# SECTION 5
# Environmental Consequences

Section 5 outlines the environmental consequences of the proposed action. For each environmental category outlined in FAA Order 1050.1E this section details the associated significance criteria, the methodology used in the analysis, the 2009 and 2015 impacts, and any mitigation measures or recommendations. To aid in the review, each environmental category begins with an overview of the impacts associated with that category. The environmental consequences of the proposed action are presented in the following order:

1. Aircraft Noise Effects
2. Compatible Land Use
3. Socioeconomic Impacts, Environmental Justice and Children's Environmental Health and Safety
4. Air Quality
5. Water Quality
6. Department of Transportation Act: Section 4(f)
7. Historic, Architectural, Archaeological and Cultural Resources
8. Fish, Wildlife and Plants (Threatened and Endangered Species)
9. Wetlands
10. Floodplains
11. Coastal Resources
12. Wild and Scenic Rivers
13. Farmlands
14. Natural Resources and Energy Supply
15. Light Emissions and Visual Impacts
16. Construction Impacts
17. Hazardous Materials, Pollution Prevention and Solid Waste
18. Secondary Induced Impacts
19. Cumulative Impacts

As noted in Section 3.0, only two alternatives have been retained for detailed environmental analysis. The No Action condition is considered Alternative 1 and the Proposed Action is considered Alternative 2.

# 5.1 Aircraft Noise Effects

## 5.1.1 Overview of Impact

***The 2009 and 2015 noise contours with the Proposed Action show a reduction in the extent of the 65 DNL noise contour east of the Airport and a slight increase in the 65 DNL noise contour west of the Airport when compared to the No Action Alternative. The reason for the reduction in the 65 DNL noise contour to the east is because the departure threshold is further to the west and that allows aircraft to climb to higher altitudes prior to passing the Airport's eastern property boundary. The runway extension results in aircraft being at lower altitudes west of the Airport because the landing threshold would be moved 1,798 feet to the west. The FAA guidance concerning aircraft noise indicates that noise exposure impacts are considered significant only if there is a 1.5 DNL or greater increase at noise sensitive areas within the 65 DNL noise contour when comparing the Proposed Action to the No Action Alternative. No noise sensitive uses or population are within the 65 DNL noise contour for any of the years of analysis; therefore, the Proposed Action would not result in a significant noise impact and no mitigation measures are required.***

## 5.1.2 Significance Criteria

FAA guidelines indicate 65 DNL is the level of noise "acceptable to a reasonable person residing in the vicinity of an airport." This is consistent with federal (FAA and U.S. Department of Housing and Urban Development [HUD]) land use compatibility guidelines and federal noise attenuation grant funding eligibility criteria. Therefore, the primary focus of the noise impact analysis is on areas located within the 65 DNL noise contours for the Proposed Action and the No Action Alternative.

FAA guidance concerning aircraft noise indicates that noise exposure impacts are considered significant only if there is a 1.5 DNL or greater increase at noise sensitive areas within the 65 DNL noise contour as when comparing the Proposed Action to the No Action Alternative. If this increase is expected, then additional significance thresholds apply. An increase of 3.0 DNL or greater within the 60-65 DNL noise contour is considered significant when comparing the Proposed Action to the No Action Alternative.

## 5.1.3 Methodology

The methodology for assessing potential noise impacts included preparing DNL noise contours for the No Action (Alternative 1) and Proposed Action (Alternative 2) for the years 2009 and 2015. The contours were developed to assess if any noise sensitive areas would experience a significant increase in noise exposure.

# 5.1.4 Year 2009 Impacts

## Alternative 1

### *AIRCRAFT OPERATIONS AND FLEET MIX*

An adjusted FAA Terminal Area Forecast (TAF) was used for the 2009 projection of aircraft activity at TMB. The adjustments to the 2009 TAF included the addition of general aviation night operations to account for activity when the TMB air traffic control tower is closed. This was consistent with the methodology used for the 2005 noise contour development. Nighttime operations were projected to grow between 2005 and 2009 at the same rate the TAF grew between 2005 and 2009, which calculated to 1.3% annually. For planning purposes, military operations were kept at the same level that occurred in 2005. This is due to the fact that very limited data is available to make a reasonable projection of military activity.

Runway and flight track use percentages for the future conditions were forecast to remain unchanged from those that occurred in 2005.

Aircraft operations are forecast to total 203,843 in 2009, which is an average of approximately 558 per day. Aircraft operations by category for 2009 are presented in Table 5.1-1.

**TABLE 5.1-1**
**2009 AIRCRAFT OPERATIONS FOR BOTH ALTERNATIVE 1 AND ALTERNATIVE 2**

| Air Taxi | General Aviation | Military (Non-Helicopter) | Helicopter | Total |
|---|---|---|---|---|
| 2,835 | 146,566 | 400 | 54,042 | 203,843 |

Source: 2006 FAA Terminal Area Forecast, Flight Service Station, Airport Management, ESA Airports Analysis

### *AIRCRAFT FLEET MIX*

The fleet mix of aircraft forecast to be operating at the Airport in 2009 was determined by using the percentages by aircraft type that occurred in 2005. The 2009 time of day by aircraft type was also determined by using the same percentages that occurred in 2005. The 2009 fleet mix of aircraft is presented in Tables 5.1-2 through 5.1-5.

**TABLE 5.1-2**
**2009 DAILY AVERAGE AIR TAXI OPERATIONS FOR ALTERNATIVE 1**

| Aircraft Category | INM Aircraft | Aircraft Type | Daytime Operations | Nighttime Operations | Total |
|---|---|---|---|---|---|
| Single Piston | CNA172 | Cessna 172 | 0.70 | 0.00 | 0.70 |
| | CNA206 | Cessna Staionair | 0.24 | 0.00 | 0.24 |
| | GASEPF | Single Piston - Fixed Pitch Prop | 0.13 | 0.00 | 0.13 |
| | GASEPV | Single Piston - Variable Pitch Prop | 0.09 | 0.00 | 0.09 |
| | CNA20T | Turbo Stationair | 0.07 | 0.00 | 0.07 |
| Twin Piston | BEC58P | Beech Baron | 0.55 | 0.02 | 0.58 |
| Turboprop | CNA441 | King Air | 0.40 | 0.02 | 0.42 |
| | DHC6 | DeHavilland DASH-6 | 0.51 | 0.00 | 0.51 |
| | DHC8 | DeHavilland DASH-8 | 0.01 | 0.00 | 0.01 |
| | HS748A | Hawker Sidley 748 | 0.01 | 0.00 | 0.01 |
| | L188 | Lockheed L-188 | 0.01 | 0.00 | 0.01 |
| Jet | CIT3 | Citation 3 | 0.17 | 0.00 | 0.17 |
| | CL600 | Challenger, Falcon 2000 | 0.21 | 0.00 | 0.21 |
| | CL601 | Canadair Regional Jet | 0.04 | 0.00 | 0.04 |
| | CNA500 | Citation I | 0.11 | 0.00 | 0.11 |
| | CNA55B | Citation II | 0.18 | 0.02 | 0.20 |
| | CNA750 | Citation X | 0.15 | 0.00 | 0.15 |
| | FAL50 | Falcon 50, 900 | 0.05 | 0.00 | 0.05 |
| | GIV | Gulfstream IV | 0.05 | 0.00 | 0.05 |
| | IA1125 | Westwind 24,25 | 0.05 | 0.00 | 0.05 |
| | LEAR25 | Learjet 24, 25 | 0.27 | 0.02 | 0.29 |
| | LEAR35 | Learjet 35,45,55 | 2.34 | 0.09 | 2.42 |
| | MU3001 | Mitsubishi Diamond | 1.20 | 0.04 | 1.24 |
| **Total** | | | **7.55** | **0.21** | **7.76** |

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

**TABLE 5.1-3**
**2009 DAILY AVERAGE ITINERANT GENERAL AVIATION OPERATIONS FOR ALTERNATIVE 1**

| Aircraft Category | INM Aircraft | Aircraft Type | Daytime Operations | Nighttime Operations | Total |
|---|---|---|---|---|---|
| Single Piston | CNA172 | Cessna 172 | 42.08 | 1.63 | 43.71 |
| | CNA206 | Cessna Staionair | 10.70 | 0.32 | 11.02 |
| | COMSEP | Single Engine Piston | 0.43 | 0.02 | 0.45 |
| | GASEPF | Single Piston - Fixed Pitch Prop | 15.32 | 0.37 | 15.69 |
| | GASEPV | Single Piston - Variable Pitch Prop | 34.43 | 1.00 | 35.43 |
| | CNA20T | Turbo Stationair | 1.64 | 0.08 | 1.72 |
| Twin Piston | BEC58P | Beech Baron | 39.48 | 2.01 | 41.49 |
| | DC3 | Douglas DC-3 | 0.03 | 0.00 | 0.03 |
| | DC6 | Douglas DC-6 | 0.01 | 0.00 | 0.01 |
| Turboprop | CNA441 | King Air | 20.40 | 1.01 | 21.41 |
| | DHC6 | DeHavilland DASH-6 | 18.40 | 1.27 | 19.67 |
| | EMB120 | Embraer Brasilia | 0.55 | 0.08 | 0.63 |
| | SD330 | Shorts SD330 | 0.53 | 0.03 | 0.56 |
| | DHC8 | DeHavilland DASH-8 | 0.21 | 0.00 | 0.21 |
| | HS748A | Hawker Sidley 748 | 0.15 | 0.00 | 0.15 |
| | SF340 | SAAB SF-340 | 0.24 | 0.00 | 0.24 |
| Jet | CIT3 | Citation 3 | 3.65 | 0.65 | 4.30 |
| | CL600 | Challenger, Falcon 2000 | 3.02 | 0.17 | 3.19 |
| | CL601 | Canadair Regional Jet | 0.10 | 0.00 | 0.10 |
| | CNA500 | Citation I | 6.68 | 0.22 | 6.90 |
| | CNA55B | Citation II | 6.72 | 0.19 | 6.91 |
| | CNA750 | Citation X | 0.41 | 0.03 | 0.44 |
| | FAL20 | Falcon 20 | 0.25 | 0.00 | 0.25 |
| | FAL50 | Falcon 50, 900 | 1.59 | 0.06 | 1.65 |
| | GII | Gulfstream II | 0.36 | 0.00 | 0.36 |
| | GIIB | Gulfstream IIB | 0.12 | 0.04 | 0.16 |
| | GIV | Gulfstream IV | 0.80 | 0.05 | 0.85 |
| | GV | Gulfstream V | 0.30 | 0.00 | 0.30 |
| | IA1125 | Westwind 24,25 | 1.51 | 0.11 | 1.62 |
| | LEAR25 | Learjet 24, 25 | 2.92 | 0.11 | 3.03 |
| | LEAR35 | Learjet 35,45,55 | 19.50 | 2.02 | 21.52 |
| | MU3001 | Mitsubishi Diamond | 6.04 | 0.17 | 6.21 |
| Helicopter | B206L | Bell Jetranger | 16.70 | 4.91 | 21.61 |
| | BO105 | Bell 412 | 13.07 | 3.84 | 16.91 |
| | H500D | Hughes 500 | 5.81 | 1.71 | 7.52 |
| | S76 | Sikorsky S-76 | 0.73 | 0.22 | 0.95 |
| **Total** | | | **274.88** | **22.32** | **297.20** |

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

**TABLE 5.1.4**
**2009 DAILY AVERAGE ITINERANT MILITARY OPERATIONS FOR ALTERNATIVE 1**

| 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 5.1-5**
**2009 DAILY AVERAGE LOCAL FLIGHT TRAINING OPERATIONS FOR ALTERNATIVE 1**

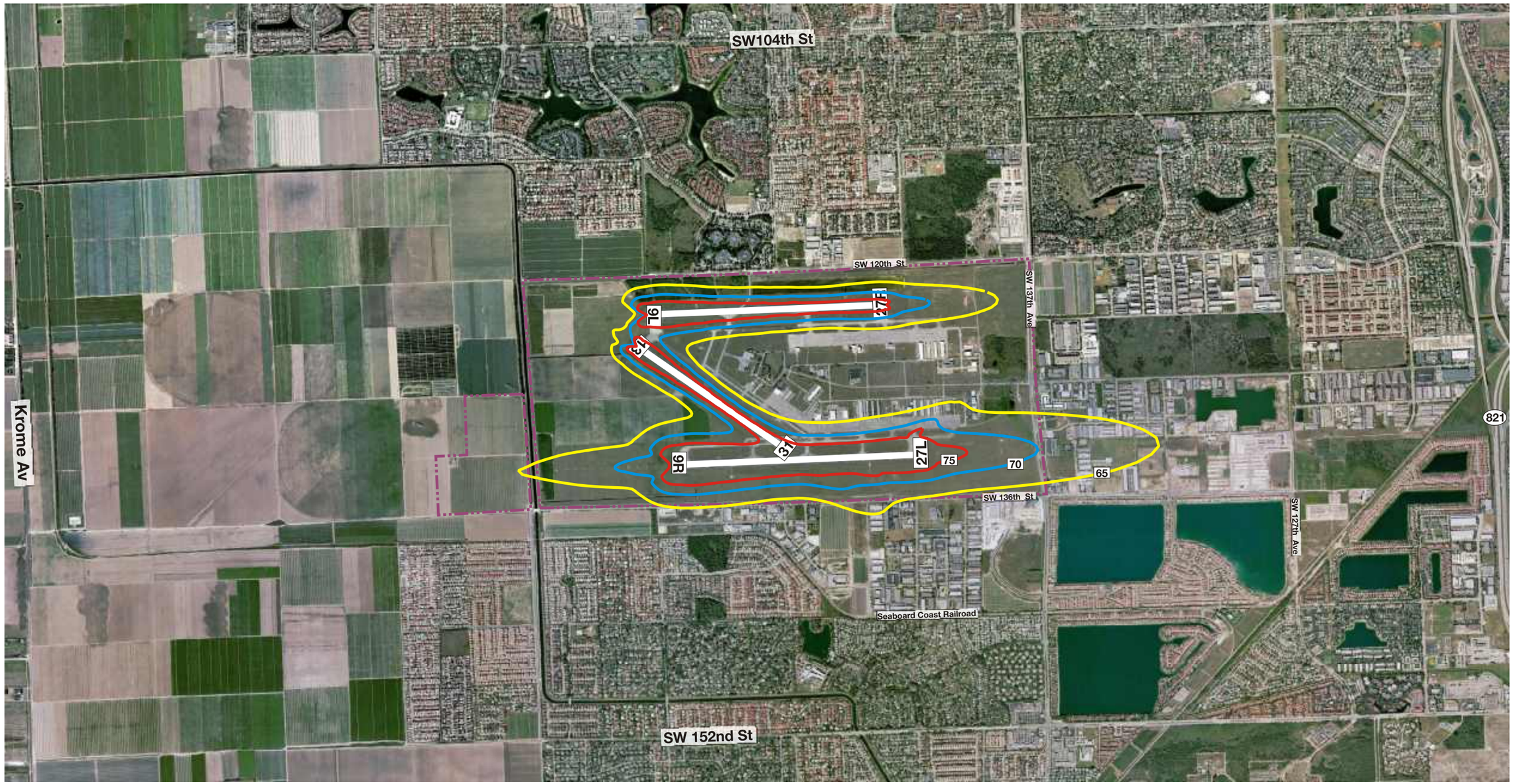
| Aircraft Category | INM Aircraft | Aircraft Type | Daytime Operations | Nighttime Operations | Total |
|---|---|---|---|---|---|
| Single Piston | GASEPF | Single Piston - Fixed Pitch Prop | 17.54 | 0.00 | 17.54 |
| | GASEPV | Single Piston - Variable Pitch Prop | 39.22 | 0.00 | 39.22 |
| | CNA172 | Cessna 172 | 48.60 | 0.00 | 48.60 |
| Twin Piston | BEC58P | Beech Baron | 45.98 | 0.00 | 45.98 |
| Helicopter | H500D | Hughes 500 | 60.64 | 0.00 | 60.64 |
| | B206L | Bell Jetranger | 40.44 | 0.00 | 40.44 |
| | SA365N* | Aerospatiale Dauphin (Coast | 0.36 | 0.00 | 0.36 |
| | BO105* | Bell 412 | 0.34 | 0.00 | 0.34 |
| **Total** | | | **253.12** | **0.00** | **253.12** |

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

## *DNL CONTOURS*

The DNL noise contours for Alternative 1 in 2009 are shown on **Figure 5-1**. The 2009 DNL contours are slightly larger than the 2005 DNL contours due to the increase in operations forecast to occur. Because no significant changes are expected to occur with the No Action Alternative, the overall shape of the contours is very similar to the 2005 DNL contours. No residences or population are located within are within the 2009 No Action 65 DNL and greater contour.

No noise-sensitive land uses are within the 65 DNL noise contour for Alternative 1 in 2009. Therefore, there are no significant noise impacts as a result of Alternative 1.




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

Kendall-Tamiami Executive Airport Environmental Assessment

**Figure 5-1**
**2009 No Action DNL Contours**

# Alternative 2

## *AIRCRAFT OPERATIONS AND FLEET MIX*

An increase in the total number of aircraft operations is not expected as a result of Alternative 2 (see Table 5.1-1). As noted in Section 2.0, Purpose and Need, the runway extension is being proposed to accommodate the desire of current operators to fly longer stage lengths, which would allow TMB to fulfill its role as a reliever airport to MIA. It is recognized that a 7,350-foot runway would make the airport more desirable to some jet operators. Jet aircraft have larger spacing requirements due to their higher approach speeds. This increased spacing generally results in a decrease in certain types of GA activity. Thus, the fleet mix of aircraft has been adjusted to account for the change in fleet mix forecast with Alternative 2. Also, the noise modeling effort accounted for the aircraft that would be able to fly longer distances with an extended runway. The fleet mix of aircraft for Alternative 2 in 2009 is presented in Tables 5.1-6 through 5.1-9.

**TABLE 5.1-6**
**2009 DAILY AVERAGE AIR TAXI OPERATIONS FOR ALTERNATIVE 2**

| Aircraft Category | INM Aircraft | Aircraft Type | Daytime Operations | Nighttime Operations | Total |
|---|---|---|---|---|---|
| Single Piston | CNA172 | Cessna 172 | 0.56 | 0.00 | 0.56 |
| | CNA206 | Cessna Staionair | 0.24 | 0.00 | 0.24 |
| | GASEPF | Single Piston - Fixed Pitch Prop | 0.13 | 0.00 | 0.13 |
| | GASEPV | Single Piston - Variable Pitch Prop | 0.09 | 0.00 | 0.09 |
| | CNA20T | Turbo Stationair | 0.07 | 0.00 | 0.07 |
| Twin Piston | BEC58P | Beech Baron | 0.50 | 0.02 | 0.52 |
| Turboprop | CNA441 | King Air | 0.40 | 0.02 | 0.42 |
| | DHC6 | DeHavilland DASH-6 | 0.49 | 0.00 | 0.49 |
| | DHC8 | DeHavilland DASH-8 | 0.01 | 0.00 | 0.01 |
| | HS748A | Hawker Sidley 748 | 0.01 | 0.00 | 0.01 |
| | L188 | Lockheed L-188 | 0.01 | 0.00 | 0.01 |
| Jet | CIT3 | Citation 3 | 0.17 | 0.00 | 0.17 |
| | CL600 | Challenger, Falcon 2000 | 0.31 | 0.00 | 0.31 |
| | CL601 | Canadair Regional Jet | 0.04 | 0.00 | 0.04 |
| | CNA500 | Citation I | 0.13 | 0.00 | 0.13 |
| | CNA55B | Citation II | 0.18 | 0.02 | 0.21 |
| | CNA750 | Citation X | 0.20 | 0.00 | 0.20 |
| | FAL50 | Falcon 50, 900 | 0.05 | 0.00 | 0.05 |
| | GIV | Gulfstream IV | 0.05 | 0.00 | 0.05 |
| | IA1125 | Westwind 24,25 | 0.06 | 0.00 | 0.06 |
| | LEAR25 | Learjet 24, 25 | 0.27 | 0.02 | 0.29 |
| | LEAR35 | Learjet 35,45,55 | 2.37 | 0.09 | 2.45 |
| | MU3001 | Mitsubishi Diamond | 1.20 | 0.04 | 1.24 |
| **Total** | | | **7.55** | **0.21** | **7.76** |

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

**TABLE 5.1-7**
**2009 DAILY AVERAGE ITINERANT GENERAL AVIATION OPERATIONS FOR ALTERNATIVE 2**

| Aircraft Category | INM Aircraft | Aircraft Type | Daytime Operations | Nighttime Operations | Total |
|---|---|---|---|---|---|
| Single Piston | CNA172 | Cessna 172 | 39.31 | 1.52 | 40.83 |
| | CNA206 | Cessna Staionair | 10.70 | 0.32 | 11.02 |
| | COMSEP | Single Engine Piston | 0.43 | 0.02 | 0.45 |
| | GASEPF | Single Piston - Fixed Pitch Prop | 14.52 | 0.35 | 14.87 |
| | GASEPV | Single Piston - Variable Pitch Prop | 32.84 | 0.89 | 33.73 |
| | CNA20T | Turbo Stationair | 1.64 | 0.08 | 1.72 |
| Twin Piston | BEC58P | Beech Baron | 37.92 | 1.03 | 38.95 |
| | DC3 | Douglas DC-3 | 0.03 | 0.00 | 0.03 |
| | DC6 | Douglas DC-6 | 0.01 | 0.00 | 0.01 |
| Turboprop | CNA441 | King Air | 20.40 | 1.01 | 21.41 |
| | DHC6 | DeHavilland DASH-6 | 18.40 | 1.27 | 19.67 |
| | EMB120 | Embraer Brasilia | 0.55 | 0.08 | 0.63 |
| | SD330 | Shorts SD330 | 0.53 | 0.03 | 0.56 |
| | DHC8 | DeHavilland DASH-8 | 0.21 | 0.00 | 0.21 |
| | HS748A | Hawker Sidley 748 | 0.15 | 0.00 | 0.15 |
| | SF340 | SAAB SF-340 | 0.24 | 0.00 | 0.24 |
| Jet | CIT3 | Citation 3 | 3.65 | 0.65 | 4.30 |
| | CL600 | Challenger, Falcon 2000 | 5.74 | 0.75 | 6.49 |
| | CL601 | Canadair Regional Jet | 0.18 | 0.00 | 0.18 |
| | CNA500 | Citation I | 6.68 | 0.22 | 6.90 |
| | CNA55B | Citation II | 6.72 | 0.19 | 6.91 |
| | CNA750 | Citation X | 2.29 | 0.17 | 2.46 |
| | FAL20 | Falcon 20 | 0.25 | 0.00 | 0.25 |
| | FAL50 | Falcon 50, 900 | 1.59 | 0.06 | 1.65 |
| | GII | Gulfstream II | 0.42 | 0.00 | 0.42 |
| | GIIB | Gulfstream IIB | 0.23 | 0.08 | 0.31 |
| | GIV | Gulfstream IV | 0.82 | 0.05 | 0.87 |
| | GV | Gulfstream V | 0.67 | 0.00 | 0.67 |
| | IA1125 | Westwind 24,25 | 1.95 | 0.14 | 2.09 |
| | LEAR25 | Learjet 24, 25 | 2.92 | 0.11 | 3.03 |
| | LEAR35 | Learjet 35,45,55 | 19.61 | 2.03 | 21.64 |
| | MU3001 | Mitsubishi Diamond | 6.97 | 0.59 | 7.56 |
| Helicopter | B206L | Bell Jetranger | 16.70 | 4.91 | 21.61 |
| | BO105 | Bell 412 | 13.07 | 3.84 | 16.91 |
| | H500D | Hughes 500 | 5.81 | 1.71 | 7.52 |
| | S76 | Sikorsky S-76 | 0.73 | 0.22 | 0.95 |
| **Total** | | | **274.88** | **22.32** | **297.20** |

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

**TABLE 5.1-8**
**2009 DAILY AVERAGE ITINERANT MILITARY OPERATIONS FOR ALTERNATIVE 2**

| 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

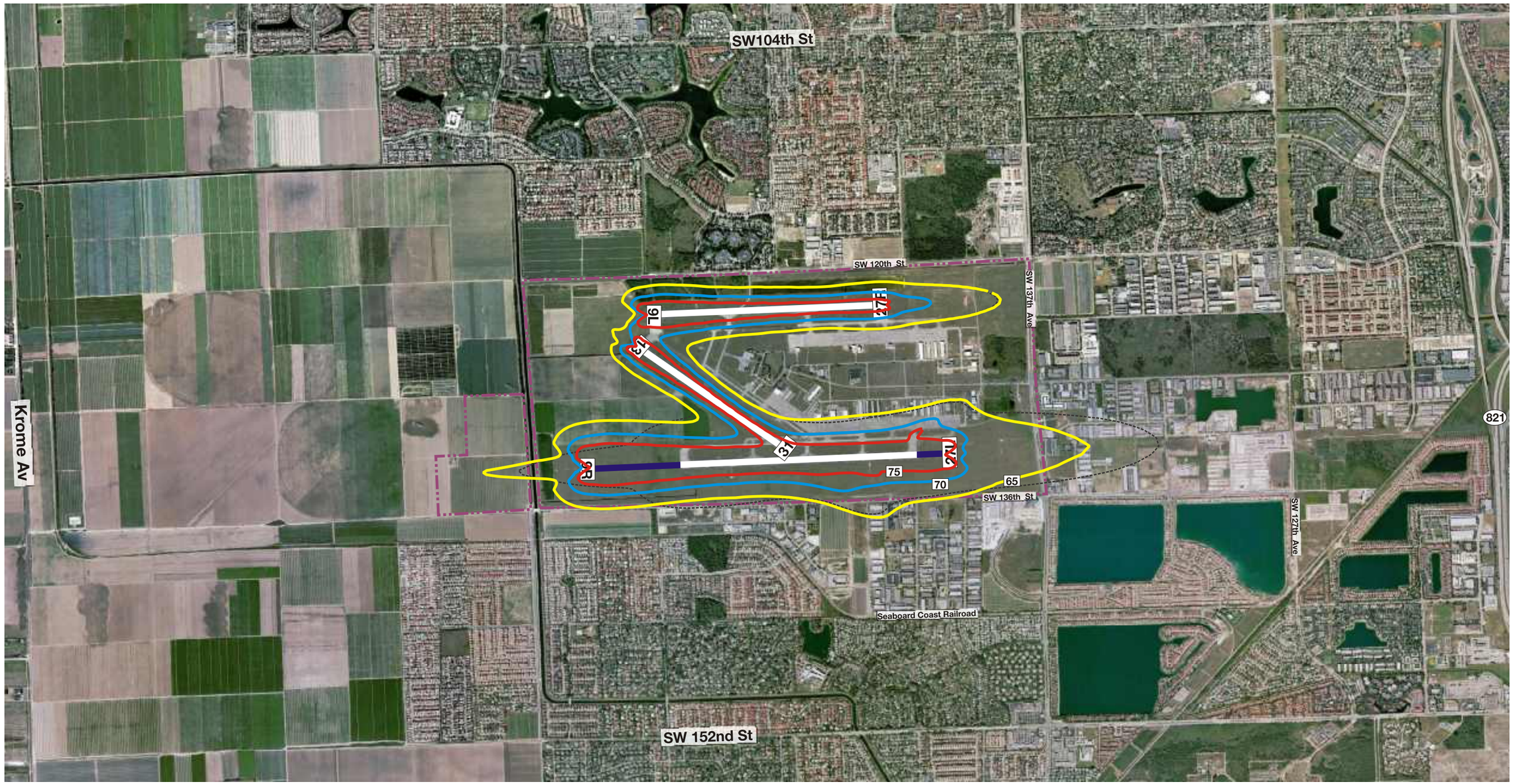
**TABLE 5.1-9**
**2009 DAILY AVERAGE LOCAL FLIGHT TRAINING OPERATIONS FOR ALTERNATIVE 2**

| Aircraft Category | INM Aircraft | Aircraft Type | Daytime Operations | Nighttime Operations | Total |
|---|---|---|---|---|---|
| Single Piston | GASEPF | Single Piston - Fixed Pitch Prop | 17.54 | 0.00 | 17.54 |
| | GASEPV | Single Piston - Variable Pitch Prop | 39.22 | 0.00 | 39.22 |
| | CNA172 | Cessna 172 | 48.60 | 0.00 | 48.60 |
| Twin Piston | BEC58P | Beech Baron | 45.98 | 0.00 | 45.98 |
| Helicopter | H500D | Hughes 500 | 60.64 | 0.00 | 60.64 |
| | B206L | Bell Jetranger | 40.44 | 0.00 | 40.44 |
| | SA365N* | Aerospatiale Dauphin (Coast | 0.36 | 0.00 | 0.36 |
| | BO105* | Bell 412 | 0.34 | 0.00 | 0.34 |
| **Total** | | | **253.12** | **0.00** | **253.12** |

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

## *DNL CONTOURS*

The DNL noise contours for Alternative 2 in 2009 are shown on **Figure 5-2**. The shape of the contour is noticeably different when compared to Alternative 1. The largest change occurs east of the Airport. As shown on **Figure 5-2**, the 65 DNL noise contour for Alternative 2 east of the Airport moves approximately 1,500 feet closer to Airport property. As noted in Section 4.2, the Airport operates in east flow approximately 80 percent of the time (aircraft departing to the east). The major extension to Runway 9R-27L is proposed to occur on the western end of the runway, which allows aircraft to begin their take-off roll farther to the west. This places aircraft at higher altitudes over areas east of the Airport and results in less noise on the ground. While certain aircraft could have a higher fuel load as a result of a longer runway, this does not offset the noise benefit gained by the runway extension.




Aerial Photo Source: Airphoto USA January 2005

65 DNL | 70 DNL | 75 DNL | Airport Property Boundary | No Action 65 DNL | Proposed Runway Extension

0 750 1500 3000
Feet

North

Source: ESA Airports

Kendall-Tamiami Executive Airport Environmental Assessment

**Figure 5-2**
**2009 With Runway Extension DNL Contours**

East of the Southwest 137th Avenue, the 2009 Alternative 1 65 and greater DNL contour encompassed approximately 65 acres off-airport property. With Alternative 2, the 2009 65 and greater DNL contour encompasses approximately 13 acres off-airport property. The Proposed Action reduces the 65 DNL contour east of the Airport by approximately 80 percent.

West of the Airport, the 2009 Alternative 2 65 and greater DNL noise contour shifts approximately 750 feet to the west when compared to Alternative 1. Aircraft operate at much lower thrust settings and are at lower altitudes when arriving at an airport compared to aircraft departing an airport (i.e., aircraft achieve much steeper angles during climb-out). Because the aircraft operate with lower thrust settings on arrival, the change in the size and shape of the 65 DNL noise contour is much less to the west of the Airport when compared to east of the Airport. While the 65 DNL noise contour does increase in size west of the Airport, all increases occur on Airport property.

No noise-sensitive land uses are within the 65 DNL noise contour for Alternative 2 in 2009. Therefore, there are no significant noise impacts as a result of Alternative 2.

## 5.1.5 Year 2015 Impacts

### Alternative 1

#### *AIRCRAFT OPERATIONS AND FLEET MIX*

An adjusted FAA TAF was also used for the 2015 projection of aircraft activity at TMB. As with the 2009 forecast, adjustments to the 2015 TAF included the addition of general aviation night operations to account for activity when the TMB air traffic control tower is closed. Nighttime operations were projected to grow between 2005 and 2015 at the same rate the TAF grew between 2005 and 2015. Also, military operations were kept at the same level that occurred in 2005.

Runway and flight track use percentages for the 2015 future condition were forecast to remain unchanged from those that occurred in 2005.

Aircraft operations are forecast to total 220,534 in 2015, which is an average of approximately 604 per day. Aircraft operations by category for 2015 are presented in Table 5.1-10.

**TABLE 5.1-10**
**2015 AIRCRAFT OPERATIONS FOR BOTH ALTERNATIVE 1 AND ALTERNATIVE 2**

| Air Taxi | General Aviation | Military (Non-Helicopter) | Helicopter | Total |
|---|---|---|---|---|
| 2,835 | 158,761 | 400 | 58,538 | 220,534 |

Source: 2006 FAA Terminal Area Forecast, Flight Service Station, Airport Management, ESA Airports Analysis

## *AIRCRAFT FLEET MIX*

The aircraft fleet mix forecast to be operating at the Airport in 2015 under Alternative 1 was determined by using the percentages by aircraft type that occurred in 2005. The 2015 time of day by aircraft type also was determined by using the same percentages that occurred in 2005. The 2015 fleet mix of aircraft for Alternative 1 is presented in Tables 5.1-11 through 5.1-14.

**TABLE 5.1-11**
**2015 DAILY AVERAGE AIR TAXI OPERATIONS FOR ALTERNATIVE 1**

| Aircraft Category | INM Aircraft | Aircraft Type | Daytime Operations | Nighttime Operations | Total |
|---|---|---|---|---|---|
| Single Piston | CNA172 | Cessna 172 | 0.70 | 0.00 | 0.70 |
| | CNA206 | Cessna Staionair | 0.24 | 0.00 | 0.24 |
| | GASEPF | Single Piston - Fixed Pitch Prop | 0.13 | 0.00 | 0.13 |
| | GASEPV | Single Piston - Variable Pitch Prop | 0.09 | 0.00 | 0.09 |
| | CNA20T | Turbo Stationair | 0.07 | 0.00 | 0.07 |
| Twin Piston | BEC58P | Beech Baron | 0.55 | 0.02 | 0.58 |
| Turboprop | CNA441 | King Air | 0.40 | 0.02 | 0.42 |
| | DHC6 | DeHavilland DASH-6 | 0.51 | 0.00 | 0.51 |
| | DHC8 | DeHavilland DASH-8 | 0.01 | 0.00 | 0.01 |
| | HS748A | Hawker Sidley 748 | 0.01 | 0.00 | 0.01 |
| | L188 | Lockheed L-188 | 0.01 | 0.00 | 0.01 |
| Jet | CIT3 | Citation 3 | 0.17 | 0.00 | 0.17 |
| | CL600 | Challenger, Falcon 2000 | 0.21 | 0.00 | 0.21 |
| | CL601 | Canadair Regional Jet | 0.04 | 0.00 | 0.04 |
| | CNA500 | Citation I | 0.11 | 0.00 | 0.11 |
| | CNA55B | Citation II | 0.18 | 0.02 | 0.20 |
| | CNA750 | Citation X | 0.15 | 0.00 | 0.15 |
| | FAL50 | Falcon 50, 900 | 0.05 | 0.00 | 0.05 |
| | GIV | Gulfstream IV | 0.05 | 0.00 | 0.05 |
| | IA1125 | Westwind 24,25 | 0.05 | 0.00 | 0.05 |
| | LEAR25 | Learjet 24, 25 | 0.27 | 0.02 | 0.29 |
| | LEAR35 | Learjet 35,45,55 | 2.34 | 0.09 | 2.42 |
| | MU3001 | Mitsubishi Diamond | 1.20 | 0.04 | 1.24 |
| **Total** | | | **7.55** | **0.21** | **7.76** |

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

**TABLE 5.1-12**
**2015 DAILY AVERAGE ITINERANT GENERAL AVIATION OPERATIONS FOR ALTERNATIVE 1**

| Aircraft Category | INM Aircraft | Aircraft Type | Daytime Operations | Nighttime Operations | Total |
|---|---|---|---|---|---|
| Single Piston | CNA172 | Cessna 172 | 45.58 | 1.77 | 47.35 |
| | CNA206 | Cessna Staionair | 11.59 | 0.35 | 11.94 |
| | COMSEP | Single Engine Piston | 0.47 | 0.02 | 0.48 |
| | GASEPF | Single Piston - Fixed Pitch Prop | 16.60 | 0.40 | 17.00 |
| | GASEPV | Single Piston - Variable Pitch Prop | 37.30 | 1.08 | 38.38 |
| | CNA20T | Turbo Stationair | 1.78 | 0.08 | 1.86 |
| Twin Piston | BEC58P | Beech Baron | 42.77 | 2.18 | 44.94 |
| | DC3 | Douglas DC-3 | 0.04 | 0.00 | 0.04 |
| | DC6 | Douglas DC-6 | 0.01 | 0.00 | 0.01 |
| Turboprop | CNA441 | King Air | 22.10 | 1.09 | 23.19 |
| | DHC6 | DeHavilland DASH-6 | 19.93 | 1.38 | 21.31 |
| | EMB120 | Embraer Brasilia | 0.60 | 0.08 | 0.68 |
| | SD330 | Shorts SD330 | 0.57 | 0.03 | 0.61 |
| | DHC8 | DeHavilland DASH-8 | 0.23 | 0.00 | 0.23 |
| | HS748A | Hawker Sidley 748 | 0.17 | 0.00 | 0.17 |
| | SF340 | SAAB SF-340 | 0.26 | 0.00 | 0.26 |
| Jet | CIT3 | Citation 3 | 3.56 | 0.64 | 4.19 |
| | CL600 | Challenger, Falcon 2000 | 3.71 | 0.20 | 3.91 |
| | CL601 | Canadair Regional Jet | 0.11 | 0.00 | 0.11 |
| | CNA500 | Citation I | 7.24 | 0.24 | 7.47 |
| | CNA55B | Citation II | 7.28 | 0.20 | 7.48 |
| | CNA750 | Citation X | 0.44 | 0.03 | 0.48 |
| | FAL20 | Falcon 20 | 0.27 | 0.00 | 0.27 |
| | FAL50 | Falcon 50, 900 | 1.72 | 0.07 | 1.79 |
| | GII | Gulfstream II | 0.39 | 0.00 | 0.39 |
| | GIIB | Gulfstream IIB | 0.13 | 0.05 | 0.18 |
| | GIV | Gulfstream IV | 0.86 | 0.06 | 0.92 |
| | GV | Gulfstream V | 0.33 | 0.00 | 0.33 |
| | IA1125 | Westwind 24,25 | 1.64 | 0.12 | 1.75 |
| | LEAR25 | Learjet 24, 25 | 3.16 | 0.12 | 3.28 |
| | LEAR35 | Learjet 35,45,55 | 21.13 | 2.19 | 23.32 |
| | MU3001 | Mitsubishi Diamond | 6.54 | 0.19 | 6.73 |
| Helicopter | B206L | Bell Jetranger | 18.09 | 5.32 | 23.41 |
| | BO105 | Bell 412 | 14.16 | 4.16 | 18.32 |
| | H500D | Hughes 500 | 6.29 | 1.85 | 8.14 |
| | S76 | Sikorsky S-76 | 0.79 | 0.24 | 1.02 |
| **Total** | | | **297.84** | **24.14** | **321.98** |

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

**TABLE 5.1-13**
**2015 DAILY AVERAGE ITINERANT MILITARY OPERATIONS FOR ALTERNATIVE 1**

| 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 5.1-14**
**2015 DAILY AVERAGE LOCAL FLIGHT TRAINING OPERATIONS FOR ALTERNATIVE 1**

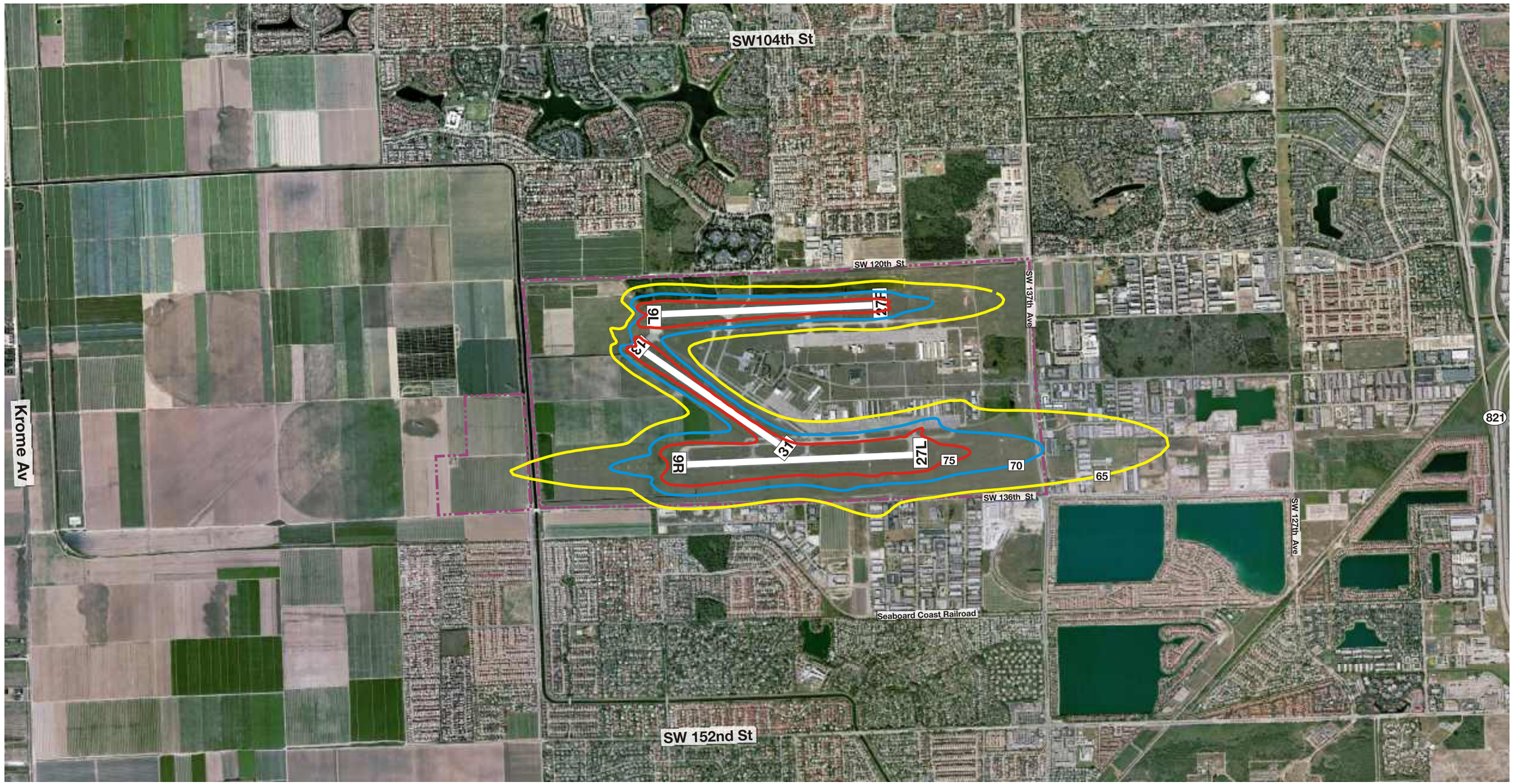
| Aircraft Category | INM Aircraft | Aircraft Type | Daytime Operations | Nighttime Operations | Total |
|---|---|---|---|---|---|
| Single Piston | GASEPF | Single Piston - Fixed Pitch Prop | 19.00 | 0.00 | 19.00 |
| | GASEPV | Single Piston - Variable Pitch Prop | 42.48 | 0.00 | 42.48 |
| | CNA172 | Cessna 172 | 52.66 | 0.00 | 52.66 |
| Twin Piston | BEC58P | Beech Baron | 49.80 | 0.00 | 49.80 |
| Helicopter | H500D | Hughes 500 | 65.70 | 0.00 | 65.70 |
| | B206L | Bell Jetranger | 43.80 | 0.00 | 43.80 |
| | SA365N* | Aerospatiale Dauphin (Coast | 0.36 | 0.00 | 0.36 |
| | BO105* | Bell 412 | 0.34 | 0.00 | 0.34 |
| **Total** | | | **274.14** | **0.00** | **274.14** |

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

## *DNL CONTOURS*

The DNL noise contours for Alternative 1 in 2015 are shown on **Figure 5-3**. The 2015 DNL noise contours are slightly larger than the 2005 DNL noise contours due to the increase in operations that are forecast to occur. Because no significant changes are expected to occur under Alternative 1, the overall shape of the contours is very similar to the 2005 DNL noise contours.

No noise-sensitive land uses are within the 65 DNL noise contour for Alternative 1 in 2015. Therefore, there are no significant noise impacts as a result of Alternative 1.




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

Kendall-Tamiami Executive Airport Environmental Assessment

**Figure 5-3**
**2015 No Action DNL Contours**

# Alternative 2

## *AIRCRAFT OPERATIONS AND FLEET MIX*

As noted previously, an increase in the total number of aircraft operations is not forecast to change as a result of Alternative 2 (see Table 5.1-10). A slight change in the fleet mix of aircraft and the distances that certain aircraft would be flying to is expected. The aircraft fleet mix for Alternative 2 in 21015 is presented in Tables 5.1-15 through 5.1-18.

**TABLE 5.1-15**
**2015 DAILY AVERAGE AIR TAXI OPERATIONS FOR ALTERNATIVE 2**

| Aircraft Category | INM Aircraft | Aircraft Type | Daytime Operations | Nighttime Operations | Total |
|---|---|---|---|---|---|
| Single Piston | CNA172 | Cessna 172 | 0.56 | 0.00 | 0.56 |
| | CNA206 | Cessna Staionair | 0.24 | 0.00 | 0.24 |
| | GASEPF | Single Piston - Fixed Pitch Prop | 0.13 | 0.00 | 0.13 |
| | GASEPV | Single Piston - Variable Pitch Prop | 0.09 | 0.00 | 0.09 |
| | CNA20T | Turbo Stationair | 0.07 | 0.00 | 0.07 |
| Twin Piston | BEC58P | Beech Baron | 0.50 | 0.02 | 0.52 |
| Turboprop | CNA441 | King Air | 0.40 | 0.02 | 0.42 |
| | DHC6 | DeHavilland DASH-6 | 0.49 | 0.00 | 0.49 |
| | DHC8 | DeHavilland DASH-8 | 0.01 | 0.00 | 0.01 |
| | HS748A | Hawker Sidley 748 | 0.01 | 0.00 | 0.01 |
| | L188 | Lockheed L-188 | 0.01 | 0.00 | 0.01 |
| Jet | CIT3 | Citation 3 | 0.17 | 0.00 | 0.17 |
| | CL600 | Challenger, Falcon 2000 | 0.31 | 0.00 | 0.31 |
| | CL601 | Canadair Regional Jet | 0.04 | 0.00 | 0.04 |
| | CNA500 | Citation I | 0.13 | 0.00 | 0.13 |
| | CNA55B | Citation II | 0.18 | 0.02 | 0.21 |
| | CNA750 | Citation X | 0.20 | 0.00 | 0.20 |
| | FAL50 | Falcon 50, 900 | 0.05 | 0.00 | 0.05 |
| | GIV | Gulfstream IV | 0.05 | 0.00 | 0.05 |
| | IA1125 | Westwind 24,25 | 0.06 | 0.00 | 0.06 |
| | LEAR25 | Learjet 24, 25 | 0.27 | 0.02 | 0.29 |
| | LEAR35 | Learjet 35,45,55 | 2.37 | 0.09 | 2.45 |
| | MU3001 | Mitsubishi Diamond | 1.20 | 0.04 | 1.24 |
| **Total** | | | **7.55** | **0.21** | **7.76** |

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

**TABLE 5.1-16**
**2015 DAILY AVERAGE GENERAL AVIATION OPERATIONS FOR ALTERNATIVE 2**

| Aircraft Category | INM Aircraft | Aircraft Type | Daytime Operations | Nighttime Operations | Total |
|---|---|---|---|---|---|
| Single Piston | CNA172 | Cessna 172 | 42.61 | 1.53 | 44.15 |
| | CNA206 | Cessna Staionair | 11.59 | 0.35 | 11.94 |
| | COMSEP | Single Engine Piston | 0.47 | 0.02 | 0.48 |
| | GASEPF | Single Piston - Fixed Pitch Prop | 15.71 | 0.38 | 16.10 |
| | GASEPV | Single Piston - Variable Pitch Prop | 35.57 | 1.03 | 36.61 |
| | CNA20T | Turbo Stationair | 1.78 | 0.08 | 1.86 |
| Twin Piston | BEC58P | Beech Baron | 41.08 | 1.99 | 43.07 |
| | DC3 | Douglas DC-3 | 0.04 | 0.00 | 0.04 |
| | DC6 | Douglas DC-6 | 0.01 | 0.00 | 0.01 |
| Turboprop | CNA441 | King Air | 22.10 | 1.09 | 23.19 |
| | DHC6 | DeHavilland DASH-6 | 19.93 | 1.38 | 21.31 |
| | EMB120 | Embraer Brasilia | 0.60 | 0.08 | 0.68 |
| | SD330 | Shorts SD330 | 0.57 | 0.03 | 0.61 |
| | DHC8 | DeHavilland DASH-8 | 0.23 | 0.00 | 0.23 |
| | HS748A | Hawker Sidley 748 | 0.17 | 0.00 | 0.17 |
| | SF340 | SAAB SF-340 | 0.26 | 0.00 | 0.26 |
| Jet | CIT3 | Citation 3 | 3.95 | 0.71 | 4.66 |
| | CL600 | Challenger, Falcon 2000 | 6.27 | 0.38 | 6.65 |
| | CL601 | Canadair Regional Jet | 0.19 | 0.00 | 0.19 |
| | CNA500 | Citation I | 7.24 | 0.24 | 7.47 |
| | CNA55B | Citation II | 7.28 | 0.20 | 7.48 |
| | CNA750 | Citation X | 2.48 | 0.19 | 2.67 |
| | FAL20 | Falcon 20 | 0.27 | 0.00 | 0.27 |
| | FAL50 | Falcon 50, 900 | 1.72 | 0.07 | 1.79 |
| | GII | Gulfstream II | 0.45 | 0.00 | 0.45 |
| | GIIB | Gulfstream IIB | 0.24 | 0.08 | 0.32 |
| | GIV | Gulfstream IV | 0.86 | 0.06 | 0.92 |
| | GV | Gulfstream V | 0.74 | 0.00 | 0.74 |
| | IA1125 | Westwind 24,25 | 2.10 | 0.15 | 2.25 |
| | LEAR25 | Learjet 24, 25 | 3.16 | 0.12 | 3.28 |
| | LEAR35 | Learjet 35,45,55 | 21.24 | 2.20 | 23.44 |
| | MU3001 | Mitsubishi Diamond | 7.60 | 0.21 | 7.81 |
| Helicopter | B206L | Bell Jetranger | 18.09 | 5.32 | 23.41 |
| | BO105 | Bell 412 | 14.16 | 4.16 | 18.32 |
| | H500D | Hughes 500 | 6.29 | 1.85 | 8.14 |
| | S76 | Sikorsky S-76 | 0.79 | 0.24 | 1.02 |
| **Total** | | | **297.84** | **24.14** | **321.98** |

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

**TABLE 5.1-17**
**2015 DAILY AVERAGE ITINERANT MILITARY OPERATIONS FOR ALTERNATIVE 2**

| 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 5.1-18**
**2015 DAILY AVERAGE LOCAL FLIGHT TRAINING OPERATIONS FOR ALTERNATIVE 2**

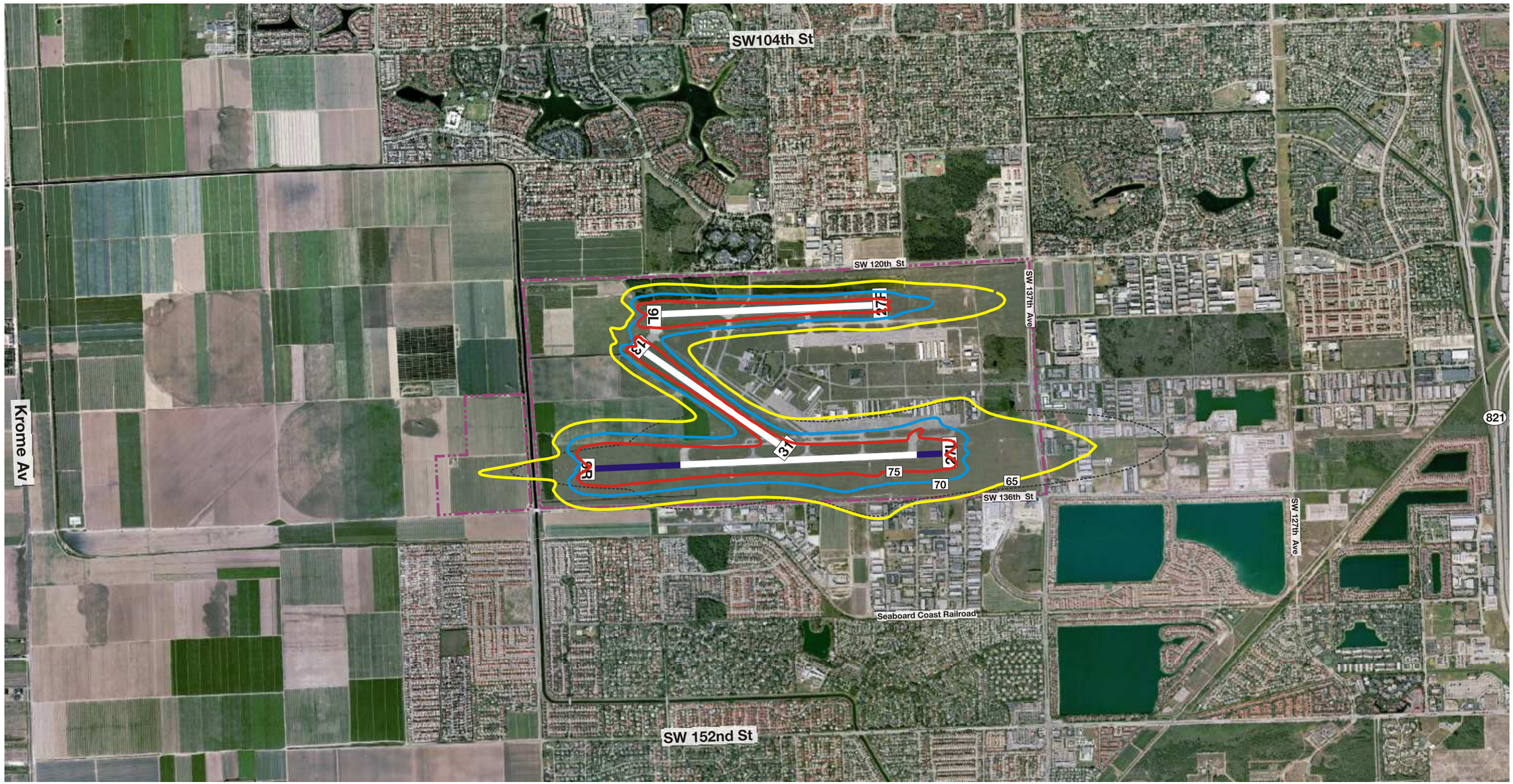
| Aircraft Category | INM Aircraft | Aircraft Type | Daytime Operations | Nighttime Operations | Total |
|---|---|---|---|---|---|
| Single Piston | GASEPF | Single Piston - Fixed Pitch Prop | 19.00 | 0.00 | 19.00 |
| | GASEPV | Single Piston - Variable Pitch Prop | 42.48 | 0.00 | 42.48 |
| | CNA172 | Cessna 172 | 52.66 | 0.00 | 52.66 |
| Twin Piston | BEC58P | Beech Baron | 49.80 | 0.00 | 49.80 |
| Helicopter | H500D | Hughes 500 | 65.70 | 0.00 | 65.70 |
| | B206L | Bell Jetranger | 43.80 | 0.00 | 43.80 |
| | SA365N* | Aerospatiale Dauphin (Coast | 0.36 | 0.00 | 0.36 |
| | BO105* | Bell 412 | 0.34 | 0.00 | 0.34 |
| **Total** | | | **274.14** | **0.00** | **274.14** |

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

## *DNL CONTOURS*

The DNL noise contours for Alternative 2 in 2015 are shown on **Figure 5-4**. As with the 2009 noise contour, the shape is noticeably different when compared to Alternative 1. As shown on **Figure 5-4**, the 65 DNL noise contour east of the Airport moves approximately 1,500 feet closer to Airport property. East of the Southwest 137th Avenue, the 2015 Alternative 1 65 and greater DNL contour encompassed approximately 74 acres off-airport property. With Alternative 2, the 2015 65 and greater DNL contour encompasses approximately 17 acres off-airport property. The Proposed Action reduces the 2015 65 DNL contour east of the Airport by approximately 77 percent. As noted previously, the major extension to Runway 9R-27L is proposed to occur on the western end of the runway, which allows aircraft to begin their take-off roll farther to the west. This places aircraft at higher altitudes over areas east of the Airport and results in less noise on the ground.

West of the Airport, the 65 DNL contour moves approximately 750 feet to the west away from the Airport. While the 65 DNL noise contour does increase in size west of the Airport, the




Aerial Photo Source: Airphoto USA January 2005

65 DNL | 70 DNL | 75 DNL | Airport Property Boundary | No Action 65 DNL | Proposed Runway Extension

0 750 1500 3000
Feet

North

Source: ESA Airports

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**Figure 5-4**
**2015 With Runway Extension DNL Contours**

increase primarily remains on Airport property. Only a very small portion of the 2015 Alternative 2 65 DNL contour extends just south of the airport property boundary, along the centerline of Southwest 136th Street.

No noise-sensitive land uses are within the 65 DNL noise contour for Alternative 2 in 2015. Therefore, there are no significant noise impacts as a result of Alternative 2.

### 5.1.6 Mitigation

Because no significant impacts would occur, no mitigation is required for noise.

## 5.2 Compatible Land Use

### 5.2.1 Overview of Impacts

***The Proposed Action would not require the taking of any property as all components of the Proposed Action are on Airport property. In addition, off airport properties located within the 65 DNL are compatible with aircraft noise as this area includes industrial uses or undeveloped property. Therefore, no significant impacts to land use would result from the Proposed Action and no mitigation measures would be required.***

### 5.2.2 Significance Criteria

Determining significance under NEPA is guided by FAA Order 1050.1E, *Environmental Impacts: Policies and Procedures* and FAA Order 5050.4A, *Airport Environmental Handbook.* The *Airport Environmental Handbook* states that "the compatibility of existing and planned land uses in the vicinity of an airport is usually associated with the extent of noise impacts related to that airport." In addition, if a project would result in other significant impacts having land use implications, the effects on land use may be described under the appropriate impact sections, with cross-referencing as necessary to avoid duplication.

### 5.2.3 Methodology

The land use analysis included identifying the existing and planned land uses within the general study area. Parameters evaluated included the changes in land use acreage of each land use type occurring within the 65 DNL comparing the Proposed Action with the No Action Alternative and the changes in DNL noise values for noise sensitive areas within the 65 DNL for each alternative. The methodologies for analyzing the affects on land use associated with changes to social, cultural and natural systems are described in each applicable section of this EA.

## 5.2.4 Year 2009 and 2015 Impacts

### Alternative 1

Existing on-Airport land uses would continue to be consistent and compatible with relevant Miami-Dade County land use plans and policies. In addition, no residential or other noise sensitive sites would occur within the 65 DNL contour under Alternative 1. Therefore, off-Airport land uses would continue to be compatible with the operations at TMB.

### Alternative 2

The development of the components of the Proposed Action would result in an extended runway, an extended taxiway, and other on-Airport improvements. These on-Airport land uses would be consistent and compatible with relevant Miami-Dade County land use plans and policies. In addition, no residential or other noise sensitive sites would occur within the 65 DNL contour under Alternative 2. Therefore, off-Airport land uses would continue to be compatible with the operations at TMB.

## 5.2.5 Mitigation

Because no impacts would occur, no mitigation is required for compatible land use.

# 5.3 Socioeconomic Impacts, Environmental Justice and Children's Environmental Health and Safety

## 5.3.1 Overview of Impacts

***The Proposed Action would not expose any residential areas nor schools to noise levels of 65 DNL or greater. Thus, there would be no disproportionate impact to minority or low-income populations or to children. In addition, no acquisition of properties or displacement of persons would be required. Since the Proposed Action would not result in significant socioeconomic impacts, no mitigation measures would be required.***

## 5.3.2 Significance Criteria

### Socioeconomic Impacts

Determining significance under NEPA is guided by FAA Order 1050.1E, *Environmental Impacts: Policies and Procedures* and FAA Order 5050.4A, *Airport Environmental Handbook.* According to the *Airport Environmental Handbook*, a major airport development proposal could potentially have induced or secondary impacts on public services in surrounding communities. Normally, induced socioeconomic impacts on public services would not be considered significant

unless there were significant impacts in other categories, such as land use or direct social impacts. For purposes of analysis, an action is considered to have a significant impact on public services if construction of major new facilities, such as a permanent new school building or hospital building, is required to accommodate the projected demand from the action.

### Environmental Justice

To determine whether an environmental justice population is present, Federal agencies must refer to U.S Census data to establish the demographic and socioeconomic baseline. If a Proposed Action causes disproportionately high and adverse human health or environmental effects on a minority- and low-income population, it would represent a significant impact associated with environmental justice. These disproportionate impacts must be analyzed and the FAA must ensure that its NEPA process provides public involvement opportunities for disproportionately affected low-income and minority populations to comply with Executive Order 12898 and DOT Order 6510.2.

### Children's Environmental Health and Safety

Environmental health risks and safety risks include those attributable to products or substances that a child is likely to come into contact with or ingest. Although no specific criteria have been identified to evaluate potential impacts, disproportionate heath and safety risks to children that would result from a proposed action may represent a significant impact.

For the purpose of this analysis, a significant impact to air quality, schools, or public recreational facilities would be considered a significant risk to children's health and safety. (For more detailed discussions of the potential impacts of Alternative 2 on air quality and public recreation facilities (considered Section 4(f) facilities), please refer to Sections 5.4 and 5.6 of the EA.)

## 5.3.3 Methodology

Socioeconomic impacts associated with the Proposed Action that were evaluated in this section included residential and business relocations, fragmentation of neighborhoods, effect on minority and low income communities, disproportionate health and safety risks to children.

## 5.3.4 Year 2009 and 2015 Impacts

### Alternative 1

No acquisition of any property would be required under Alternative 1. No residential or other noise sensitive sites would occur within the 65 DNL contour under Alternative 1 and the construction of major new facilities, such as a permanent new school building or hospital building, would not be required.

As discussed throughout Section 5, no significant impacts would occur under Alternative 1. Therefore, Alternative 1 would not disproportionately affect low-income or minority populations and specific public involvement opportunities are not warranted.

In addition, Alternative 1 would not result in any air quality impacts, water quality impacts, or impacts to recreational facilities. Therefore, Alternative 1 would have no effect on health and safety risks to children.

### Alternative 2

No acquisition of any property would be required under Alternative 2. No residential or other noise sensitive sites would occur within the 65 DNL contour under Alternative 2 and the construction of major new facilities, such as a permanent new school building or hospital building, would not be required.

As discussed throughout Section 5, no significant impacts would occur under Alternative 2. Therefore, Alternative 2 would not disproportionately affect low-income or minority populations and specific public involvement opportunities are not warranted.

In addition, Alternative 2 would not result in any air quality impacts, water quality impacts, or impacts to recreational facilities. Therefore, Alternative 2 would have no effect on health and safety risks to children.

## 5.3.5 Mitigation

Because no impacts would occur, no mitigation is required for socioeconomic impacts, environmental justice, or children's environmental health and safety.

# 5.4 Air Quality

## 5.4.1 Overview of Impacts

***TMB is located in Miami-Dade County, which is an attainment area for all criteria air pollutants. Total pollutant loads would be slightly greater as a result of the Proposed Action due to the increase in taxiing distance to the extended runway thresholds. Emission increases of less than two tons per year for inventoried pollutants are projected to occur for the Proposed Action when compared to the No Action Alternative. Thus, no significant impacts to air quality would result and no mitigation would be required.***

## 5.4.2 Significance Criteria

FAA Order 5050.4A, *Airport Environmental Handbook* provides the basis for determining the scope of the agency's review of air quality impacts under NEPA (U.S. Department of

Transportation, 1985). The *Airport Environmental Handbook* does not include significance criteria, per se, but rather cites the agency's responsibilities with respect to the General Conformity Rule, identifies criteria for determining whether to perform a detailed air quality analysis, and cites the agency's responsibilities under the Airport and Airway Improvement Act of 1982. FAA Order 1050.1E, *Environmental Impacts: Policies and Procedures* states the following regarding air quality: An air quality assessment prepared for inclusion in a NEPA environmental document should include an analysis and conclusions of a proposed action's impacts on air quality. When a NEPA analysis is needed, the proposed action's impact on air quality is assessed by evaluating the impact of the proposed action on the National Ambient Air Quality Standards (NAAQS).

The General Conformity Rule does not apply to this project because Miami-Dade County has been designated as attainment for all of the existing NAAQS. In other words, there is no applicable SIP with which to judge conformity in Miami-Dade County, and the FAA is not required to make a conformity determination under the rule.

## 5.4.3 Methodology

The emission inventories were prepared using the FAA's Emissions and Dispersion Modeling System (EDMS - Version 4.5, dated June, 2006). FAA requires that EDMS be used for the evaluation of airport projects. The U.S. Environmental Protection Agency (EPA) has approved EDMS and has included use of the model in their *Guidance on Air Quality Models* (40 CFR Part 51). The aircraft emission factors included in the EDMS are based on the methodology and emission factors provided in EPA's *Compilation of Air Pollutant Emission Factors and Procedures for Emission Inventory Preparation, Volume IV: Mobile Sources* and the International Civil Aviation Organization (ICAO) *Aircraft Engine Exhaust Emissions Data Bank.*

The EDMS was used to develop total loads of criteria pollutants based on differences in fleet mix and taxi distances between the Proposed Action and the No Action Alternative. To evaluate the impacts, the results for 2009 and 2015 were compared to the annual threshold levels (de minimis levels). Although requirements to meet the de minimis levels (100 tons per year for each inventoried pollutant) apply to areas of non-attainment, they were compared in this study to give an indication of the magnitude of project impact.

The annual emissions, expressed in tons, were estimated based on activities (aircraft operations and construction) related to the proposed runway extension. The pollutants and pollutant precursors inventoried were volatile organic compounds (VOC), nitrogen oxides (NOx), carbon monoxide (CO), sulfur dioxide (SO2), and respirable particulate matter with a diameter of 10 microns or less (PM10), and particulate matter with a diameter of 2.5 microns or less (PM2.5).

# 5.4.4 Year 2009 and 2015 Impacts

## Alternative 1

Alternative 1 would result in an increase in air pollutant emissions as a result of the increase in the number of aircraft operations. This increase would be less than the de minimis levels and would not result in any air quality impacts.

## Alternative 2

### *Construction-Related Emissions*

Construction-related dust emissions would vary from day to day and would be dependent on the level and type of activity, the silt content of the soil, and the weather. In the absence of mitigation, construction activities may result in significant quantities of dust, and as a result, local visibility and PM10 concentrations may be adversely affected on a temporary and intermittent basis during the construction period. Combustion emissions from heavy equipment and construction worker commute trips also would vary from day to day and would contribute incrementally to regional ozone concentrations over the construction period.

The types of equipment potentially used for the construction of the various project components include (but are not limited to) motor graders, rollers, water trucks, loaders, bulldozers, pavers, excavators, and dump trucks. Emission factors for all equipment were obtained from the EPA's NONROAD model (dated 2004), v2.3c. Fugitive particulate matter emissions are expected from the handling and storage of raw materials and wind erosion during construction. Fugitive dust emissions were quantified according to the methodologies specified in the EPA's *Compilation of Air Pollutant Emission Factors (AP-42)*. The fugitive dust emissions were based on the assumption that an area twice the size of the Proposed Action footprint would be disturbed at one time (approximately twenty-one acres). Table 5.4.4-1 presents the construction emissions from combustion and fugitive emission sources. Although this represents a less-than-significant impact because Miami-Dade County has been designated as attainment or unclassified for all of the existing NAAQS, Miami-Dade County would implement a dust abatement program that would include generally accepted Best Management Practices to reduce the impacts associated with dust-related construction emissions.

**TABLE 5.4.4-1**
**EMISSIONS INVENTORY (tons) FOR CONSTRUCTION ACTIVITIES**

| Source Category | Carbon Monoxide | Volatile Organic Compounds | Nitrogen Oxides | Sulfur Oxides | Particulate Matter 10 microns or less | Particulate Matter 2.5 microns or less |
|---|---|---|---|---|---|---|
| Combustion | 14.18 | 2.61 | 42.50 | 5.68 | 2.45 | 2.45 |
| Fugitive | -- | -- | -- | -- | 18.08 | 18.08 |
| **Total** | **14.18** | **2.61** | **42.50** | **5.68** | **20.53** | **20.53** |

Source: ESA, 2006

### *Operational-Related Emissions*

Alternative 2 would result in longer departure taxi distances for aircraft using Runway 9R-27L (1,798 feet longer for each departure off Runway 9R and 550 feet longer for each departure off Runway 27L). In addition, a slight change in fleet mix is projected to occur when compared to Alternative 1. Under Alternative 2, it is estimated that an addition of approximately three jet departures and the reduction of approximately three propeller aircraft departures would occur per day. This change in fleet mix and associated ground service equipment and auxiliary power unit use can have an effect on the total air pollutant loads under Alternative 2.

The changes in emissions under Alternative 2 compared to the emissions under Alternative 1 are shown in Tables 5.4.4-2 and 5.4.4-3 for 2009 and 2015, respectively. Compared to Alternative 1, Alternative 2 would have a reduction in pollutant loads of 3.0 tons per year for CO and an increase between 0.05 and 3.19 tons per year for the other pollutants inventoried. The reduction in CO emissions with Alternative 2 is a result of the fleet mix differences while the increases of the other pollutants result from the increased taxi distances. When compared to the 100 tons per year de minimis levels, the increases attributable to Alternative 2 compared to Alternative 1 represent less than two percent of the de minimis levels. Thus, Alternative 2 results in a minimal air quality change that would be considered insignificant even in areas of non-attainment.

**TABLE 5.4.4-2**
**2009 EMISSIONS INVENTORY (tons/year)**
**CHANGE IN EMISSIONS UNDER ALTERNATIVE 2 COMPARED TO ALTERNATIVE 1**

| Carbon Monoxide | Volatile Organic Compounds | Nitrogen Oxides | Sulfur Oxides | Particulate Matter 10 microns or less | Particulate Matter 2.5 microns or less |
|---|---|---|---|---|---|
| -3.00 | +1.06 | +3.03 | +0.25 | +0.05 | +0.05 |

Source: ESA, 2006

**TABLE 5.4.4-3**
**2015 EMISSIONS INVENTORY (tons/year)**
**CHANGE IN EMISSIONS UNDER ALTERNATIVE 2 COMPARED TO ALTERNATIVE 1**

| Carbon Monoxide | Volatile Organic Compounds | Nitrogen Oxides | Sulfur Oxides | Particulate Matter 10 microns or less | Particulate Matter 2.5 microns or less |
|---|---|---|---|---|---|
| -3.26 | +1.13 | +3.19 | +0.28 | +0.05 | +0.05 |

Source: ESA, 2006

## 5.4.5 Mitigation

Because no impacts would occur, no mitigation is required for air quality.

# 5.5 Water Quality

## 5.5.1 Overview of Impacts

***The Proposed Action would result in an increase of approximately 635,732 square feet of impervious surfaces as a result of the extension of Runway 9R-27L and the construction of the associated taxiways. However, this increase would be offset by the decrease in impervious surfaces that would occur elsewhere at the Airport as separate projects. Miami-Dade County has developed a stormwater management plan that includes the development associated with the Proposed Action. This plan directs stormwater through a series of swales and provides water quality treatment as part of the drainage plan. Surface water quality impacts would occur during the construction phase of the runway extension. Best Management Practices (BMPs) would be used to treat stormwater runoff during construction. With the implementation of these BMPs, no water quality impacts would occur.***

## 5.5.2 Significance Criteria

FAA Order 5050.4A, *Airport Environmental Handbook* and FAA Order 1050.1E, *Environmental Impacts: Policies and Procedures* provide the NEPA requirements for the analysis on water quality impacts and the information needed for environmental assessment. Neither FAA Order 5050.4A nor FAA Order 1050.1E provides specific NEPA thresholds of significance for impacts on water quality. However, FAA Order 5050.4A specifies that the environmental assessment include sufficient description of design, mitigation measures, and construction controls applicable to the proposal to demonstrate that state water quality standards and any federal, state, and local permit requirements be met. FAA Order 5050.4A also states that significant impacts on water quality for most Airport actions can typically be avoided by design considerations, construction phase controls, and other mitigation measures. Furthermore, the environmental assessment shall include documentation from regulating and permitting agencies and list required permits. FAA Order 1050.1E requires that any proposed federal action that would impound, divert, drain, control, or otherwise modify the waters of any stream of body of water is applicable to the Fish and Wildlife Coordination Act (FWCA). Under the FWCA, the U.S. Fish and Wildlife Service (USFWS) has the authority to investigate and report on all proposals for work in or affecting the waters of the U.S. that need approval from the federal government. AA Order 1050.1E also states that consultation with the EPA regional office is required for any project that could potentially contaminate an aquifer designated by the EPA as a sole or principal drinking water source.

## 5.5.3 Methodology

The areas disturbed by the Proposed Action were identified and the effects of the Proposed Action on stormwater runoff to receiving waters were evaluated for both the construction period and the operation of the runway extension. Water quality treatment options for stormwater runoff also were evaluated.

In June 2006, a technical memorandum was published to update the Stormwater Management Model (SWMM) that was prepared for MDAD as part of the 1994 SWMP so that the baseline land use conditions (as of March 2006) were accurately reflected. The study then updated the model further to reflect TMB's 5-to 10-year development plan (as of March 2006) as shown in the "TMB 5-year to 10-year Future Land Use Plan." This model version, referred to as the "future condition," reflects changes to the Primary Stormwater Management System (PSMS) resulting from subsequent modifications to the land use plan, which includes the proposed extension of the runway.

Model updates included modifications to the SWMM's RUNOFF hydrologic and EXTRAN hydraulic models. No significant changes were made to the PSMS; therefore, no significant changes were made to the SWMM EXTRAN hydraulic model other than to reflect baseline conditions and the runway extension in the PSMS. The analysis included:

- drawings depicting the PSMS and the existing and proposed grading of Runway 9R-27L to the PSMS basin delineation and PSMS schematic,
- an update of the SWMM RUNOFF hydrologic model to account for changes from the 1994 SWMP to the baseline condition,
- an evaluation of stormwater impacts resulting from the proposed extension of Runway 9R-27L, and
- an update of the SWMP Technical Memorandum.

## 5.5.4 2009 and 2015 Impacts

### Alternative 1

Alternative 1 would not result in the extension of Runway 9R-27L or any of the other project components. Therefore, no impacts to water quality would occur.

### Alternative 2

Alternative 2 would involve an increase in runway and taxiway pavement, reduction in swale and other stormwater storage areas, and an associated increase in runoff stages and flows at the airport. To accommodate these changes, MDAD proposes construction of swales along the runway extension that would mitigate runoff stages and flows.

The technical memorandum prepared by CDM (June 2006) presents the results of the changes to the infrastructure that would occur as a result of the proposed action. The analyses contained in the technical memorandum includes the proposed swale around the runway extension, the adjustment to the dry detention storage along the outfall channels, and the preliminary design of new control structures at the outfalls to meet the permitted discharge from the five outfalls for the

10-year/72-hour condition. Based on the stormwater model results, the following recommendations were included in the technical memorandum:

- maintain existing storage and provide required treatment storage per basin in all future construction projects;
- incorporate permitted recommendations proposed in the 1994 SWMP, including swales along Southwest 127th Street and Southwest 128th Street;
- install equalization culverts under the Southwest 127th Street and Southwest 128th Street crossings;
- in order to provide adequate runoff treatment and storage, incorporate swales in east and west segments of an extended Runway 9R-27L and along the perimeter of the runway extension following the guidelines provided in the SWMP update;
- consider linking the end of the new runway catch basin and the existing structure with a slab covered trench in order to maintain an adequate Level of Service in the taxiways and runways; and
- consider re-grading swales along the existing taxiways and runways to provide added runoff treatment and storage in the future construction project.

The analysis results meet the FAA criteria for airfields (no ponding for the 5-year/24-hour storm and no more than six inches of ponding for the 10-year/72-hour storm). The analysis also accounted for TMB's 5 to 10-year development plan. The analysis shows an overall decrease in impervious area throughout the Airport.

The results of the analysis indicate that the runway extension and associated changes to the PSMS comply with the South Florida Water Management District (SFWMD) permitted discharge of 346 cubic feet per second for the 10-year/72-hour storm and the FAA criteria for airfields.

In addition, Alternative 2 would incorporate BMPs to treat stormwater and ensure that the quality of the stormwater flowing into the drainage canals during construction would be degraded.

Thus, with the controls during construction and the changes to the PSMS, no impacts to water quality would occur under Alternative 2.

### 5.5.5 Mitigation

Because no impacts would occur, no mitigation is required for water quality.

# 5.6 Department of Transportation Act: Section 4(f)

## 5.6.1 Overview of Impacts

***A review of off-Airport properties was conducted to determine if Section 4(f) resources would be affected by the Proposed Action. The study determined that no Section 4(f) properties would be acquired by the Proposed Action and no such properties were identified within the 65 DNL. Thus, no physical taking nor constructive use of any Section 4(f) property would occur as a result of the Proposed Action and no significant impact would occur. Therefore, no mitigation measures would be required.***

## 5.6.2 Significance Criteria

FAA Order 1050.1E, *Environmental Impacts: Policies and Procedures* and FAA Order 5050.4A, *Airport Environmental Handbook* indicate that a significant impact would occur when the Proposed Action either involves more than a minimal physical use of the 4(f) property or is deemed a "constructive use" substantially impairing the 4(f) property, and mitigation measures do not eliminate or reduce the effects of the use below the threshold of significance (e.g., by replacement in kind of a neighborhood park).

## 5.6.3 Methodology

An inventory of resources in the general study area was conducted to determine if any DOT Section 4(f) or DOI Section 6(f) properties (properties that have received funding through the Land and Water Conservation Fund Act Section 6(f)) are present. Properties inventoried included public parks, recreation areas, historic resources, wildlife refuges. For all properties identified, an analysis was conducted to determine if the properties would be "taken" or if the consequences of the Proposed Action would substantially affect the "constructive use" of such properties.

## 5.6.4 2009 and 2015 Impacts

### Alternative 1

Alternative 1 would not result in the extension of Runway 9R-27L or any of the other project components. Therefore, no impacts to Section 4(f) properties would be affected. In addition, no 6(f) properties exist in the vicinity of TMB. Therefore, no impacts to Section 6(f) properties would occur.

### Alternative 2

No taking of any Section 4(f) property would occur under Alternative 2. No Section 4(f) property is located within the 65 DNL in the years 2009 and 2015, no Section 4(f) property is in an air

quality non-attainment area, and no other environmental disciplines would adversely affect Section 4(f) properties.

In addition, no Land and Water Conservation Act funded Section 6(f) properties exist in the general study area. Therefore, no impacts to Section 6(f) properties would occur under Alternative 2.

### 5.6.5 Mitigation

Because no impacts would occur, no mitigation is required for Section 4(f) or 6(f) properties.

## 5.7 Historic, Architectural, Archaeological and Cultural Resources

### 5.7.1 Overview of Impacts

***No properties within the Area of Potential Effect (APE) are listed on or eligible for listing on the National Register of Historic Places. In addition, no archaeological resources exist within the APE. In compliance with Section 106 of the National Historic Preservation Act, the FAA has determined that implementation of the Proposed Action would have no effect on cultural resources and has requested concurrence of this determination from the Florida State Historic Preservation Officer (SHPO). Thus, no impacts to cultural resources would occur and no mitigation would be required.***

### 5.7.2 Significance Criteria

Section 106 of the National Historic Preservation Act (Section 106) requires that a federal agency having direct or indirect jurisdiction over a proposed federal or federally-assisted undertaking must consider the effect of the proposed undertaking on historic properties. An historic site or property may include a prehistoric or historic district, site, building, structure, or object included in, or eligible for inclusion in the National Register of Historic Places (National Register) maintained by the U.S. Secretary of the Interior.

A significant impact would occur if the Proposed Action results in an adverse effect to a property that is listed in or eligible for inclusion in the National Register. The specific Criteria of Effect and Adverse Effect, as defined in 36 CFR 800.9, used to evaluate an undertaking's effect on a historic property, are as follows:

- An undertaking has an effect on a historic property when the undertaking may alter the characteristics of the property that qualify the property for inclusion in the National Register. For the purpose of determining effect, alteration to features of the property's location, setting, or use may be relevant depending on a property's significant characteristics and should be considered.

- An undertaking is considered to have an adverse effect when the effect on a historic property may diminish the integrity of the property's location, design, setting, materials, workmanship, feeling, or association. Adverse effects on historic properties include, but are not limited to:

  (1) Physical destruction, damage, or alteration of all or part of the property;

  (2) Isolation of the property from or alteration of the character of the property's setting when that character contributes to the property's qualification for the National Register;

  (3) Introduction of visual, audible, or atmospheric elements that are out of character with the property or alter its setting;

  (4) Neglect of a property resulting in its deterioration or destruction; and

  (5) Transfer, lease, or sale of the property.

Pursuant to Executive Order 13175 (Consultation and Coordination with Indian Tribal Governments [65 FR 67249]), Presidential Memorandum of April 29, 1994 (Government-to-government Relations with Native American Tribal Governments), and Executive Order 13007 (Indian Sacred Sites), Federal agencies must ensure that a proposed action does not adversely affect tribal resources.

## 5.7.3 Methodology

The Area of Potential Effect (APE) for historic, architectural and cultural resources was defined as the area that encompasses the portion of TMB that would be subject to construction activities and the area outside Airport boundaries that would be within the 65 DNL of either Alternative 1 or Alternative 2. The APE for archaeological resources included all property that would result in a disturbance to the surface or sub-surface soils that have the potential to contain archaeological sites. The National Register of Historic Places was reviewed for historic and archaeological sites and the State Historic Preservation Officer (SHPO) was contacted regarding the potential for other historic and archaeological sites being eligible for the National Register or being of local significance. In addition, a field survey was conducted to determine whether any cultural resources exist within the APE.

## 5.7.4 2009 and 2015 Impacts

### Alternative 1

Alternative 1 would not result in the extension of Runway 9R-27L or any of the other project components. Therefore, no impacts to cultural resources would occur.

### Alternative 2

No cultural resources exist in the APE. As a result, the FAA has determined that the implementation of Alternative 2 would have no effect on cultural resources and has requested concurrence with that determination from the Florida SHPO (see **Appendix F**).

In addition, coordination with tribal governments has occurred (see **Appendix B**). According to local tribal governments, no known tribal resources exist at TMB and no tribal resources would be affected by the Proposed Action.

## 5.7.5 Mitigation

Because no impacts would occur, no mitigation is required for cultural resources.

# 5.8 Fish, Wildlife and Plants (Threatened and Endangered Species)

## 5.8.1 Overview of Impacts

***No Federally-listed threatened or endangered species exist at the Airport or in the Airport vicinity. Therefore, no impacts to Federally-listed threatened or endangered species would occur and no mitigation would be required.***

## 5.8.2 Significance Criteria

### Fish, Wildlife and Plants

According to Federal Aviation Administration (FAA) Order 1050.1E, *Environmental Impacts: Policies and Procedures*, a project would have significant impacts on biotic communities when analysis or consultation with agencies having jurisdiction over or special expertise with regard to a non-listed species indicates that a project would have a substantial adverse effect on such species. This could include substantial effects on reproductive success rates, natural or non-natural mortality rates, and the ability of a species to maintain adequate population levels.

According to FAA Order 5050.4A (*Airport Environmental Handbook*), a project would have significant impacts on biotic communities when:

- input from the U.S. Fish and Wildlife Service indicates that substantial, project-induced damage to wildlife cannot be mitigated to minimal levels; or

- analysis indicates that project implementation would result in the loss of a substantial amount of habitat, of habitat that supports rare species, or of small amounts of sensitive habitat with a significant accompanying loss of plant communities and displacement of

wildlife when these adverse impacts to wildlife or wildlife habitat cannot be mitigated to the satisfaction of the resource agencies.

### Threatened and Endangered Species

According to FAA Order 1050.1E, *Environmental Impacts: Policies and Procedures*, a project would have significant impacts on special status species when the USFWS determines that the proposed action would be likely to jeopardize the continued existence of Federally listed endangered or threatened species, potentially resulting in extinction or extirpation, or would result in the destruction or adverse modification of Federally-designated critical habitat in the affected area.

According to FAA Order 1050.1E ,*Environmental Impacts: Policies and Procedures*, a project also could have significant impacts on special status species when input from agencies or organizations with jurisdiction or special expertise concerning the protection and/or management of non-listed species indicates that the proposed action could affect population dynamics and sustainability of the non-listed species by affecting reproductive success rates, natural mortality rates, non-natural mortality, and the minimum population levels required for population maintenance.

According to FAA Order 5050.4A, *Airport Environmental Handbook*, a project would have significant impacts on special status species when:

- input from the USFWS or National Marine Fisheries Service (NMFS) indicates that listed or proposed to be listed species are present within the area affected by the proposed action, and the biological assessment for the proposed action indicates an adverse effect on endangered or threatened species or on critical habitat;

- input from the USFWS indicates that substantial, project-induced damage to wildlife cannot be mitigated to minimal levels; or

- analysis indicates that project implementation would result in the loss of a substantial amount of habitat, of habitat that supports rare species, or of small amounts of sensitive habitat with a significant accompanying loss of plant communities and displacement of wildlife when these adverse impacts to wildlife or wildlife habitat cannot be mitigated to the satisfaction of the resource agencies.

## 5.8.3 Methodology

A field survey was conducted to determine habitat types within the area that could be affected by Alternative 2. The field survey also included a review for the existence or potential existence of threatened or endangered plant or animal species or the existence of plant or animal species of special concern. The impacts to the habitat type as a result of Alternative 2 was analyzed and the FAA determined whether any impacts to threatened or endangered species or impacts to species of special concern would occur.

## 5.8.4 2009 and 2015 Impacts

### Alternative 1

Alternative 1 would not result in the extension of Runway 9R-27L or any of the other project components. Therefore, no impacts to any of the habitat types would occur and no impacts to threatened or endangered species or to species of special concern would occur.

### Alternative 2

No threatened or endangered species exist at the Airport. Therefore, no threatened or endangered species would be affected by Alternative 2.

The field survey did identify two active burrowing owl nests in the area to be affected by the extension of Runway 9R-27L. These burrowing owls are listed as a species of special concern. Any damage or destruction to burrowing owl nests is prohibited without an Incidental Take Permit issued by the Florida Fish and Wildlife Conservation Commission (FWC). The FWC only permits the destruction of inactive burrows (i.e., burrows containing no eggs or flightless young). Burrows are generally considered to be inactive during the non-nesting season (July 10th through February 15th). During the nesting season (February 15th through July 10th), the burrows containing adult owls are considered to be active unless there is evidence to show that all young owls have fledged from the nest.

Alternative 2 would result in impacts to two active burrows and this is considered to be a significant impact without mitigation. However, the implementation of the mitigation outlined below would reduce this impact to a less-than-significant level.

## 5.8.5 Mitigation

Miami-Dade County shall implement a burrowing owl management plan to ensure that no active burrowing owl burrows are damaged during construction and that no owls, eggs, or flightless young are injured during burrow collapse activities. The plan is identified in **Appendix E** Threatened & Endangered Species Survey and is summarized as follows:

- No disturbance of an active burrowing owl burrow would occur between February 15th and July 10th.

- All burrowing owl burrows shall be monitored prior to commencement of construction activities to ensure that no eggs or flightless young are affected. Burrows that are considered too damaged to house owls shall be deemed inactive. Burrows that could be active shall be investigated by terrestrial and/or subterranean (underground camera) observation methods prior to construction activities.

- If a burrowing owl burrow is active and occupied by eggs or flightless young, the burrow shall not be collapsed until the owls have fledged. Burrows shall be collapsed only by hand shovel after the experienced ecologist has ensured that the burrow is inactive.

- In accordance with FWC recommendations and FAA guidelines, no burrowing owl habitat enhancement activities, such as artificial nest construction or t-perch installation shall occur on airport property.

- A Migratory Bird Nest Removal Permit issued by the State of Florida Fish Wildlife Conservation Commission will be required to collapse the inactive nest burrow.

Upon implementation of the burrowing owl management plan, no significant impacts to threatened or endangered species or to species of special concern would occur.

# 5.9 Wetlands

## 5.9.1 Overview of Impacts

***A field survey revealed that the only wetlands present in the area of construction at the Airport are associated with Canal C-1 and the drainage ditch south of Runway 9R-27L. Both of these canals would not be affected by the proposed runway extension. Since there would be no impact to wetlands, no mitigation would be required.***

## 5.9.2 Significance Criteria

FAA Order 1050.1E states that a significant impact would occur when a proposed action would adversely affect the quality or quantity of municipal water or aquifers; substantially alter the hydrology needed to sustain the functions and values of wetlands supported by the water; cause a substantial reduction in the water-holding capacity of the wetlands to a point where public health, safety and/or welfare is threatened; adversely affect the maintenance of natural systems that support wildlife and fish habitat and/or economically important timber, food, or fiber resources in the affected or surrounding wetlands; promote development of secondary activities or services that would affect the same resources; or would be inconsistent with applicable State wetland strategies.

## 5.9.3 Methodology

A field survey of the site was conducted to determine if wetland areas are present and to map the locations of the wetlands. Potential impacts were determined by overlaying the Proposed Action alternative on a map of the existing wetlands.

### 5.9.4 2009 and 2015 Impacts

#### Alternative 1

Alternative 1 would not result in the extension of Runway 9R-27L or any of the other project components. Therefore, no impacts to wetlands would occur.

#### Alternative 2

The wetlands associated with Canal C-1 and the drainage ditch south of and parallel to Runway 9R-27L would not be affected by the extension of Runway 9R-27L. As stated in Section 5.10, Alternative 2 would result in a decrease in peak discharges from the Airport. Therefore, while the amount of water entering the drainage ditch could increase as a result of the increase in impervious surfaces associated with the extension of Runway 9R-27L, the addition of the drainage swales would reduce the peak discharges from the Airport. Therefore, no change in the wetlands associated with the drainage ditch would occur.

### 5.9.5 Mitigation

Because no impacts would occur, no mitigation is required for wetlands.

## 5.10 Floodplains

### 5.10.1 Overview of Impacts

***An evaluation of floodplain impacts was conducted through the use of floodplain maps developed by FEMA and available through Miami-Dade County. The maps indicated that the Airport is within Zone AH. Improvements at the Airport associated with the Proposed Action would decrease the amount of stormwater discharge into adjacent canals. This would have a beneficial effect on floodplains in the Airport vicinity.***

### 5.10.2 Significance Criteria

FAA Order 5050.4A, *Airport Environmental Handbook*, and FAA Order 1050.1E, *Environmental Impacts: Policies and Procedures*, provide the NEPA requirements for the analysis on floodplain impacts and the information needed for environmental assessment.

According to FAA Order 5050.4A, if a proposed action occurs within the 100-year floodplain, it is considered to be a floodplain encroachment. However, impacts to the 100-year floodplain can also occur from project components located outside the floodplain. Such impacts would include impacts on natural and beneficial floodplain values, water pollution, increased runoff from impermeable surfaces, changes in hydrologic patterns, or induced secondary development.

FAA Order 1050.1E states that agencies are required to make a finding that there is no practicable alternative before taking action that would encroach on a 100-year floodplain. The Order states that the "FAA shall, prior to taking the action, design or modify the proposed action to minimize potential harm to or within the base floodplain." Federal actions shall not cause higher flood elevations or alter flood storage in a way that could adversely affect beneficial or natural floodplain values.

In accordance with FAA Order 5050.4A and FAA Order 1050.1E, a floodplain encroachment would be considered significant if one or more of the following would occur:

- A considerable probability of loss of human life;
- Likely future damage associated with the encroachment that could be substantial in cost or damage, including interruption of service on or loss of a vital transportation facility; or
- A notable adverse impact on natural and beneficial floodplain values.

## 5.10.3 Methodology

FEMA floodplain maps for the Airport area were reviewed. The impact to floodplains was determined by placing the Proposed Action over the map and quantifying impacts.

## 5.10.4 2009 and 2015 Impacts

### Alternative 1

Alternative 1 would not result in the extension of Runway 9R-27L or any of the other project components. The Airport would continue to be within Zone AH and no changes to floodplains would occur. The amount of peak discharge from the Airport during a 10-year, 72-hour design storm would be 402 cubic feet per second into the Cutler Drain Canal and Canal C-1.

### Alternative 2

The Airport would continue to be within Zone AH after completion of the extension to Runway 9R-27L. However, the Proposed Action includes the construction of additional stormwater drainage features to accommodate the increase in impervious surface that would occur as a result of the extension to Runway 9R-27L. These new drainage swales would reduce the peak discharges from the Airport during a 10-year, 72-hour design storm compared to the peak discharges under Alternative 1 (see Table 5.10-1). With this reduction in peak discharges, no changes in the existing floodplain would occur and no changes to the flood levels in adjacent canals would occur under Alternative 2.

**TABLE 5.10-1**
**COMPARISON OF PEAK DISCHARGES FOR THE 10-YEAR, 72-HOUR DESIGN STORM AT TMB**

| Condition | Outfall 1 (CFS) | Outfall 2 (CFS) | Outfall 3 (CFS) | Outfall 4 (CFS) | Outfall 5 (CFS) | Total (CFS) |
|---|---|---|---|---|---|---|
| Alternative 1 | 92 | 21 | 153 | 127 | 6 | 402 |
| Alternative 2 | 81 | 24 | 134 | 99 | 8 | 346 |

Source: Miami-Dade Aviation Department, 2006.

## 5.10.5 Mitigation

Because no impacts would occur, no mitigation is required for floodplains.

# 5.11 Coastal Resources

## 5.11.1 Overview of Impacts

***During the early notification for the environmental assessment, the State of Florida determined that the Proposed Action is consistent with the Florida Coastal Zone Management Program. Thus, no significant impact would occur to the Coastal Zone and no mitigation measures are necessary.***

## 5.11.2 Significance Criteria

Detailed procedures for determining Federal consistency with approved coastal zone management programs are contained in the NOAA Regulations (15 C.F.R. Part 930). The sections most relevant to airport actions are subpart D, Consistency for Activities Requiring a Federal License or Permit, and subpart F, Consistency for Federal Assistance to State and Local Governments. The Coastal Zone Management Act (CZMA) is a federal program that is implemented locally.

No specific thresholds have been established for identifying significant effects of a proposed action to a Coastal Zone Management Plan (CZMP). However, if a state having an approved CZMP objects to a proposed action because the proposed action would not be consistent with the applicable CZMP, the FAA can not approve the action unless the objection is satisfied or successfully appealed to the Secretary of Commerce.

When a proposed FAA action may affect U.S. coral reef ecosystems, the FAA shall, subject to the availability of appropriations, provide for implementation of measures needed to research, monitor, manage, and restore affected ecosystems. These measures shall be developed in cooperation with the U.S. Coral Reef Task Force and other agencies as appropriate.

The Coastal Barrier Resources Act of 1982 (CBRA), as amended by the Coastal Barrier Improvement Act of 1990 (16 U.S.C. 3501-3510; PL 97348) prohibits, with some exceptions, Federal financial assistance for development within the Coastal Barrier Resources System that contains undeveloped coastal resources along the Atlantic and Gulf coasts and the Great Lakes. No specific thresholds have been established for identifying significant effects on lands protected by the CBRA. However, if a proposed action would occur on lands within the CBRA system and involve Federal funding for development, an exemption from the provisions of CBRA would be required from the U.S. Fish and Wildlife Service (FWS).

## 5.11.3 Methodology

The Florida Coastal Zone Management Program, located in Tallahassee, determines whether a proposed airport action would affect coastal areas. Miami-Dade County is considered a "coastal county" and is located in the coastal zone. The Program office must review any proposed development for consistency with the Florida Coastal Zone Management Program.

## 5.11.4 Year 2009 and 2015 Impacts

### Alternative 1

The Airport is within Miami-Dade County and is, therefore, within the boundaries of the coastal zone. However, correspondence from the Florida Coastal Zone Management Program indicated that Alternative 1 would have no affect on the coastal zone and is consistent with applicable state laws and regulations. In addition, no coral reef ecosystems are located on or associated with the Airport. Finally, the Airport is not within the Coastal Barrier Resources System (CBRS). Therefore, no impacts to coastal resources would occur under the No Action Alternative.

### Alternative 2

The Airport is within Miami-Dade County and is, therefore, within the boundaries of the coastal zone. However, correspondence from the Florida Coastal Zone Management Program indicated that Alternative 2 would have no affect on the coastal zone and is consistent with applicable state laws and regulations. In addition, no coral reef ecosystems are located on or associated with the Airport. Finally, the Airport is not within the CBRS. Therefore, no impacts to coastal resources would occur under the Alternative 2.

## 5.11.5 Mitigation

Because no impacts would occur, no mitigation is required for coastal resources.

# 5.12 Wild and Scenic Rivers

## 5.12.1 Overview of Impacts

***The closest wild and scenic river to the project site is the Loxahatchee River located approximately 70 miles to the north. Thus, no significant impact would occur from the Proposed Action.***

## 5.12.2 Significance Criteria

The Wild and Scenic Rivers Act of 1968, as amended, and its implementing regulations at 36 CFR Part 297 describes those river segments designated or eligible to be included in the Wild and Scenic Rivers System. Federal agencies must consult with the National Park Service when proposed actions may affect a river segment included in the Nationwide Rivers Inventory. In addition, Section 12 of the Wild and Scenic Rivers Act requires a Federal Agency with jurisdiction over lands which include, border upon, or are adjacent to any river included or under study for inclusion in the Wild and Scenic River System to take action to protect such river in accordance with the purpose of the act.

## 5.12.3 Methodology

A review was conducted of the Wild and Scenic Rivers listed for the State of Florida to determine if any such river is located in proximity to the Proposed Action.

## 5.12.4 Year 2009 and 2015 Impacts

### Alternative 1

There are no wild and scenic rivers in the general study area and, thus, no impacts would occur under the No Action Alternative. The closest wild and scenic river is located more than 50 miles north of the Airport.

### Alternative 2

There are no wild and scenic rivers in the general study area and, thus, no impacts would occur under the Proposed Action. The closest wild and scenic river is located more than 50 miles north of the Airport.

## 5.12.5 Mitigation

Because no impacts would occur, no mitigation is required for wild and scenic rivers.

# 5.13 Farmlands

## 5.13.1 Overview of Impacts

***The Proposed Action would occur entirely within the existing Airport limits. Since the Airport includes no farmlands and is planned for urban development, the Farmland Protection Policy Act would not apply and no significant impact would result from the Proposed Action.***

## 5.13.2 Significance Criteria

Pursuant to FAA Order 5050.4A, paragraph 47, the FAA is required to prepare and submit Form AD-1006 "Farmland Conversion Impact Rating" and initiate formal coordination with NRCS when FPPA-regulated farmlands will be converted to non-agricultural use. If the total score on Form A-1006 ranges from 201 to 260, 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.

## 5.13.3 Methodology

A review was made of the National Resource Conservation Service (NRCS) list of prime farmlands based on soil classifications for soils located within the limits of construction of the Proposed Action. In addition, a review was made as to the classification of property by Miami-Dade County within the Airport's property boundary.

## 5.13.4 Year 2009 and 2015 Impacts

### Alternative 1

There are no prime or unique farmlands on Airport property. Therefore, no impacts to prime or unique farmland would occur under the No Action Alternative.

### Alternative 2

Alternative 2 would result in the use of agricultural land as a runway safety area on the west side of Canal C-1. Since this land was acquired by Miami-Dade County prior to 1984 for airport use, this land is exempt from the provisions of the FPPA. In addition, all land at TMB is within the Urban Development Boundary of Miami-Dade County. Thus, Alternative 2 would have no effect on prime or unique farmland resources.

## 5.13.5 Mitigation

Because no impacts would occur, no mitigation is required for prime and unique farmlands.

# 5.14 Natural Resources and Energy Supply

## 5.14.1 Overview of Impacts

***The Proposed Action would include minimal increases in energy use resulting from the addition of runway and taxiway lights and additional taxiing distances. No stationary facilities would be affected; thus, no increase in power from these facilities would occur. Energy would be consumed during construction to power construction equipment but minimal resources would be expended. There are no known natural resources or energy resources within the construction limits and no unusual materials in short supply would be needed for construction of the Proposed Action. Thus, there would not be a significant impact on natural resources or energy supply and no mitigation measures would be necessary.***

## 5.14.2 Significance Criteria

Determining significance under NEPA is guided by the FAA Orders 1050.1E and 5050.4A. In the case of energy supply and natural resources, 5050.4A provides guidance on significance. It states that, for most airport actions, changes in energy or other natural resource consumption would not result in significant impacts, except where the action would cause energy demand to exceed the capacity of the utility infrastructure, or where changes in aircraft or ground vehicle use (interpreted to mean increased average ground movement or run-up times) would greatly increase fuel consumption, or where the action would use a natural resource that is in short supply. Construction of Alternative 2 is expected to require common building materials, such as asphalt, concrete, and base/sub-base materials, none of which are unusual or in short supply; therefore, the issue of natural resources that are in short supply will not be discussed further.

## 5.14.3 Methodology

Using the same assumptions for aircraft movement used in the air quality analysis, an estimate of additional energy consumed during taxiing was developed. This was accomplished by estimating the additional taxiing distances and applying taxi-idle fuel consumption rates.

The use of natural resources other than fuel need be examined only if the Proposed Action involves a need for unusual materials or those in short supply. Thus, from a natural resource perspective, the Proposed Action was analyzed to determine if projected demands for construction materials can be met.

## 5.14.4 2009 and 2015 Impacts

### Alternative 1

Alternative 1 would not result in the extension of Runway 9R-27L or any of the other project components. Therefore, no changes in the use of natural resources or the use of energy would occur.

### Alternative 2

#### *Construction-Related Energy Impacts*

The predominant materials for the construction of the extended runway include either portland cement concrete, reinforcing bars, and/or bituminous concrete. The supply of materials needed for construction is readily available in Miami-Dade County. Thus, no natural resources in short supply would be needed for the construction of Alternative 2.

#### *Operation-Related Energy Impacts*

Alternative 2 would result in the consumption of additional aircraft fuel as a result of slightly longer taxi distances. Consistent with the air quality analysis provided in Section 5.4, taxi distance increases were assumed for all departing aircraft. This means that during east flow, departure taxi distances would increase by 1,798 feet and during west flow by 550 feet. Arrivals were assumed to have no increase or reduction in taxi distances since aircraft could turn on to taxiways at the same location as they do under existing conditions.

The results of the analysis indicated that the consumption of fuel would increase by approximately 150 gallons per day in 2009 and 160 gallons per day in 2015 compared to Alternative 1. The additional lighting associated with the runway and taxiway extensions would increase by the total airfield runway/taxiway lighting (based on the three runway system) by approximately 17 percent (since the runway length would increase by approximately 2,348 feet compared to the total length of runways on the airport of 14,001 feet under Alternative 1). These additional amounts for fuel and electrical energy usage represent a minimal impact to energy supplies.

## 5.14.6 Mitigation

Since the impacts associated with energy supplies would not be significant, no mitigation is required.

# 5.15 Light Emissions and Visual Impacts

## 5.15.1 Overview of Impacts

***Light emissions from aircraft would not change under the Proposed Action since no change in approach or departure procedures would occur. Approach lighting would be extended approximately 1,800 feet to the west (toward undeveloped land) and 550 feet to the east (toward industrial uses) under the Proposed Action. Thus, no light emission impacts or visual impacts would occur.***

## 5.15.2 Significance Criteria

FAA safety requirements prohibit any major source of glare from being present at the Airport. Nighttime lighting facilities include those to facilitate evening operations and security. Lighting includes runway approach lighting, runway and taxiway lighting, outside building and garage lighting, and high-level lighting in vehicle, aircraft parking, and air cargo parking areas.

## 5.15.3 Methodology

The extent to which any lighting associated with the Proposed Action would create an annoyance among people in the vicinity or interfere with their normal activities was analyzed. In addition, visual impacts associated with the Proposed Action were compared to the current background to determine if visual changes would be significant.

## 5.15.4 Year 2009 and 2015 Impacts

### Alternative 1

Alternative 1 would not result in the extension of Runway 9R-27L or any of the other project components. Therefore, no changes in light emissions and no visual impacts would occur.

### Alternative 2

The lighting system associated with the extension of Runway 9R-27L under Alternative 2 would be low to the ground and would be placed in accordance with FAA regulations. No area lighting or high level lighting would be associated with Alternative 2; therefore, no light emissions or visual impacts would occur.

## 5.15.5 Mitigation

Because no impacts would occur, no mitigation is required for light emissions and visual impacts.

# 5.16 Construction Impacts

## 5.16.1 Overview of Impacts

***Construction of the Proposed Action would result in temporary impacts associated with air quality, noise, water quality and energy usage. Air pollutant emissions, construction-related noise, energy usage from construction vehicles, and soil erosion would occur during the construction phase. Air emissions and noise from construction equipment would disperse significantly prior to reaching residential neighborhoods. Fugitive dust would be controlled through wetting down exposed soils during dry periods and Best Management Practices would be used to protect water quality during construction. No significant impacts are anticipated during the construction phase.***

## 5.16.2 Significance Criteria

Determining significance under NEPA is guided by FAA Orders 1050.1E and 5050.4A, According to Order 5050.4A, "In general, impacts during construction are of lesser magnitude than long term impacts of the proposed action. Many of the specific types of impacts which could occur will be covered in the descriptions of other impact categories. To the extent not discussed elsewhere, this item shall include a general description of the type and nature of the construction and measures to be taken to minimize potential adverse effects. As a minimum, reference shall be made to the incorporation in project specifications of the provisions of FAA Advisory Circular 150/5370-10B *Standards for Specifying Construction of Airports, (change 10), Item P-156 Temporary Air and Water Pollution, Soil Erosion, and Siltation Control*."

## 5.16.3 Methodology

The potential for construction impacts was determined by identifying the areas that would be affected by construction activities and identifying mitigation measures (including those contained in FAA Advisory Circular 150/5370-10B).

## 5.16.4 Year 2009 and 2015 Impacts

### Alternative 1

No construction would occur under Alternative 1; therefore, no construction-related impacts would occur.

### Alternative 2

For the purpose of this EA, it is assumed that construction of the various project components would occur over a one-year period in 2008 and that the extended runway and other various

project components would be completed by 2009. Thus, there would be no construction impacts in 2015.

During 2008, construction for Alternative 2 would involve the disturbance and movement of large quantities of earth. Land clearing and grading operations would generate air pollutant emissions with particulate matter (i.e., dust), which would have the greatest potential impact. This could also include wind erosion over storage piles and the loading and unloading of materials. A variety of control measures, such as watering and/or dust palliatives would be used by the contractor to reduce the impacts of fugitive dust during clearing and grading activities.

Heavy construction equipment used for construction would emit exhaust that contains CO, VOCs, NOx, and particulate matter. However, due to the level topography of the Airport, the predominately favorable weather conditions, and the distances to the closest residences, it is not expected that these impacts would be significant. Air pollutant emissions during construction were presented previously in Section 5.4.

Short-term construction impacts may result in temporary increases in sedimentation and turbidity levels in surface watercourses on and adjacent to the Airport. Surface water quality impacts would be minimal with the use of Best Management Practices.

Types of construction-related solid waste include excess concrete washed out from concrete mixers, excess wiring and conduit electrical materials, excess drainage conduit materials, and miscellaneous trash generated by construction workers.

Construction noise would, at times, increase ambient noise levels. Grading and scraping are typically the noisiest activities generating noise levels as high as 70 to 90 dBA within 50 feet of the equipment. Due to the distance between the construction site and residential areas these noise levels would gradually dissipate and residential areas should experience only a slight increase from current background levels.

Minimization/preventative actions to reduce or eliminate construction impacts are described in FAA Advisory Circular 150/5370-10B, *Standards for Specifying Construction of Airports.* Temporary controls should include no open burning; periodic wetting of exposed soils especially during high wind conditions; covering of all trucks hauling rock and other loose materials; routing truck traffic to avoid residential neighborhoods; and best management practices including erosion control measures such as temporary mulch and seeding, sediment basins, sandbags, artificial coverings, berms and other sediment checks. Construction debris and trash would be properly disposed of in approved landfills.

As required, all on airport construction activities would adhere to the standards set forth in FAA Advisory Circular 150/5370-10B, *Standards for Specifying Construction of Airport.*

## 5.16.5 Mitigation

Because no significant impacts would occur, no mitigation is required for construction impacts.

# 5.17 Hazardous Materials, Pollution Prevention and Solid Waste

## 5.17.1 Overview of Impacts

***The construction limits of the Proposed Action are not in an area expected to contain hazardous materials, contamination, or other regulated materials. No above ground or underground fuel tanks or fuel lines are known to be within the construction area. In addition, the Proposed Action does not involve the development of storage facilities or removal of such facilities. Should petroleum spills occur during construction, measures would be used to properly dispose of the contaminant. Temporary generation of solid wastes would occur from construction activities and these materials would be disposed of in an approved landfill. Thus, no significant impacts related to hazardous materials or solid waste would occur.***

## 5.17.2 Significance Criteria

### Hazardous Materials

Hazardous materials and hazardous wastes, if mishandled, can pose risks to the public through exposure. Potential health and safety impacts can stem from interactions of construction workers, the public and/or future residents/workers with hazardous materials and wastes encountered or generated during project construction activities or project operations.

In qualitative terms, an increase in the level of risk would correlate with an increase in the nature and relative quantities of hazardous materials and wastes handled and/or stored at the Airport and from potential exposure of workers exposed to hazardous materials associated with construction.

For purposes of this document, hazardous materials impacts would be considered significant if the proposed action involves the use, production, or disposal of materials in a manner that poses a hazard to people, animal or plant populations in the area affected. A significant impact would also occur if the action were to present an undue potential risk for health or safety-related accidents.

### Solid Waste

FAA Order 5050.4A discusses certain potential impacts on public utilities and services. Specifically, it states that “terminal area development may involve circumstances which require consideration of solid waste impacts. Preliminary review should indicate if the projected quantity or type of solid waste generation or method of collection or disposal will be appreciably different than would be the case without the action.” Analysis should also include “the manner in which waste products will be controlled to comply with any applicable regulations.” Any impacts causing an “appreciably different” level of service to meet a proposed action’s needs would be considered a significant impact.

## 5.17.3 Methodology

The study determined whether hazardous materials will be generated, disturbed, transported or treated, stored or disposed by Alternative 2. If any of the above were identified to occur with Alternative 2, then mitigation measures to comply with regulations would be developed.

## 5.17.4 Year 2009 and 2015 Impacts

### Alternative 1

No construction would occur under Alternative 1; therefore, no changes in the use of hazardous materials or the generation of solid waste would occur.

### Alternative 2

The temporary generation of solid wastes during construction would be disposed of in an approved landfill. There is the possibility that fuel spills could occur during construction. The methods used to dispose of petroleum spills are outlined by a specification in the MDAD SWPPP and SPCC Plans. These documents describe the handling of incidental fuel spillage during construction. This includes procedures in handling materials contaminated with petroleum fuel products caused by incidental spillage or leaks from contractor's equipment. Petroleum absorbent materials, such as fiber material or sand, would be stocked at the job site at all times. The method of collection, containerization, and storage and disposal of contaminated materials is included in the MDAD specifications. The adherence to this MDAD specification would ensure that no significant impacts would occur.

Alternative 2 does not involve development of new terminal facilities. Thus, no change in the use of hazardous materials would result related to terminal-related modifications or additions. Due to the extended runway, some jet aircraft may receive additional fuel under Alternative 2 (those aircraft capable of flying longer stage lengths and which plan to do so). The specific amount of additional fuel transferred to aircraft is not known. However, since all of the propeller and most of the jet aircraft would use the same amount of fuel with either Alternative 1 or 2, the amount of additional fuel transferred to the longer stage length aircraft would be minimal.

No hazardous materials, contamination or other regulated materials are known to occur within the construction limits of Alternative 2. No above ground or underground fuel tanks or fuel lines are known to be within the construction limits. In addition, Alternative 2 does not involve the development of storage facilities or removal of such facilities.

## 5.17.5 Mitigation

Because no significant impacts would occur, no mitigation is required for impacts related to hazardous materials or solid waste.

# 5.18 Secondary (Induced) Impacts

## 5.18.1 Overview of Impacts

***The Proposed Action would not result in property acquisition, relocations, alteration of surface transportation patterns, division or disruption of established communities, disruption of planned development, or changes in employment. Aircraft arriving or departing the Airport would do so in the same flight corridors as what currently occurs. Thus, no significant secondary (induced) impacts would occur as a result of the Proposed Action.***

## 5.18.2 Significance Criteria

No specific significance criteria are identified in FAA Order 1050.1E.

## 5.18.3 Methodology

The study determined if there was the potential for inducing secondary impacts such as shifts in population movement or growth, changes in public service demands and changes in business or economic activities.

## 5.18.4 Year 2009 and 2015 Impacts

### Alternative 1

Alternative 1 would not result in the extension of Runway 9R-27L or any of the other project components. Therefore, no secondary (induced) impacts would occur.

### Alternative 2

#### *Shifts in Population Movement and Growth*

Population growth in the region would not change under Alternative 2. Population growth and shifts are controlled by land use plans and area zoning around the Airport. There is no anticipated change in land use and zoning in the vicinity of the Airport as a result of the proposed runway extension or any of the other project components.

#### *Public Service Demands*

Public service demands, including such items as police, water and sewer services, would not change under Alternative 2.

#### *Changes in Business and Economic Activity*

The continued growth in aviation activity is projected to occur under Alternative 2 the same as it would occur under Alternative 1. Alternative 2 would enhance the opportunities for additional

economic benefits by providing the opportunity for aircraft to fly an extended range. The economic activity associated with the construction of the Alternative 2 would be a direct economic benefit.

### 5.18.5 Mitigation

Because no significant impacts would occur, no mitigation is required for secondary (induced) impacts.

## 5.19 Cumulative Impacts

### 5.19.1 Overview of Impacts

***Due to the extensive amount of property currently developed in the study area, little additional development is expected to occur in the time frame of the construction of the Proposed Action. Three projects are proposed in the vicinity of the Airport: a regional park, a roadway realignment, and a commercial retail/warehouse facility. The study concluded that no significant cumulative impact from these three developments and the Proposed Action would occur.***

### 5.19.2 Significance Criteria

As identified in Order 1050.1E, "in determining whether a Proposed Action will have a significant impact, the EA shall include considerations of whether the action is related to other actions with individually insignificant but cumulatively significant impacts. This analysis shall include identification and consideration of the cumulative impacts of ongoing, proposed, nd reasonably foreseeable future actions and may include information garnered from FAA NEPA processes and, where available, environmental management systems."

### 5.19.3 Methodology

This EA considered, to the extent reasonable and practicable, the possible impacts of the Proposed Action and other development both on and off the Airport that are related in terms of time and proximity. The study identified if any of the following actions are planned to occur in the vicinity of the Proposed Action: development by local government or planning agencies; other development actions at the Airport; surface transportation improvements, land development projects, and public infrastructure projects.

# 5.19.4 2009 and 2015 Impacts

## Alternative 1

Alternative 1 would not result in the extension of Runway 9R-27L or any of the other project components. Therefore, Alternative 1 would not contribute to any cumulative impacts in the Airport vicinity.

## Alternative 2

Other development projects that could occur include those at TMB as well as those in the Airport vicinity. The Airport Layout Plan identifies the following projects to be developed on the Airport within the 2005 to 2015 timeframe:

- Construction of 250,000 square feet of aircraft storage hangars
- Construction of a perimeter service road
- Construction of a Cuban Pilots Association (CUPA) Memorial
- Construction of blast pads at each end of Runway 9L-27R
- Addition of aiming point marking on both ends of Runway 9L-27R
- Expansion of the Building 506 aircraft parking apron
- Construction of a 35 foot wide 700 foot long taxiway to Building B1
- Construction of a cul-de-sac on Southwest 127$^{th}$ Street
- Relocation of the airport beacon

The environmental consequences of these projects involve minor grading and surface coverage. The water quality and surface stormwater storage for these facilities have been incorporated in the stormwater management plan that incorporates Alternative 2.

Other development projects that may occur within a similar time frame within the general study area include a regional park, the realignment of Southwest 157$^{th}$ Avenue, and a commercial retail / warehouse facility. The regional park is proposed to be located immediately northwest of the Airport and is to include active recreation facilities. This park is planned for construction within the next five years. The realignment of Southwest 157$^{th}$ Avenue has been planned for construction in 2006. This roadway is located along the western property limits of the Airport. The third project, a commercial retail/warehouse facility is planned immediately northeast of the Airport and would be constructed in the next two years.

Most of the area north, east and south of the Airport has been extensively developed. Any additional development in the Airport vicinity would be infill development. No development is planned west of the airport as this area is outside Miami-Dade County's Urban Development Boundary.

It is not likely that any increase in noise due to simultaneous construction activities would occur since the impacts of construction noise is localized and the construction areas for the other

projects on-Airport as well as in the Airport vicinity are not close enough to result in any cumulative noise effect,

The development of other projects on-Airport as well as in the Airport vicinity could result in the potential for dust if there are windy conditions during grading and other earthmoving activities. If two or more projects are under construction at one time and these projects are in close proximity, there is the possibility of a cumulative air quality impact. However, the use of standard measures to mitigate fugitive dust emissions would minimize these impacts.

It is not likely that any stormwater management or water quality impacts would occur because each of the other development projects on-Airport and in the Airport vicinity would be required to control flow rates and incorporate water quality measures to meet state requirements. Therefore, no cumulative stormwater management or water quality impacts would occur.

It is not likely that any hazardous material impacts would occur because each of the other development projects on-Airport and in the Airport vicinity would be required to mitigate the impacts of any potential fuel spill or clean up any existing soil condition containing hazardous materials. Therefore, no cumulative hazardous materials impacts would occur.

For other environmental and socioeconomic topics, Alternative 2 was shown to not have an impact. Thus, due to the limited development proposed within the general study area and the ability to mitigate adverse effects, there would be no cumulative effects of Alternative 2 with other developments in the vicinity.