# Final Environmental Assessment for Phase II Air Cargo Facility Development

## Volume 2: Appendix G

## Lakeland Linder International Airport
## Polk County, Florida

October 2021

# APPENDIX G

# Noise Analysis Technical Report

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# Environmental Assessment
# for
# Phase II Air Cargo Facility Development at Lakeland Linder International Airport (LAL)

# Noise Technical Report

**Prepared for:**

**City of Lakeland, Florida**
**and**
**Federal Aviation Administration**

**Prepared by:**

**AECOM**

**October 2020**

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## ACRONYMS AND ABBREVIATIONS

| | |
|---|---|
| AEDT | Aviation Environmental Design Tool |
| CFR | Code of Federal Regulation |
| CIP | Capital Improvement Program |
| dB | Decibel |
| dBA | A-Weighted Decibel |
| DNL | Day-Night Average Sound Level |
| FAA | Federal Aviation Administration |
| FICON | Federal Interagency Committee on Noise |
| FICUN | Federal Interagency Committee on Urban Noise |
| GA | General Aviation |
| HUD | Department of Housing and Urban Development |
| Hz | Hertz |
| INM | Integrated Noise Model |
| $L_{eq}$ | Equivalent Sound Level |
| $L_{max}$ | Maximum Sound Level |
| LAL | Lakeland Linder International Airport |
| NLR | Noise Level Reduction |
| SEL | Sound Exposure Level |
| SPL | Sound Pressure Level |

# CHAPTER 1 INTRODUCTION

This *Noise Technical Report* details the assessment scope, calculation methodology, input data and other technical information used in the analysis of noise impacts associated with the proposed Phase II Air Cargo Facility Development at the Lakeland Linder International Airport (i.e., LAL, or the Airport), hereinafter referred to as the Proposed Project.

## 1.1. AIRCRAFT NOISE DESCRIPTORS

A variety of noise metrics are used to assess airport noise impacts in different ways. Noise metrics are used to describe individual noise events (such as a single operation of an aircraft taking off overhead) or groups of events (such as the cumulative effect of numerous aircraft operations, the collection of which creates a general noise environment or overall exposure level). Both types of descriptors are helpful in explaining how people tend to respond to a given noise condition. Descriptions of these metrics are provided below.

**Decibel, dB –** Sound is a complex physical phenomenon consisting of complex minute vibrations traveling through a medium, such as air. These vibrations are sensed by the human ear as sound pressure. Because of the vast range of sound pressure or intensity detectable by the human ear, sound pressure level (SPL) is represented on a logarithmic scale known as decibels (dB). A sound level of 0 dB is approximately the threshold of human hearing and is barely audible under extremely quiet (laboratory-type) listening conditions. A SPL of 120 dB begins to be felt inside the ear as discomfort and pain at approximately 140 dB. Most environmental sounds have SPLs ranging from 30 to 100 dB.

Because dB are logarithmic, they cannot be added or subtracted directly like other (linear) numbers. For example, if two sound sources each produce 100 dB, when they are operated together, they will produce 103 dB, not 200 dB. Four 100 dB sources operating together again double the sound energy, resulting in a total SPL of 106 dB, and so on. In addition, if one source is much louder than another, the two sources operating together will produce the same SPL as if the louder source were operating alone. For example, a 100 dB source plus an 80 dB source produce 100 dB when operating together. The louder source masks the quieter one.

Two useful rules to remember when comparing SPLs are: (1) most people perceive a six to 10 dB increase in SPL between two noise events to be about a doubling of loudness, and (2) changes in SPL of less than about three dB between two events are not easily detected outside of a laboratory.

**A-Weighted Decibel, dBA –** Frequency, or pitch, is a basic physical characteristic of sound and is expressed in units of cycles per second or hertz (Hz). The normal frequency range of hearing for most people extends from about 20 to 15,000 Hz. Because the human ear is more sensitive to middle and high frequencies (i.e., 1000 to 4000 Hz), a frequency weighting called “A” weighting is applied to the measurement of sound. The internationally standardized "A" filter approximates

the sensitivity of the human ear and helps in assessing the perceived loudness of various sounds. In this document all sound levels are A-weighted sound levels and the adjective "A-weighted" has been omitted.

**Figure 1.1-1** charts common indoor and outdoor sound levels. A quiet rural area at nighttime may be 30 A-weighted decibels (dBA) or lower while the operator of a typical gas lawn mower may experience a level of 90 dBA. Similarly, the level in a library may be 30 dBA or lower while the listener at a rock band concert may experience levels near 110 dBA.

**Maximum A-Weighted Noise Level, $L_{max}$ –** Sound levels vary with time. For example, the sound increases as an aircraft approaches, then falls and blends into the ambient or background as the aircraft recedes into the distance. Because of this variation, it is often convenient to describe a particular noise "event" by its highest or maximum sound level ($L_{max}$). Note $L_{max}$ describes only one dimension of an event; it provides no information on the cumulative noise exposure generated by a sound source. In fact, two events with identical $L_{max}$ may produce very different total exposures. One may be of very short duration, while the other may be much longer.

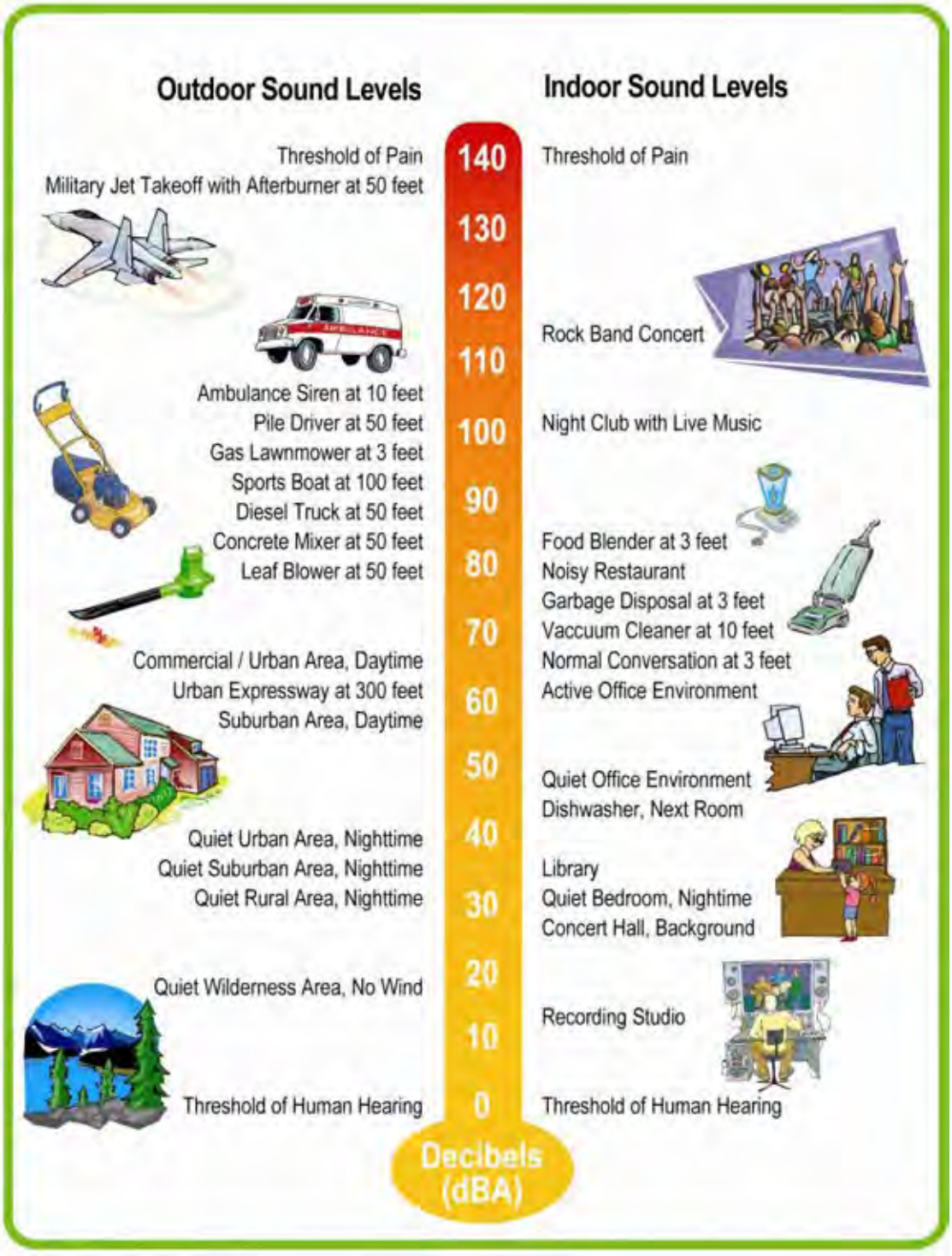
**Sound Exposure Level, SEL –** The most common measure of noise exposure for a single aircraft flyover is the sound exposure level (SEL). SEL is a summation of the A-weighted sound energy at a particular location over the true duration of a noise event normalized to a fictional duration of one second. The true duration is defined as the amount of time the noise event exceeds background levels. For events lasting more than one second, SEL does not directly represent the sound level heard at any given time, but rather provides a measure of the net impact of the entire acoustic event.

The normalization to the fictional duration of one second enables the comparison of noise events with differing true duration and/or maximum level. Because the SEL is normalized to one second, it will almost always be larger in magnitude than the $L_{max}$ for the event. In fact, for most aircraft events, the SEL is about seven to 12 dB higher than the $L_{max}$. Additionally, since it is a cumulative measure, a higher SEL can result from either a louder or longer event, or some combination.

As SEL combines an event's overall sound level along with its duration, SEL provides a comprehensive way to describe noise events for use in modeling and comparing noise environments. Computer noise models, such as the one employed for this document, base their computations on these SELs.

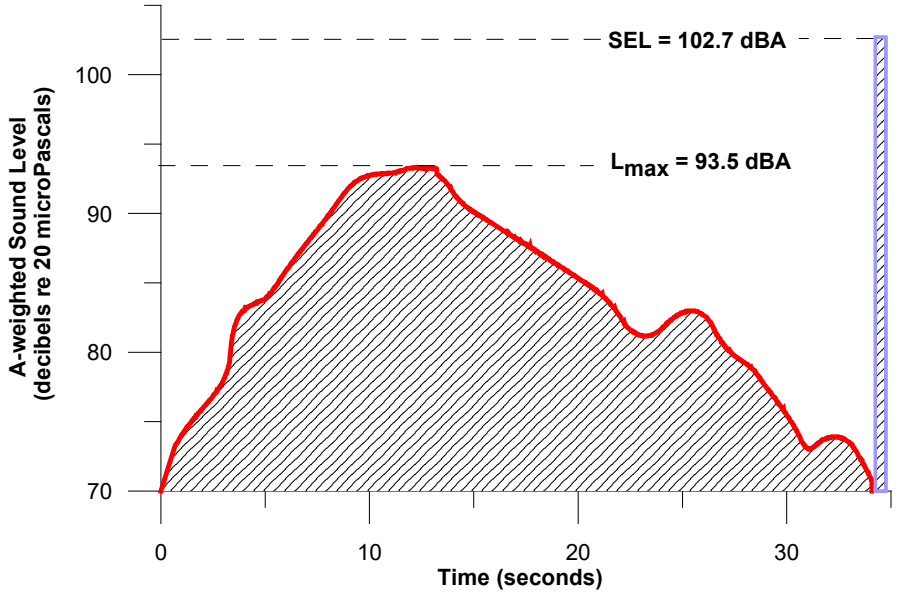
**Figure 1.1-2** shows an event's "time history," the variation of sound level with time. For typical sound events experienced by a fixed listener, like a person experiencing an aircraft flying by, the sound level rises as the source (or aircraft) approaches the listener, peaks and then diminishes as the aircraft flies away from the listener. The area under the time history curve represents the overall sound energy of the noise event. The $L_{max}$ for the event shown in the figure was 93.5 dBA. Compressing the event's total sound energy into one second to compute its SEL yields 102.7 dBA.

**Figure 1.1-1 Common Outdoor and Indoor Sound Levels**




Source: URS Corporation, 2008

**Figure 1.1-2 Comparison of Maximum Sound Level ($L_{MAX}$) and Sound Exposure Level (SEL)**




Source: URS Corporation, 2007.

**Equivalent Sound Level, $L_{eq}$ –** Equivalent sound level ($L_{eq}$) is a measure of the exposure resulting from the accumulation of A-weighted sound levels over a particular period of interest (e.g., an hour, an 8-hour school day, nighttime, or a full 24-hour day). However, because the length of the period can be different depending on the time frame of interest, the applicable period should always be identified or clearly understood when discussing the metric. Such durations are often identified through a subscript, for example $L_{eq(8)}$ or $L_{eq(24)}$.

Conceptually, $L_{eq}$ may be thought of as a constant sound level over the period of interest that contains as much sound energy as the actual time-varying sound level with its normal "peaks" and "dips." In the context of noise from typical aircraft flight events and as noted earlier for SEL, $L_{eq}$ does not represent the sound level heard at any particular time, but rather represents the total sound exposure for the period of interest. Also, it should be noted that the "average" sound level suggested by $L_{eq}$ is not an arithmetic value, but a logarithmic, or "energy-averaged," sound level. Thus, loud events tend to dominate the noise environment described by the $L_{eq}$ metric.

**Day-Night Average Sound Level, DNL** - Time-averaged sound levels are measurements of sound levels averaged over a specified length of time. These levels provide a measure of the average sound energy during the measurement period. For the evaluation of community noise effects, and particularly aircraft noise effects, the Day-Night Average Sound Level (DNL). This metrics are similar to the Leq except that it compensates for the widely assumed increase in people's sensitivity to noise during nighttime hours. Each aircraft operation occurring between 10:00 p.m. and 7:00 a.m. is treated as if it were 10 operations. Logarithmically, this multiplier is the equivalent of adding 10 dB to the noise level of each nighttime operation. These noise level penalties are intended to correspond to the drop in background noise level which studies have

found takes place from daytime to nighttime in a typical community. The nighttime decrease in ambient sound levels—from both outdoor and indoor sources—is commonly considered to be the principal explanation for people's heightened sensitivity to noises during these periods.

DNL is the primary noise descriptor of this study. DNL is a 24-hour time-weighted-average noise metric expressed in dBA which accounts for the noise levels (in terms of SEL) of all individual aircraft events, the number of times those events occur, and the time of day at which they occur. Values of DNL can be measured with standard monitoring equipment or predicted with computer models. This document utilizes estimates of DNL with a Federal Aviation Administration (FAA)-approved computer-based noise model.

Typical DNL values for a variety of noise environments are shown in **Figure 1.1-3**. DNL values can be approximately 85 dBA outdoors under a flight path within a mile of a major airport and 40 dBA or less outdoors in a rural residential area.

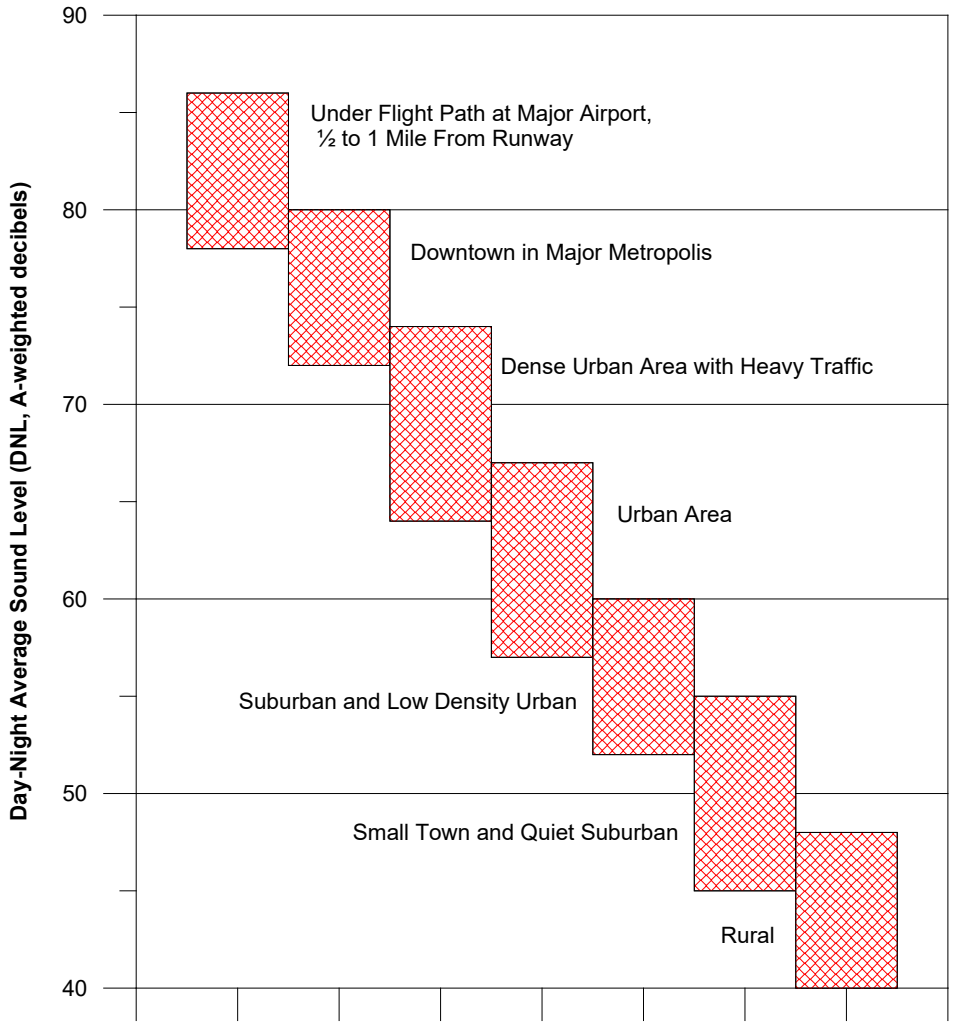
Due to the DNL descriptor's close correlation with the degree of community annoyance from aircraft noise, DNL have been formally adopted by most Federal agencies for measuring and evaluating aircraft noise for land use planning and noise impact assessment. Federal committees such as the Federal Interagency Committee on Urban Noise (FICUN) and the Federal Interagency Committee on Noise (FICON) which include the Environmental Protection Agency (EPA), FAA, Department of Defense, Department of Housing and Urban Development (HUD), and Veterans Administration, found DNL to be the best metric for land use planning. They also found no new cumulative sound descriptors or metrics of sufficient scientific standing to substitute for DNL. Other cumulative metrics could be used only to supplement, not replace DNL. Furthermore, FAA Order 1050.1F for environmental impact studies, requires DNL be used in describing cumulative noise exposure and in identifying aircraft noise/land use compatibility issues (EPA, 1974; FICUN, 1980; FICON, 1992; 14 CFR part 150, 2007; FAA, 2006).

## 1.2. EFFECTS OF AIRCRAFT NOISE ON PEOPLE

This section addresses three ways humans can be affected by aircraft noise: annoyance, speech interference and sleep disturbance.

**Annoyance** – The primary potential effect of aircraft noise on exposed communities is one of annoyance. Noise annoyance is defined by the Environmental Protection Agency as any negative subjective reaction on the part of an individual or group (EPA, 1974). Scientific studies and a large number of social/attitudinal surveys have been conducted to appraise people's annoyance to all types of environmental noise, especially aircraft events. These studies and surveys have found the DNL to be the best measure of this annoyance (EPA, 1974; FICUN, 1980; FICON, 1992; ANSI, 2007; ANSI, 2003; Schultz, 1978; Fidell, et. al., 1991).

**Figure 1.1-3 Typical Range of Outdoor Community Day-Night Average Sound Levels**




Source: FICON, 1992.

The relationship between annoyance and DNL determined by the scientific community and endorsed by many Federal agencies, including the FAA, is shown in **Figure 1.2-1**. For a DNL of 65 dBA, approximately 13 percent of the exposed population would be highly-annoyed. The figure also shows at very low values of DNL, such as 45 dB or less, one percent or less of the exposed population would be highly annoyed. At very high values of DNL, such as 90 dBA, more than 80 percent of the exposed population would be highly annoyed.

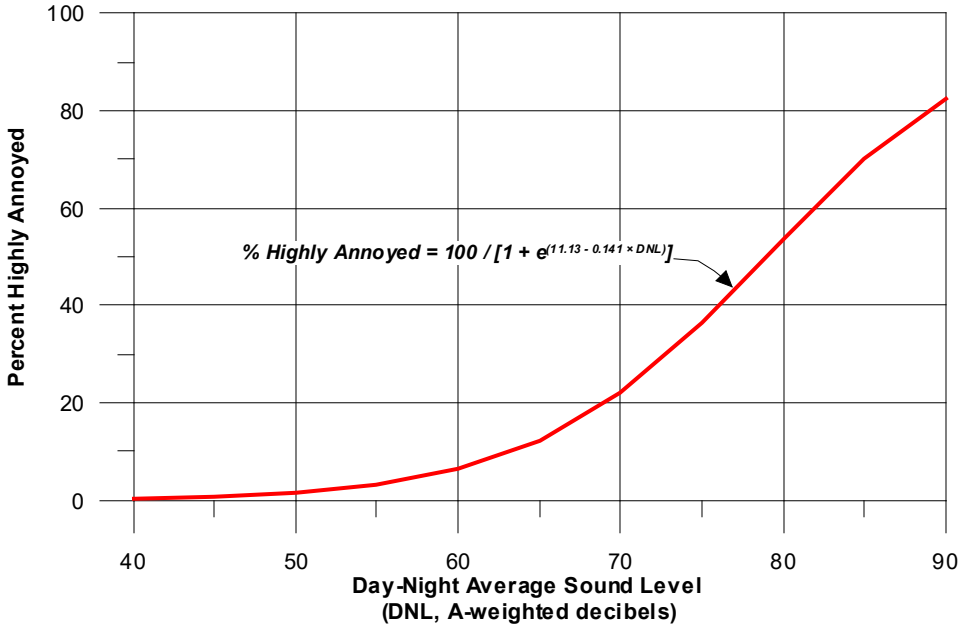
It is often suggested a lower DNL, such as 60 or 55 dB, be adopted as the threshold of community noise annoyance for FAA environmental analysis documents. While there is no technical reason why a lower level cannot be measured or calculated for comparison purposes, a DNL of 65 dB:

- Provides a valid basis for comparing and assessing community noise effects.
- Represents a noise exposure level normally dominated by aircraft noise and not other

community or nearby highway noise sources.

- Reflects the FAA's threshold for grant-in-aid funding of airport noise mitigation projects.
- HUD also established a DNL standard of 65 dBA for eligibility for federally-guaranteed home loans.

**Figure 1.2-1 Relationship between Annoyance and Day-Night Average Sound Level**




Source: FICON, 1992.

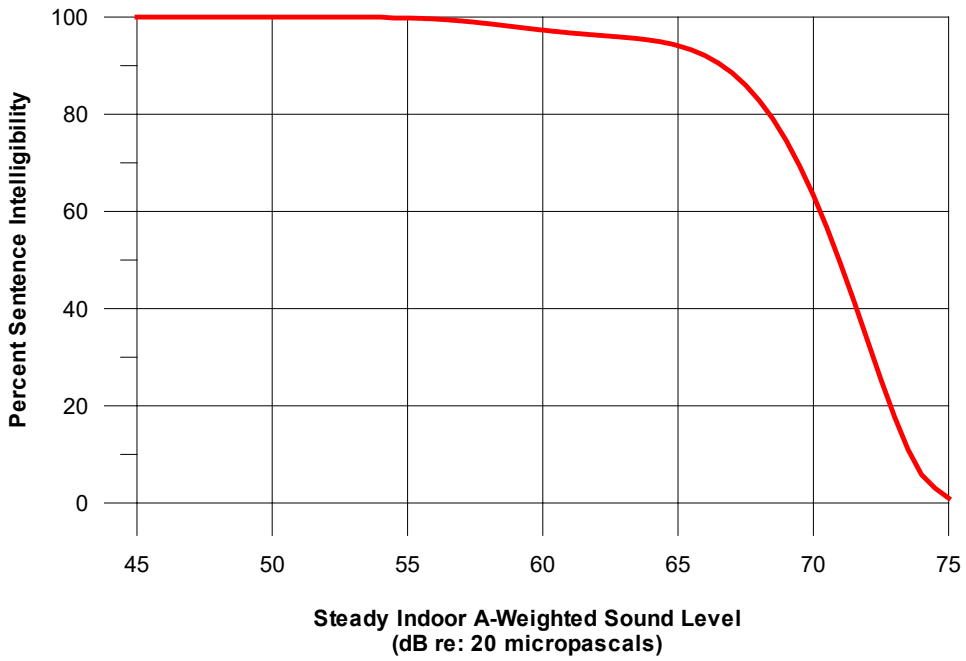
**Speech Interference** – A primary effect of aircraft noise is its tendency to drown out or "mask" speech, making it difficult to carry on a normal conversation. As an aircraft approaches and its sound level increases, speech becomes harder to hear. As the ambient level increases, the talker must raise his/her voice, or the individuals must get closer together to continue talking.

For typical communication distances of three or four feet (one to 1.5 meters), acceptable outdoor conversations can be carried on in a normal voice as long as the ambient noise outdoors is less than about 65 dBA (FICON, 1992). If the noise exceeds this level, intelligibility would be lost unless vocal effort was increased or communication distance was decreased.

Indoor speech interference can be expressed as a percentage of sentence intelligibility between two average adults with normal hearing speaking fluently in relaxed conversation approximately one meter apart in a typical living room or bedroom (EPA, 1974). As shown in **Figure 1.2-2**, the percentage of sentence intelligibility is a non-linear function of the (steady) indoor ambient or background sound level (24-hour energy-average $L_{eq(24)}$). Steady ambient indoor sound levels of up to 45 dBA $L_{eq(24)}$ are expected to allow 100 percent intelligibility of sentences. The curve shows 99 percent sentence intelligibility for $L_{eq(24)}$ at or below 54 dBA and less than 10 percent

intelligibility for $L_{eq(24)}$ greater than 73 dBA. In the same document from which **Figure 1.2-2** was taken, the EPA established an indoor criterion of 45 dBA DNL as requisite to protect against speech interference indoors (EPA, 1974).

**Figure 1.2-2 Percent Sentence Intelligibility for Indoor Speech**




Source: EPA, 1974

## 1.3. NOISE ANALYSIS

### 1.3.1. EXISTING CONDITION NOISE MODELING ASSUMPTIONS

**Airport Environmental Design Tool (AEDT)**

The FAA has required the use of the Aviation Environmental Design Tool (AEDT) since May 29, 2015 for determining the predicted noise impact in the vicinity of airports. Statutory requirements for AEDT use are defined in FAA Order 1050.1F, *Environmental Impacts: Policies and Procedures*; Order 5050.4B, *NEPA Implementing Instructions for Airport Actions*; and Title 14 CFR part 150, *Airport Noise Compatibility Planning*.

The AEDT incorporates the number of annual average daily daytime and nighttime flight and run-up operations, flight paths, and flight profiles of the aircraft along with its extensive internal database of aircraft noise and performance information, to calculate the DNL at many points on the ground around an airport. From a grid of points, the AEDT contouring program draws contours of equal DNL to be superimposed onto land use maps. For this document, DNL contours of 65, 70, and 75 dBA were developed. DNL contours are a graphical representation of how the noise from the airport's average annual daily aircraft operations is distributed over the surrounding area.

The AEDT can calculate sound levels at any specified point so that noise exposure at representative locations around an airport can be obtained.

The results of the AEDT analysis provide a relative measure of noise levels around airfield facilities. When the calculations are made in a consistent manner, the AEDT is most accurate for comparing before and after noise effects resulting from forecast changes or alternative noise control actions. It allows noise levels to be predicted for such Proposed Projects without the actual implementation and noise monitoring of those actions.

Title 14 CFR part 150, Appendix A, provides Federal compatible land use guidelines for several land uses as a function of DNL values. Compatible or non-compatible land use is determined by comparing the predicted or measured DNL values at a site to the established thresholds.

Examples of detailed local acoustical variables include:

- Temperature profiles;
- Wind gradients;
- Humidity effects;
- Ground absorption;
- Individual aircraft directivity patterns; and
- Sound diffraction caused by terrain, buildings, barriers, etc.

The results of the AEDT analysis provide a relative measure of noise levels around airfield facilities. When the calculations are made in a consistent manner, the AEDT is most accurate for comparing before and after noise effects resulting from forecast changes or alternative noise control actions. It allows noise levels to be predicted for such proposed projects without the actual implementation and noise monitoring of those actions.

**Modeled Aircraft Operations**

This section describes in detail the sources and derivation of the AEDT input data for the existing conditions including airport layout, weather, flight operations, runway use, flight tracks, track use, and flight profiles.

**Airport Layout**

LAL has three runways, designated as Runway 9-27, 5-23 and 8-26. Runway 9-27 is 8,499 feet long by 150 feet wide. Runway 5-23 is 5,005 feet long by 150 feet wide. Runway 8-26 is a turf surface runway and is 2,205 feet long by 60 feet wide. The field elevation at LAL is approximately 142 feet. Apron and hangar facilities are available for both based and transient aircraft.

**Flight Operations**

**Tables 1.3-1** shows the AEDT-modeled average annual daily operations for the Existing Conditions by aircraft at LAL.

**Runway Use**

A summary of the modeled annual average daily utilization of LAL's runways is presented in **Table 1.3-2**. The percentages provided in **Table 1.3-2** are applicable to both day time and nighttime operations.

**Flight Tracks**

Flight tracks are the aircraft's actual path through the air projected vertically onto the ground. Modeled flight tracks reflect a reasonable representation of the actual flight track recognizing that pilot technique and weather conditions will affect the actual track of individual flights. **Figures 1.3-1a** through **1.3-1c** depict modeled arrival, departure, and touch and go tracks, respectively.

**Track Use**

Utilization percentages of the flight tracks are tabulated in **Table 1.3-3** for arrivals, departures, and touch-and-gos (TGOs).

**Flight Profiles**

Flight profiles model the vertical paths of aircraft during departure and arrival to determine the altitude, speed, and engine thrust or power of an aircraft at any point along a flight track. AEDT uses this information to calculate noise exposure on the ground. Profiles are unique to each aircraft type and vary with temperature, barometric pressure, headwind, and aircraft weight. Standard AEDT default profiles were used for all aircraft operations.

**FAA Part 150 Compatible Land Use Criteria**

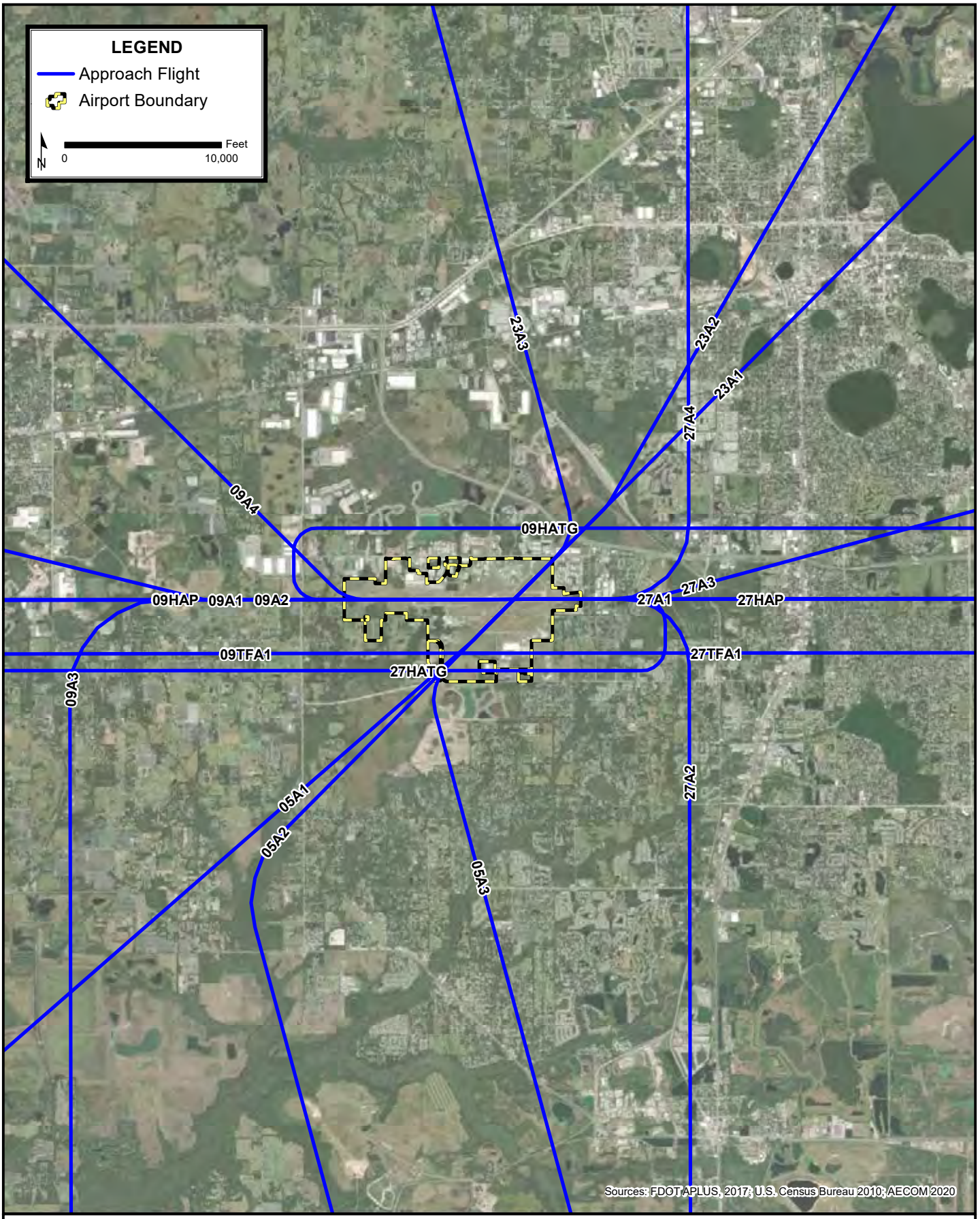
Title 14 CFR part 150, Appendix A, Table 1, provides Federal compatible land use guidelines for several land uses as a function of DNL values. Compatible or non-compatible land use is determined by comparing the predicted or measured DNL or Community Noise Equivalent Level (CNEL) values at a site to the values listed in Table 1. This table is provided as **Table 1.3-4**.

**Table 1.3-1 Existing Condition Average Annual Daily Operations at LAL**

| Aircraft | 2019 Existing Condition | | | | | | |
|---|---|---|---|---|---|---|---|
| | Arrivals | | Departures | | TGO | | |
| | Day | Night | Day | Night | Day | Night | Total |
| Aerospatiale SA-350D Astar (AS-350) TPE3 NONE | 0.290 | - | 0.290 | - | - | - | 0.580 |
| Agusta A-109 250B17 NONE | 0.108 | - | 0.108 | - | - | - | 0.217 |
| Airbus A320-200 Series 2CM018 NONE | 0.004 | 0.001 | 0.004 | 0.001 | - | - | 0.010 |
| BEC58P | 12.908 | 0.824 | 12.908 | 0.824 | 2.686 | 0.298 | 30.447 |
| Bell 206L-4T Long Ranger 250B17 NONE | 0.037 | - | 0.037 | - | - | - | 0.073 |
| Boeing 727-200 Series 1PW004 NONE | 0.001 | 0.000 | 0.001 | 0.000 | - | - | 0.003 |
| Boeing 737-800 Series 4CM039 NONE | 0.011 | 0.004 | 0.013 | 0.002 | - | - | 0.029 |
| Boeing 757-200 Series 4PW073 NONE | 0.004 | 0.001 | 0.004 | 0.001 | - | - | 0.010 |
| Boeing CH-46 Sea Knight T588F NONE | 0.046 | - | 0.046 | - | - | - | 0.092 |
| Boeing DC-10-10 Series 3GE076 NONE | 0.001 | 0.000 | 0.001 | 0.000 | - | - | 0.003 |
| Boeing F/A-18 Hornet F4044 NONE | 0.065 | - | 0.065 | - | - | - | 0.131 |
| Bombardier Challenger 600 5GE084 NONE | 1.140 | 0.073 | 1.140 | 0.073 | - | - | 2.425 |
| Bombardier Global 5000 Business 4BR009 NONE | 0.177 | 0.011 | 0.177 | 0.011 | - | - | 0.376 |
| Bombardier Learjet 35 1AS002 NONE | 3.800 | 0.243 | 3.800 | 0.243 | - | - | 8.086 |
| CASA CN-235-100 CT79B NONE | 0.166 | - | 0.166 | - | 0.226 | - | 0.557 |
| Cessna 150 Series O200 NONE | 18.144 | 1.016 | 18.144 | 1.016 | 27.234 | 3.026 | 68.580 |
| Cessna 172 Skyhawk IO360 NONE | 1.270 | 0.081 | 1.270 | 0.081 | - | - | 2.702 |
| Cessna 182 IO360 NONE | 1.791 | 0.114 | 1.791 | 0.114 | - | - | 3.811 |
| Cessna 206 TIO540 IO-540-AC | 1.261 | 0.080 | 1.261 | 0.080 | - | - | 2.683 |
| Cessna 208 Caravan PT6A14 NONE | 2.081 | 0.133 | 2.081 | 0.133 | - | - | 4.428 |
| Cessna 441 Conquest II TPE10A NONE | 1.669 | 0.107 | 1.669 | 0.107 | - | - | 3.551 |
| Cessna 500 Citation I 1PW038 NONE | 1.451 | 0.093 | 1.451 | 0.093 | - | - | 3.087 |
| Cessna 550 Citation II 1PW036 NONE | 1.283 | 0.082 | 1.283 | 0.082 | - | - | 2.730 |
| Cessna 650 Citation III 1AS001 NONE | 0.113 | 0.007 | 0.113 | 0.007 | - | - | 0.240 |
| Cessna 680 Citation Sovereign 7PW078 NONE | 0.500 | 0.032 | 0.500 | 0.032 | - | - | 1.063 |
| Cessna 750 Citation X 6AL024 NONE | 0.201 | 0.013 | 0.201 | 0.013 | - | - | 0.427 |
| COMSEP | 5.254 | 0.335 | 5.254 | 0.335 | 1.705 | 0.189 | 13.074 |
| DeHavilland DHC-6-100 Twin Otter PT6A20 NONE | 10.259 | 0.655 | 10.259 | 0.655 | - | - | 21.827 |
| Eclipse 500 / PW610F PW610F NONE | 0.128 | 0.008 | 0.128 | 0.008 | - | - | 0.272 |
| Embraer ERJ145 6AL008 NONE | 0.002 | 0.001 | 0.003 | 0.000 | - | - | 0.006 |
| Gulfstream G400 6RR042 NONE | 0.674 | 0.043 | 0.674 | 0.043 | - | - | 1.433 |

| Aircraft | 2019 Existing Condition | | | | | | |
|---|---|---|---|---|---|---|---|
| | Arrivals | | Departures | | TGO | | |
| | Day | Night | Day | Night | Day | Night | Total |
| Gulfstream G500 4BR003 NONE | 0.177 | 0.011 | 0.177 | 0.011 | - | - | 0.376 |
| Hughes 500D 250B17 NONE | 0.182 | - | 0.182 | - | - | - | 0.363 |
| Israel IAI-1125 Astra 1AS002 NONE | 0.195 | 0.012 | 0.195 | 0.012 | - | - | 0.415 |
| Lockheed C-130 Hercules T56A14 NONE | 0.951 | - | 0.951 | | 2.629 | | 4.530 |
| Lockheed P-3 Orion ANP:P3A T56A14 T56-A-14 | 0.986 | - | 0.986 | - | - | - | 1.971 |
| McDonnell Douglas A-4 Skyhawk J52P4 NONE | 0.083 | - | 0.083 | - | - | - | 0.166 |
| Mitsubishi MU-300 Diamond 1PW037 NONE | 0.317 | 0.020 | 0.317 | 0.020 | - | - | 0.674 |
| Piper PA-24 Comanche TIO540 NONE | 30.248 | 1.870 | 30.248 | 1.870 | 50.831 | 5.648 | 120.715 |
| Piper PA-30 Twin Comanche IO320 NONE | 1.638 | 0.105 | 1.638 | 0.105 | - | - | 3.486 |
| Piper PA-42 Cheyenne Series PT6A41 NONE | 0.422 | 0.027 | 0.422 | 0.027 | - | - | 0.898 |
| Robinson R44 Raven / Lycoming O-540-F1B5 TIO540 NONE | 0.435 | - | 0.435 | - | - | - | 0.869 |
| Rockwell T-2 Buckeye J852 NONE | 0.092 | - | 0.092 | - | - | - | 0.185 |
| Saab 340-A CT7-5 NONE | 0.700 | 0.045 | 0.700 | 0.045 | | | 1.490 |
| Sikorsky SH-60 Sea Hawk T70041 NONE | 0.674 | - | 0.674 | - | - | - | 1.347 |
| T-38 Talon J855HA NONE | 0.110 | - | 0.110 | - | - | - | 0.220 |
| **Grand Total** | **102.045** | **6.047** | **102.049** | **6.043** | **85.312** | **9.162** | **310.658** |

TGO = Touch and Go
Day = 7:00 a.m. to 9:59 p.m.; Night = 10:00 p.m. to 6:59 a.m.
Values reflect rounding.
Source: AECOM, 2020.



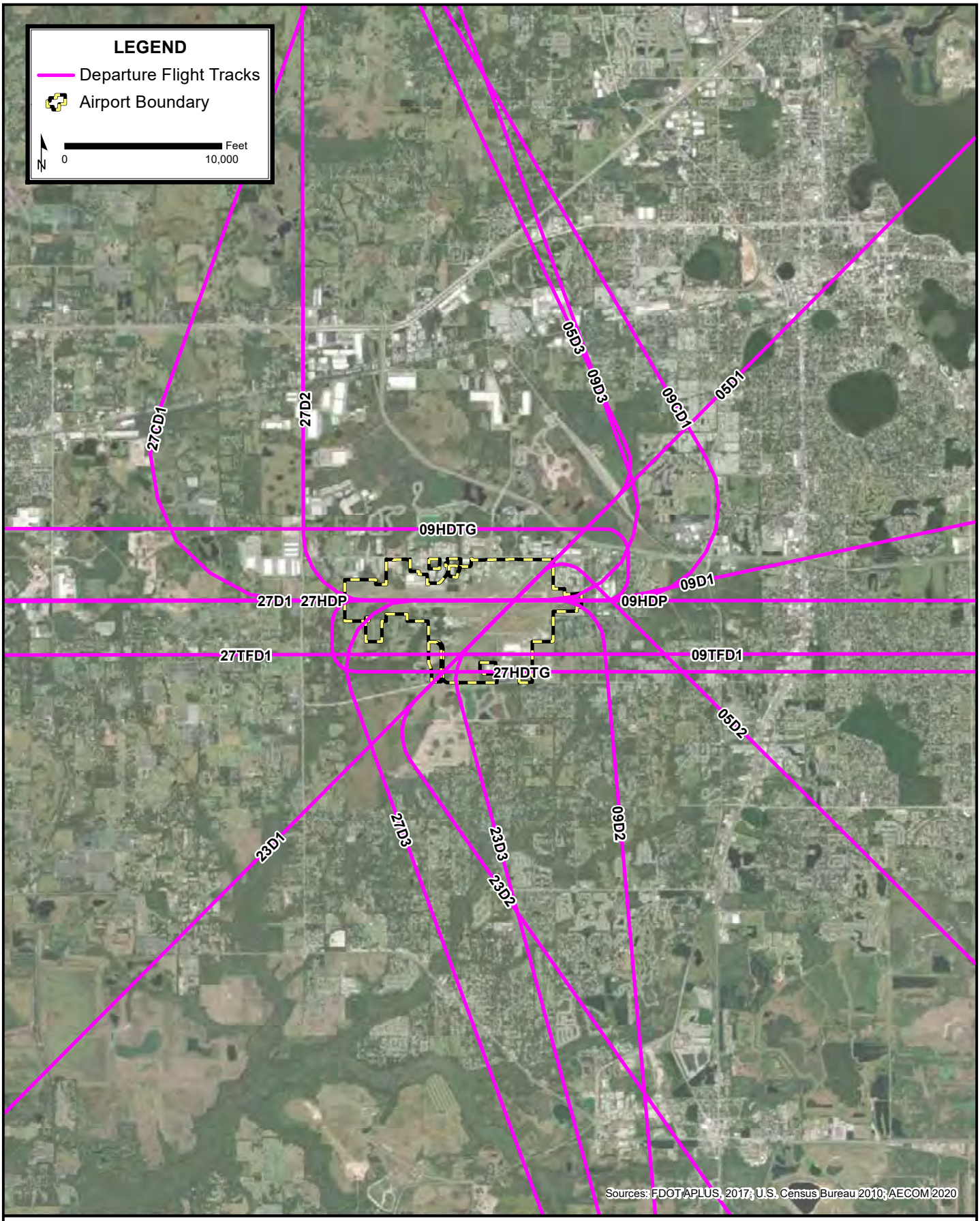

Path: C:\Users\tia.norman\Desktop\Amazon\GIS\mxd\Draft EA\Figure 1-3-1a Flight Tracks Approach_rev0.mxd, Date Saved: 9/24/2020 3:16:46 PM

**LAKELAND LINDER INTERNATIONAL AIRPORT**

**PHASE II AIR CARGO DEVELOPMENT ENVIRONMENTAL ASSESSMENT**

**APPROACH FLIGHT TRACKS**

FIGURE 1.3-1a



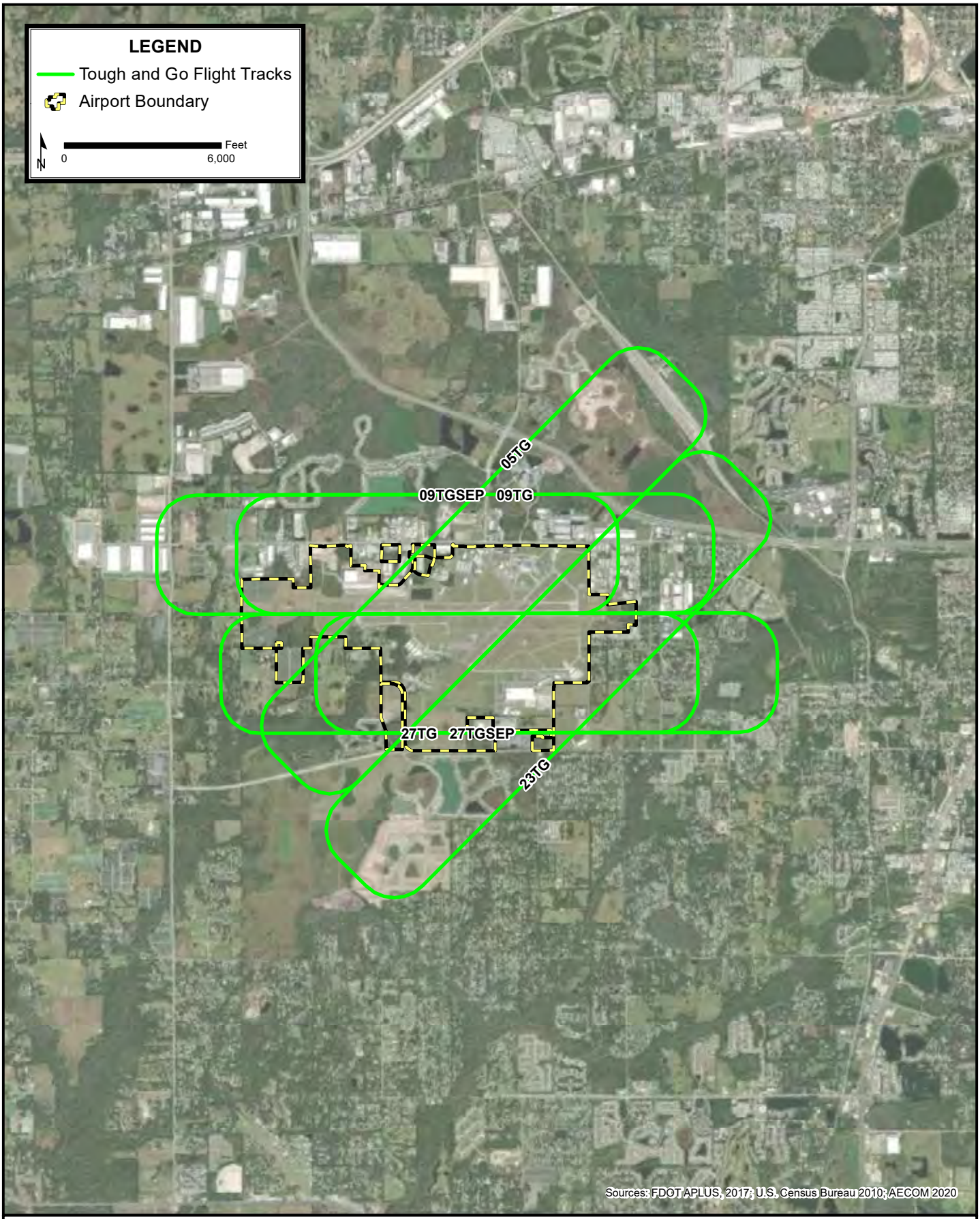

Path: C:\Users\tia.norman\Desktop\Amazon\GIS\mxd\Draft EA\Figure 1-3-1b Flight Tracks Depart_rev0.mxd, Date Saved: 9/24/2020 2:38:44 PM

**LAKELAND LINDER INTERNATIONAL AIRPORT**

**PHASE II AIR CARGO DEVELOPMENT ENVIRONMENTAL ASSESSMENT**

**DEPARTURE FLIGHT TRACKS**

FIGURE 1.3-1b




Path: C:\Users\tia.norman\Desktop\Amazon\GIS\mxd\Draft EA\Figure 1-3-1c Flight Tracks TGO_rev01.mxd, Date Saved: 9/24/2020 3:11:57 PM

**LAKELAND LINDER INTERNATIONAL AIRPORT**

**PHASE II AIR CARGO DEVELOPMENT ENVIRONMENTAL ASSESSMENT**

**TOUCH AND GO FLIGHT TRACKS**

FIGURE 1.3-1c

**Table 1.3-2 2019 Runway Utilization**

| Aircraft | Operation Type | Runway | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | 5 | 9 | 23 | 27 | 09H | 09TF | 27H | 27TF |
| Aerospatiale SA-350D Astar (AS-350) TPE3 NONE | Arrivals | - | - | - | - | 60.00% | - | 40.00% | - |
| | Departures | - | - | - | - | 60.00% | - | 40.00% | - |
| Agusta A-109 250B17 NONE | Arrivals | - | - | - | - | 60.00% | - | 40.00% | - |
| | Departures | - | - | - | - | 60.00% | - | 40.00% | - |
| Airbus A320-200 Series 2CM018 NONE | Arrivals | - | 55.00% | - | 45.00% | - | - | - | - |
| | Departures | - | 55.00% | - | 45.00% | - | - | - | - |
| BEC58P | Arrivals | 20.00% | 36.00% | 14.00% | 30.00% | - | - | - | - |
| | Departures | 20.00% | 36.00% | 14.00% | 30.00% | - | - | - | - |
| | TGO | 20.00% | 36.00% | 14.00% | 30.00% | - | - | - | - |
| Bell 206L-4T Long Ranger 250B17 NONE | Arrivals | - | - | - | - | 60.00% | - | 40.00% | - |
| | Departures | - | - | - | - | 60.00% | - | 40.00% | - |
| Boeing 727-200 Series 1PW004 NONE | Arrivals | - | 55.00% | - | 45.00% | - | - | - | - |
| | Departures | - | 55.00% | - | 45.00% | - | - | - | - |
| Boeing 737-800 Series 4CM039 NONE | Arrivals | - | 55.00% | - | 45.00% | - | - | - | - |
| | Departures | - | 55.00% | - | 45.00% | - | - | - | - |
| Boeing 757-200 Series 4PW073 NONE | Arrivals | - | 55.00% | - | 45.00% | - | - | - | - |
| | Departures | - | 55.00% | - | 45.00% | - | - | - | - |
| Boeing CH-46 Sea Knight T588F NONE | Arrivals | - | - | - | - | 60.00% | - | 40.00% | - |
| | Departures | - | - | - | - | 60.00% | - | 40.00% | - |
| Boeing DC-10-10 Series 3GE076 NONE | Arrivals | - | 55.00% | - | 45.00% | - | - | - | - |
| | Departures | - | 55.00% | - | 45.00% | - | - | - | - |
| Boeing F/A-18 Hornet F4044 NONE | Arrivals | - | 55.00% | - | 45.00% | - | - | - | - |
| | Departures | - | 55.00% | - | 45.00% | - | - | - | - |
| Bombardier Challenger 600 5GE084 NONE | Arrivals | 20.00% | 36.00% | 14.00% | 30.00% | - | - | - | - |
| | Departures | 20.00% | 36.00% | 14.00% | 30.00% | - | - | - | - |
| Bombardier Global 5000 Business 4BR009 NONE | Arrivals | 20.00% | 36.00% | 14.00% | 30.00% | - | - | - | - |
| | Departures | 20.00% | 36.00% | 14.00% | 30.00% | - | - | - | - |
| Bombardier Learjet 35 1AS002 NONE | Arrivals | 20.00% | 36.00% | 14.00% | 30.00% | - | - | - | - |
| | Departures | 20.00% | 36.00% | 14.00% | 30.00% | - | - | - | - |
| CASA CN-235-100 CT79B NONE | Arrivals | - | 55.00% | - | 45.00% | - | - | - | - |
| | Departures | - | 55.00% | - | 45.00% | - | - | - | - |
| | TGO | - | 60.00% | - | 40.00% | - | - | - | - |
| Cessna 150 Series O200 NONE | Arrivals | 17.67% | 31.81% | 12.37% | 26.51% | - | 6.40% | - | 5.24% |
| | Departures | 17.67% | 31.81% | 12.37% | 26.51% | - | 6.40% | - | 5.24% |

| Aircraft | Operation Type | Runway | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | 5 | 9 | 23 | 27 | 09H | 09TF | 27H | 27TF |
| | TGO | 20.00% | 36.00% | 14.00% | 30.00% | - | - | - | - |
| Cessna 172 Skyhawk IO360 NONE | Arrivals | 20.00% | 36.00% | 14.00% | 30.00% | - | - | - | - |
| | Departures | 20.00% | 36.00% | 14.00% | 30.00% | - | - | - | - |
| Cessna 182 IO360 NONE | Arrivals | 20.00% | 36.00% | 14.00% | 30.00% | - | - | - | - |
| | Departures | 20.00% | 36.00% | 14.00% | 30.00% | - | - | - | - |
| Cessna 206 TIO540 IO-540-AC | Arrivals | 20.00% | 36.00% | 14.00% | 30.00% | - | - | - | - |
| | Departures | 20.00% | 36.00% | 14.00% | 30.00% | - | - | - | - |
| Cessna 208 Caravan PT6A14 NONE | Arrivals | 20.00% | 36.00% | 14.00% | 30.00% | - | - | - | - |
| | Departures | 20.00% | 36.00% | 14.00% | 30.00% | - | - | - | - |
| Cessna 441 Conquest II TPE10A NONE | Arrivals | 20.00% | 36.00% | 14.00% | 30.00% | - | - | - | - |
| | Departures | 20.00% | 36.00% | 14.00% | 30.00% | - | - | - | - |
| Cessna 500 Citation I 1PW038 NONE | Arrivals | 20.00% | 36.00% | 14.00% | 30.00% | - | - | - | - |
| | Departures | 20.00% | 36.00% | 14.00% | 30.00% | - | - | - | - |
| Cessna 550 Citation II 1PW036 NONE | Arrivals | 20.00% | 36.00% | 14.00% | 30.00% | - | - | - | - |
| | Departures | 20.00% | 36.00% | 14.00% | 30.00% | - | - | - | - |
| Cessna 650 Citation III 1AS001 NONE | Arrivals | 20.00% | 36.00% | 14.00% | 30.00% | - | - | - | - |
| | Departures | 20.00% | 36.00% | 14.00% | 30.00% | - | - | - | - |
| Cessna 680 Citation Sovereign 7PW078 NONE | Arrivals | 20.00% | 36.00% | 14.00% | 30.00% | - | - | - | - |
| | Departures | 20.00% | 36.00% | 14.00% | 30.00% | - | - | - | - |
| Cessna 750 Citation X 6AL024 NONE | Arrivals | 20.00% | 36.00% | 14.00% | 30.00% | - | - | - | - |
| | Departures | 20.00% | 36.00% | 14.00% | 30.00% | - | - | - | - |
| COMSEP | Arrivals | 20.00% | 36.00% | 14.00% | 30.00% | - | - | - | - |
| | Departures | 20.00% | 36.00% | 14.00% | 30.00% | - | - | - | - |
| | TGO | 20.00% | 36.00% | 14.00% | 30.00% | - | - | - | - |
| DeHavilland DHC-6-100 Twin Otter PT6A20 NONE | Arrivals | 20.00% | 36.00% | 14.00% | 30.00% | - | - | - | - |
| | Departures | 20.00% | 36.00% | 14.00% | 30.00% | - | - | - | - |
| Eclipse 500 / PW610F PW610F NONE | Arrivals | 20.00% | 36.00% | 14.00% | 30.00% | - | - | - | - |
| | Departures | 20.00% | 36.00% | 14.00% | 30.00% | - | - | - | - |
| Embraer ERJ145 6AL008 NONE | Arrivals | - | 55.00% | - | 45.00% | - | - | - | - |
| | Departures | - | 55.00% | - | 45.00% | - | - | - | - |
| Gulfstream G400 6RR042 NONE | Arrivals | 20.00% | 36.00% | 14.00% | 30.00% | - | - | - | - |
| | Departures | 20.00% | 36.00% | 14.00% | 30.00% | - | - | - | - |
| Gulfstream G500 4BR003 NONE | Arrivals | 20.00% | 36.00% | 14.00% | 30.00% | - | - | - | - |
| | Departures | 20.00% | 36.00% | 14.00% | 30.00% | - | - | - | - |
| Hughes 500D 250B17 NONE | Arrivals | - | - | - | - | 60.00% | - | 40.00% | - |
| | Departures | - | - | - | - | 60.00% | - | 40.00% | - |

| Aircraft | Operation Type | Runway | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | 5 | 9 | 23 | 27 | 09H | 09TF | 27H | 27TF |
| Israel IAI-1125 Astra 1AS002 NONE | Arrivals | 20.00% | 36.00% | 14.00% | 30.00% | - | - | - | - |
| | Departures | 20.00% | 36.00% | 14.00% | 30.00% | - | - | - | - |
| Lockheed C-130 Hercules T56A14 NONE | Arrivals | - | 55.00% | - | 45.00% | - | - | - | - |
| | Departures | - | 55.00% | - | 45.00% | - | - | - | - |
| | TGO | - | 60.00% | - | 40.00% | - | - | - | - |
| Lockheed P-3 Orion ANP:P3A T56A14 T56-A-14 | Arrivals | - | 55.00% | - | 45.00% | - | - | - | - |
| | Departures | - | 55.00% | - | 45.00% | - | - | - | - |
| McDonnell Douglas A-4 Skyhawk J52P4 NONE | Arrivals | - | 55.00% | - | 45.00% | - | - | - | - |
| | Departures | - | 55.00% | - | 45.00% | - | - | - | - |
| Mitsubishi MU-300 Diamond 1PW037 NONE | Arrivals | 20.00% | 36.00% | 14.00% | 30.00% | - | - | - | - |
| | Departures | 20.00% | 36.00% | 14.00% | 30.00% | - | - | - | - |
| Piper PA-24 Comanche TIO540 NONE | Arrivals | 19.41% | 34.93% | 13.58% | 29.11% | - | 1.64% | - | 1.34% |
| | Departures | 19.41% | 34.93% | 13.58% | 29.11% | - | 1.64% | - | 1.34% |
| | TGO | 20.00% | 36.00% | 14.00% | 30.00% | - | - | - | - |
| Piper PA-30 Twin Comanche IO320 NONE | Arrivals | 20.00% | 36.00% | 14.00% | 30.00% | - | - | - | - |
| | Departures | 20.00% | 36.00% | 14.00% | 30.00% | - | - | - | - |
| Piper PA-42 Cheyenne Series PT6A41 NONE | Arrivals | 20.00% | 36.00% | 14.00% | 30.00% | - | - | - | - |
| | Departures | 20.00% | 36.00% | 14.00% | 30.00% | - | - | - | - |
| Robinson R44 Raven / Lycoming O-540-F1B5 TIO540 NONE | Arrivals | - | - | - | - | 60.00% | - | 40.00% | - |
| | Departures | - | - | - | - | 60.00% | - | 40.00% | - |
| Rockwell T-2 Buckeye J852 NONE | Arrivals | - | 55.00% | - | 45.00% | - | - | - | - |
| | Departures | - | 55.00% | - | 45.00% | - | - | - | - |
| Saab 340-A CT7-5 NONE | Arrivals | 20.00% | 36.00% | 14.00% | 30.00% | - | - | - | - |
| | Departures | 20.00% | 36.00% | 14.00% | 30.00% | - | - | - | - |
| Sikorsky SH-60 Sea Hawk T70041 NONE | Arrivals | - | - | - | - | 60.00% | - | 40.00% | - |
| | Departures | - | - | - | - | 60.00% | - | 40.00% | - |
| T-38 Talon J855HA NONE | Arrivals | - | 55.00% | - | 45.00% | - | - | - | - |
| | Departures | - | 55.00% | - | 45.00% | - | - | - | - |

**Table 1.3-3 2019 Existing Condition Flight Track Utilization**

| Arrival Track | Utilization | Departure Track | Utllization | TGO Track | Utilization |
|---|---|---|---|---|---|
| 05A1 | 1.81% | 05D1 | 2.79% | 05TG | 5.90% |
| 05A2 | 0.91% | 05D2 | 0.91% | 09TG | 0.55% |
| 05A3 | 3.76% | 05D3 | 2.79% | 09TGSEP | 10.62% |
| 09A1 | 3.00% | 09CD1 | 3.50% | 23TG | 4.13% |
| 09A2 | 3.27% | 09D1 | 2.30% | 27TG | 0.37% |
| 09A3 | 1.40% | 09D2 | 2.45% | 27TGSEP | 8.85% |
| 09A4 | 4.43% | 09D3 | 3.85% | | |
| 09HAP | 0.27% | 09HDP | 0.27% | | |
| 09HATG | 0.08% | 09HDTG | 0.08% | | |
| 09TFA1 | 0.56% | 09TFD1 | 0.56% | | |
| 23A1 | 2.27% | 23D1 | 0.91% | | |
| 23A2 | 1.36% | 23D2 | 2.27% | | |
| 23A3 | 0.91% | 23D3 | 1.36% | | |
| 27A1 | 3.27% | 27CD1 | 1.68% | | |
| 27A2 | 1.46% | 27D1 | 2.20% | | |
| 27A3 | 3.89% | 27D2 | 3.75% | | |
| 27A4 | 1.46% | 27D3 | 2.45% | | |
| 27HAP | 0.18% | 27HDP | 0.18% | | |
| 27HATG | 0.05% | 27HDTG | 0.05% | | |
| 27TFA1 | 0.46% | 27TFD1 | 0.46% | | |
| *Subtotal* | *34.79%* | *Subtotal* | *34.79%* | *Subtotal* | *30.41%* |

**Table 1.3-4 Land Use Compatibility with Yearly Day-Night Average Sound Levels**

| | Yearly Day-Night Average Sound Level (DNL) | | | | | |
|---|---|---|---|---|---|---|
| | **Below 65 Decibels** | **65-70 Decibels** | **70-75 Decibels** | **75-80 Decibels** | **80-85 Decibels** | **Over 85 Decibels** |
| **Residential** | | | | | | |
| Residential (Other than mobile homes & transient lodges) | Y | N[1] | N[1] | N | N | N |
| Mobile Home Parks | Y | N | N | N | N | N |
| Transient Lodging | Y | N[1] | N[1] | N[1] | N | N |
| **Public Use** | | | | | | |
| Schools | Y | N[1] | N[1] | N | N | N |
| Hospitals, Nursing Homes | Y | 25 | 30 | N | N | N |
| Churches, Auditoriums, Concert Halls | Y | 25 | 30 | N | N | N |
| Governmental Services | Y | Y | 25 | 30 | N | N |
| Transportation | Y | Y | Y[2] | Y[3] | Y[4] | Y[4] |
| Parking | Y | Y | Y[2] | Y[3] | Y[4] | N |
| **Commercial Use** | | | | | | |
| Offices, Business & Professional | Y | Y | 25 | 30 | N | N |
| Wholesale & Retail Building Materials, Hardware & Farm Equipment | Y | Y | Y[2] | Y[3] | Y[4] | N |
| Retail Trade - General | Y | Y | 25 | 30 | N | N |
| Utilities | Y | Y | Y[2] | Y[3] | Y[4] | N |
| Communications | Y | Y | 25 | 30 | N | N |
| **Manufacturing & Production** | | | | | | |
| Manufacturing, General | Y | Y | Y[2] | Y[3] | Y[4] | N |
| Photographic and Optical | Y | Y | 25 | 30 | N | N |

| | Yearly Day-Night Average Sound Level (DNL) | | | | | |
|---|---|---|---|---|---|---|
| | **Below 65 Decibels** | **65-70 Decibels** | **70-75 Decibels** | **75-80 Decibels** | **80-85 Decibels** | **Over 85 Decibels** |
| Agriculture (Except Livestock) & Forestry | Y | Y[6] | Y[7] | Y[8] | Y[8] | Y[8] |
| Livestock Farming & Breeding | Y | Y[6] | Y[7] | N | N | N |
| Mining & Fishing, Resource Production & Extraction | Y | Y | Y | Y | Y | Y |
| **Recreational** | | | | | | |
| Outdoor Sports Arenas, Spectator Sports | Y | Y[5] | Y[5] | N | N | N |
| Outdoor Music Shells, Amphitheaters | Y | N | N | N | N | N |
| Nature Exhibits & Zoos | Y | Y | N | N | N | N |
| Amusement, Parks, Resorts, Camps | Y | Y | Y | N | N | N |
| Golf Courses, Riding Stables, Water Recreation | Y | Y | 25 | 30 | N | N |

NOTE: The responsibility for determining the acceptable and permissible land uses and the relationship between specific properties remains with the local authorities. FAA determinations under Part 150 are not intended to substitute federally determined land use for those determined to be appropriate by local authorities in response to locally determined needs and values in achieving noise-compatible land uses.

| | |
|---|---|
| Y (Yes) | Land Use and related structures are compatible without restrictions. |
| N (No) | Land Use and related structures are not compatible and should be prohibited. |
| NLR | Noise Level Reduction (outdoor to indoor) are to be achieved through incorporation of noise attenuation into the design and construction of structure. |
| 25, 30, or 35 | Land use and related structures are generally compatible; measures to achieve NLR of 25, 30, or 35 dB must be incorporated in design and construction of structure. |

[1] Where the community determines that residential or school uses must be allowed, measures to achieve outdoor to indoor NLR of at least 25 dB and 30 dB should be incorporated into building codes and be considered in individual approvals. Normal residential construction can be expected to provide a NLR of 20 dB, thus, the reduction requirements are often stated as 5, 10 or 15 dB over standard construction and normally assume mechanical ventilation and closed windows year round. However, the use of NLR criteria will not eliminate outdoor noise problems.

[2] Measures to achieve NLR of 25 dB must be incorporated into the design and construction of portions of the buildings where the public is received, office areas, noise-sensitive areas, or where the normal noise level is low.

[3] Measures to achieve NLR of 30 dB must be incorporated into the design and construction of portions of the buildings where the public is received, office areas, noise-sensitive areas, or where the normal noise level is low.

[4] Measures to achieve NLR of 35 dB must be incorporated into the design and construction of portions of the buildings where the public is received, office areas, noise-sensitive areas, or where the normal noise level is low.

[5] Land use compatibility provided special sound reinforcement systems are installed.

[6] Residential buildings require an NLR of 25 dB.

[7] Residential buildings require an NLR of 30 dB.

[8] Residential buildings not permitted.

Noncompatible land use

Source: Title 14 CFR part 150, 2007.

### 1.3.2. FUTURE CONDITIONS NOISE MODELING ASSUMPTIONS

**Flight Operations**

**Table 1.3-5** shows the AEDT-modeled average annual daily operations for the 2022 No-Action Alternative and Proposed Project conditions by aircraft at LAL. **Table 1.3-6** shows the AEDT-modeled average annual daily operations for the 2027 No-Action Alternative and Proposed Project conditions.

**Runway Use**

Runway utilization for the 2022 and 2027 scenarios are provided in **Tables 1.3-7** and **1.3-8**. There is no change from the No-Action Alternative and the Proposed Project conditions.

**Flight Tracks**

Flight tracks remain unchanged from the Existing Condition.

**Track Use**

Utilization percentages of the flight tracks are summarized in **Table 1.3-9** for arrivals, departures, and TGO tracks for the 2022 No-Action Alternative, 2022 Proposed Project, 2027 No-Action Alternative, and 2027 Proposed Project scenarios.

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**Table 1.3-5 2022 Average Annual Daily Operations at LAL**

| Aircraft | 2022 No-Action Alternative | | | | | | | 2022 Proposed Project | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Arrivals | | Departures | | TGO | | | Arrivals | | Departures | | TGO | | |
| | Day | Night | Day | Night | Day | Night | Total | Day | Night | Day | Night | Day | Night | Total |
| Aerospatiale SA-350D Astar (AS-350) TPE3 NONE | 1.055 | - | 1.055 | - | - | - | 2.110 | 1.055 | - | 1.055 | - | - | - | 2.110 |
| Agusta A-109 250B17 NONE | 0.396 | - | 0.396 | - | - | - | 0.791 | 0.396 | - | 0.396 | - | - | - | 0.791 |
| Airbus A319-100 Series 7CM050 NONE | 0.432 | 0.144 | 0.507 | 0.069 | - | - | 1.153 | 0.432 | 0.144 | 0.507 | 0.069 | - | - | 1.153 |
| Airbus A320-200 Series 2CM018 NONE | 0.185 | 0.062 | 0.217 | 0.030 | - | - | 0.494 | 0.185 | 0.062 | 0.217 | 0.030 | - | - | 0.494 |
| BEC58P | 7.499 | 0.479 | 7.499 | 0.479 | 16.034 | 1.782 | 33.771 | 7.499 | 0.479 | 7.499 | 0.479 | 16.034 | 1.782 | 33.771 |
| Bell 206L-4T Long Ranger 250B17 NONE | 0.132 | - | 0.132 | - | - | - | 0.264 | 0.132 | - | 0.132 | - | - | - | 0.264 |
| Boeing 737-800 Series 4CM039 NONE | 0.766 | 0.255 | 0.899 | 0.123 | - | - | 2.043 | 0.766 | 0.255 | 0.899 | 0.123 | - | - | 2.043 |
| Boeing 737-800 Series 4CM039 NONE (CARGO) | 4.000 | 2.000 | 4.000 | 2.000 | | | 12.000 | 7.000 | 7.000 | 7.000 | 6.000 | - | - | 27.000 |
| Boeing 757-200 Series 4PW073 NONE | 0.377 | 0.126 | 0.443 | 0.060 | - | - | 1.006 | 0.377 | 0.126 | 0.443 | 0.060 | - | - | 1.006 |
| Boeing 767-300 ER Freighter 2GE054 NONE | 2.000 | 2.000 | 3.000 | 1.000 | | | 8.000 | 2.000 | 2.000 | 3.000 | 2.000 | - | - | 9.000 |
| Boeing F/A-18 Hornet F4044 NONE | 0.071 | - | 0.071 | | - | - | 0.142 | 0.071 | - | 0.071 | - | - | - | 0.142 |
| Bombardier Challenger 600 5GE084 NONE | 1.610 | 0.103 | 1.610 | 0.103 | - | - | 3.425 | 1.610 | 0.103 | 1.610 | 0.103 | - | - | 3.425 |
| Bombardier Global 5000 Business 4BR009 NONE | 0.250 | 0.016 | 0.250 | 0.016 | - | - | 0.531 | 0.250 | 0.016 | 0.250 | 0.016 | - | - | 0.531 |
| Bombardier Learjet 35 1AS002 NONE | 5.367 | 0.343 | 5.367 | 0.343 | - | - | 11.420 | 5.367 | 0.343 | 5.367 | 0.343 | - | - | 11.420 |
| CASA CN-235-100 CT79B NONE | 0.182 | - | 0.182 | - | 0.131 | - | 0.496 | 0.182 | | 0.182 | | 0.131 | - | 0.496 |
| Cessna 150 Series O200 NONE | 24.063 | 1.390 | 24.063 | 1.390 | 27.452 | 3.050 | 81.409 | 24.063 | 1.390 | 24.063 | 1.390 | 27.452 | 3.050 | 81.409 |
| Cessna 172 Skyhawk IO360 NONE | 1.690 | 0.108 | 1.690 | 0.108 | - | - | 3.595 | 1.690 | 0.108 | 1.690 | 0.108 | - | - | 3.595 |
| Cessna 182 IO360 NONE | 2.383 | 0.152 | 2.383 | 0.152 | - | - | 5.070 | 2.383 | 0.152 | 2.383 | 0.152 | - | - | 5.070 |
| Cessna 206 TIO540 IO-540-AC | 1.678 | 0.107 | 1.678 | 0.107 | - | - | 3.569 | 1.678 | 0.107 | 1.678 | 0.107 | - | - | 3.569 |
| Cessna 208 Caravan PT6A14 NONE | 1.212 | 0.077 | 1.212 | 0.077 | - | - | 2.579 | 1.212 | 0.077 | 1.212 | 0.077 | - | - | 2.579 |
| Cessna 441 Conquest II TPE10A NONE | 0.972 | 0.062 | 0.972 | 0.062 | 2.830 | 0.314 | 5.212 | 0.972 | 0.062 | 0.972 | 0.062 | 2.830 | 0.314 | 5.212 |
| Cessna 500 Citation I 1PW038 NONE | 2.049 | 0.131 | 2.049 | 0.131 | - | - | 4.359 | 2.049 | 0.131 | 2.049 | 0.131 | - | - | 4.359 |
| Cessna 550 Citation II 1PW036 NONE | 1.812 | 0.116 | 1.812 | 0.116 | - | - | 3.856 | 1.812 | 0.116 | 1.812 | 0.116 | - | - | 3.856 |
| Cessna 650 Citation III 1AS001 NONE | 0.159 | 0.010 | 0.159 | 0.010 | - | - | 0.339 | 0.159 | 0.010 | 0.159 | 0.010 | - | - | 0.339 |
| Cessna 680 Citation Sovereign 7PW078 NONE | 0.706 | 0.045 | 0.706 | 0.045 | - | - | 1.502 | 0.706 | 0.045 | 0.706 | 0.045 | - | - | 1.502 |
| Cessna 750 Citation X 6AL024 NONE | 0.284 | 0.018 | 0.284 | 0.018 | - | - | 0.604 | 0.284 | 0.018 | 0.284 | 0.018 | - | - | 0.604 |
| COMSEP | 6.990 | 0.446 | 6.990 | 0.446 | 1.718 | 0.191 | 16.782 | 6.990 | 0.446 | 6.990 | 0.446 | 1.718 | 0.191 | 16.782 |
| DeHavilland DHC-6-100 Twin Otter PT6A20 NONE | 5.975 | 0.381 | 5.975 | 0.381 | - | - | 12.713 | 5.975 | 0.381 | 5.975 | 0.381 | - | - | 12.713 |
| Eclipse 500 / PW610F PW610F NONE | 0.181 | 0.012 | 0.181 | 0.012 | - | - | 0.385 | 0.181 | 0.012 | 0.181 | 0.012 | - | - | 0.385 |
| Gulfstream G400 6RR042 NONE | 0.951 | 0.061 | 0.951 | 0.061 | - | - | 2.024 | 0.951 | 0.061 | 0.951 | 0.061 | - | - | 2.024 |
| Gulfstream G500 4BR003 NONE | 0.250 | 0.016 | 0.250 | 0.016 | - | - | 0.531 | 0.250 | 0.016 | 0.250 | 0.016 | - | - | 0.531 |
| Hughes 500D 250B17 NONE | 0.660 | - | 0.660 | - | - | - | 1.319 | 0.660 | - | 0.660 | - | - | - | 1.319 |
| Israel IAI-1125 Astra 1AS002 NONE | 0.275 | 0.018 | 0.275 | 0.018 | - | - | 0.586 | 0.275 | 0.018 | 0.275 | 0.018 | - | - | 0.586 |
| Lockheed C-130 Hercules T56A14 NONE | 1.044 | - | 1.044 | - | 1.523 | - | 3.611 | 1.044 | - | 1.044 | - | 1.523 | - | 3.611 |
| Lockheed P-3 Orion ANP:P3A T56A14 T56-A-14 | 1.085 | - | 1.085 | - | - | - | 2.169 | 1.085 | - | 1.085 | - | - | - | 2.169 |
| Mitsubishi MU-300 Diamond 1PW037 NONE | 0.448 | 0.029 | 0.448 | 0.029 | - | - | 0.952 | 0.448 | 0.029 | 0.448 | 0.029 | - | - | 0.952 |
| Piper PA-24 Comanche TIO540 NONE | 40.190 | 2.503 | 40.190 | 2.503 | 51.238 | 5.693 | 142.317 | 40.190 | 2.503 | 40.190 | 2.503 | 51.238 | 5.693 | 142.317 |
| Piper PA-30 Twin Comanche IO320 NONE | 0.954 | 0.061 | 0.954 | 0.061 | - | - | 2.029 | 0.954 | 0.061 | 0.954 | 0.061 | - | - | 2.029 |
| Piper PA-42 Cheyenne Series PT6A41 NONE | 0.246 | 0.016 | 0.246 | 0.016 | - | - | 0.523 | 0.246 | 0.016 | 0.246 | 0.016 | - | - | 0.523 |
| Robinson R44 Raven / Lycoming O-540-F1B5 TIO540 NONE | 4.519 | - | 4.519 | - | - | - | 9.037 | 4.519 | - | 4.519 | - | - | - | 9.037 |
| Saab 340-A CT7-5 NONE | 0.408 | 0.026 | 0.408 | 0.026 | - | - | 0.868 | 0.408 | 0.026 | 0.408 | 0.026 | - | - | 0.868 |
| Sikorsky SH-60 Sea Hawk T70041 NONE | 1.897 | - | 1.897 | - | - | - | 3.793 | 1.897 | - | 1.897 | - | - | - | 3.793 |
| **Grand Total** | **127.401** | **11.310** | **128.706** | **10.005** | **100.926** | **11.030** | **389.378** | **130.401** | **16.310** | **131.706** | **15.005** | **100.926** | **11.030** | **405.378** |

TGO = Touch and Go
Day = 7:00 a.m. to 9:59 p.m.; Night = 10:00 p.m. to 6:59 a.m.
Values reflect rounding
Source: AECOM, 2020

**Table 1.3-6 2027 Average Annual Daily Operations at LAL**

| Aircraft | 2027 No-Action Alternative | | | | | | | 2027 Proposed Project | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Arrivals | | Departures | | TGO | | | Arrivals | | Departures | | TGO | | |
| | Day | Night | Day | Night | Day | Night | Total | Day | Night | Day | Night | Day | Night | Total |
| Aerospatiale SA-350D Astar (AS-350) TPE3 NONE | 2.158 | | 2.158 | | | | 4.316 | 2.158 | | 2.158 | | | | 4.316 |
| Agusta A-109 250B17 NONE | 0.809 | | 0.809 | | | | 1.619 | 0.809 | | 0.809 | | | | 1.619 |
| Airbus A319-100 Series 7CM050 NONE | 0.500 | 0.167 | 0.587 | 0.080 | | | 1.335 | 0.500 | 0.167 | 0.587 | 0.080 | | | 1.335 |
| Airbus A320-200 Series 2CM018 NONE | 0.214 | 0.071 | 0.252 | 0.034 | | | 0.572 | 0.214 | 0.071 | 0.252 | 0.034 | | | 0.572 |
| BEC58P | 9.259 | 0.591 | 9.259 | 0.591 | 17.358 | 1.929 | 38.987 | 9.259 | 0.591 | 9.259 | 0.591 | 17.358 | 1.929 | 38.987 |
| Bell 206L-4T Long Ranger 250B17 NONE | 0.270 | | 0.270 | | | | 0.540 | 0.270 | | 0.270 | | | | 0.540 |
| Boeing 737-800 Series 4CM039 NONE | 0.887 | 0.296 | 1.040 | 0.142 | | | 2.364 | 0.887 | 0.296 | 1.040 | 0.142 | | | 2.364 |
| Boeing 737-800 Series 4CM039 NONE (CARGO) | 4.000 | 2.000 | 4.000 | 2.000 | | | 12.000 | 8.000 | 8.000 | 9.000 | 8.000 | | | 33.000 |
| Boeing 757-200 Series 4PW073 NONE | 0.437 | 0.146 | 0.512 | 0.070 | | | 1.164 | 0.437 | 0.146 | 0.512 | 0.070 | | | 1.164 |
| Boeing 767-300 ER Freighter 2GE054 NONE | 2.000 | 2.000 | 3.000 | 1.000 | | | 8.000 | 3.000 | 3.000 | 3.000 | 3.000 | | | 12.000 |
| Boeing F/A-18 Hornet F4044 NONE | 0.072 | | 0.072 | | | | 0.144 | 0.072 | | 0.072 | | | | 0.144 |
| Bombardier Challenger 600 5GE084 NONE | 2.453 | 0.157 | 2.453 | 0.157 | | | 5.220 | 2.453 | 0.157 | 2.453 | 0.157 | | | 5.220 |
| Bombardier Global 5000 Business 4BR009 NONE | 0.380 | 0.024 | 0.380 | 0.024 | | | 0.810 | 0.380 | 0.024 | 0.380 | 0.024 | | | 0.810 |
| Bombardier Learjet 35 1AS002 NONE | 8.180 | 0.522 | 8.180 | 0.522 | | | 17.404 | 8.180 | 0.522 | 8.180 | 0.522 | | | 17.404 |
| CASA CN-235-100 CT79B NONE | 0.186 | | 0.186 | | 0.289 | | 0.660 | 0.186 | | 0.186 | | 0.289 | | 0.660 |
| Cessna 150 Series O200 NONE | 27.251 | 1.587 | 27.251 | 1.587 | 35.188 | 3.910 | 96.774 | 27.251 | 1.587 | 27.251 | 1.587 | 35.188 | 3.910 | 96.774 |
| Cessna 172 Skyhawk IO360 NONE | 1.912 | 0.122 | 1.912 | 0.122 | | | 4.067 | 1.912 | 0.122 | 1.912 | 0.122 | | | 4.067 |
| Cessna 182 IO360 NONE | 2.696 | 0.172 | 2.696 | 0.172 | | | 5.735 | 2.696 | 0.172 | 2.696 | 0.172 | | | 5.735 |
| Cessna 206 TIO540 IO-540-AC | 1.898 | 0.121 | 1.898 | 0.121 | | | 4.038 | 1.898 | 0.121 | 1.898 | 0.121 | | | 4.038 |
| Cessna 208 Caravan PT6A14 NONE | 1.385 | 0.088 | 1.385 | 0.088 | | | 2.948 | 1.385 | 0.088 | 1.385 | 0.088 | | | 2.948 |
| Cessna 441 Conquest II TPE10A NONE | 1.111 | 0.071 | 1.111 | 0.071 | 2.959 | 0.329 | 5.651 | 1.111 | 0.071 | 1.111 | 0.071 | 2.959 | 0.329 | 5.651 |
| Cessna 500 Citation I 1PW038 NONE | 3.122 | 0.199 | 3.122 | 0.199 | | | 6.644 | 3.122 | 0.199 | 3.122 | 0.199 | | | 6.644 |
| Cessna 550 Citation II 1PW036 NONE | 2.762 | 0.176 | 2.762 | 0.176 | | | 5.876 | 2.762 | 0.176 | 2.762 | 0.176 | | | 5.876 |
| Cessna 650 Citation III 1AS001 NONE | 0.243 | 0.015 | 0.243 | 0.015 | | | 0.516 | 0.243 | 0.015 | 0.243 | 0.015 | | | 0.516 |
| Cessna 680 Citation Sovereign 7PW078 NONE | 1.076 | 0.069 | 1.076 | 0.069 | | | 2.289 | 1.076 | 0.069 | 1.076 | 0.069 | | | 2.289 |
| Cessna 750 Citation X 6AL024 NONE | 0.433 | 0.028 | 0.433 | 0.028 | | | 0.921 | 0.433 | 0.028 | 0.433 | 0.028 | | | 0.921 |
| COMSEP | 7.908 | 0.505 | 7.908 | 0.505 | 2.202 | 0.245 | 19.273 | 7.908 | 0.505 | 7.908 | 0.505 | 2.202 | 0.245 | 19.273 |
| DeHavilland DHC-6-100 Twin Otter PT6A20 NONE | 6.830 | 0.436 | 6.830 | 0.436 | | | 14.531 | 6.830 | 0.436 | 6.830 | 0.436 | | | 14.531 |
| Eclipse 500 / PW610F PW610F NONE | 0.276 | 0.018 | 0.276 | 0.018 | | | 0.586 | 0.276 | 0.018 | 0.276 | 0.018 | | | 0.586 |
| Gulfstream G400 6RR042 NONE | 1.450 | 0.093 | 1.450 | 0.093 | | | 3.084 | 1.450 | 0.093 | 1.450 | 0.093 | | | 3.084 |
| Gulfstream G500 4BR003 NONE | 0.380 | 0.024 | 0.380 | 0.024 | | | 0.810 | 0.380 | 0.024 | 0.380 | 0.024 | | | 0.810 |
| Hughes 500D 250B17 NONE | 1.349 | | 1.349 | | | | 2.698 | 1.349 | | 1.349 | | | | 2.698 |
| Israel IAI-1125 Astra 1AS002 NONE | 0.420 | 0.027 | 0.420 | 0.027 | | | 0.893 | 0.420 | 0.027 | 0.420 | 0.027 | | | 0.893 |
| Lockheed C-130 Hercules T56A14 NONE | 1.062 | | 1.062 | | 3.364 | | 5.489 | 1.062 | | 1.062 | | 3.364 | | 5.489 |
| Lockheed P-3 Orion ANP:P3A T56A14 T56-A-14 | 1.104 | | 1.104 | | | | 2.207 | 1.104 | | 1.104 | | | | 2.207 |
| Mitsubishi MU-300 Diamond 1PW037 NONE | 0.682 | 0.044 | 0.682 | 0.044 | | | 1.452 | 0.682 | 0.044 | 0.682 | 0.044 | | | 1.452 |
| Piper PA-24 Comanche TIO540 NONE | 45.502 | 2.839 | 45.502 | 2.839 | 65.677 | 7.297 | 169.657 | 45.502 | 2.839 | 45.502 | 2.839 | 65.677 | 7.297 | 169.657 |
| Piper PA-30 Twin Comanche IO320 NONE | 1.091 | 0.070 | 1.091 | 0.070 | | | 2.320 | 1.091 | 0.070 | 1.091 | 0.070 | | | 2.320 |
| Piper PA-42 Cheyenne Series PT6A41 NONE | 0.281 | 0.018 | 0.281 | 0.018 | | | 0.598 | 0.281 | 0.018 | 0.281 | 0.018 | | | 0.598 |
| Robinson R44 Raven / Lycoming O-540-F1B5 TIO540 NONE | 6.729 | | 6.729 | | | | 13.458 | 6.729 | | 6.729 | | | | 13.458 |
| Saab 340-A CT7-5 NONE | 0.466 | 0.030 | 0.466 | 0.030 | | | 0.992 | 0.466 | 0.030 | 0.466 | 0.030 | | | 0.992 |
| Sikorsky SH-60 Sea Hawk T70041 NONE | 2.200 | | 2.200 | | | | 4.400 | 2.200 | | 2.200 | | | | 4.400 |
| **Grand Total** | **153.423** | **12.723** | **154.777** | **11.370** | **127.038** | **13.709** | **473.041** | **158.423** | **19.723** | **159.777** | **18.370** | **127.038** | **13.709** | **497.041** |

TGO = Touch and Go
Day = 7:00 a.m. to 9:59 p.m.; Night = 10:00 p.m. to 6:59 a.m.
Values reflect rounding
Source: AECOM, 2020

**Table 1.3-7 2022 Runway Utilization**

| Aircraft | Operation Type | 2022 (No-Action Alternative and Proposed Project) | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | Runway | | | | | | | |
| | | 5 | 9 | 23 | 27 | 09H | 09TF | 27H | 27TF |
| Aerospatiale SA-350D Astar (AS-350) TPE3 NONE | Arrival | - | - | - | - | 60.00% | - | 40.00% | - |
| | Departure | - | - | - | - | 60.00% | - | 40.00% | - |
| Agusta A-109 250B17 NONE | Arrival | - | - | - | - | 60.00% | - | 40.00% | - |
| | Departure | - | - | - | - | 60.00% | - | 40.00% | - |
| Airbus A319-100 Series 7CM050 NONE | Arrival | - | 55.00% | - | 45.00% | - | - | - | - |
| | Departure | - | 55.00% | - | 45.00% | - | - | - | - |
| Airbus A320-200 Series 2CM018 NONE | Arrival | - | 55.00% | - | 45.00% | - | - | - | - |
| | Departure | - | 55.00% | - | 45.00% | - | - | - | - |
| BEC58P | Arrival | 20.00% | 36.00% | 14.00% | 30.00% | - | - | - | - |
| | Departure | 20.00% | 36.00% | 14.00% | 30.00% | - | - | - | - |
| | TGO | 20.00% | 36.00% | 14.00% | 30.00% | - | - | - | - |
| Bell 206L-4T Long Ranger 250B17 NONE | Arrival | - | - | - | - | 60.00% | - | 40.00% | - |
| | Departure | - | - | - | - | 60.00% | - | 40.00% | - |
| Boeing 737-800 Series 4CM039 NONE | Arrival | - | 55.00% | - | 45.00% | - | - | - | - |
| | Departure | - | 55.00% | - | 45.00% | - | - | - | - |
| Boeing 737-800 Series 4CM039 NONE (CARGO) | Arrival | - | 55.00% | - | 45.00% | - | - | - | - |
| | Departure | - | 55.00% | - | 45.00% | - | - | - | - |
| Boeing 757-200 Series 4PW073 NONE | Arrival | - | 55.00% | - | 45.00% | - | - | - | - |
| | Departure | - | 55.00% | - | 45.00% | - | - | - | - |
| Boeing 767-300 ER Freighter 2GE054 NONE | Arrival | - | 55.00% | - | 45.00% | - | - | - | - |
| | Departure | - | 55.00% | - | 45.00% | - | - | - | - |
| Boeing F/A-18 Hornet F4044 NONE | Arrival | - | 55.00% | - | 45.00% | - | - | - | - |
| | Departure | - | 55.00% | - | 45.00% | - | - | - | - |
| Bombardier Challenger 600 5GE084 NONE | Arrival | 20.00% | 36.00% | 14.00% | 30.00% | - | - | - | - |
| | Departure | 20.00% | 36.00% | 14.00% | 30.00% | - | - | - | - |
| Bombardier Global 5000 Business 4BR009 NONE | Arrival | 20.00% | 36.00% | 14.00% | 30.00% | - | - | - | - |
| | Departure | 20.00% | 36.00% | 14.00% | 30.00% | - | - | - | - |
| Bombardier Learjet 35 1AS002 NONE | Arrival | 20.00% | 36.00% | 14.00% | 30.00% | - | - | - | - |
| | Departure | 20.00% | 36.00% | 14.00% | 30.00% | - | - | - | - |
| CASA CN-235-100 CT79B NONE | Arrival | - | 55.00% | - | 45.00% | - | - | - | - |
| | Departure | - | 55.00% | - | 45.00% | - | - | - | - |
| | TGO | - | 60.00% | - | 40.00% | - | - | - | - |
| Cessna 150 Series O200 NONE | Arrival | 18.20% | 32.77% | 12.74% | 27.30% | - | 4.94% | - | 4.04% |
| | Departure | 18.20% | 32.77% | 12.74% | 27.30% | - | 4.94% | - | 4.04% |
| | TGO | 20.00% | 36.00% | 14.00% | 30.00% | - | - | - | - |
| Cessna 172 Skyhawk IO360 NONE | Arrival | 20.00% | 36.00% | 14.00% | 30.00% | - | - | - | - |
| | Departure | 20.00% | 36.00% | 14.00% | 30.00% | - | - | - | - |
| Cessna 182 IO360 NONE | Arrival | 20.00% | 36.00% | 14.00% | 30.00% | - | - | - | - |
| | Departure | 20.00% | 36.00% | 14.00% | 30.00% | - | - | - | - |
| Cessna 206 TIO540 IO-540-AC | Arrival | 20.00% | 36.00% | 14.00% | 30.00% | - | - | - | - |
| | Departure | 20.00% | 36.00% | 14.00% | 30.00% | - | - | - | - |
| Cessna 208 Caravan PT6A14 NONE | Arrival | 20.00% | 36.00% | 14.00% | 30.00% | - | - | - | - |
| | Departure | 20.00% | 36.00% | 14.00% | 30.00% | - | - | - | - |
| Cessna 441 Conquest II TPE10A NONE | Arrival | 20.00% | 36.00% | 14.00% | 30.00% | - | - | - | - |
| | Departure | 20.00% | 36.00% | 14.00% | 30.00% | - | - | - | - |
| | TGO | - | 55.00% | - | 45.00% | - | - | - | - |
| Cessna 500 Citation I 1PW038 NONE | Arrival | 20.00% | 36.00% | 14.00% | 30.00% | - | - | - | - |
| | Departure | 20.00% | 36.00% | 14.00% | 30.00% | - | - | - | - |

| Aircraft | Operation Type | 2022 (No-Action Alternative and Proposed Project) | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | Runway | | | | | | | |
| | | 5 | 9 | 23 | 27 | 09H | 09TF | 27H | 27TF |
| Cessna 550 Citation II 1PW036 NONE | Arrival | 20.00% | 36.00% | 14.00% | 30.00% | - | - | - | - |
| | Departure | 20.00% | 36.00% | 14.00% | 30.00% | - | - | - | - |
| Cessna 650 Citation III 1AS001 NONE | Arrival | 20.00% | 36.00% | 14.00% | 30.00% | - | - | - | - |
| | Departure | 20.00% | 36.00% | 14.00% | 30.00% | - | - | - | - |
| Cessna 680 Citation Sovereign 7PW078 NONE | Arrival | 20.00% | 36.00% | 14.00% | 30.00% | - | - | - | - |
| | Departure | 20.00% | 36.00% | 14.00% | 30.00% | - | - | - | - |
| Cessna 750 Citation X 6AL024 NONE | Arrival | 20.00% | 36.00% | 14.00% | 30.00% | - | - | - | - |
| | Departure | 20.00% | 36.00% | 14.00% | 30.00% | - | - | - | - |
| COMSEP | Arrival | 20.00% | 36.00% | 14.00% | 30.00% | - | - | - | - |
| | Departure | 20.00% | 36.00% | 14.00% | 30.00% | - | - | - | - |
| | TGO | 20.00% | 36.00% | 14.00% | 30.00% | - | - | - | - |
| DeHavilland DHC-6-100 Twin Otter PT6A20 NONE | Arrival | 20.00% | 36.00% | 14.00% | 30.00% | - | - | - | - |
| | Departure | 20.00% | 36.00% | 14.00% | 30.00% | - | - | - | - |
| Eclipse 500 / PW610F PW610F NONE | Arrival | 20.00% | 36.00% | 14.00% | 30.00% | - | - | - | - |
| | Departure | 20.00% | 36.00% | 14.00% | 30.00% | - | - | - | - |
| Gulfstream G400 6RR042 NONE | Arrival | 20.00% | 36.00% | 14.00% | 30.00% | - | - | - | - |
| | Departure | 20.00% | 36.00% | 14.00% | 30.00% | - | - | - | - |
| Gulfstream G500 4BR003 NONE | Arrival | 20.00% | 36.00% | 14.00% | 30.00% | - | - | - | - |
| | Departure | 20.00% | 36.00% | 14.00% | 30.00% | - | - | - | - |
| Hughes 500D 250B17 NONE | Arrival | - | - | - | - | 60.00% | - | 40.00% | - |
| | Departure | - | - | - | - | 60.00% | - | 40.00% | - |
| Israel IAI-1125 Astra 1AS002 NONE | Arrival | 20.00% | 36.00% | 14.00% | 30.00% | - | - | - | - |
| | Departure | 20.00% | 36.00% | 14.00% | 30.00% | - | - | - | - |
| Lockheed C-130 Hercules T56A14 NONE | Arrival | - | 55.00% | - | 45.00% | - | - | - | - |
| | Departure | - | 55.00% | - | 45.00% | - | - | - | - |
| | TGO | - | 60.00% | - | 40.00% | - | - | - | - |
| Lockheed P-3 Orion ANP:P3A T56A14 T56-A-14 | Arrival | - | 55.00% | - | 45.00% | - | - | - | - |
| | Departure | - | 55.00% | - | 45.00% | - | - | - | - |
| Mitsubishi MU-300 Diamond 1PW037 NONE | Arrival | 20.00% | 36.00% | 14.00% | 30.00% | - | - | - | - |
| | Departure | 20.00% | 36.00% | 14.00% | 30.00% | - | - | - | - |
| Piper PA-24 Comanche TIO540 NONE | Arrival | 19.54% | 35.17% | 13.68% | 29.31% | - | 1.26% | - | 1.03% |
| | Departure | 19.54% | 35.17% | 13.68% | 29.31% | - | 1.26% | - | 1.03% |
| | TGO | 20.00% | 36.00% | 14.00% | 30.00% | - | - | - | - |
| Piper PA-30 Twin Comanche IO320 NONE | Arrival | 20.00% | 36.00% | 14.00% | 30.00% | - | - | - | - |
| | Departure | 20.00% | 36.00% | 14.00% | 30.00% | - | - | - | - |
| Piper PA-42 Cheyenne Series PT6A41 NONE | Arrival | 20.00% | 36.00% | 14.00% | 30.00% | - | - | - | - |
| | Departure | 20.00% | 36.00% | 14.00% | 30.00% | - | - | - | - |
| Robinson R44 Raven / Lycoming O-540-F1B5 TIO540 NONE | Arrival | - | - | - | - | 60.00% | - | 40.00% | - |
| | Departure | - | - | - | - | 60.00% | - | 40.00% | - |
| Saab 340-A CT7-5 NONE | Arrival | 20.00% | 36.00% | 14.00% | 30.00% | - | - | - | - |
| | Departure | 20.00% | 36.00% | 14.00% | 30.00% | - | - | - | - |
| Sikorsky SH-60 Sea Hawk T70041 NONE | Arrival | - | - | - | - | 60.00% | - | 40.00% | - |
| | Departure | - | - | - | - | 60.00% | - | 40.00% | - |

**Table 1.3-8 2027 Runway Utilization**

| Aircraft | Operation Type | 2027 (No-Action Alternative and Proposed Project) | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | Runway | | | | | | | |
| | | 5 | 9 | 23 | 27 | 09H | 09TF | 27H | 27TF |
| Aerospatiale SA-350D Astar (AS-350) TPE3 NONE | Arrival | - | - | - | - | 60.00% | - | 40.00% | - |
| | Departure | - | - | - | - | 60.00% | - | 40.00% | - |
| Agusta A-109 250B17 NONE | Arrival | - | - | - | - | 60.00% | - | 40.00% | - |
| | Departure | - | - | - | - | 60.00% | - | 40.00% | - |
| Airbus A319-100 Series 7CM050 NONE | Arrival | - | 55.00% | - | 45.00% | - | - | - | - |
| | Departure | - | 55.00% | - | 45.00% | - | - | - | - |
| Airbus A320-200 Series 2CM018 NONE | Arrival | - | 55.00% | - | 45.00% | - | - | - | - |
| | Departure | - | 55.00% | - | 45.00% | - | - | - | - |
| BEC58P | Arrival | 20.00% | 36.00% | 14.00% | 30.00% | - | - | - | - |
| | Departure | 20.00% | 36.00% | 14.00% | 30.00% | - | - | - | - |
| | TGO | 20.00% | 36.00% | 14.00% | 30.00% | - | - | - | - |
| Bell 206L-4T Long Ranger 250B17 NONE | Arrival | - | - | - | - | 60.00% | - | 40.00% | - |
| | Departure | - | - | - | - | 60.00% | - | 40.00% | - |
| Boeing 737-800 Series 4CM039 NONE | Arrival | - | 55.00% | - | 45.00% | - | - | - | - |
| | Departure | - | 55.00% | - | 45.00% | - | - | - | - |
| Boeing 737-800 Series 4CM039 NONE (CARGO) | Arrival | - | 55.00% | - | 45.00% | - | - | - | - |
| | Departure | - | 55.00% | - | 45.00% | - | - | - | - |
| Boeing 757-200 Series 4PW073 NONE | Arrival | - | 55.00% | - | 45.00% | - | - | - | - |
| | Departure | - | 55.00% | - | 45.00% | - | - | - | - |
| Boeing 767-300 ER Freighter 2GE054 NONE | Arrival | - | 55.00% | - | 45.00% | - | - | - | - |
| | Departure | - | 55.00% | - | 45.00% | - | - | - | - |
| Boeing F/A-18 Hornet F4044 NONE | Arrival | - | 55.00% | - | 45.00% | - | - | - | - |
| | Departure | - | 55.00% | - | 45.00% | - | - | - | - |
| Bombardier Challenger 600 5GE084 NONE | Arrival | 20.00% | 36.00% | 14.00% | 30.00% | - | - | - | - |
| | Departure | 20.00% | 36.00% | 14.00% | 30.00% | - | - | - | - |
| Bombardier Global 5000 Business 4BR009 NONE | Arrival | 20.00% | 36.00% | 14.00% | 30.00% | - | - | - | - |
| | Departure | 20.00% | 36.00% | 14.00% | 30.00% | - | - | - | - |
| Bombardier Learjet 35 1AS002 NONE | Arrival | 20.00% | 36.00% | 14.00% | 30.00% | - | - | - | - |
| | Departure | 20.00% | 36.00% | 14.00% | 30.00% | - | - | - | - |
| CASA CN-235-100 CT79B NONE | Arrival | - | 55.00% | - | 45.00% | - | - | - | - |
| | Departure | - | 55.00% | - | 45.00% | - | - | - | - |
| | TGO | - | 60.00% | - | 40.00% | - | - | - | - |
| Cessna 150 Series O200 NONE | Arrival | 18.20% | 32.77% | 12.74% | 27.30% | - | 4.94% | - | 4.04% |
| | Departure | 18.20% | 32.77% | 12.74% | 27.30% | - | 4.94% | - | 4.04% |
| | TGO | 20.00% | 36.00% | 14.00% | 30.00% | - | - | - | - |
| Cessna 172 Skyhawk IO360 NONE | Arrival | 20.00% | 36.00% | 14.00% | 30.00% | - | - | - | - |
| | Departure | 20.00% | 36.00% | 14.00% | 30.00% | - | - | - | - |
| Cessna 182 IO360 NONE | Arrival | 20.00% | 36.00% | 14.00% | 30.00% | - | - | - | - |
| | Departure | 20.00% | 36.00% | 14.00% | 30.00% | - | - | - | - |
| Cessna 206 TIO540 IO-540-AC | Arrival | 20.00% | 36.00% | 14.00% | 30.00% | - | - | - | - |
| | Departure | 20.00% | 36.00% | 14.00% | 30.00% | - | - | - | - |
| Cessna 208 Caravan PT6A14 NONE | Arrival | 20.00% | 36.00% | 14.00% | 30.00% | - | - | - | - |
| | Departure | 20.00% | 36.00% | 14.00% | 30.00% | - | - | - | - |
| Cessna 441 Conquest II TPE10A NONE | Arrival | 20.00% | 36.00% | 14.00% | 30.00% | - | - | - | - |
| | Departure | 20.00% | 36.00% | 14.00% | 30.00% | - | - | - | - |
| | TGO | - | 55.00% | - | 45.00% | - | - | - | - |
| Cessna 500 Citation I 1PW038 NONE | Arrival | 20.00% | 36.00% | 14.00% | 30.00% | - | - | - | - |
| | Departure | 20.00% | 36.00% | 14.00% | 30.00% | - | - | - | - |

| Aircraft | Operation Type | 2027 (No-Action Alternative and Proposed Project) | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | Runway | | | | | | | |
| | | 5 | 9 | 23 | 27 | 09H | 09TF | 27H | 27TF |
| Cessna 550 Citation II 1PW036 NONE | Arrival | 20.00% | 36.00% | 14.00% | 30.00% | - | - | - | - |
| | Departure | 20.00% | 36.00% | 14.00% | 30.00% | - | - | - | - |
| Cessna 650 Citation III 1AS001 NONE | Arrival | 20.00% | 36.00% | 14.00% | 30.00% | - | - | - | - |
| | Departure | 20.00% | 36.00% | 14.00% | 30.00% | - | - | - | - |
| Cessna 680 Citation Sovereign 7PW078 NONE | Arrival | 20.00% | 36.00% | 14.00% | 30.00% | - | - | - | - |
| | Departure | 20.00% | 36.00% | 14.00% | 30.00% | - | - | - | - |
| Cessna 750 Citation X 6AL024 NONE | Arrival | 20.00% | 36.00% | 14.00% | 30.00% | - | - | - | - |
| | Departure | 20.00% | 36.00% | 14.00% | 30.00% | - | - | - | - |
| COMSEP | Arrival | 20.00% | 36.00% | 14.00% | 30.00% | - | - | - | - |
| | Departure | 20.00% | 36.00% | 14.00% | 30.00% | - | - | - | - |
| | TGO | 20.00% | 36.00% | 14.00% | 30.00% | - | - | - | - |
| DeHavilland DHC-6-100 Twin Otter PT6A20 NONE | Arrival | 20.00% | 36.00% | 14.00% | 30.00% | - | - | - | - |
| | Departure | 20.00% | 36.00% | 14.00% | 30.00% | - | - | - | - |
| Eclipse 500 / PW610F PW610F NONE | Arrival | 20.00% | 36.00% | 14.00% | 30.00% | - | - | - | - |
| | Departure | 20.00% | 36.00% | 14.00% | 30.00% | - | - | - | - |
| Gulfstream G400 6RR042 NONE | Arrival | 20.00% | 36.00% | 14.00% | 30.00% | - | - | - | - |
| | Departure | 20.00% | 36.00% | 14.00% | 30.00% | - | - | - | - |
| Gulfstream G500 4BR003 NONE | Arrival | 20.00% | 36.00% | 14.00% | 30.00% | - | - | - | - |
| | Departure | 20.00% | 36.00% | 14.00% | 30.00% | - | - | - | - |
| Hughes 500D 250B17 NONE | Arrival | - | - | - | - | 60.00% | - | 40.00% | - |
| | Departure | - | - | - | - | 60.00% | - | 40.00% | - |
| Israel IAI-1125 Astra 1AS002 NONE | Arrival | 20.00% | 36.00% | 14.00% | 30.00% | - | - | - | - |
| | Departure | 20.00% | 36.00% | 14.00% | 30.00% | - | - | - | - |
| Lockheed C-130 Hercules T56A14 NONE | Arrival | - | 55.00% | - | 45.00% | - | - | - | - |
| | Departure | - | 55.00% | - | 45.00% | - | - | - | - |
| | TGO | - | 60.00% | - | 40.00% | - | - | - | - |
| Lockheed P-3 Orion ANP:P3A T56A14 T56-A-14 | Arrival | - | 55.00% | - | 45.00% | - | - | - | - |
| | Departure | - | 55.00% | - | 45.00% | - | - | - | - |
| Mitsubishi MU-300 Diamond 1PW037 NONE | Arrival | 20.00% | 36.00% | 14.00% | 30.00% | - | - | - | - |
| | Departure | 20.00% | 36.00% | 14.00% | 30.00% | - | - | - | - |
| Piper PA-24 Comanche TIO540 NONE | Arrival | 19.58% | 35.24% | 13.70% | 29.36% | 0.00% | 1.17% | 0.00% | 0.96% |
| | Departure | 19.58% | 35.24% | 13.70% | 29.36% | 0.00% | 1.17% | 0.00% | 0.96% |
| | TGO | 20.00% | 36.00% | 14.00% | 30.00% | - | - | - | - |
| Piper PA-30 Twin Comanche IO320 NONE | Arrival | 20.00% | 36.00% | 14.00% | 30.00% | - | - | - | - |
| | Departure | 20.00% | 36.00% | 14.00% | 30.00% | - | - | - | - |
| Piper PA-42 Cheyenne Series PT6A41 NONE | Arrival | 20.00% | 36.00% | 14.00% | 30.00% | - | - | - | - |
| | Departure | 20.00% | 36.00% | 14.00% | 30.00% | - | - | - | - |
| Robinson R44 Raven / Lycoming O-540-F1B5 TIO540 NONE | Arrival | - | - | - | - | 60.00% | - | 40.00% | - |
| | Departure | - | - | - | - | 60.00% | - | 40.00% | - |
| Saab 340-A CT7-5 NONE | Arrival | 20.00% | 36.00% | 14.00% | 30.00% | - | - | - | - |
| | Departure | 20.00% | 36.00% | 14.00% | 30.00% | - | - | - | - |
| Sikorsky SH-60 Sea Hawk T70041 NONE | Arrival | - | - | - | - | 60.00% | - | 40.00% | - |
| | Departure | - | - | - | - | 60.00% | - | 40.00% | - |

**Table 1.3-9 2022 and 2027 Flight Track Utilization Summary**

| Flight Tracks | 2022 | | 2027 | |
|---|---|---|---|---|
| | No-Action | Proposed Project | No-Action | Proposed Project |
| ***Arrival*** | | | | |
| 05A1 | 1.61% | 1.55% | 1.59% | 1.51% |
| 05A2 | 0.81% | 0.77% | 0.79% | 0.76% |
| 05A3 | 3.34% | 3.21% | 3.29% | 3.13% |
| 09A1 | 3.00% | 3.12% | 2.85% | 3.01% |
| 09A2 | 3.39% | 3.56% | 3.27% | 3.48% |
| 09A3 | 1.45% | 1.53% | 1.40% | 1.49% |
| 09A4 | 4.60% | 4.83% | 4.44% | 4.73% |
| 09HAP | 0.64% | 0.61% | 1.03% | 0.98% |
| 09HATG | 0.70% | 0.67% | 0.68% | 0.65% |
| 09TFA1 | 0.46% | 0.44% | 0.40% | 0.38% |
| 23A1 | 2.01% | 1.93% | 1.98% | 1.89% |
| 23A2 | 1.21% | 1.16% | 1.19% | 1.13% |
| 23A3 | 0.81% | 0.77% | 0.79% | 0.76% |
| 27A1 | 3.29% | 3.43% | 3.14% | 3.32% |
| 27A2 | 1.51% | 1.58% | 1.46% | 1.55% |
| 27A3 | 4.02% | 4.22% | 3.88% | 4.13% |
| 27A4 | 1.51% | 1.58% | 1.46% | 1.55% |
| 27HAP | 0.42% | 0.41% | 0.69% | 0.66% |
| 27HATG | 0.46% | 0.45% | 0.45% | 0.43% |
| 27TFA1 | 0.38% | 0.36% | 0.33% | 0.31% |
| *Subtotal Arrival* | *35.62%* | *36.19%* | *35.12%* | *35.84%* |
| ***Departure*** | | | | |
| 05D1 | 2.47% | 2.38% | 2.44% | 2.32% |
| 05D2 | 0.81% | 0.77% | 0.79% | 0.76% |
| 05D3 | 2.47% | 2.38% | 2.44% | 2.32% |
| 09CD1 | 3.63% | 3.81% | 3.50% | 3.73% |
| 09D1 | 2.27% | 2.36% | 2.15% | 2.26% |
| 09D2 | 2.54% | 2.67% | 2.45% | 2.61% |
| 09D3 | 3.99% | 4.19% | 3.85% | 4.11% |
| 09HDP | 0.64% | 0.61% | 1.03% | 0.98% |
| 09HDTG | 0.70% | 0.67% | 0.68% | 0.65% |
| 09TFD1 | 0.46% | 0.44% | 0.40% | 0.38% |
| 23D1 | 0.81% | 0.77% | 0.79% | 0.76% |
| 23D2 | 2.01% | 1.93% | 1.98% | 1.89% |
| 23D3 | 1.21% | 1.16% | 1.19% | 1.13% |
| 27CD1 | 1.79% | 1.90% | 1.73% | 1.87% |
| 27D1 | 2.03% | 2.04% | 1.90% | 1.92% |
| 27D2 | 3.95% | 4.18% | 3.82% | 4.11% |
| 27D3 | 2.57% | 2.71% | 2.48% | 2.66% |
| 27HDP | 0.42% | 0.41% | 0.69% | 0.66% |
| 27HDTG | 0.46% | 0.45% | 0.45% | 0.43% |
| 27TFD1 | 0.38% | 0.36% | 0.33% | 0.31% |
| *Subtotal Departure* | *35.62%* | *36.19%* | *35.12%* | *35.84%* |
| ***TGO*** | | | | |
| 05TG | 5.50% | 5.29% | 5.66% | 5.38% |
| 09TG | 0.70% | 0.67% | 0.85% | 0.80% |
| 09TGSEP | 9.91% | 9.52% | 10.18% | 9.69% |
| 23TG | 3.85% | 3.70% | 3.96% | 3.77% |

| Flight Tracks | 2022 | | 2027 | |
|---|---|---|---|---|
| | No-Action | Proposed Project | No-Action | Proposed Project |
| 27TG | 0.53% | 0.51% | 0.62% | 0.59% |
| 27TGSEP | 8.26% | 7.93% | 8.49% | 8.08% |
| *Subtotal TGO* | *28.75%* | *27.62%* | *29.75%* | *28.32%* |
| **Total** | **100.00%** | **100.00%** | **100.00%** | **100.00%** |

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