		20.844	4.008	24.852	21.399	3.452	24.851
	Single Engine	CNA172	10.586	1.406	11.992	10.989	1.003	11.992
		CNA206	9.844	1.351	11.195	10.208	0.986	11.194
		GASEPV	11.937	1.463	13.400	12.249	1.151	13.400
		GASEPF	0.696	0.033	0.729	0.682	0.047	0.729
		SD330	0.145	0.003	0.148	0.137	0.011	0.148
		PA28	0.608	0.044	0.652	0.638	0.014	0.652
	<i>Subtotal</i>		33.816	4.300	38.116	34.903	3.212	38.115
Helo	Non-Military	SA350D	2.945	0.767	3.712	2.847	0.866	3.713
		EC130	4.205	1.022	5.227	4.019	1.208	5.227
		R22	0.008	0.003	0.011	0.008	0.003	0.011
		S76	0.101	0.025	0.126	0.101	0.025	0.126
		B212	0.441	0.143	0.584	0.482	0.101	0.583
		SA365N	0.803	0.197	1.000	0.770	0.230	1.000
	<i>Subtotal</i>		8.503	2.157	10.660	8.227	2.433	10.660
	Military	CH47D	0.008	--	0.008	0.008	--	0.008

TABLE 5-2
2007 ANNUAL-AVERAGE DAY FLEET MIX (ITINERANT OPERATIONS)

			Arrivals			Departures		
<i>Category</i>	<i>Sub-Category</i>	<i>INM Aircraft</i>	<i>Day</i>	<i>Night</i>	<i>Total</i>	<i>Day</i>	<i>Night</i>	<i>Total</i>
		S70	0.301	0.093	0.395	0.302	0.093	0.395
	<i>Subtotal</i>		<i>0.310</i>	<i>0.093</i>	<i>0.403</i>	<i>0.310</i>	<i>0.093</i>	<i>0.403</i>
Total			73.275	11.286	84.562	74.788	9.775	84.562

Source: RS&H; ESA Airports

TABLE 5-3
2007 ANNUAL-AVERAGE DAY FLEET MIX (TOUCH-AND-GO OPERATIONS)

			Touch and Go		
<i>Category</i>	<i>Sub Category</i>	<i>INM Aircraft</i>	<i>Day</i>	<i>Night</i>	<i>Total</i>
General Aviation	Multi Engine	BEC58P	1.178	0.017	1.195
	<i>Subtotal</i>		<i>1.178</i>	<i>0.017</i>	<i>1.195</i>
	Single Engine	GASEPV	22.455	0.340	22.795
		CNA172	22.449	0.340	22.789
		CNA206	22.449	0.340	22.789
	<i>Subtotal</i>		<i>67.353</i>	<i>1.020</i>	<i>68.373</i>
Military	Helo	S70	0.175	--	0.175
	<i>Subtotal</i>		<i>0.175</i>	<i>--</i>	<i>0.175</i>
Total			68.706	1.037	69.743

Source: RS&H; ESA Airports

5.2 FUTURE OPERATIONAL ACTIVITY AND FLEET MIX (2012 AND 2027)

Projections for future aircraft operations in 2012, 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 2012.

TABLE 5-4
2012 ANNUAL OPERATIONS

	Air Carrier	Air Taxi	Itinerant General Aviation	Local General Aviation	Itinerant Military	Local Military	Total
Yearly Totals	0	6,529	69,478	43,090	293	60	119,450
Average 24-Hour Day	0	17.88	190.35	118.05	.80	.16	327.26

Source: RS&H

As shown in **Table 5-4**, total operations at the Airport for the future year 2012 are projected to be 119,450 per year, or 327 per average annual day. A breakdown of 2012 itinerant operational activity and fleet mix that is used as the basis for the preparation of 2012 noise contours is presented in **Table 5-5** with a breakout of local operations in **Table 5-6**.

In addition to the 2012 future case, projections for future aircraft operations in 2027 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 9L/27R along with anticipated hangar development around the Airport. The projections for future aircraft operations in 2027 are presented in **Table 5-7**.

TABLE 5-5
2012 ANNUAL-AVERAGE DAY FLEET MIX (ITINERANT OPERATIONS)

Category	Sub-Category	INM Aircraft	Arrivals			Departures		
			Day	Night	Total	Day	Night	Total
Itinerant	Jets	IA1125	0.118	--	0.118	0.115	0.003	0.118
General Aviation		LEAR35	2.452	0.156	2.608	2.403	0.205	2.608
		FAL50/900	0.241	0.003	0.244	0.241	0.003	0.244
		MU3001	4.819	0.356	5.175	4.984	0.192	5.176
		CNA750	1.184	0.088	1.272	1.195	0.077	1.272
		CL600	1.364	0.203	1.567	1.405	0.162	1.567
		CNA500	1.310	0.082	1.392	1.332	0.060	1.392
		CIT3	0.112	--	0.112	0.104	0.008	0.112
		GV	0.052	--	0.052	0.052	--	0.052
		EMB145	0.041	--	0.041	0.038	0.003	0.041
		GII	0.085	0.005	0.090	0.085	0.005	0.090
		GIIB	0.036	--	0.036	0.033	0.003	0.036
		GIV	0.170	0.003	0.173	0.173	--	0.173
		LEAR25	0.159	0.008	0.167	0.156	0.011	0.167
		CNA55B	0.509	0.033	0.542	0.520	0.022	0.542
	Subtotal		12.652	0.937	13.589	12.836	0.754	13.590
	Multi Engine/ Turboprop	DHC6	8.468	0.874	9.342	8.668	0.674	9.342
		1900D	0.016	0.003	0.019	0.019	--	0.019
		CNA441	2.359	0.351	2.710	2.504	0.205	2.709
		GASEPM	--	0.003	0.003	0.003	--	0.003
		BEC58P	7.323	0.792	8.115	7.573	0.542	8.115
		EMB120	0.011	--	0.011	0.011	--	0.011
		PA31	8.493	3.143	11.636	8.595	3.041	11.636
		PA30	0.260	0.011	0.271	0.271	--	0.271
		C12 (P180)	0.175	--	0.175	0.175	--	0.175
	Subtotal		27.105	5.177	32.282	27.819	4.462	32.281
	Single Engine	CNA172	12.748	1.926	14.674	13.238	1.436	14.674
		CNA206	11.836	1.860	13.696	12.282	1.414	13.696
		GASEPV	14.400	1.995	16.395	14.778	1.616	16.395
		GASEPF	0.849	0.044	0.893	0.836	0.058	0.893
		SD330	0.178	0.003	0.181	0.167	0.014	0.181
		PA28	0.742	0.055	0.797	0.781	0.016	0.797
	Subtotal		40.753	5.883	46.636	42.082	4.554	46.636
Helo	Non-Military	SA350D	3.753	0.978	4.731	3.627	1.104	4.731
		EC130	5.362	1.304	6.666	5.123	1.543	6.666
		R22	0.011	0.003	0.014	0.011	0.003	0.014
		S76	0.129	0.030	0.159	0.129	0.030	0.159
		B212	0.564	0.181	0.745	0.616	0.129	0.745
		SA365N	1.022	0.252	1.274	0.981	0.293	1.274
	Subtotal		10.841	2.748	13.589	10.487	3.102	13.589

**TABLE 5-5
2012 ANNUAL-AVERAGE DAY FLEET MIX (ITINERANT OPERATIONS)**

Category	Sub-Category	INM Aircraft	Arrivals			Departures		
			Day	Night	Total	Day	Night	Total
	Military	CH47D	0.008	--	0.008	0.008	--	0.008
		S70	0.296	0.093	0.389	0.296	0.093	0.389
	Subtotal		0.304	0.093	0.397	0.304	0.093	0.397
Total			91.655	14.838	106.493	93.528	12.965	106.493

Source: RS&H; ESA Airports

**TABLE 5-6
2012 ANNUAL-AVERAGE DAY FLEET MIX (TOUCH-AND-GO OPERATIONS)**

Category	Sub Category	INM Aircraft	Touch and Go		
			Day	Night	Total
General Aviation	Multi Engine	BEC58P	1.940	0.027	1.967
	Subtotal		1.940	0.027	1.967
	Single Engine	GASEPV	36.822	0.564	37.386
		CNA172	36.822	0.559	37.381
		CNA206	36.822	0.553	37.375
	Subtotal		110.466	1.676	112.142
Military	Helo	S70	0.164	--	0.164
	Subtotal		0.164	--	0.164
Total			112.570	1.703	114.274

Source: RS&H; ESA Airports

**TABLE 5-7
2027 ANNUAL OPERATIONS**

	Air Carrier	Air Taxi	Itinerant General Aviation	Local General Aviation	Itinerant Military	Local Military	Total
Yearly Totals	0	11,422	89,453	55,400	295	60	156,630
Average 24-Hour Day	0	31.29	245.08	151.78	.81	.16	429.12

Source: RS&H; ESA Airports

As shown in **Table 5-7**, total operations at the Airport for the future year 2027 are projected to be 156,630 per year, or 429 per average annual day. A breakdown of 2027 itinerant operational activity and fleet mix that is used as the basis for the preparation of 2027 noise contours is presented in **Table 5-8** with a breakout of local operations in **Table 5-9**.

TABLE 5-8
2027 ANNUAL-AVERAGE DAY FLEET MIX (ITINERANT OPERATIONS)

Category	Sub-Category	INM Aircraft	Arrivals			Departures		
			Day	Night	Total	Day	Night	Total
Itinerant	Jets	IA1125	0.178	--	0.178	0.173	0.005	0.178
General Aviation		LEAR35	3.518	0.238	3.756	3.446	0.310	3.756
		FAL50/900	0.162	0.005	0.167	0.167	--	0.167
		MU3001	7.159	0.526	7.685	7.405	0.280	7.685
		CNA750	1.811	0.137	1.948	1.827	0.121	1.948
		CL600	1.775	0.290	2.065	1.833	0.233	2.066
		CNA500	2.000	0.129	2.129	2.036	0.093	2.129
		CIT3	0.173	--	0.173	0.162	0.011	0.173
		GV	0.082	--	0.082	0.082	--	0.082
		EMB145	0.066	--	0.066	0.060	0.005	0.065
		GII	0.132	0.011	0.143	0.132	0.011	0.143
		GIIB	0.055	--	0.055	0.049	0.005	0.054
		GIV	0.260	0.006	0.266	0.266	--	0.266
		LEAR25	--	--	--	--	--	--
		CNA55B	1.951	0.126	2.077	1.997	0.079	2.076
	Subtotal		19.322	1.468	20.790	19.635	1.153	20.788
	Multi Engine/ Turboprop	DHC6	11.189	1.159	12.348	11.458	0.890	12.348
		1900D	0.022	0.005	0.027	0.027	--	0.027
		CNA441	3.129	0.466	3.595	3.318	0.274	3.592
		GASEPM	--	0.005	0.005	0.006	--	0.006
		BEC58P	9.710	1.046	10.756	10.038	0.721	10.759
		EMB120	0.014	--	0.014	0.014	--	0.014
		PA31	11.222	4.167	15.389	11.356	4.033	15.389
		PA30	0.345	0.014	0.359	0.359	--	0.359
		C12 (P180)	0.233	--	0.233	0.233	--	0.233
	Subtotal		35.864	6.862	42.726	36.809	5.918	42.727
	Single Engine	CNA172	15.419	2.332	17.751	16.014	1.737	17.751
		CNA206	14.321	2.252	16.573	14.860	1.712	16.572
		GASEPV	17.419	2.416	19.837	17.882	1.953	19.835
		GASEPF	1.030	0.049	1.079	1.011	0.069	1.080
		SD330	0.216	0.003	0.219	0.203	0.016	0.219
		PA28	0.898	0.066	0.964	0.945	0.019	0.964
	Subtotal		49.303	7.118	56.423	50.915	5.506	56.421
Helo	Non-Military	SA350D	5.742	1.496	7.238	5.551	1.687	7.238
		EC130	8.203	1.992	10.195	7.839	2.356	10.195
		R22	0.016	0.006	0.022	0.016	0.006	0.022

**TABLE 5-8
2027 ANNUAL-AVERAGE DAY FLEET MIX (ITINERANT OPERATIONS)**

Category	Sub-Category	INM Aircraft	Arrivals			Departures		
			Day	Night	Total	Day	Night	Total
		S76	0.197	0.050	0.247	0.197	0.050	0.247
		B212	0.860	0.277	1.137	0.940	0.197	1.137
		SA365N	1.565	0.386	1.951	1.502	0.449	1.951
	Subtotal		16.583	4.207	20.79	16.045	4.745	20.79
	Military	CH47D	0.008	--	0.008	0.008	--	0.008
		S70	0.296	0.093	0.389	0.296	0.093	0.389
	Subtotal		0.304	0.093	0.397	0.304	0.093	0.397
Total			121.376	19.748	141.126	123.708	17.415	141.123

Source: RS&H; ESA Airports

**TABLE 5-9
2027 ANNUAL-AVERAGE DAY FLEET MIX (TOUCH-AND-GO OPERATIONS)**

Category	Sub Category	INM Aircraft	Touch and Go		
			Day	Night	Total
General Aviation	Multi Engine	BEC58P	2.488	0.038	2.526
	Subtotal		2.488	0.038	2.526
	Single Engine	GASEPV	47.348	0.718	48.066
		CNA172	47.348	0.712	48.060
		CNA206	47.342	0.718	48.060
	Subtotal		142.038	2.148	144.186
Military	Helo	S70	0.164	--	0.164
	Subtotal		0.164	--	0.164
Total			144.690	2.186	146.876

Source: RS&H; ESA Airports

5.3 RUNWAY UTILIZATION

5.3.1 Existing Conditions

Runway utilization at OSUA 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 70 percent of the time and to the east (arrivals from the west and departures to the east) the remaining 30 percent. While the Airport currently has four runways, the vast majority of the operations occur on the two parallel runways, 9R/27L and 9L/27R; approximately 73% of all airport

operations occurs on the southern parallel runway 9R/27L. A comprehensive breakdown of runway use, by aircraft category, is shown in **Table 5-10**.

**TABLE 5-10
EXISTING PERCENTAGE RUNWAY UTILIZATION**

Operation Type	Aircraft Category	Runway								
		09R	27L	09L	27R	05	23	14	32	Total
Arrivals	Jets	29.43	70.57	--	--	--	--	--	--	100.00
	Multi Engine/Turboprop	28.37	63.05	1.09	3.16	0.36	3.45	0.52	--	100.00
	Single Engine Prop	30.85	55.62	1.80	5.10	0.98	4.47	1.17	--	100.00
Departures	Jets	29.43	70.57	--	--	--	--	--	--	100.00
	Multi Engine/Turboprop	28.31	62.92	1.09	3.16	0.36	3.44	--	0.73	100.00
	Single Engine Prop	30.56	55.09	1.78	5.05	0.97	4.43	--	2.11	100.00
Local Pattern	Multi Engine/Turboprop	4.5	10.5	25.5	59.5	--	--	--	--	100.00
	Single Engine Prop	4.5	10.5	25.5	59.5	--	--	--	--	100.00

Source: OSU Airport; ESA Airports

5.3.2 Future Conditions

The future condition at the Airport includes an extension to Runway 9L/27R. With the completion of this extension, it is anticipated the jet aircraft will change to primarily using this runway due to the increased length. While the overall operation of the airfield (west vs. east) is expected to remain a 70 percent to 30 percent split, the use of the actual runways is expected to change. The expected future runway utilization, by aircraft category, is shown in **Table 5-11**.

**TABLE 5-11
FUTURE PERCENTAGE RUNWAY UTILIZATION**

Operation Type	Aircraft Category	Runway								
		09R	27L	09L	27R	05	23	14	32	Total
Arrivals	Jets	6.60	13.40	26.40	53.60	--	--	--	--	100.00
	Multi Engine/Turboprop	19.80	40.20	11.55	23.45	1.25	3.75	--	--	100.00
	Single Engine Prop	26.40	53.60	4.95	10.05	1.25	3.75	--	--	100.00
Departures	Jets	6.60	13.40	26.40	53.60	--	--	--	--	100.00
	Multi Engine/Turboprop	19.80	40.20	11.55	23.45	1.25	3.75	--	--	100.00
	Single Engine Prop	26.40	53.60	4.95	10.05	1.25	3.75	--	--	100.00
Local Pattern	Multi Engine/Turboprop	25.5	59.5	4.50	10.50	--	--	--	--	100.00
	Single Engine Prop	25.5	59.5	4.50	10.50	--	--	--	--	100.00

Source: Aircraft Noise Study for Ohio State University Airport; Draft Master Plan

5.4 FLIGHT TRACKS

5.4.1 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 OSUA were developed through analysis of the radar tracks provided from AirScene and discussions with the ATCT and Airport personnel. 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 AirScene data provided and sub-track use percentages were assigned accordingly.

Primary jet 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 jet 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 OSUA are shown on **Figure 5-3**. These training patterns include local touch-and-go patterns that occur almost exclusively to the north of Runway 9L/27R (a left-hand pattern off Runway 9L and a right-hand pattern off Runway 27R).

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 can be seen in **Appendix D**. Flight tracks extending out to 30,000 feet from the ends of the runways can be seen in **Appendix Q**, where they are presented with the Noise Exposure Map.

5.4.2 Future Condition

As mentioned previously, Runway 9L/27R is expected to be extended in the future. While it is not completely known what flight tracks will exist with the new runway length, it is assumed the jet aircraft and training activities will switch their primary runway use. This will in turn alter the expected flight corridors for most aircraft types. Primary jet arrival and departure flight corridors for the future west-flow condition are shown on **Figure 5-4** and for east-flow on **Figure 5-5**. The assumed future training pattern flight corridors for OSUA are shown on **Figure 5-6**.

As with the flight corridor maps for the existing condition, the future flight corridor maps presented in this section are a small fraction of the future flight tracks used in the development of the noise contours. All flight tracks used in the development of the future noise contours can be seen in **Appendix E**. Flight tracks extending out to 30,000 feet from the ends of the runways can be seen in **Appendix R**, where they are presented with the Noise Exposure Map.

FIGURE 5-1
EXISTING JET FLIGHT TRACKS – WEST FLOW

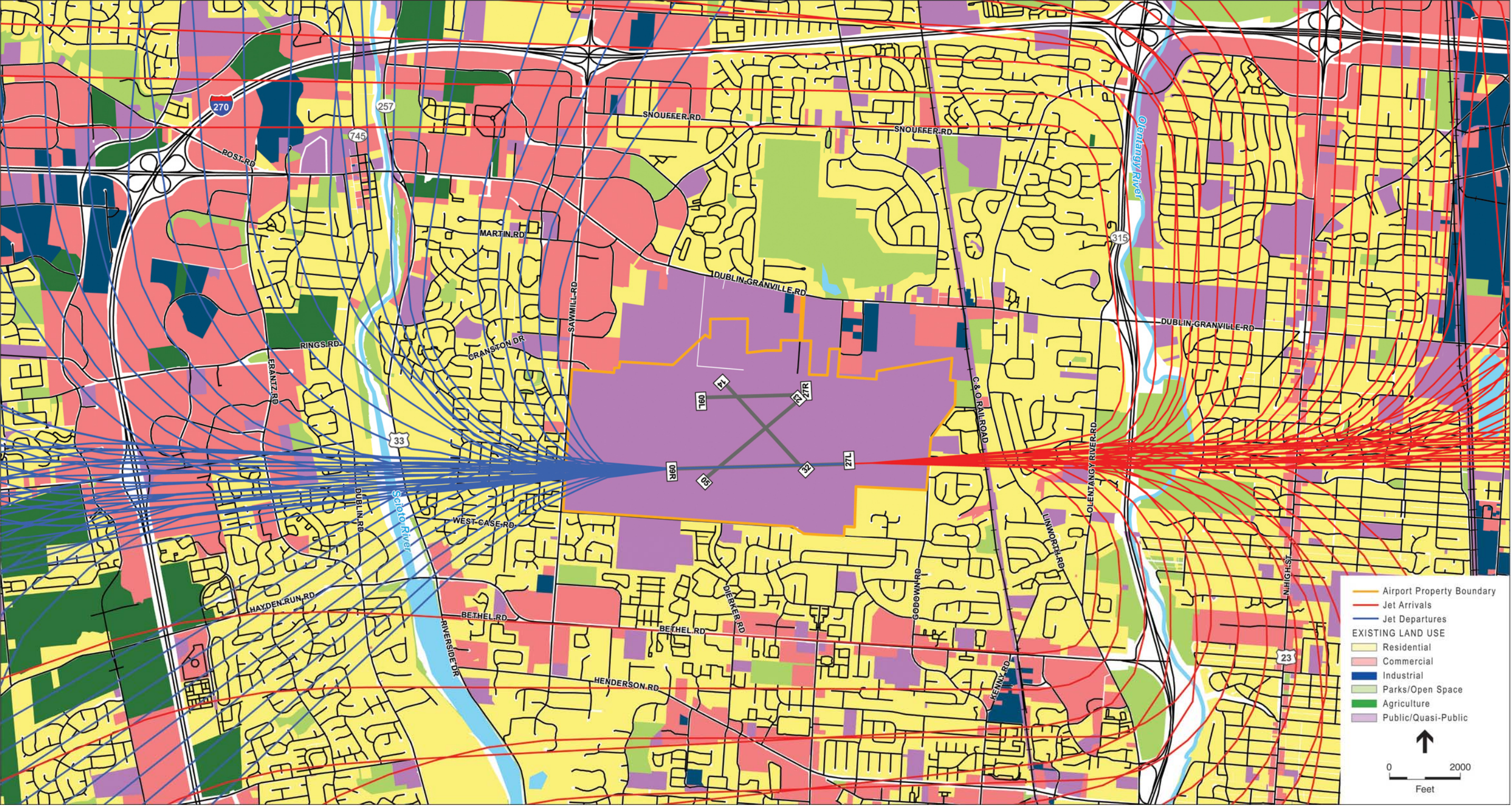


FIGURE 5-2
EXISTING JET FLIGHT TRACKS – EAST FLOW

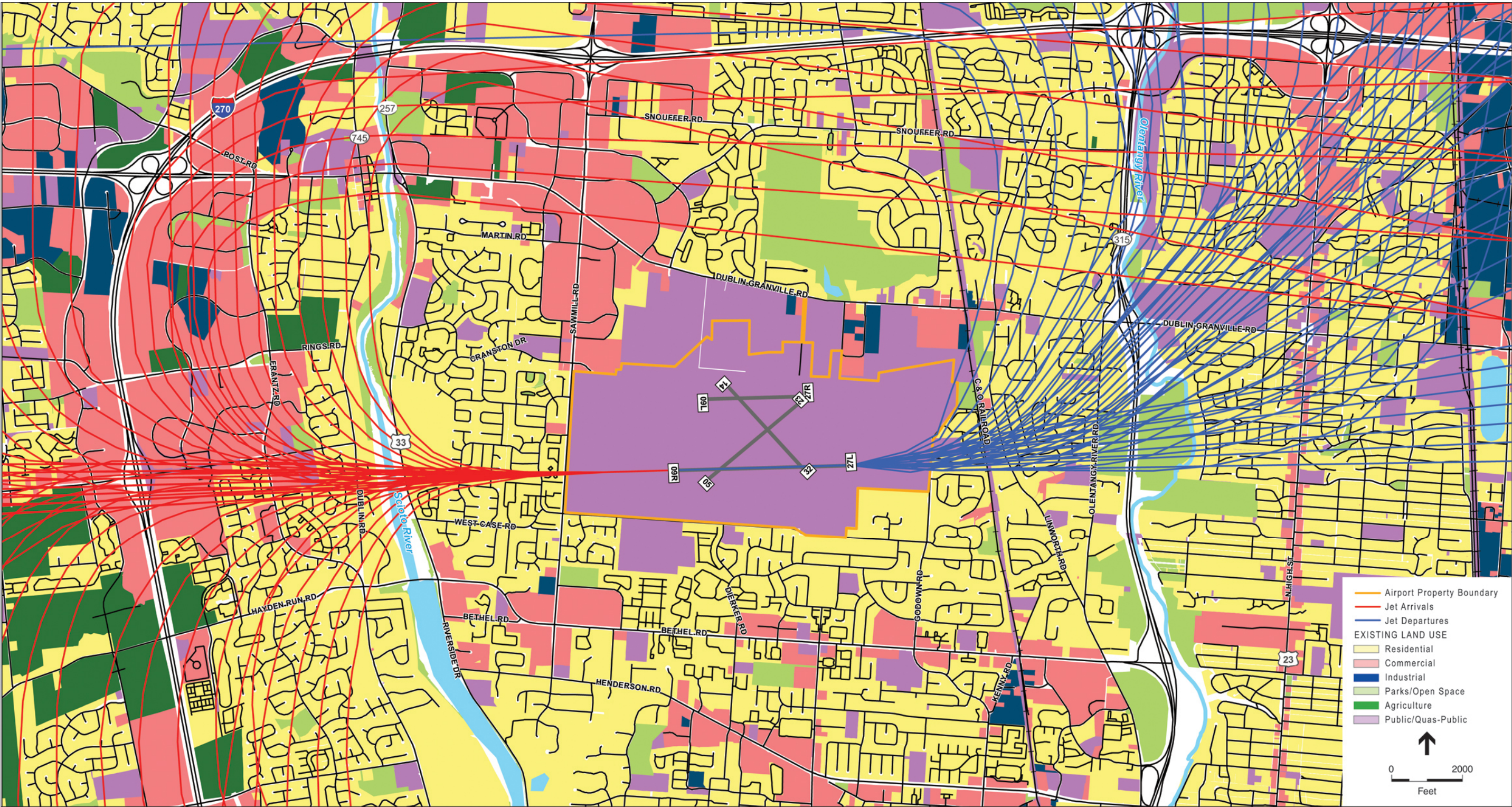


FIGURE 5-3
EXISTING TRAINING FLIGHT TRACKS

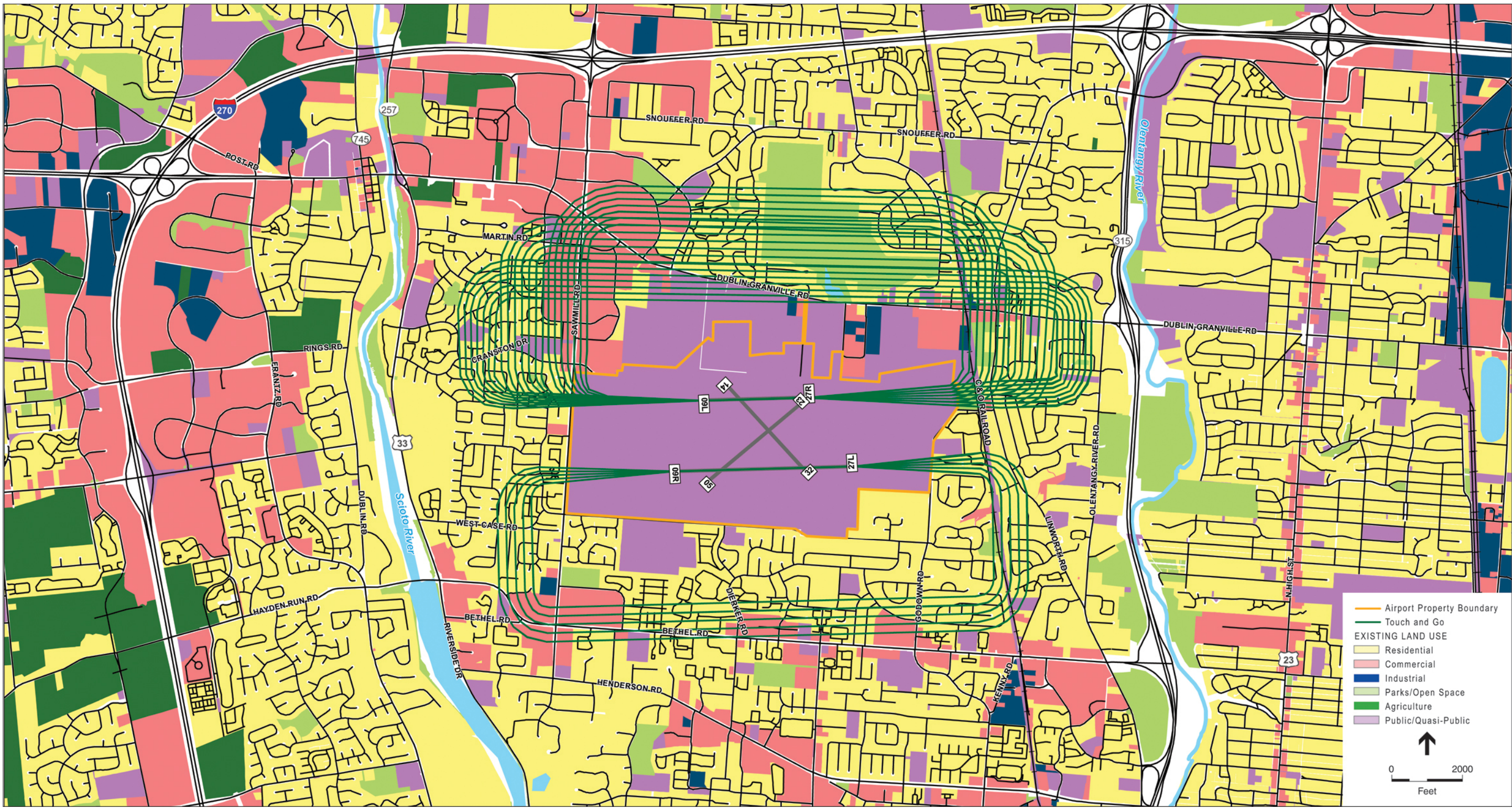


FIGURE 5-4
FUTURE JET FLIGHT TRACKS – WEST FLOW

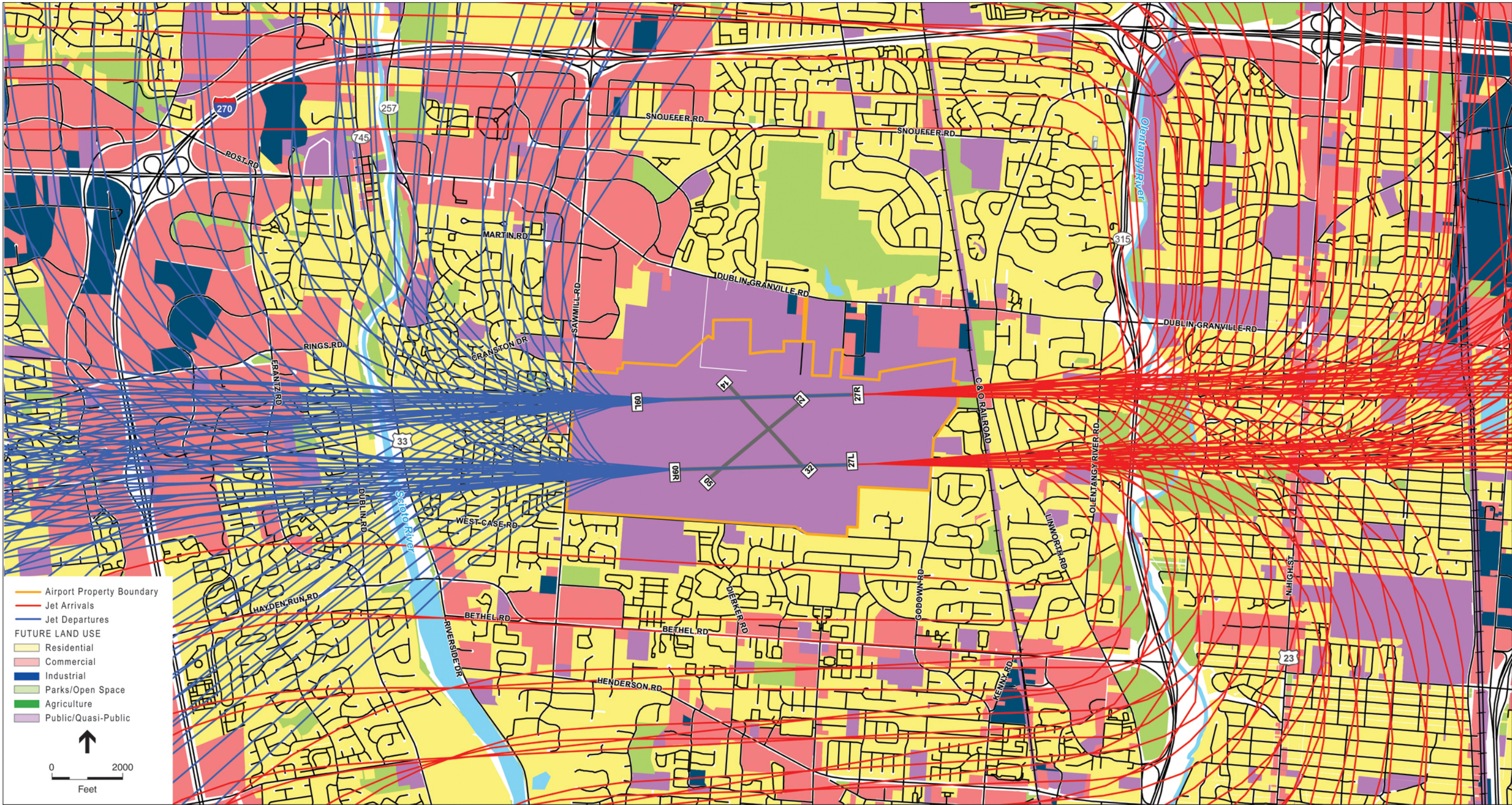


FIGURE 5-5
FUTURE JET FLIGHT TRACKS – EAST FLOW

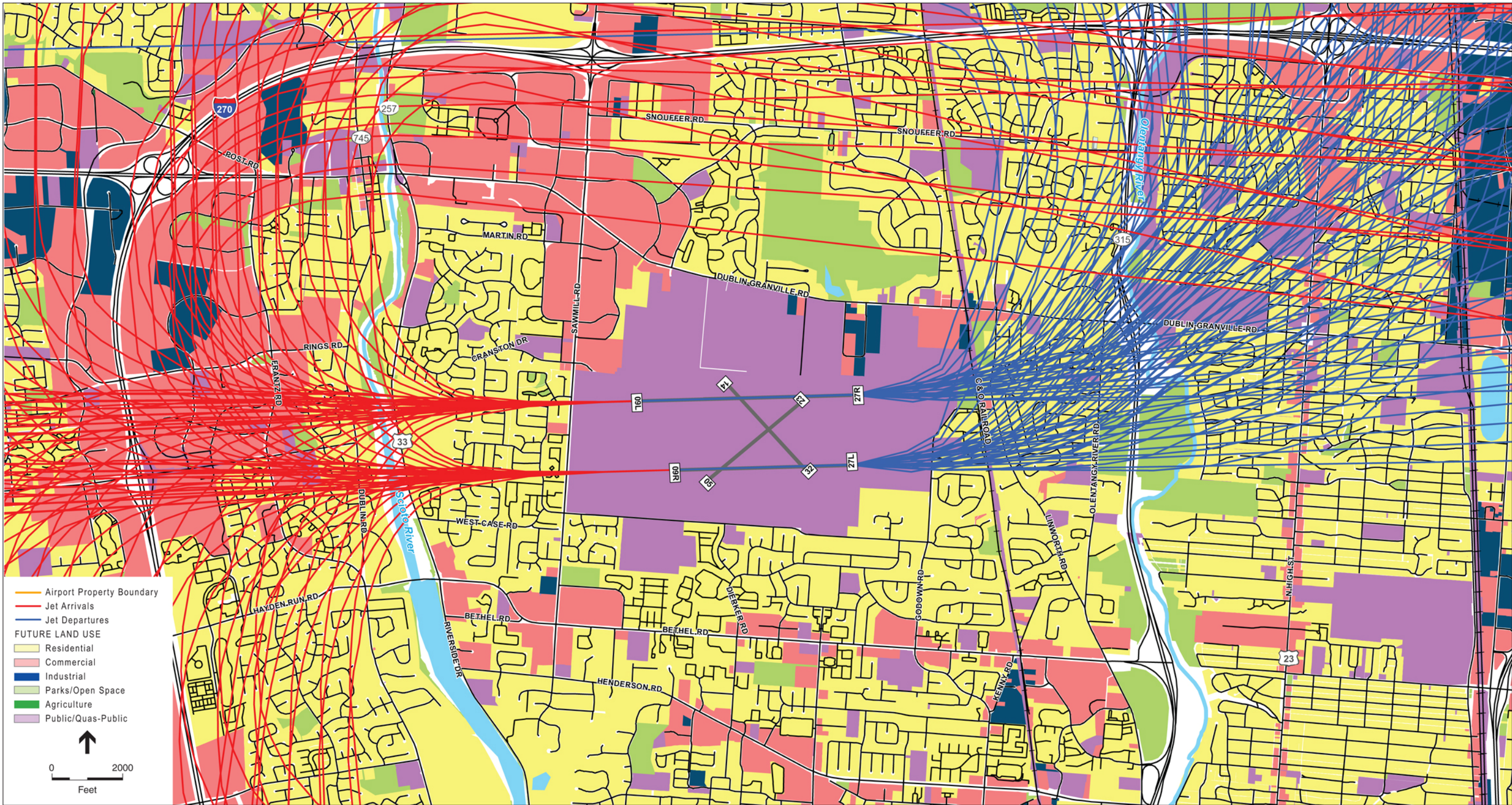
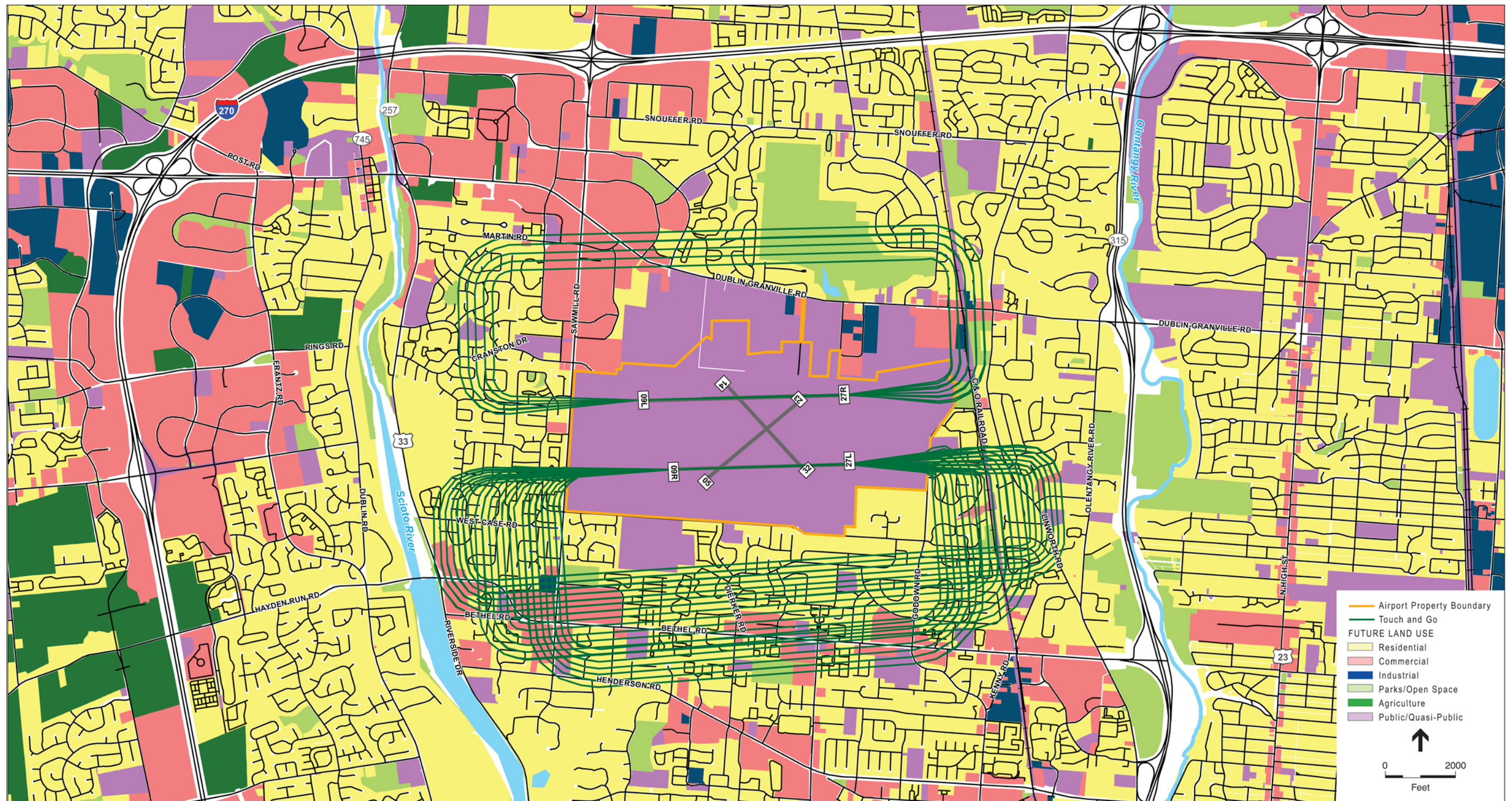


FIGURE 5-6
FUTURE TRAINING FLIGHT TRACKS



5.5 AIRCRAFT FLIGHT PROFILES

The altitude profiles for an aircraft departing an airport are affected by many different factors including, but not limited to: takeoff weight; aircraft performance; thrust settings; pilot technique; air traffic control instructions; density altitude; wind speed; and weather conditions. Despite these various influences on the departure profile flown, a given aircraft type will generally have very similar profiles over a series of many flights. While some of the actual profiles may be higher and some may be lower, a nominal altitude profile can be used to represent a given aircraft type for noise modeling purposes.

Unlike departure altitude profiles, which can exhibit a great deal of variability, arrival profiles for jet aircraft typically exhibit much less fluctuation, especially within the last two to three nautical miles from the runway end. In fact, most jet aircraft fly a three-degree approach even under visual flight conditions.

Both the departure and arrival profiles for common jet aircraft at OSUA were reviewed to determine if either needed to be altered for the modeling effort at the Airport. The conclusion of the analysis revealed that there was not a need to alter the standard INM departure and arrival profiles for the noise modeling effort of this Study. The analysis can be seen in **Appendix F**.

5.6 TIME OF DAY OPERATIONS

The separation of aircraft operations into daytime and nighttime periods is critical due to the calculation of DNL requiring a penalty for operations during the nighttime hours (10:00:00 p.m. to 6:59:59 a.m.) by a factor of ten. The number of aircraft operations at night was determined through the analysis completed for the forecast presented in Chapter 2. The nighttime operations, for existing and future conditions, by aircraft type can be found in **Tables 5-2, 5-3, 5-5, 5-6, 5-8, and 5-9**.

5.7 ENGINE MAINTENANCE RUN-UPS

Maintenance run-ups typically occur following the completion of work on the engines to test the engine's performance prior to its next flight. Through discussion with operators at OSUA, it was determined very few jet engine maintenance run-ups, and few propeller aircraft engine maintenance run-ups, occur on the Airport and therefore were not modeled.

