SECTION 4
Affected Environment

4.1 Airport Location and Study Area

TMB is owned by Miami-Dade County and is located approximately 13 miles southwest of the City of Miami in unincorporated Miami-Dade County. **Figure 1-1,** which is included in Section 1, depicts the location of the Airport. The Airport property is generally bounded by Southwest 120th Street to the north, Southwest 137th Avenue to the east, Southwest 136th Street to the south, and Southwest 157th Avenue to the west. The Airport also owns property on the west side of Southwest 157th Avenue. Overall, TMB property covers approximately 1,380 acres. The general study area includes all those areas on the Airport or in the vicinity of the Airport that could be directly or indirectly affected by implementation of the Proposed Action. The general study area for this EA, shown on **Figure 4-1**, is generally bounded by Southwest 104th Street to the north, State Highway 821 to the east, Southwest 152nd to the south, and Krome Avenue to the west. The area of construction for the runway extensions and associated runway protection zones represent the detailed study area limits and also are shown on **Figure 4-1**.

The following sections describe the Human, Physical and Natural conditions within the general study area.

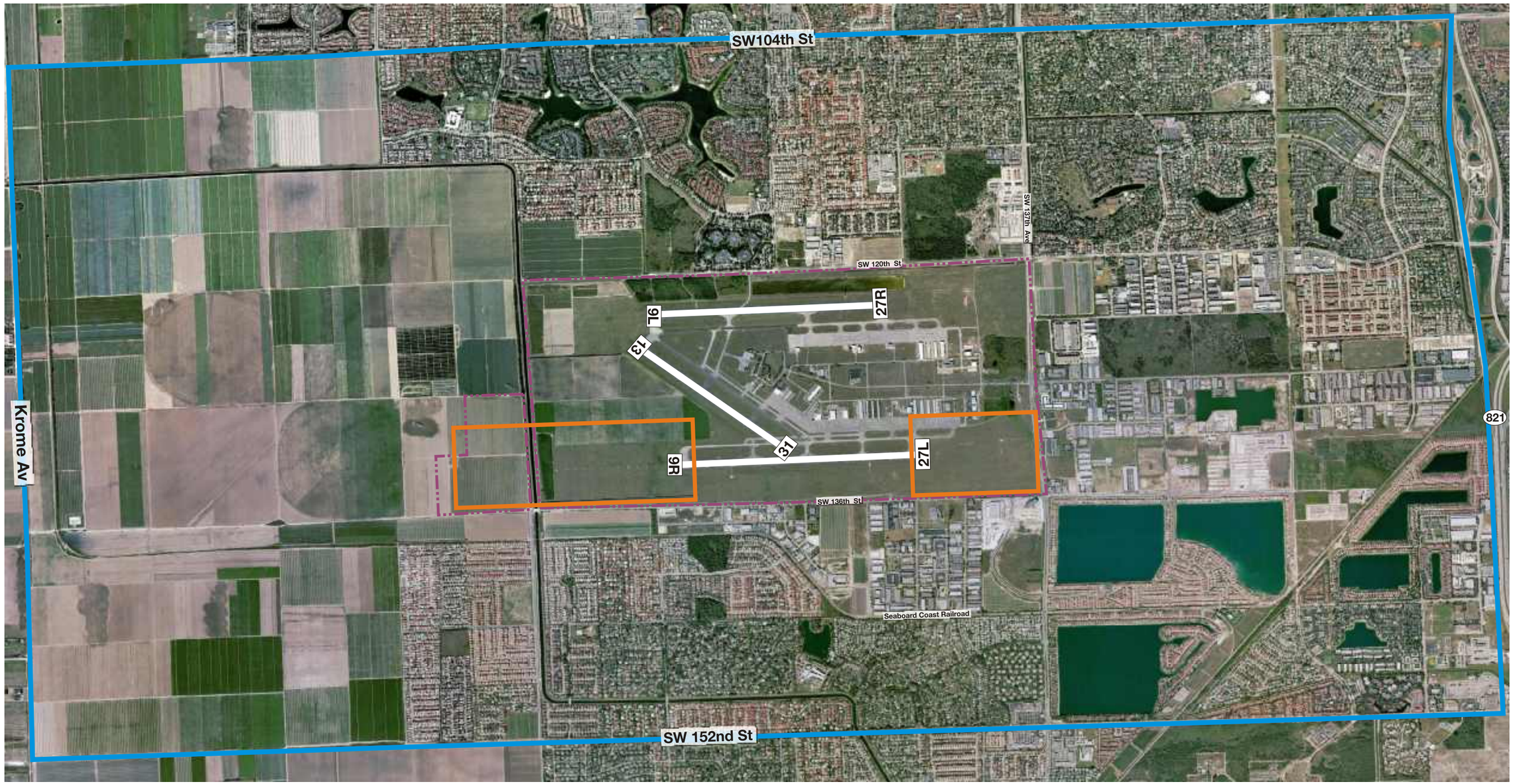
4.2 Human Environment

4.2.1 Land Use

Existing Land Uses

To the north of TMB, the area between the Airport and Southwest 104th Street consists primarily of residential uses. These include a mix of single-family homes, town homes, condominiums, and apartment complexes. Interspersed throughout the area are commercial establishments that include gas stations, fast food restaurants and other local-serving commercial and retail uses. As indicated on **Figure 4-2**, five schools and several small community parks also are located in this area.

The area between TMB and State Highway 821 to the east includes a mix of commercial, light industrial and limited residential uses. The primary use is light industrial, which includes light manufacturing and warehousing uses. One two-story condominium complex, The Tuscany Village, is located at the corner of Southwest 136th Street and Southwest 127th Avenue. This complex, which is was constructed in 2005, is located approximately one mile from the Airport



Aerial Photo Source: Airphoto USA January 2005

General Study Area

Detailed Study Area

Airport Property Boundary

0 750 1500 3000

Feet

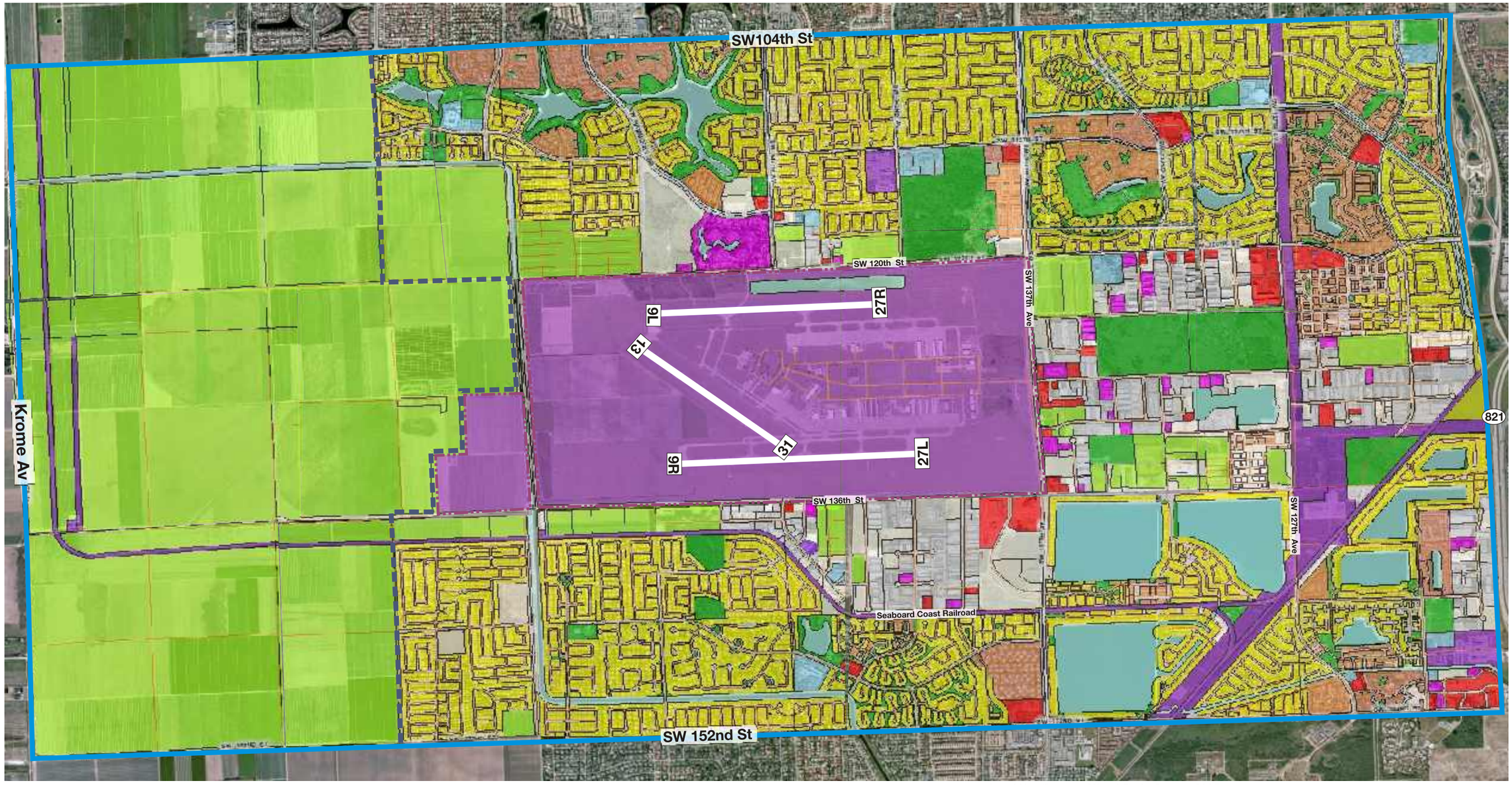
North

Source: ESA Airports

Kendall-Tamiami Executive Airport Environmental Assessment

Figure 4-1

General and Detailed Study Areas



Land Use Source: Miami-Dade County 2005

Aerial Photo Source: Airphoto USA January 2005

- Single-Family
- Townhouses
- Two-Family (Duplexes)
- Low-Density Multi-Family
- Shopping Centers/Commercial
- Office
- Agriculture
- Industrial
- Institutional
- Parks/Preserves/Conservation
- Airports/Ports
- Communication/Utilities
- Vacant/Government Owned
- Water
- General Study Area
- Airport Property Boundary
- Urban Development Boundary

0 750 1500 3000

Feet

North

Source: ESA Airports

Kendall-Tamiami Executive Airport Environmental Assessment

Figure 4-2

Existing Land Use

property boundary along the extended centerline of runway 9R-27L. The Kids Paradise Learning Center is located on Southwest 136th Street approximately 1,000 feet east of Southwest 137th Avenue. The Tamiami Pineland Preserve is situated due east of TMB between the extended east-west parallel runway centerlines. This preserve encompasses approximately 60 acres and is owned by the Miami-Dade Parks Department. Three Lakes Park is approximately 1,000 feet east of the Airport property boundary along the extended centerline of Runway 9R-27L. The park is owned by the Miami-Dade Parks Department and consists of two soccer fields. One private school is located east of TMB along Southwest 120th Street.

To the south of the TMB, the area between the Airport and Southwest 152nd Street consists of a mixture of industrial/commercial uses and residential uses. The industrial/commercial uses are immediately south of the Airport between Southwest 136th Street and the Seaboard Coast Railroad. The area between the Seaboard Coast Railroad and Southwest 152nd Street is primarily single-family residential uses. One multi-family residential complex is located south of the railroad adjacent to Southwest 137th Avenue. Two public schools also are located in this area.

The area between TMB and Krome Avenue to the west is an undeveloped rural area that is traversed by canals and unpaved roads. The eastern boundary of Everglades National Park is located about five miles to the west of the Airport. No residential uses exist west of the Airport to Krome Avenue.

Land Use Plans

The general plan for development within the general study area is the Miami-Dade County Comprehensive Development Master Plan (CDMP). The CDMP identifies TMB to continue to develop as a general aviation reliever to Miami International Airport and a corporate aviation jet center. Objectives in the CDMP that directly relate to TMB are included in Section 4.2.5 of this EA.

The CDMP identifies the County's policies related to development over the next twenty years. The CDMP establishes the parameters that allow the government to prepare detailed land use planning and zoning.

As indicated on **Figure 4-2**, property north, east, and south of TMB is substantially developed. As such, with the exception of in-fill, little change in the character of these areas would be expected to occur. To the west of TMB, virtually no development occurs. This results from the western boundary of the Airport extending to the limits of the Urban Development Boundary (UDB) line - a line beyond which urban development is not permitted to occur. The UDB is established by Miami-Dade County and is included in the CDMP.

4.2.2 Noise

The methodology for calculating the existing noise exposure surrounding TMB includes the use of an FAA-approved computer simulation model and airport specific data including the types of aircraft operating at the airport, runway use, primary flight track utilization, aircraft stage lengths, and the time of day for the aircraft operations. The model generates a Day-Night Average Sound

Level (DNL) contour. Additional information related to DNL and other noise metrics is included in **Appendix D**.

Integrated Noise Model (INM)

The FAA has approved two computer simulation models for use in analyzing the noise conditions at airports - NOISEMAP and the INM. NOISEMAP is used most often at military airports while the INM is most commonly used at civilian airports.

The INM was developed by the Transportation Systems Center of the United States Department of Transportation (USDOT) and is undergoing continuous refinement. The model is designed as a conservative planning tool, and is periodically updated. Version 6.2 is the most current version of the model at this time and was used for this noise analysis.

Methodology

The INM works by defining a network of grid points at ground level around an airport. The INM then selects the shortest distance from each grid point to each flight track and computes the noise exposure generated by each aircraft operation, by aircraft type, and engine thrust level along each flight track. Corrections are applied for atmospheric acoustical attenuation, acoustical shielding of the aircraft engines by the aircraft itself, and aircraft speed variations. The noise exposure levels for each aircraft are then summed at each grid location. The cumulative noise exposure levels at all grid points are then used to develop noise exposure contours for selected values (e.g., 65, 70, and 75 DNL). DNL noise contours of equal noise exposure can then be plotted.

INM Input Data

In order to develop DNL noise contours, the INM uses a series of input factors. Some of these factors are included in the database for the model (such as engine noise levels, thrust settings, aircraft profiles and aircraft speeds) and others are Airport-specific and need to be determined for each condition analyzed. This Airport-specific data includes the airport elevation, average annual temperature, runway layout, the mathematical description of ground tracks above which aircraft fly, and the assignment of specific aircraft with specific engine types at specific takeoff weights to individual flight tracks. Other INM input factors specific to TMB for this analysis include:

- aircraft operations and fleet mix;
- time of day/night of operations;
- stage lengths of aircraft; and
- runway orientation and use.

Noise Curve Data

In addition to the mathematical procedures defined in the model, the INM has a database containing tables correlating noise, thrust settings, and flight profiles for most of the civilian aircraft, and many common military aircraft, operating in the United States. This database, often referred to as the noise curve data, has been developed under FAA guidance based on thousands of actual noise measurements in controlled settings for each aircraft type.

The database also includes performance data for each aircraft type. This data allows the model to compute airport-specific flight profiles (rates of climb and descent) for each aircraft type, providing an accurate representation of actual procedures. The model also includes a number of FAA-approved substitute aircraft. The tables contained in this section identify the actual aircraft types operating at TMB and, when necessary, the FAA-approved INM substitute aircraft type.

2005 Aircraft Operations

The 2005 aircraft operation numbers for TMB were determined through the use of a combination of FAA Air Traffic Activity Data System (ATADS) data and MDAD Activity Reports. Additionally, night operations for TMB were collected from the Flight Service Station (FSS) along with Airport management to account for operations when the air traffic control tower is closed. In 2005, a total of 186,540 operations occurred, which is an average of 511 per day. Airport operations by category for 2005 are presented in Table 4.2.2-1.

TABLE 4.2.2-1
2005 AIRCRAFT OPERATIONS

Air Taxi	General Aviation	Military	Helicopter	Total
2,732	134,000	400	49,409	186,540

Source: FAA ATADS Data, MDAD Activity Reports, Airport Management

An air taxi operation at TMB is classified as a general aviation aircraft operation that provided on-demand, non-scheduled passenger service. The fleet mix of air taxi operations is presented in Table 4.2.2-2.

Aircraft operations are identified as local and itinerant. An itinerant operation is defined as an aircraft take-off where the aircraft leaves the airport vicinity and lands at another airport, or an aircraft landing where the aircraft has arrived from another airport. Local operations are associated with aircraft conducting touch and go training operations at the airport. A touch and go operation occurs when an aircraft lands on a runway, travels down the runway and takes off from the runway without stopping. The aircraft then climbs to the pattern altitude, circles around and lands again on the runway. This pattern often continues for several cycles. Helicopters also conduct training at TMB and can be classified as a local operation. The helicopter training pattern is similar to an aircraft touch and go operation with the exception that the helicopters do not touch down on the ground; rather they often follow a low altitude approach over a specific area (often a designated helipad). The breakdown of operations and fleet mix for itinerant and local aircraft and helicopter operations at TMB is included in Tables 4.2.2-3 through 4.2.2-5.

Time of Day

The separation of aircraft activity into daytime (7:00 a.m. to 10:00 p.m.) and nighttime (10:00 p.m. to 7:00 a.m.) activities is important because the INM includes a penalty for aircraft noise during the nighttime hours. A detailed breakdown of daytime and nighttime operations by specific aircraft is included in Tables 4.2.2-2 through 4.2.2-5.

TABLE 4.2.2-2
DAILY AVERAGE AIR TAXI OPERATIONS (2005)

Aircraft Category	INM Aircraft	Aircraft Type	Daytime Operations	Nighttime Operations	Total
Single Piston	CNA172	Cessna 172	0.68	0.00	0.68
	CNA206	Cessna Staionair	0.22	0.00	0.22
	GASEPF	Single Piston - Fixed Pitch Prop	0.12	0.00	0.12
	GASEPV	Single Piston - Variable Pitch Prop	0.10	0.00	0.10
	CNA20T	Turbo Stationair	0.06	0.00	0.06
Twin Piston	BEC58P	Beech Baron	0.54	0.02	0.56
Turboprop	CNA441	King Air	0.38	0.02	0.40
	DHC6	DeHavilland DASH-6	0.48	0.00	0.48
	DHC8	DeHavilland DASH-8	0.02	0.00	0.02
	HS748A	Hawker Sidley 748	0.02	0.00	0.02
	L188	Lockheed L-188	0.02	0.00	0.02
Jet	CIT3	Citation 3	0.16	0.00	0.16
	CL600	Challenger, Falcon 2000	0.20	0.00	0.20
	CL601	Canadair Regional Jet	0.04	0.00	0.04
	CNA500	Citation I	0.10	0.00	0.10
	CNA55B	Citation II	0.18	0.02	0.20
	CNA750	Citation X	0.14	0.00	0.14
	FAL50	Falcon 50, 900	0.04	0.00	0.04
	GIV	Gulfstream IV	0.04	0.00	0.04
	IA1125	Westwind 24,25	0.04	0.00	0.04
	LEAR25	Learjet 24, 25	0.26	0.02	0.28
	LEAR35	Learjet 35,45,55	2.26	0.08	2.34
	MU3001	Mitsubishi Diamond	1.16	0.04	1.20
Total			**7.28**	**0.20**	**7.48**

Numbers may not sum due to rounding
Source: HMMH Report No. 299560.002 and ESA Airports Analysis

TABLE 4.2.2-3
DAILY AVERAGE ITINERANT GENERAL AVIATION OPERATIONS (2005)

Aircraft Category	INM Aircraft	Aircraft Type	Daytime Operations	Nighttime Operations	Total
Single Piston	CNA172	Cessna 172	38.48	1.50	39.98
	CNA206	Cessna Staionair	9.78	0.30	10.08
	COMSEP	Single Engine Piston	0.40	0.02	0.42
	GASEPF	Single Piston - Fixed Pitch Prop	14.00	0.34	14.34
	GASEPV	Single Piston - Variable Pitch Prop	31.48	0.92	32.40
	CNA20T	Turbo Stationair	1.50	0.08	1.58
Twin Piston	BEC58P	Beech Baron	36.10	1.84	37.94
	DC3	Douglas DC-3	0.04	0.00	0.04
	DC6	Douglas DC-6	0.02	0.00	0.02
Turboprop	CNA441	King Air	18.66	0.92	19.58
	DHC6	DeHavilland DASH-6	16.82	1.16	17.98
	EMB120	Embraer Brasilia	0.50	0.08	0.58
	SD330	Shorts SD330	0.48	0.02	0.50
	DHC8	DeHavilland DASH-8	0.20	0.00	0.20
	HS748A	Hawker Sidley 748	0.14	0.00	0.14
	SF340	SAAB SF-340	0.22	0.00	0.22
Jet	CIT3	Citation 3	3.34	0.60	3.94
	CL600	Challenger, Falcon 2000	2.76	0.16	2.92
	CL601	Canadair Regional Jet	0.10	0.00	0.1
	CNA500	Citation I	6.10	0.20	6.30
	CNA55B	Citation II	6.14	0.18	6.32
	CNA750	Citation X	0.38	0.02	0.40
	FAL20	Falcon 20	0.24	0.00	0.24
	FAL50	Falcon 50, 900	1.46	0.06	1.52
	GII	Gulfstream II	0.32	0.00	0.32
	GIIB	Gulfstream IIB	0.12	0.04	0.16
	GIV	Gulfstream IV	0.72	0.04	0.76
	GV	Gulfstream V	0.26	0.00	0.26
	IA1125	Westwind 24,25	1.38	0.10	1.48
	LEAR25	Learjet 24, 25	2.68	0.10	2.78
	LEAR35	Learjet 35,45,55	17.84	1.84	19.68
	MU3001	Mitsubishi Diamond	5.52	0.16	5.68
Helicopter	B206L	Bell Jetranger	15.26	4.50	19.76
	BO105	Bell 412	11.96	3.52	15.48
	H500D	Hughes 500	5.32	1.56	6.88
	S76	Sikorsky S-76	0.66	0.20	0.86
Total			**251.38**	**20.46**	**271.84**

Numbers may not sum due to rounding
Source: HMMH Report No. 299560.002 and ESA Airports Analysis

TABLE 4.2.2-4
DAILY AVERAGE ITINERANT MILITARY OPERATIONS (2005)

Aircraft Category	INM Aircraft	Aircraft Type	Daytime Operations	Nighttime Operations	Total
Turboprop	C-130	C-130	0.02	0.00	0.02
	C-12	Military Super King Air	0.06	0.00	0.06
Jet	C-20	Military Gulfstream	0.02	0.00	0.02
	C-21A	Military Learjet 35	0.02	0.00	0.02
Helicopter	S65	Sikorsky S-65	0.24	0.00	0.24
	S70	Sikorsky S-70 Blackhawk	0.04	0.00	0.04
Total			**0.40**	**0.00**	**0.40**

Numbers may not sum due to rounding
Source: HMMH Report No. 299560.002 and ESA Airports Analysis

TABLE 4.2.2-5
DAILY AVERAGE LOCAL FLIGHT TRAINING OPERATIONS (2005)

Aircraft Category	INM Aircraft	Aircraft Type	Daytime Operations	Nighttime Operations	Total
Single Piston	GASEPF	Single Piston - Fixed Pitch Prop	16.04	0.00	16.04
	GASEPV	Single Piston - Variable Pitch Prop	35.86	0.00	35.86
	CNA172	Cessna 172	44.44	0.00	44.44
Twin Piston	BEC58P	Beech Baron	42.04	0.00	42.04
Helicopter	H500D	Hughes 500	55.44	0.00	55.44
	B206L	Bell Jetranger	36.96	0.00	36.96
	SA365N*	Aerospatiale Dauphin (Coast	0.36	0.00	0.36
	BO105*	Bell 412	0.34	0.00	0.34
Total			**231.48**	**0.00**	**231.48**

* Denotes Military
Numbers may not sum due to rounding
Source: HMMH Report 299560.002 and ESA Airports Analysis

Runway Use

Runway use at TMB depends on several factors, including wind conditions, runway length, aircraft heading, and aircraft type. Table 4.2.2-6 presents the runway use percentages for 2005.

TABLE 4.2.2-6
2005 RUNWAY USE PERCENTAGES

Flow	Runway	Arrivals		Departures	
		Day	Night	Day	Night
			Jet		
East	9R	73.0	76.0	52.0	70.0
	9L	2.0	0.0	23.0	0.0
	13	1.0	5.0	4.0	10.0
West	27L	22.0	17.0	19.0	19.0
	27R	1.0	0.0	1.0	0.0
	31	1.0	2.0	1.0	1.0
Total		**100.0**	**100.0**	**100.0**	**100.0**
			Turboprop		
East	9R	62.0	87.0	38.0	79.0
	9L	5.0	0.0	34.0	0.0
	13	10.0	3.0	6.0	0.0
West	27L	15.0	0.0	13.0	18.0
	27R	3.0	0.0	2.0	0.0
	31	5.0	10.0	7.0	3.0
Total		**100.0**	**100.0**	**100.0**	**100.0**
			Piston		
East	9R	58.0	85.0	37.0	65.0
	9L	10.0	0.0	32.0	0.0
	13	12.0	1.0	9.0	14.0
West	27L	12.0	12.0	9.0	11.0
	27R	4.0	0.0	4.0	0.0
	31	4.0	2.0	9.0	10.0
Total		**100.0**	**100.0**	**100.0**	**100.0**

HMMH Report No. 299560.002 and ESA Airports Analysis

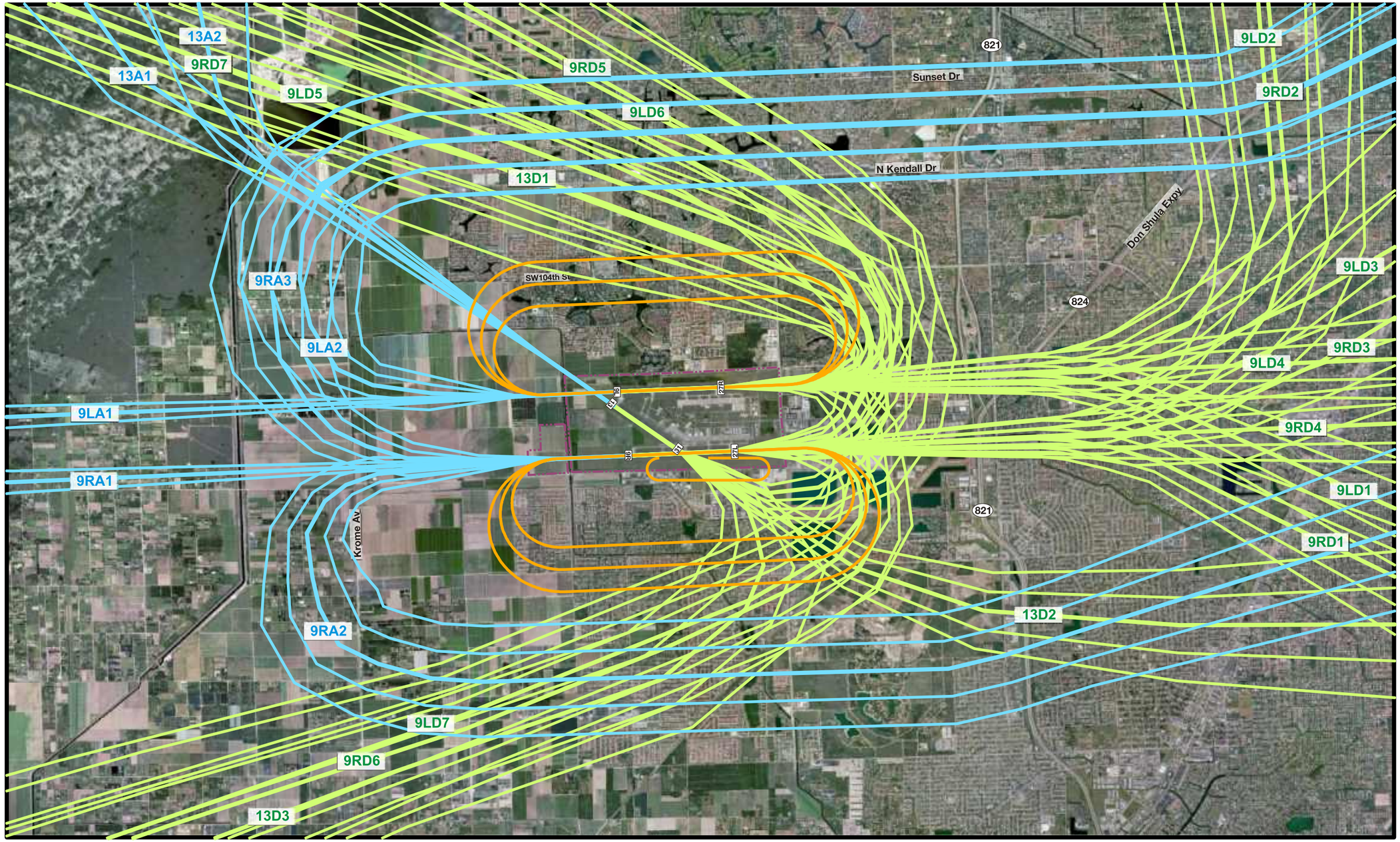
Flight Corridors

The location of flight corridors is an important factor in determining the geographic distribution of noise contours on the ground. Flight corridors utilized by arriving and departing aircraft in all flow conditions were reviewed and a series of centerlines of flight corridors (flight tracks) were established for each condition. These flight tracks were splayed within the INM in order to distribute the aircraft within each of the primary flight corridors. The aircraft arrival and departure flight corridors for east-flow are shown on **Figure 4-3** and for west flow in **Figure 4-4**. Primary helicopter arrival and departure corridors are shown on **Figure 4-5**. The flight corridor use percentages by aircraft category are presented in Tables 4.2.2-7 through 4.2.2-9.

TABLE 4.2.2-7
2005 ARRIVAL CORRIDOR PERCENTAGES

Flow	Runway	Track	Jet		Turboprop		Piston	
			Day	Night	Day	Night	Day	Night
East	9R	9RA1	36.5	38.0	31.0	43.5	29.0	42.5
		9RA2	21.9	22.8	18.6	26.1	17.4	25.5
		9RA3	14.6	15.2	12.4	17.4	11.6	17.0
	9L	9LA1	1.4	0.0	3.5	0.0	7.0	0.0
		9LA2	0.6	0.0	1.5	0.0	3.0	0.0
	13	13A1	0.5	2.5	5.0	1.5	6.0	0.5
		13A2	0.5	2.5	5.0	1.5	6.0	0.5
Total East Flow			**76.0**	**81.0**	**77.0**	**90.0**	**80.0**	**86.0**
West	27L	27LA1	22.0	17.0	15.0	10.0	12.0	12.0
	27R	27RA1	1.0	0.0	3.0	0.0	4.0	0.0
	31	31A1	1.0	2.0	5.0	0.0	4.0	2.0
Total West Flow			**24.0**	**19.0**	**23.0**	**10.0**	**20.0**	**14.0**

Source: HMMH Report No, 299560.002 and ESA Airports Analysis



Aerial Photo Source: Airphoto USA January 2005
Flight Corridor Source: HMMH Report No. 299560.002

Departure Corridors | Arrival Corridors | Touch and Go Tracks | Airport Property Boundary

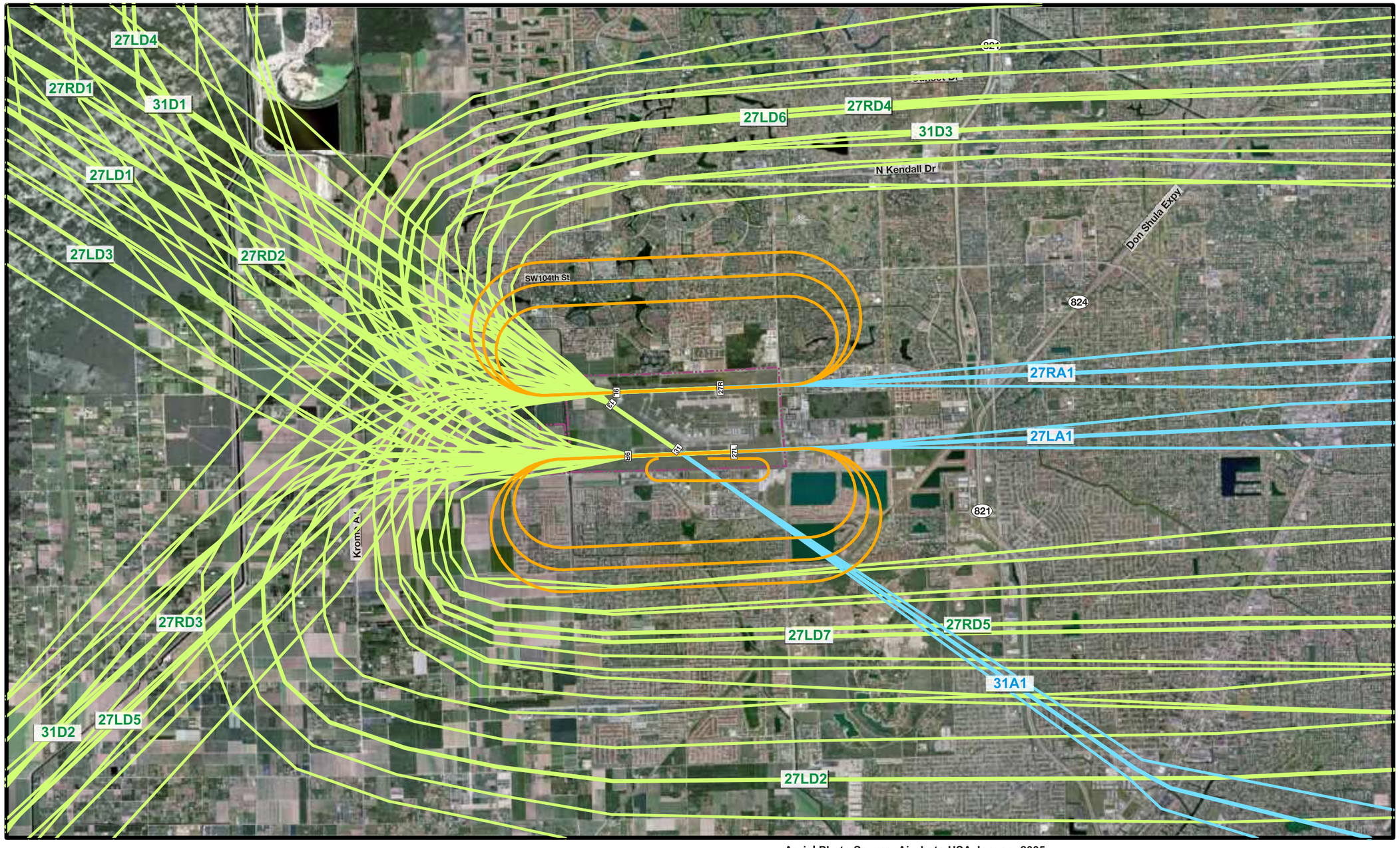
0 1250 2500 5000
Feet

North

Source: ESA Airports

Kendall-Tamiami Executive Airport Environmental Assessment

Figure 4-3
East Flow Primary Flight Corridors



Aerial Photo Source: Airphoto USA January 2005
Flight Corridor Source: HMMH Report No. 299560.002

Departure Corridors | Arrival Corridors | Touch and Go Tracks | Airport Property Boundary

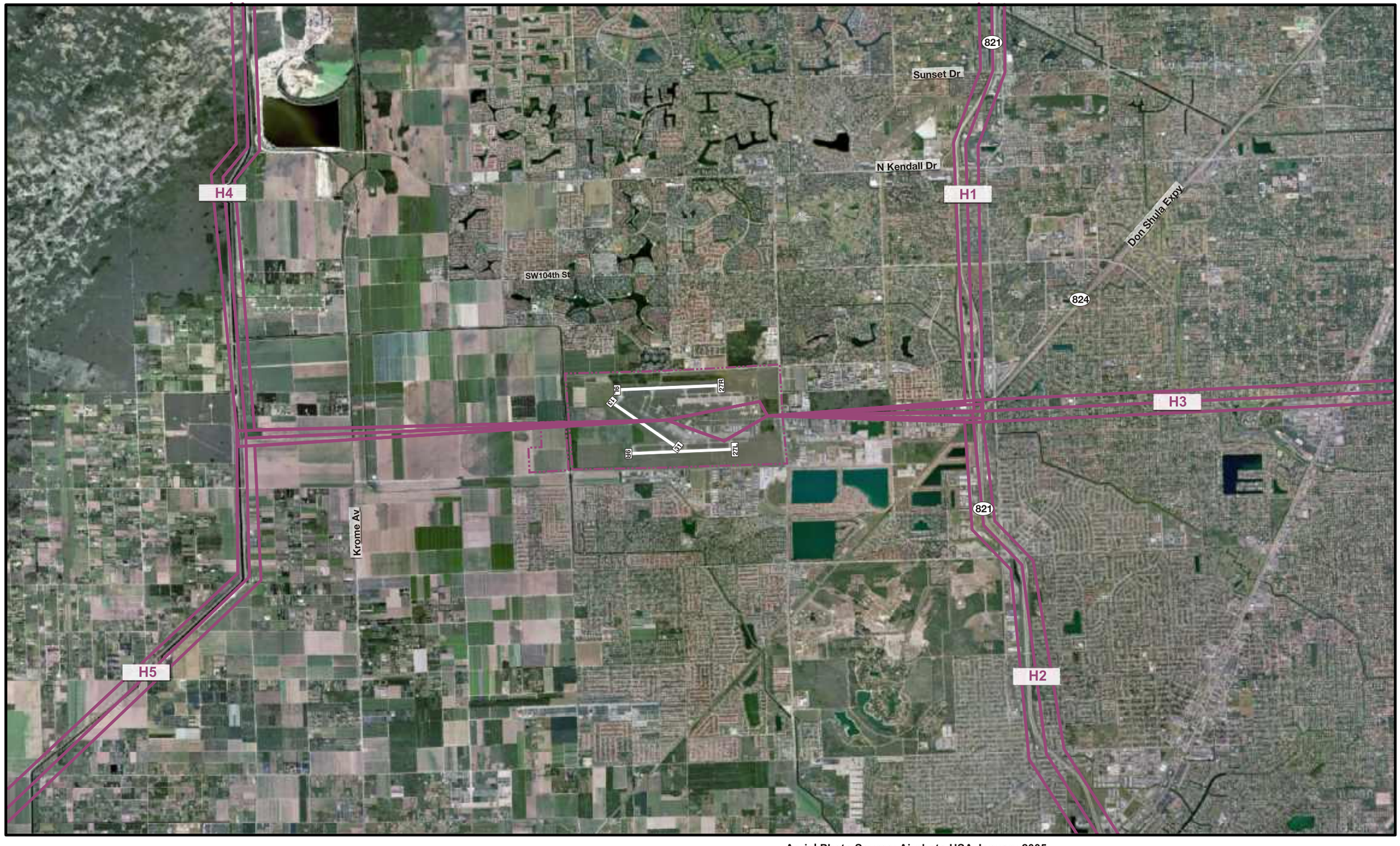
0 1250 2500 5000
Feet

North

Source: ESA Airports

Kendall-Tamiami Executive Airport Environmental Assessment

Figure 4-4
West Flow Primary Flight Corridors



Helicopter Corridors Airport Property Boundary

Aerial Photo Source: Airphoto USA January 2005
Flight Corridor Source: HMMH Report No. 299560.002

0 1250 2500 5000
Feet

North

Source: ESA Airports

Kendall-Tamiami Executive Airport Environmental Assessment

Figure 4-5
Helicopter Primary Flight Corridors

TABLE 4.2.2-8
2005 DEPARTURE CORRIDOR PERCENTAGES

Flow	Runway	Track	Jet		Turboprop		Piston	
			Day	Night	Day	Night	Day	Night
East	9R	9RD1	10.40	14.00	3.80	7.90	1.87	3.29
		9RD2	16.64	22.40	5.70	11.85	1.89	3.33
		9RD3	4.16	5.60	1.90	3.05	5.50	9.67
		9RD4	19.24	25.90	9.50	19.75	11.08	19.46
		9RD5	0.00	0.00	7.60	15.80	3.75	6.58
		9RD6	1.56	2.10	1.90	3.95	7.33	12.88
		9RD7	0.00	0.00	7.60	15.70	5.75	9.79
	9L	9LD1	3.45	0.0	3.40	0.0	1.62	0.0
		9LD2	7.36	0.0	5.10	0.0	1.64	0.0
		9LD3	1.84	0.0	1.70	0.0	1.60	0.0
		9LD4	8.97	0.0	8.50	0.0	11.16	0.0
		9LD5	0.69	0.0	6.80	0.0	4.64	0.0
		9LD6	0.69	0.0	6.80	0.0	3.24	0.0
		9LD7	0.00	0.0	1.70	0.0	7.93	0.0
	13	13D1	0.60	1.50	3.00	0.00	4.50	7.00
		13D2	2.80	7.00	1.50	0.00	2.25	3.50
		13D3	0.60	1.50	1.50	0.00	2.25	3.50
Total East Flow			**79.0**	**80.0**	**78.0**	**78.0**	**78.0**	**79.0**
West	27L	27LD1	6.65	6.65	1.95	2.70	2.24	2.74
		27LD2	0.95	0.95	0.65	0.90	0.00	0.00
		27LD3	2.85	2.85	0.65	0.90	0.00	0.00
		27LD4	5.70	5.70	2.60	3.60	2.24	2.74
		27LD5	0.95	0.95	2.60	3.60	2.68	3.28
		27LD6	0.95	0.95	2.60	3.60	0.92	1.12
		27LD7	0.95	0.95	1.95	2.70	0.92	1.12
	27R	27RD1	0.50	0.00	0.40	0.0	1.0	0.00
		27RD2	0.30	0.00	0.40	0.0	1.0	0.00
		27RD3	0.00	0.00	0.40	0.0	1.2	0.00
		27RD4	0.10	0.00	0.40	0.0	0.4	0.00
		27RD5	0.10	0.00	0.40	0.0	0.4	0.00
	31	31D1	0.80	0.80	5.60	3.40	7.20	8.00
		31D2	0.10	0.10	0.70	0.30	0.90	1.00
		31D2	0.10	0.10	0.70	0.30	0.90	1.00
Total West Flow			**21.0**	**20.0**	**22.0**	**22.0**	**22.0**	**21.0**

Source: HMMH Report No. 299560.002 and ESA Airports Analysis

TABLE 4.2.2-9
2005 HELICOPTER CORRIDOR PERCENTAGES

Flow	Track	Arrivals		Departures	
		Day	Night	Day	Night
Northeast	H1	70.0	70.0	70.0	70.0
Southeast	H2	5.0	5.0	5.0	5.0
East	H3	15.0	15.0	15.0	15.0
Northwest	H4	5.0	5.0	5.0	5.0
Southwest	H5	5.0	5.0	5.0	5.0
Total		**100.0**	**100.0**	**100.0**	**100.0**

Source: HMMH Report No. 299560.002 and ESA Airports Analysis

Land Use Guidelines

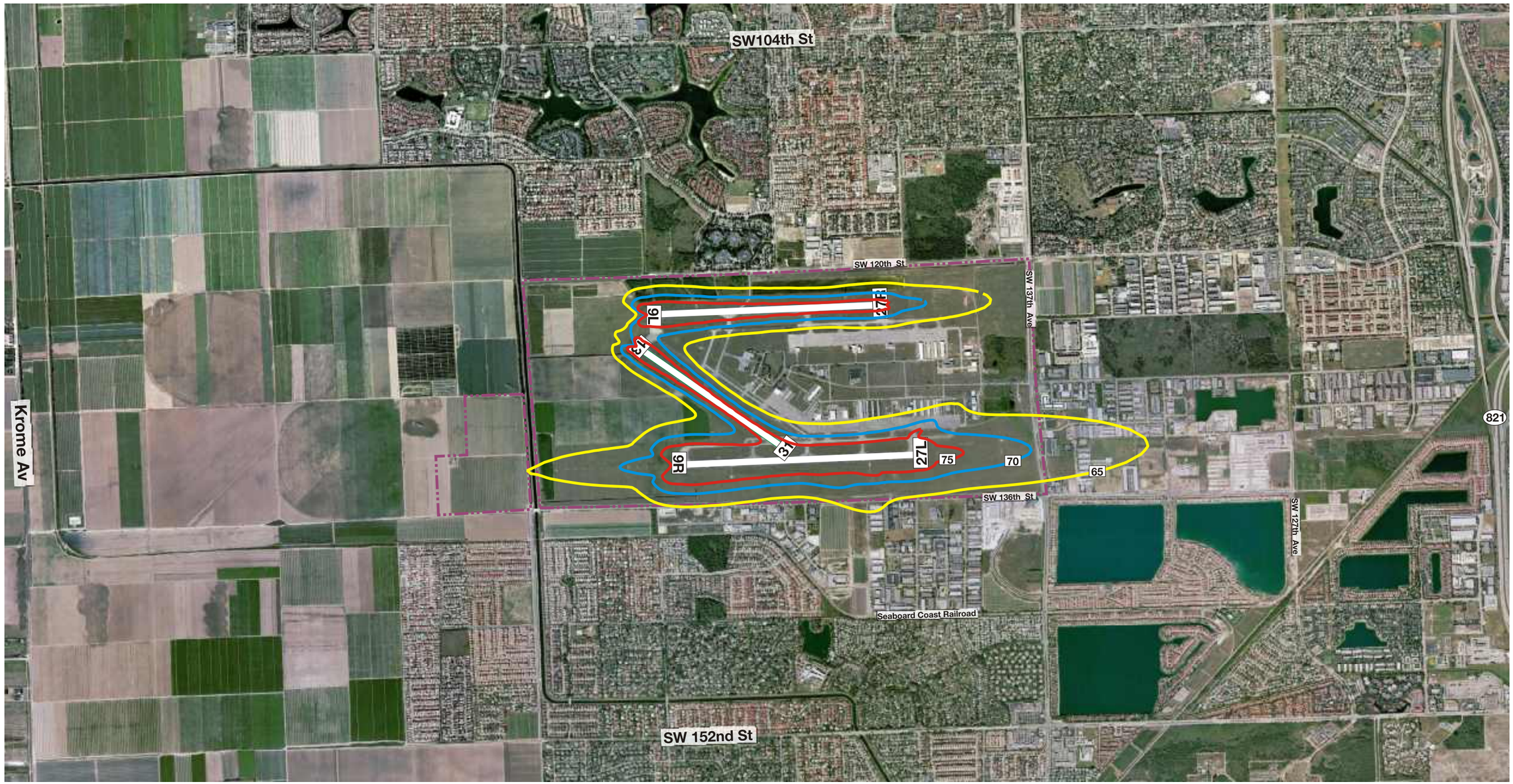
The FAA has developed land use guidelines that relate the compatibility of aircraft activity to areas surrounding airports. These guidelines, provided in Table 4.2.2-10, identify land use activities that are acceptable within the 65, 70 and 75 DNL contours. As shown in the table, the FAA has indicated that lands outside the 65 DNL are compatible with aircraft noise, however they encourage local planning agencies to promote compatible development beyond the 65 DNL. The responsibility for identifying acceptable land uses rests with the local agencies.

The Miami-Dade County Board of County Commissioners approved the Height and Land Use Zoning Ordinance ("Ordinance") for TMB in 1999 and the associated Land Use Zoning Map for TMB in 2002. The Ordinance is based on State Statute Chapter 333, FAA and FDOT guidelines. The purpose of the Ordinance is to protect public health, safety and welfare; to protect the quality of life by limiting noise sensitive land use; and to comply with Federal and State requirements.

2005 DNL Contours

The 2005 65, 70 and 75 DNL contours are presented on **Figure 4-6**. The 2005 65 DNL contour extends approximately 1,000 feet east of the Airport property boundary along the extended centerline of Runway 9R-27L. The 65 DNL contour also extends just off Airport property south of Southwest 136th Street along the extended centerline of Runway 13-31. The larger contour to the east is a result of the Airport primarily operating in east flow (the noise levels from the aircraft operating at TMB are typically louder on departure than on arrival). The 70 and 75 DNL contours remain on Airport property.

Land uses within the 2005 65 DNL contour primarily consist of commercial, industrial or vacant land. No residential uses are located within the 65 DNL contour. As noted in Section 4.2.1, a private preschool is located along Southwest 136th Street, just east of Southwest 137th Avenue. This school is located outside the 65 DNL contour. Three Lakes Park, which has two soccer fields, is located within the 2005 65 DNL contour.



Aerial Photo Source: Airphoto USA January 2005

65 DNL 70 DNL 75 DNL Airport Property Boundary

0 750 1500 3000
Feet

North

Source: ESA Airports

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Figure 4-6
2005 DNL Contours

TABLE 4.2.2-10
FAA COMPATIBLE LAND USE GUIDELINES

Land Use in Decibels	Yearly Day-Night Average in Decibels: Below 65	65-70	70-75	75-80	80-85	Over 85
RESIDENTIAL	Y	N_1	N_1	N	N	N
Residential, other than mobile homes and transient lodgings						
Household units. (11)						
Single units - detached (11.11)						
Single units - semidetached (11.12)						
Single units - attached row (11.13)						
Two units - side-by-side (11.21)						
Two units - one above the other (11.22)						
Apartments - walk up (11.31)						
Apartments - elevator (11.32)						
Group quarters (12)						
Residential hotels (13)						
Other residential (19)						
Mobile home parks (14)	Y	N	N	N	N	N
Transient lodgings (15)	Y	N_1	N_1	N_1	N	N
PUBLIC USE:						
Schools	Y	N_1	N_1	N	N	N
Educational services (68)						
Hospitals and nursing homes	Y	25	30	N	N	N
Hospitals, nursing homes (65.13, 65.16)						
Churches, auditoriums and concert halls	Y	25	30	N	N	N
Cultural activities (including churches) (71)						
Auditoriums, concert halls (72.1)						
Government services (67)	Y	Y	25	30	N	N
Transportation	Y	Y	Y_2	Y_3	Y_4	Y_4
Railroad, rapid rail transit/street railway (41)						
Motor vehicle (42)						
Aircraft (43)						
Marine craft (44)						
Highway and street right-of-way (45)						
Parking (46)	Y	Y	Y_2	Y_3	Y_4	N
COMMERCIAL USE						
Offices, business, and professional	Y	Y	25	30	N	N
Finance, insurance and real estate services (61)						
Personal services (62)						
Business services (63)						
Professional services (65)						
Other medical facilities (65.1)						
Miscellaneous services (69)						
Wholesale and retail - building materials, hardware and farm equipment	Y	Y	Y_2	Y_3	Y_4	N
Wholesale trade (51)						
Retail trade - building materials, hardware and farm equipment (52)						
Repair services (64)						
Contract construction services (66)						
Retail trade - general and General merchandise (55)	Y	Y	25	30	N	N
Food (54)						
Automotive, marine craft, aircraft and accessories (55)						
Apparel and accessories (56)						
Furniture, home furnishings and equipment (57)						
Eating and drinking establishments (58)						
Other retail trade (59)						
Utilities (48)	Y	Y	Y_2	Y_3	Y_4	N
Communication (47)	Y	Y	25	30	N	N

Land Use	Yearly Day-Night Average: Below 65	65-70	70-75	75-80	80-85	Over 85
MANUFACTURING AND PRODUCTION						
Manufacturing, general	Y	Y	Y_2	Y_3	Y_4	N
Food and kindred products (21)						
Textile mill products (22)						
Apparel and other finished products - fabric leather and similar materials (23)						
Lumber and wood (except furniture) (24)						
Furniture and fixtures (25)						
Paper and allied products (26)						
Printing/publishing/allied industries (27)						
Chemicals and allied products (28)						
Petroleum refining/related industries (29)						
Rubber and misc. plastic products (31)						
Stone, clay and glass products (32)						
Primary metal industries (33)						
Fabricated metal products (34)						
Miscellaneous (39)						
Photographic and optical	Y	Y	25	30	N	N
Professional/scientific/controlling instruments photographic/optical goods; watches, clocks (35)						
Agriculture (except livestock) and forestry	Y	Y_6	Y_7	Y_8	Y_8	Y_8
Agriculture (except livestock) (81)						
Agricultural related activities (82)						
Forestry activities and related services (83)						
Livestock farming and breeding (81.5 to 81.7)	Y	Y_6	Y_7	N	N	N
Mining and fishing, resource production and extraction	Y	Y	Y	Y	Y	Y
Fishing activities and related services (84)						
Mining activities and related services (85)						
Other resource production and extraction (89)						
RECREATIONAL						
Outdoor sports arenas and spectator sports (72.2)	Y	Y_5	Y_5	N	N	N
Outdoor music shells, amphitheaters (72.11)	Y	N	N	N	N	N
Nature exhibits and zoos (71.2)	Y	Y	N	N	N	N
Amusements, parks, resorts and camps	Y	Y	Y	N	N	N
Amusements (73)						
Parks (76)						
Public assembly (72)						
Resorts and group camps (75)						
Other cultural, entertainment and recreation (79)						
Golf courses, riding stables and water recreation (74)	Y	Y	25	30	N	N

Source: FAA Advisory Circular 150/5020-12
Y (Yes) = Land use and related structures compatible without restrictions.
N (No) = Land use and related structures are not compatible and should be prohibited.
25, 30 or 35 = Land use and related structures generally compatible; measures to achieve Noise Reduction (NLR), outdoor to indoor, of 25, 30 or 35 must be incorporated into design construction of structure.
Number in ( ) = Standard Land Use Coding Manual (SLUCM).

1 Where the community determines that residential uses must be allowed, measures to achieve outdoor to indoor NLR of at least 25 and 30 dB should be incorporated into building codes and be considered in individual approvals.
2 Compatible where measures to achieve NLR of 25 are incorporated into the design and construction of portions of these buildings where the public is received, office areas, noise sensitive areas or where normal noise level is low.
3 Compatible where measures to achieve NLR of 30 are incorporated into the design and construction of portions of these buildings where the public is received, office areas, noise sensitive areas or where normal noise level is low.
4 Compatible where measures to achieve NLR of 35 are incorporated into the design and construction of portions of these buildings where the public is received, office areas, noise sensitive areas or where normal noise level is low.
5 Land use compatible provided special sound reinforcement systems are installed.
6 Prime use only, any residential buildings require a NLR of 25 to be compatible.
7 Prime use only, any residential buildings require a NLR of 30 to be compatible.
8 Prime use only, NLR for residential buildings not normally feasible, and such uses should be prohibited.

4.2.3 Historic, Archaeological and Cultural Resources

As requested by the Florida SHPO and the Miccosukee Tribe of Indians of Florida, an archaeological resource survey was conducted within the detailed study area in June 2006. This assessment was designed and implemented to comply with Section 106 of the *National Historic Preservation Act (NHPA)* of 1966 (Public Law 89-655, as amended), as implemented by 36 CFR 800 *(Protection of Historic Properties*, effective January 2001); *National Environmental Policy Act* (NEPA) of 1969 (Public Law 91-190); Chapter 267, *Florida Statues*, Section 4(f) of the *Department of Transportation Act of 1966*, as amended (49 USC 303); and minimum field methods, data analysis, and reporting standards embodied in the Florida Division of Historical Resources' (FDHR) and *Cultural Resource Management Standards and Operational Manual* (February 2003); and Chapter 1A-46 (*Archaeological and Historical Report Standards and Guidelines*), *Florida Administrative Code*. In addition, this section was prepared in conformity with standards set forth in Part 2, Chapter 12 (Archaeological and Historic Resources) of the FDOT Project Development and Environmental Manual (revised, January 1999). All work conforms to professional guidelines set forth in the Secretary of Interior's Standards and Guidelines for Archaeology and Historic Preservation (48 FR 44716, as amended and annotated).

As part of this EA, an Area of Potential Effect (APE) for archaeological resources was established that included the areas at TMB that would be subject to earthmoving activities. In addition, a separate APE for historic resources was established that included the detailed study area as well as the area just beyond the 65 DNL noise contour. The APEs for archeological and historic resources are presented on **Figure 4-7**. The archaeological resource survey identified no resources within the APE for archaeological resources. The historic resource survey identified no resources within the APE for historic resources. The full text of the cultural resource assessment survey is provided in **Appendix F**.

In addition, no properties listed or eligible for listing on the National Register of Historic Places (NHRP) are located within the APE, which features a mixture of industrial, commercial, and residential buildings. The majority of buildings to the south and east of TMB were constructed in the 1980s and are light industrial buildings constructed in the Masonry Vernacular style and feature design characteristics common in South Florida. In addition, these resources are sited within an area lacking a contiguous concentration of historic resources and are not associated with any significant local persons or events.

In 1992, the one event to have the greatest effect in the APE was Hurricane Andrew. The area within the APE was in the path of the hurricane and many buildings that existed at that time were leveled or damaged. Therefore, many of the structures and facilities that exist within the APE have been developed after 1992.

4.2.4 Socioeconomic and Environmental Justice Characteristics

TMB is located within unincorporated Miami-Dade County. The County encompasses more than 2,000 square miles, one third of which is located in Everglades National Park.

Aerial Photo Source: AirPhoto USA, January 2005

- Proposed Runway Extension
- Proposed Taxiway Extension
- Future Runway Protection Zone (RPZ)
- Future Runway Safety Area (RSA)
- Future Obstacle Free Zone (OFZ)
- Existing Airport Property Boundary
- Future Blast Pad
- Future Glide Slope
- Future MALSR
- Future PAPI
- Area of Potential Effect - Historic Resources
- Area of Potential Effect - Archeological Resources

0 375 750 1500
Feet

North

Source: ESA Airports

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Figure 4-7
Area of Potential Effect

According to the 2000 U.S. Census Bureau, the total population of Miami-Dade County was about 2.25 million and the total population of the general study area was about 55,700 (see Table 4.2.4-1). As shown in Table 4.2.4-1, the general study area has a higher percentage of population that is white or Asian, a lower percentage of African American, and about the same percentage of American Indian, Native Hawaiian, and Hispanic compared to the whole of Miami-Dade County. In addition, the general study area has a lower percentage of the population that is considered to be below the poverty level. Based on this data, the population of the general study area is not considered to be an environmental justice population.

TABLE 4.2.4-1
DEMOGRAPHIC DATA FOR MIAMI-DADE COUNTY AND GENERAL STUDY AREA

	Miami-Dade County	General Study Area
Total Population	2,253,362	55,665
Race		
White	72.4%	81.8%
Black or African American	21.1%	8.9%
American Indian or Alaskan Native	0.2%	0.2%
Asian	1.5%	3.4%
Native Hawaiian and Other Pacific Islander	0.0%	0.1%
Other	4.8%	5.7%
Hispanic	57.3%	58.5%
Percent Below Poverty	18.0%	6.9%

Source: 2000 US Census Data

4.2.5 Miami-Dade County Comprehensive Development Master Plan Goals

The Miami-Dade County Comprehensive Development Master Plan (CDMP) identifies TMB to continue to develop as a general aviation reliever to Miami International Airport and a corporate aviation jet center. identifies. Objectives and policies in the CDMP that directly relate to TMB include:

> Objective AV-1 - Provide facilities necessary to accommodate forecast aviation demand and optimize level of service.
>
> Objective AV-2 - Maintain and enhance the role of each airport in the aviation system.
>
> Policy AV-2B - Utilize TMB as a MIA general aviation reliever and corporate aviation jet center (Transport Airport).
>
> Objective AV-7 - Maximize compatibility between airports and the surrounding communities.

Policy AV-7B - Miami-Dade County shall update its airport compatible zoning ordinances to promote compatible land use around Kendall-Tamiami Executive Airport.

Objective AV-8 - Maximize support of local and regional economic growth.

The CDMP also indicates that a study should be undertaken for TMB to study the need for a runway expansion.

4.2.6 Section 4(f) and 6(f) Resources

Section 4(f) Title 49 U.S. Code was enacted to preserve the natural beauty of public parks, recreational lands, wildlife and waterfowl refuges, and historic sites. Section 4(f) also applies to cultural resource sites that are on or eligible for inclusion on the National Historic Register of Historic Places (NRHP).

A field review was conducted to locate possible Section 4(f) properties within the general study area. The field review indicated that there are no wildlife and waterfowl refuges and no historic sites or resources subject to Section 4(f) protection located in the general study area.

As identified on **Figure 4-8**, there are several public parks and recreation areas within the general study area. The closest park to TMB, and the only one located within the 2005 65 DNL noise contour, is the Three Lakes Park. This park consists of two soccer fields and is located approximately 1,000 feet east of the Airport's eastern boundary. The Tamiami Pineland Preserve Conservation Area also is in close proximity to TMB, approximately 1,500 feet east of the Airport. Access to this conservation area is restricted as it is surrounded by a chain link fence.

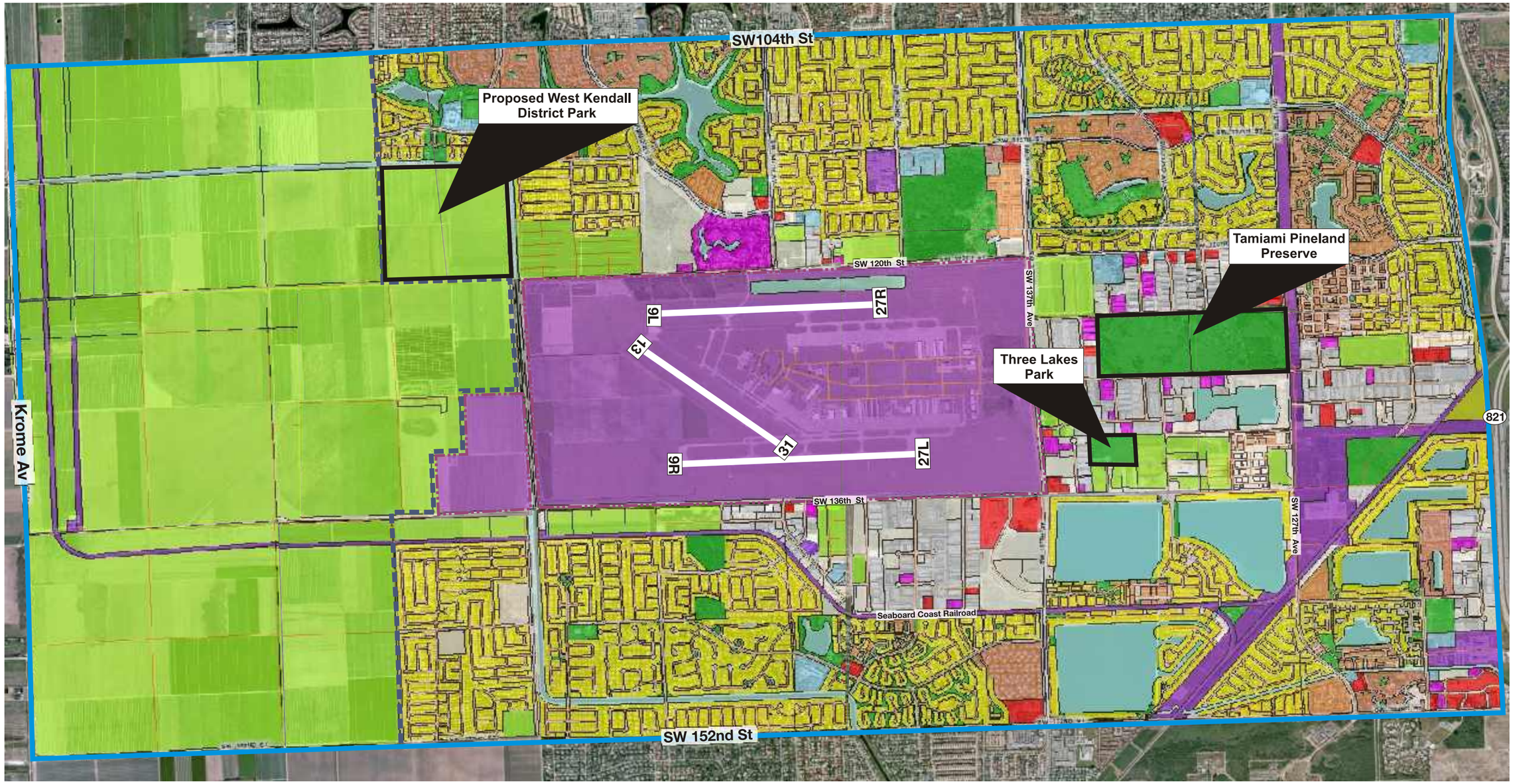
There is also a public park that is planned to be located immediately northwest of the Airport's northwestern boundary. The park, to be called the West Kendall District Park and planned as a multipurpose recreation facility, is scheduled to be constructed within the next five years.

Section 6(f) of the Land & Water Conservation Fund Act (LWCFA) requires that properties receiving LWCFA funding for planning, acquisition, or development be maintained for public outdoor recreational use. Based on the National Park Service Land & Water Conservation Fund listing of grants by County, there are no Section 6(f) properties within the general study area.

4.3 Physical Environment

4.3.1 Water Resources

From a regulatory context, the South Florida Water Management District (SFWMD) has issued a Conceptual Surface Water Management Permit to TMB (Permit No 13-00938-S, dated October 1996). This permit was issued under the Florida Administration Code (FAC) Rule 40E-4.341. All future applications for construction activities are subject to review under the provisions for Rule 40E-4.301 (4) and (5) (FAC). As construction plans are developed for additional phases, the plans will be submitted to SFWMD for review and approval.



Land Use Source: Miami-Dade County 2005

Aerial Photo Source: Airphoto USA January 2005

- Single-Family
- Townhouses
- Two-Family (Duplexes)
- Low-Density Multi-Family
- Shopping Centers/Commercial
- Office
- Agriculture
- Industrial
- Institutional
- Parks/Preserves/Conservation
- Airports/Ports
- Communication/Utilities
- Vacant/Government Owned
- Water
- General Study Area
- Airport Property Boundary
- Urban Development Boundary

0 750 1500 3000

Feet

North

Source: ESA Airports

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Figure 4-8
Section 4f Properties

On March 12, 2006, the Florida Department of Environmental Protection (FDEP) issued the Multi-Sector Generic Permit (MSGP) for Stormwater Discharge Associated with Industrial Activity for TMB. The FDEP Facility ID for TMB is FLR05C453. This discharge is regulated under 40 CFR Part 122.26(a)(ii).

MDAD completed a comprehensive stormwater master plan (SWMP) in December 1994 as prepared by Camp Dresser & McKee, Inc. (CDM). The SWMP was compiled to comply with the requirements of the National Pollution Discharge Elimination Protection System (NPDES) program administrated by FDEP. The SWMP proposed piping and swale improvements to the primary stormwater management system (PSMS) that meets SFWMD's water quantity and quality criteria and MDAD's level of service (LOS) for TMB. The SWMP also provided MDAD with stage-storage information, treatment volumes, peak flow and flood stage elevations, and other stormwater management information required by SFWMD.

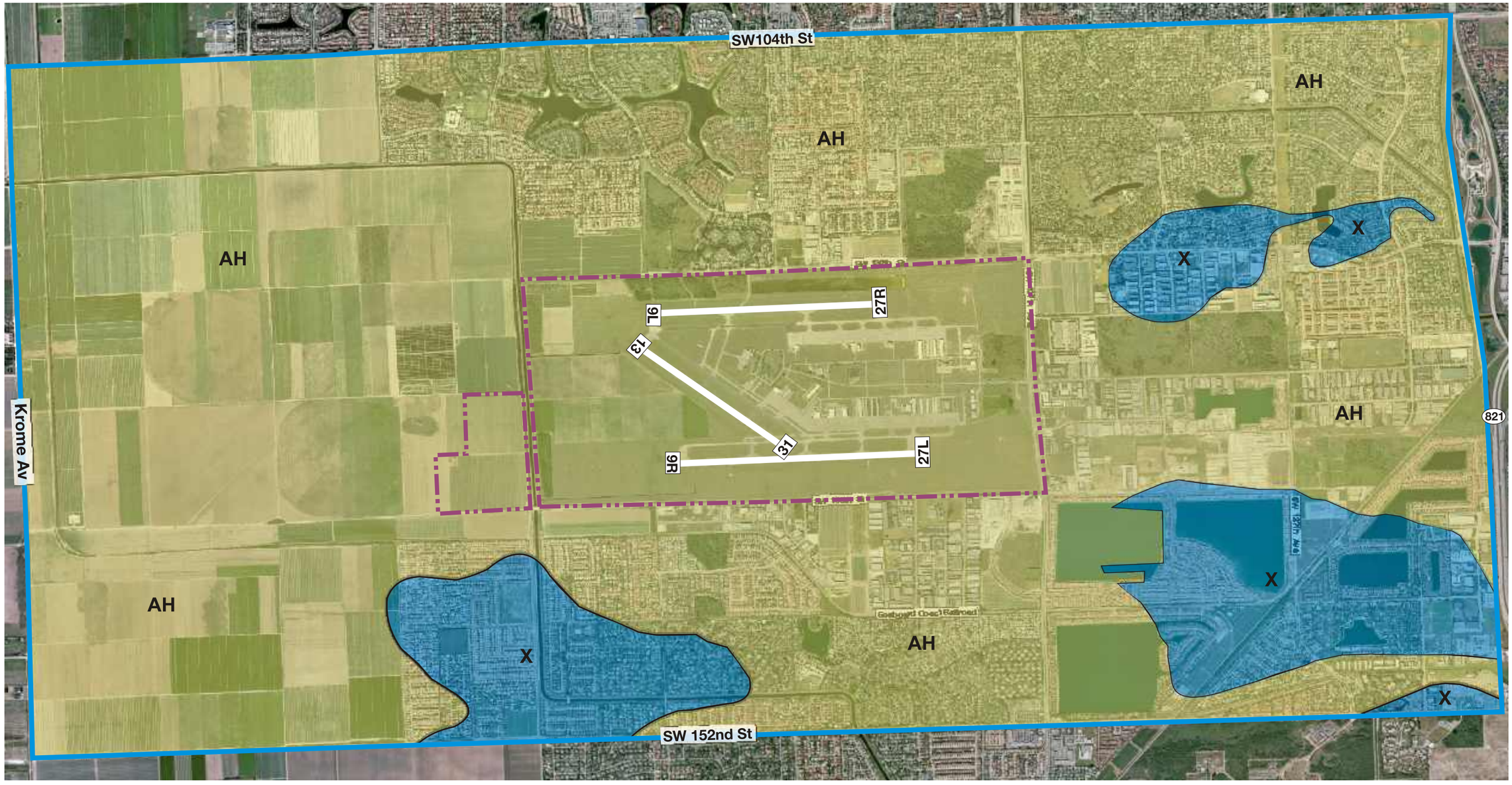
Current stormwater management facilities at TMB consist of a series of swales that provide detention for the control of peak stormwater flows, infiltration for water quality purposes, and flow-controlled outfalls.

The SWMP was submitted to SFWMD in December 1994 to support the approval of the Management and Storage of Surface Waters permit, which was required by SFWMD for future construction activities at TMB. The application was submitted to SFWMD and a subsequent analysis was prepared addressing SFWMD's discharge constraints and MDAD's request for narrower swale configuration along the main access boulevard. The subsequent analysis was presented in a technical memorandum in January 1995 and a permit was issued by SFWMD for the proposed modifications.

Modifications to the existing permit (to incorporate stormwater controls associated with the runway extension and other future on-airport development) have been initiated by MDAD through the SFWMD permit process.

4.3.2 Floodplains

Figure 4-9 identifies the Flood Hazard Zones for the general study area. As shown, TMB is located in an AH flood zone with a flood elevation of 9 feet. According to Federal Emergency Management Agency (FEMA), Zone AH is defined as the flood insurance rate zone that corresponds to the areas of 100-year shallow flooding with a constant water-surface elevation (usually areas of ponding) where average depths are between 1 and 3 feet. Mandatory flood insurance requirements apply to properties with the AH zone. Zone X is the flood insurance rate zone that corresponds to areas outside the 100-year floodplains, areas of 100 year sheet flow flooding where acreage depths are less than 1 foot, areas of 100-year stream flooding where the contributing drainage area is less than 1 square mile, or areas protected from the 100-year flood by levees. No base flood elevations or depths are shown within this zone.



General Study Area

Airport Property Boundary

Flood Hazard Zone AH

Flood Hazard Zone X

Aerial Photo Source: Airphoto USA January 2005

0 750 1500 3000

Feet

North

Source: ESA Airports

Kendall-Tamiami Executive Airport Environmental Assessment

Figure 4-9

Flood Hazard Zones

4.3.3 Coastal Resources

TMB is not located on a coastal barrier island and the closest costal barriers are more than 20 miles east of TMB. The Coastal Zone is defined as that area of land and water from the territorial limits seaward to the most inland extent of marine influences. However, for planning and developing coordinated projects and initiatives for coastal resource protection and management, the State of Florida Department of Environmental Protection (DEP) considers the coastal zone to be the geographical area encompassed by Florida's coastal counties (including Miami-Dade County). Therefore, TMB is considered to be within the coastal zone.

4.3.4 Wild and Scenic Rivers

There are two wild and scenic rivers in the State of Florida. The closest wild and scenic river to TMB is the Loxahatchee River, which is located in northern Palm Beach County and is more than 50 miles north of the Airport.

4.3.5 Prime and Unique Farmlands

Pursuant to FAA Order 1050.1E, Appendix A, Section 7, the FAA is required to prepare and submit Form AD-1006 "Farmland Conversion Impact Rating" and initiate formal coordination with U.S. Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS) when Farmland Protection Policy Act (FPPA)-regulated farmlands will be converted to non-agricultural use. If the total score on Form AD-1006 exceeds 200 points, a significant impact would occur pursuant to NEPA. An exception exists for prime farmlands purchased specifically for Airport use prior to August 6, 1984. If the lands were purchased prior to 1984, consultation with NRCS is not required. In addition, pursuant to Paragraph 47(e)(16) of FAA Order 5050.4A, lands that are committed to urban development are by definition not included as "prime" farmlands.

Agricultural uses exist on the portion of the Airport property on the west side of Southwest 157th Avenue. MDAD leases this property for agricultural production. However, this property was acquired by MDAD prior to 1984 for aviation-related purposes. In addition, this land is within the Urban Development Boundary (UDB) as established by Miami-Dade County. Therefore, although this land currently is in agricultural production, it is not classified as farmland.

4.3.6 Air Quality

The United States Environmental Protection Agency (EPA) has established National Ambient Air Quality Standards (NAAQS) for the following criteria air pollutants: carbon monoxide (CO), nitrogen dioxide (NO_2), ozone (O_3), sulfur dioxide (SO_2), particulate matter (PM), and lead (Pb). Following requirements of the Clean Air Act (CAA), air quality conditions within all areas of a state are designated with respect to the NAAQS as attainment, maintenance, non-attainment, or unclassifiable. Areas that meet the NAAQS are designated as attainment while areas that do not are designated as non-attainment.

Based on data collected in the Miami/Fort Lauderdale/West Palm Beach area prior to 1990, the EPA designated Miami-Dade, Broward, and Palm Beach counties as "moderate non-attainment"

for the one-hour O_3 NAAQS. In 1993, the State of Florida requested that the area be re-designated from non-attainment to maintenance because no further violations of the O_3 NAAQS were recorded. The EPA approved the re-designation on April 25, 1995. Notably, subsequent regulations in 2005 revoked the one-hour O_3 NAAQS maintenance designation (no longer applies). Thus, the area is now designated attainment for all of the NAAQS.

The General Conformity Rule (that relates to the consistency a project or action has with the State Implementation Plan (SIP) for air quality) does not apply because Miami-Dade County is "attainment" or "unclassified" for all of the NAAQS, and therefore, has no applicable air quality SIP.

4.3.7 Hazardous Materials

The TMB property, which was obtained in 1965, is reclaimed farm land. Within the detailed study area, the approach end of Runway 27L has not been used by MDAD for any purposes except for a one-year period between September 1992 and September 1993. During that time, a portion of the area between the Runway 9R/27L and Southwest 137th Avenue was used to handle hurricane debris and as a transfer station in the aftermath of Hurricane Andrew. The majority of the material handled was vegetation clippings and building debris.

The property on the west side of TMB from the Runway 9R threshold to the existing canal also has not been used by MDAD since it was obtained. The property west of the existing canal has been leased to agricultural users for farm crops since the 1980s. According to the information reviewed for this report, no other development has occurred within the detailed study area.

Hazardous materials present at the Airport include the following: aviation fuels; motor fuels; substances used to operate or maintain aircraft, ground vehicles, equipment, and buildings; and various hazardous materials transported to and from the Airport via ground vehicles and aircraft. Their storage, use, and transport at TMB are controlled by a framework of Federal, State, and local regulations and MDAD programs. Inventories of hazardous materials handled, specific locations of hazardous materials storage, emergency response plans, and provisions for employee training are on file at the MDAD Environmental Division, Risk Management Office, Maintenance Office and Dade Environmental Resource Management (DERM) Office for the Airport and its tenant facilities. In addition, the tenant facilities maintain and report their individual activities to MDAD and to DERM.

In addition to aviation fuels, smaller quantities of other hazardous materials are stored and used at the Airport for various purposes. For example, several tenants at the Airport have storage containers and facilities for storage of associated solvents, cleaners, and motor oil. These Airport tenants store and use various hazardous materials, such as solvents, degreasers, cleaners, paints, paint thinners, diesel, welding gases, and pesticides in support of aircraft, ground vehicle, and buildings and grounds maintenance and operations.

Hazardous wastes generated at TMB are accumulated at on-site, paved hazardous waste storage areas. Hazardous wastes accumulated in the storage areas include the following: waste oils,

solvents, and thinners; used antifreeze; oil filters; batteries; contaminated absorbent; fluorescent light tubes; and mercury-containing lamps. Wastes are held in storage bins that provide secondary containment and are transported by certified waste disposal contractors to a variety of regional transfer facilities and/or out-of-state disposal facilities.

Effective health and safety programs are the principal means of ensuring the health and safety of airport workers, the public, and the environment. The primary health and safety plans and policies in place at the Airport include a Safety and Loss Prevention Manual (SLPM), Best Management Practices (BMP), Spill Prevention, Control and Countermeasure Plan (SPCC), the Storm Water Pollution Prevention Plan (SWPPP), and an Emergency Response Plan (ERP). These documents are on file at the MDAD Environmental Division, the Risk Management Division, and the Maintenance Division.

Fuel storage at TMB occurs at numerous commercial service locations. There are approximately 100,000 gallons of fuel stored in six above ground tanks. The tanks store AVGas, JetA fuel, and other fuels. TMB also has one tank for auto fuel and one tank for diesel fuel. The auto and diesel tanks are for MDAD use only. Storage of commercial aircraft fuels and other fuels used at the Airport are provided at various above storage tanks located throughout the Airport and also in fuel trucks on the ramp. Two 10,000 gallon underground fuel storage tanks (USTs) are in operation at TMB. Both tanks are used for the storage of AVGas. The USTs are located at Buildings 114 and 221. Both USTs are scheduled to be decommissioned. The actual fueling of aircraft takes place on the ramps or at the loading areas. The TMB SWPPP, which was updated in September 2001, identified nine tenants conducting aircraft maintenance and ten tenants conducting fueling operations on their leaseholds. None of these locations are within the detailed study area.

Fuel spills can occur during fueling operations, generally due to human error. Over the years, the Airport has periodically reported a few small (less than five gallons) fuel spills. Most fuel spills are small and are contained and cleaned up with absorbent material in accordance with specific procedures set forth in regulations that are provided to all ramp employees. Spills greater than five gallons must be reported to Miami-Dade Fire Department (MDFD). MDFD then reports the information to DERM. Immediate actions are taken, including such measures as shutting off fueling equipment and controlling the spread of the fuel. These measures of protection against possible fuel spills are reinforced through implementation of the SWPPP. Individual tenants have designated personnel responsible for implementing the SWPPP at the leaseholds. These members are part of the TMB Pollution Prevention Team (PPT) that carryout the annual visual inspection with MDAD to verify that all SWPPP elements are properly implemented.

Miami-Dade County does not permit fuel spills to be flushed or washed away, or to enter the storm drain system. All of the minor spills or leaks that have occurred at TMB have been contained with absorbent material. In addition, none of these minor spills have been within or near the detailed study area.

No known leaks from USTs at the Airport have occurred. If leaks are detected, the resultant contamination is monitored under the supervision of DERM.

MDAD staff have reported that TMB has not experienced any hazardous material releases that have resulted in localized contamination. Any contaminated soils would be listed for any contamination incidents at TMB at the MDAD Environmental Division. According to the most recent SWPPP, there have been no reported spills or incidents at the Airport.

4.3.8 Light Emissions and Visual Impacts

Existing lighting at TMB includes such sources as lighting for taxiways, runways, approach lighting systems and other navigation aids, and general terminal area lighting. Existing visual impacts are those associated with the operation of an airport and include arriving and departing aircraft and facilities on the Airport, such as the air traffic control tower, hangars, and associated buildings.

4.4 Natural Environment

4.4.1 Fish, Wildlife and Plants

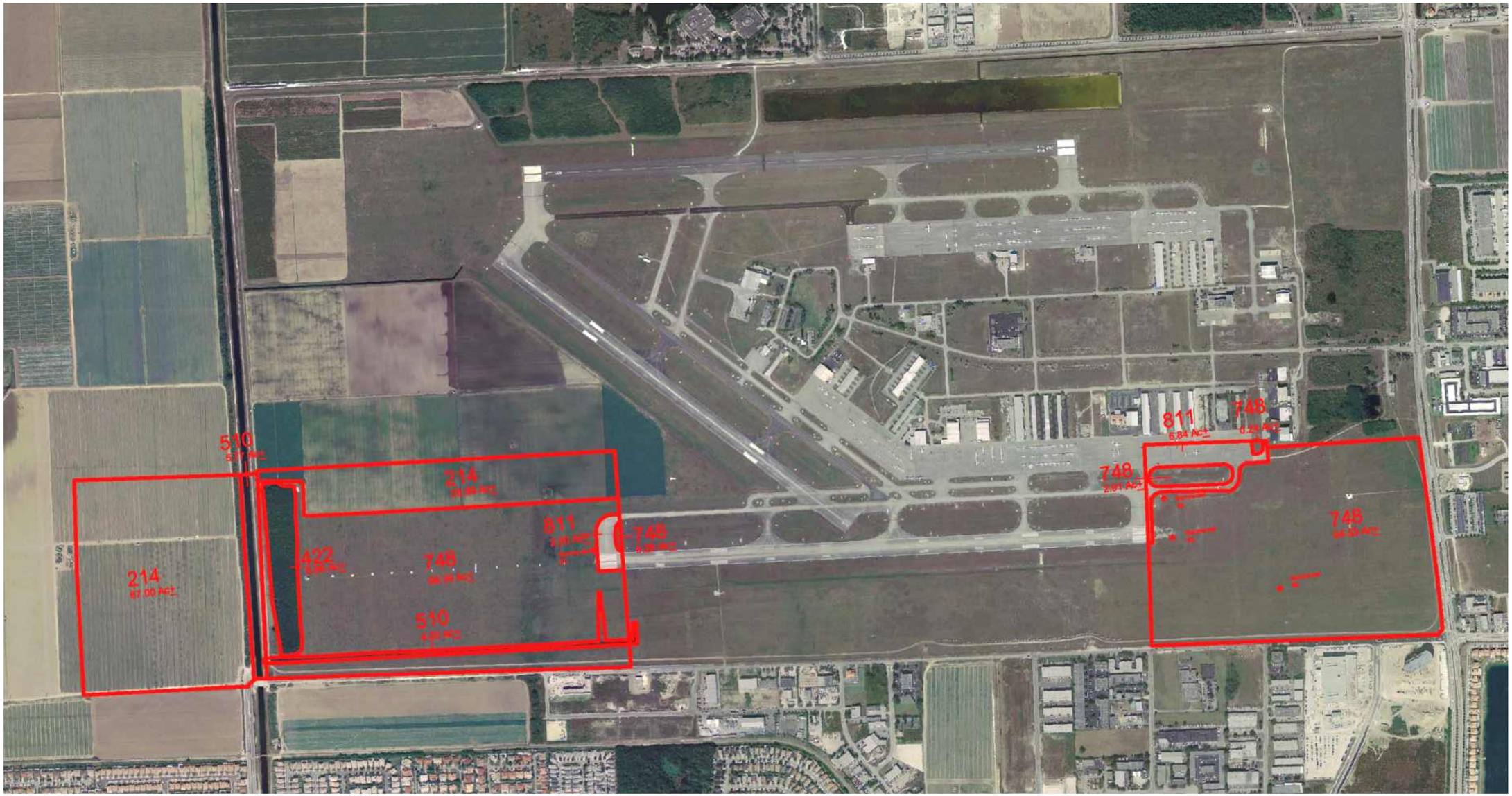
Plant communities and wildlife habitats within the Airport and its vicinity are based on the nomenclature of the Florida Land Use, Cover and Forms Classification System, Level III (FLUCFCS) (Florida Department of Transportation (FDOT), 1999). This system allows for a uniform means of classifying land uses important for determining the presence of wetlands and suitable habitat for threatened and endangered species.

A survey of the Airport was conducted in June 2006 to determine the vegetation types, the presence of wetlands, and the presence of any threatened or endangered species at the Airport (see **Appendix E**). At TMB, five habitat classifications are present and included on **Figure 4-10**. These habitats include row crops, Brazilian pepper, canal, maintained grass field, and airport.

The area to the west of Canal C-1 is classified as “row crops”. The vegetation structure found in this area consisted only of an understory as no mid-canopy or canopy species were observed. The understory included such pioneering species as sedges (*Cyperus* sp.), crabgrass (*Digitaria serotina*), day flower (*Commelina diffusa*) and wild taro *(Colocasia esculenta).*

As presented on **Figure 4-10**, two drainage canals found in proximity to the proposed runway extension. One canal provides drainage to the Airport and is oriented in an east-west direction and is south of and parallel to Runway 9R-27L. The other canal, Canal C-1, bisects the Airport property in a north-south direction. The habitat is mostly open water with some torpedo grass (*Panicum repens*), camphorweed (*Pluchea rosea*), beak sedge (*Rhynchospora microcarpa*), starrush whitetop (*Rhynchospora colorata*) and rosegentian (*Sabatia* sp.). Wildlife species sighted within these areas include green heron (*Butorides striatus*) and common grackles (*Quiscalus quiscula*).

Immediately east of Canal C-1 is a forested area consisting predominately of Brazilian pepper (*Schinus terebinthifolius*). The only other canopy species observed was Java plum (*Syzygium cumini*). Other invasive exotic and nuisance plant species were found in the mid-canopy such as



FLUCFCS CODE	DESCRIPTION	APPROX. ACREAGE	STATE STATUS	STATE STATUS
214	Row Crops	95.8	U	U
422	Brazilian Pepper	8.86	U	U
510	Canal	9.77	OSW	OSW
748	Maintained grass Field	196.33	U	U
811	Airport	9.04	U	U
	Total	*319.88*		

Legend

Burrowing Owl Location

Notes:
1. The FLUCFCS and wetland limits have been estimated from aerial photo interpretation and limited ground truthing on June 14, 2006.
2. Wetland limits have not been flagged, GPS survey located or agency verified and are subject to change.
3. Habitat mapping based on the Florida Land Use Cover and Forms Classification (FLUCFCS) methodology established by the Florida Department of Transportation (FDOT, 1999).
4. Aerial imagery shown is from a December 2004 flight date.

N

0 600 1200

Scale in Feet

Source: Johnson Engineering

Kendall-Tamiami Executive Airport Environmental Assessment

Figure 4-10

FLUCFCS & Protected Species

napiergrass (*Pennisitum purpureum*), Guineagrass (*Panicum maximum*) and ragweed (*Ambrosia artemisiifolia*). The canopy and mid-canopy were so dense that no other ground cover species were observed.

The majority of the Airport is classified as "maintained grass field". These areas are routinely mowed and no mid-canopy or canopy species are present. The dominate species in this habitat are Bahiagrass (*Paspalum notatum*) and smutgrass (*Sporobolus indicus*). Other species observed in this habitat include crabgrass, beggarticks (*Bidens alba*), spurge (*Spermacoce* sp.), Guineagrass, fogfruit (*Phyla nodiflora*), Bermudagrass (*Cynodon dactylon*), natalgrass (*Rhynchelytrum repens*), and wedelia (*Sphagneticola trilobata*). The wildlife species observed in this habitat include northern mockingbird (*Mimus polyglottos*), mourning dove (*Zenaida macroura*), loggerhead shrike (*Lanius ludovicianus*), European starling (*Sturnus vulgaris*), burrowing owls (*Athene cunicularia floridana*), killdeer (*Charadrius vociferus*), cattle egret (*Egretta thula*) and red-winged blackbird (*Agelaius phoeniceus*).

The final classification used by FLUCFCS is "Airport". This includes the runways, taxiways, and other impervious surfaces at TMB.

4.4.2 Threatened and Endangered Species

Under the Federal Endangered Species Act (FESA), the Secretary of the Interior and the Secretary of Commerce have joint authority to list a species as threatened or endangered (16 USC 1533[c]). Pursuant to the requirements of FESA, an agency reviewing a proposed action within its jurisdiction must determine whether any federal-listed threatened or endangered species may be present and whether the proposed action will have a potentially significant impact on any threatened or endangered species. In addition, the agency is required to determine whether the proposed action is likely to jeopardize the continued existence of any species proposed to be listed under FESA or result in the destruction or adverse modification of critical habitat proposed to be designated for such species (16 USC 1536[3], [4]).

The U.S. Fish and Wildlife Service (USFWS) also publishes a list of candidate species. Species on this list receive special attention from federal agencies during environmental review, although they are not protected under the FESA. The candidate species are taxa for which the FWS has sufficient biological information to support a proposal to list as endangered or threatened.

The Federal Migratory Bird Treaty Act (16 U.S.C., Sec. 703, Supp. I 1989) prohibits killing, possessing, or trading in migratory birds except in accordance with regulations prescribed by the Secretary of the Interior. This act encompasses whole birds, parts of birds, and bird nests and eggs. In addition, Executive Order 13186 for the Conservation of Migratory Birds requires that any federal project addresses the impacts of federal actions on migratory birds.

The Federal Bald Eagle Protection Act prohibits persons within the United States (or places subject to U.S. jurisdiction) from "possessing, selling, purchasing, offering to sell, transporting, exporting or importing any bald eagle or any golden eagle, alive or dead, or any part, nest, or egg thereof."

The USFWS has indicated that no threatened or endangered species are known to exist at the Airport (see **Appendix B**) and recommended that a survey be conducted. A field survey was conducted in June 2006 and determined that no threatened or endangered species exist in the areas of the proposed runway extension. The field survey did indicate that burrowing owls, which are a species of special concern, are present at the Airport. Two active burrowing owl burrows exist at each end of Runway 9R-27L. No other species, including migratory birds, were identified during the field survey.

4.4.3 Wetlands

Wetlands have been defined by the U.S. Army Corps of Engineers (Corps) and the U.S. Environmental Protection Agency (EPA), pursuant to Section 404 of the Clean Water Act (CWA). Wetlands are also defined in Executive Order 11990: Protection of Wetlands. The following presents the federal definition of waters of the United States, including wetlands.

Wetlands are a subset of waters of the United States and receive protection under Section 404 of the CWA. The term "waters of the United States" as defined in the Code of Federal Regulations (33 CFR 328.3[a]; 40 CFR 230.3[s]) includes:

1. All waters which are currently used, were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters which are subject to the ebb and flow of the tide.

2. All interstate waters including interstate wetlands. (Wetlands are defined by the federal government [CFR, Section 328.3(b), 1991] as those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions.)

3. All other waters such as intrastate lakes, rivers, streams (including intermittent streams), mud flats, sand flats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes, or natural ponds, the use, degradation, or destruction of which could affect interstate or foreign commerce including any such waters:

    - which are or could be used by interstate or foreign travelers for recreational or other purposes; or
    - from which fish or shellfish are or could be taken and sold in interstate or foreign commerce; or
    - which are used or could be used for industrial purposes by industries in interstate commerce.

4. All impoundments of waters otherwise defined as waters of the United States under the definition.

5. Tributaries of waters identified in numbers 1 through 4.

6. Territorial seas.

7. Wetlands adjacent to waters (other than waters that are themselves wetlands) identified in numbers 1 through 6.

Waters of the United States do not include prior converted cropland. Notwithstanding the determination of an area's status as prior converted cropland by any other federal agency, for the purposes of the CWA, the final authority regarding CWA jurisdiction remains with EPA (328.3[a][8] added 58 FR 45035, Aug. 25, 1993).

The regulations and policies of various federal agencies (e.g., the Corps, EPA, U.S. Fish and Wildlife Service [USFWS], and National Marine Fisheries Service [NMFS]) mandate that the filling of wetlands be avoided unless it can be demonstrated that no practicable alternatives exist. The Corps has primary federal responsibility for administering regulations that concern waters and wetlands. In this regard, the Corps acts under two statutory authorities, the Rivers and Harbors Act, Sections 9 and 10 (see discussion below), which governs specified activities in navigable waters, and the CWA (Section 404), which governs specified activities in waters of the United States, including wetlands. The Corps requires that a permit be obtained if a project proposes placing structures within and/or alteration of waters of the United States below the ordinary high water mark in nontidal waters. EPA, USFWS, NMFS, and several other agencies provide comment on Corps permit applications. EPA has provided the primary criteria for evaluating the biological impacts of Corps permit actions in wetlands (Section 404[b][1] guidelines). In addition, Executive Order 11990 also requires each federal agency to take actions to minimize the destruction, loss or degradation of wetlands in carrying out its responsibilities.

The Corps regulates activities in navigable waters of the United States, subject to the ebb and flow of the tide (up to mean high water) and/or has historically been used, is currently used, or may be used in the future for interstate or foreign commerce (Section 10 of the Rivers and Harbors Act). Corps permit authority under the Rivers and Harbors Act is not subject to EPA oversight or any other restrictions specific to the CWA. Although the Corps requires that a permit be obtained if a project proposes placing structures within navigable waters, they generally do not require mitigation unless the areas under Section 10 jurisdiction overlap with wetlands or other waters of the United States. Areas that may be subject to jurisdiction under Section 10 of the Rivers and Harbors Act include drainage ditches and the shoreline fringe.

The field survey conducted in June 2006 identified the areas at the Airport that would be considered to be under the jurisdiction of the Corps (see Table 4.4.3-1). Canal C-1 that traverses the western portion of the Airport is considered to be a navigable water of the United States. As such, the 9.8 acres associated with Canal C-1 would be considered a jurisdictional wetland using the Corps definition of a wetland.

TABLE 4.4.3-1
HABITAT CLASSIFICATION AND ACREAGE

FLUCFCS Code	Habitat Classification	Approximate Acreage	Percent of Total Acreage	Corps Jurisdictional Status
214	Row Crops	95.9	30%	Upland
422	Brazilian Pepper	8.9	3%	Upland
510	Canal	9.8	3%	Other Surface Water
748	Maintained Grass Field	196.3	61%	Upland
811	Airport	9.04	3%	Upland
TOTAL		319.9	100%	

Source: Johnson Engineering