CHAPTER 4
Aircraft Noise Analysis

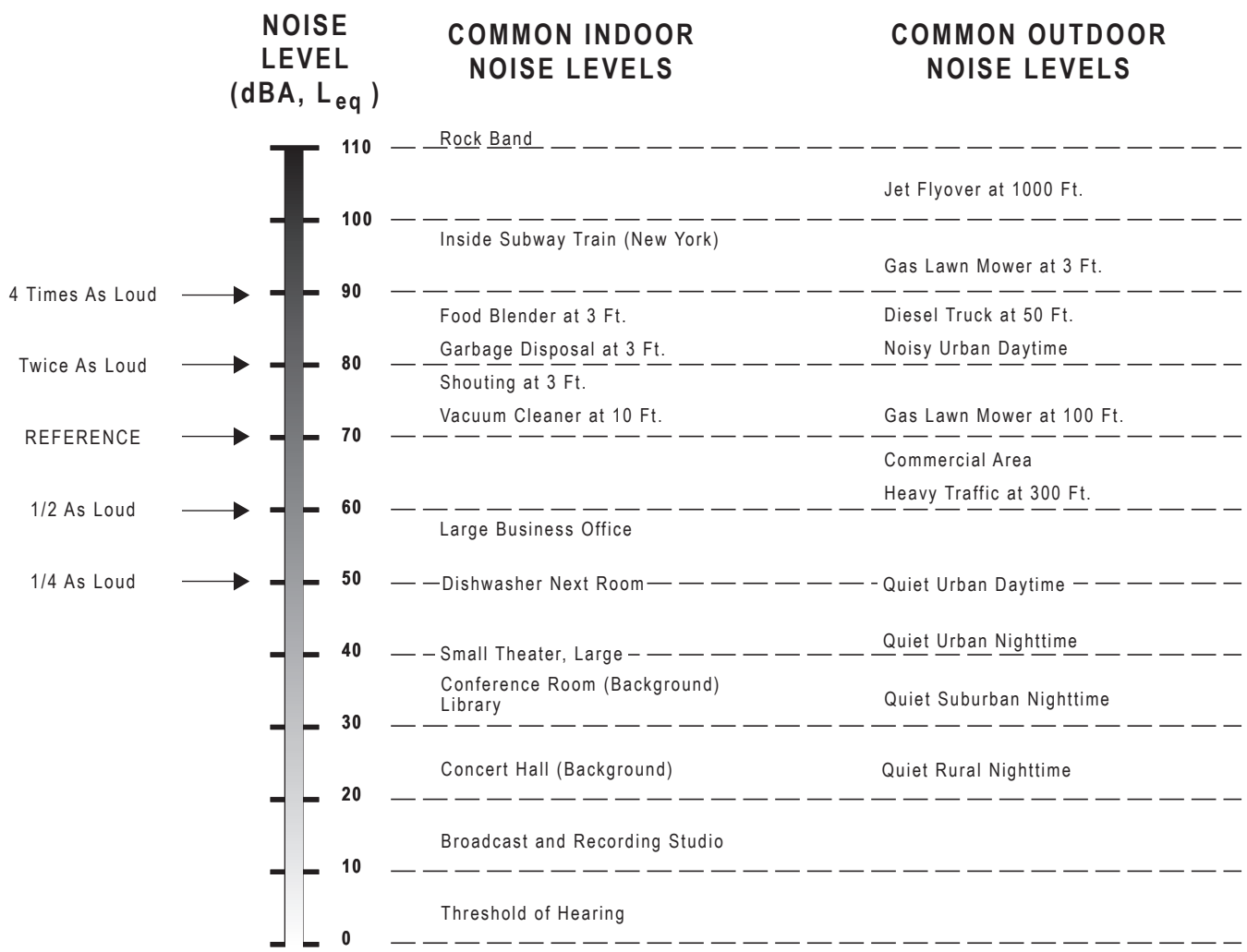
4.1 Environmental Noise Fundamentals

The measurement and human perception of sound involve two basic physical characteristics: intensity and frequency. Intensity is a measure of the acoustic energy of sound vibrations, expressed in terms of sound pressure. The higher the sound pressure, the more energy carried by the sound and the louder the perception of that sound. The second important physical characteristic is sound frequency, which is the number of times per second the air vibrates or oscillates. Low-frequency sounds are characterized as rumbles or roars, while high-frequency sounds are typified by sirens or screeches.

Noise is defined as unwanted sound. Sound, traveling in the form of waves from a source, exerts a sound pressure level (referred to as sound level) which is measured in decibels (dB), with zero dB corresponding roughly to the threshold of human hearing, and 120 to 140 dB corresponding to the threshold of pain. Pressure waves traveling through air exert a force registered by the human ear as sound.

Sound pressure fluctuations can be measured in units of hertz (Hz), which correspond to the frequency of a particular sound. Typically, sound does not consist of a single frequency, but rather a broad band of frequencies varying in levels of magnitude (sound power). When all the audible frequencies of a sound are measured, a sound spectrum is plotted consisting of a range of frequencies spanning 20 to 20,000 Hz. The sound pressure level, therefore, constitutes the additive force exerted by a sound corresponding to the sound frequency/sound power level spectrum.

The typical human ear is not equally sensitive to all frequencies of the audible sound spectrum. As a consequence, when assessing potential noise impacts, sound is measured using an electronic filter that de-emphasizes the frequencies below 1,000 Hz and above 5,000 Hz in a manner corresponding to the human ear's decreased sensitivity to extremely low and extremely high frequencies. This method of frequency weighting is referred to as A-weighting and is expressed in units of A-weighted decibels (dBA). A-weighting follows an international standard methodology of frequency weighting and is typically applied to community noise measurements. Some representative noise sources and their corresponding A-weighted noise levels are shown on **Exhibit 4-1**.



SOURCE: ESA, 2007

Exhibit 4-1

A-Weighted Noise Levels and Representative Noise Sources

4.2 General Characteristics of Aircraft Noise

Outdoor sound levels decrease as a function of distance from the source, and as a result of wave divergence, atmospheric absorption, and ground attenuation. If sound is radiated from a source in a homogenous and undisturbed manner, the sound travels as spherical waves. As the sound wave travels away from the source, the sound energy is distributed over a greater area, dispersing the sound power of the wave. Spherical spreading of the sound wave reduces the noise level, for most sound sources, at a rate of 6 dB per doubling of the distance.

Atmospheric absorption also influences the levels that are received by the observer. The greater the distance traveled, the greater the influence of the atmosphere and the resultant fluctuations. Atmospheric absorption becomes important at distances of greater than 1,000 feet. The degree of absorption is a function of the sound frequency, of the sound as well as the humidity and temperature of the air. For example, atmospheric absorption is lowest at high humidity and higher temperatures. Turbulence and gradients of wind, temperature, and humidity also play a significant role in determining the degree of attenuation. Certain conditions, such as inversions, can also result in higher sound levels that would result from spherical spreading as a result of channeling or focusing the sound waves.

Absorption effects in the atmosphere vary with frequency. The higher frequencies are more readily absorbed than the lower frequencies. Over large distances, the lower frequencies become the dominant sound as the higher frequencies are attenuated.

The effects of ground attenuation on aircraft noise propagation are a function of the height of the source and/or receiver and the characteristics of the terrain. The closer the source of the noise is to the ground, the greater the ground absorption. Terrain consisting of soft surfaces, such as vegetation, provide for more ground absorption than hard surfaces such as a large parking lot.

Aircraft noise originates from both the engines and the airframe of an aircraft, but the engines are, by far, the more significant source of noise. Meteorological conditions affect the transmission of aircraft noise through the air. Wind speed and direction, and the temperature immediately above ground level, cause diffraction and displacement of sound waves. Humidity and temperature materially affect the transmission of air-to-ground sound through absorption associated with the instability and viscosity of the air.

4.3 Noise Analysis Methodology

The methodology used for this aircraft noise analysis involved the: (a) use of noise descriptors developed for aircraft noise analyses, (b) development of basic data and assumptions as input to a computer model, and (c) application of a computer model that provides estimates of aircraft noise levels.

For this aircraft noise analysis, the patterns of aircraft-related noise are described using noise contours prepared with the FAA's Integrated Noise Model (INM), Version 7.0d. INM Version

7.0d was used to complete this NEM document prior to the FAA's public release of the Aviation Environmental Design Tool (AEDT) on May 29, 2015. At the time of the LAX NEM analyses, INM 7.0d was the most current FAA-approved, industry-accepted model for determining the total effect of aircraft noise exposure at and around airports. The AEDT model has replaced the INM for modeling of aircraft related noise and emissions.

4.4 Aircraft Noise Descriptors

Noise levels are measured using a variety of scientific metrics. As a result of extensive research into the characteristics of aircraft noise and human response to that noise, standard noise descriptors have been developed for aircraft noise exposure analyses. The descriptors used in this noise analysis are described below.

4.4.1 A-Weighted Sound Pressure Level (dBA)

The decibel (dB) is a unit used to describe sound pressure level. When expressed in dBA, the sound has been filtered to reduce the effect of very low and very high frequency sounds, much as the human ear filters sound frequencies. Without this filtering, calculated and measured sound levels would include events that the human ear cannot hear (e.g., dog whistles and low frequency sounds, such as the groaning sounds emanating from large buildings with changes in temperature and wind). With A-weighting, calculations and sound monitoring equipment approximate the sensitivity of the human ear to sounds of different frequencies.

Some common sounds on the dBA scale are listed in **Table 4-1**. As shown, the relative perceived loudness of a sound doubles for each increase of 10 dBA, although a 10 dBA change in the sound level corresponds to a factor of 10 change in relative sound energy. Generally, sounds with differences of 2 dBA or less are not perceived to be noticeably different by most listeners.

TABLE 4-1
COMMON SOUNDS ON THE A-WEIGHTED DECIBEL SCALE

Sound	Sound level (dBA)	Relative loudness (approximate)	Relative sound energy
Rock music, with amplifier	120	64	1,000,000
Thunder, snowmobile (operator)	110	32	100,000
Boiler shop, power mower	100	16	10,000
Orchestral crescendo at 25 feet, noisy kitchen	90	8	1,000
Busy street	80	4	100
Interior of department store	70	2	10
Ordinary conversation, 3 feet away	60	1	1
Quiet automobiles at low speed	50	1/2	.1
Average office	40	1/4	.01
City residence	30	1/8	.001
Quiet country residence	20	1/16	.0001
Rustle of leaves	10	1/32	.00001
Threshold of hearing	0	1/64	.000001

SOURCE: U.S. Department of Housing and Urban Development, Aircraft Noise Impact—Planning Guidelines for Local Agencies,1972.

4.4.2 Maximum A-Weighted Sound Level (Lmax)

Lmax is the maximum or peak sound level during a noise event. The metric only accounts for the instantaneous peak intensity of the sound, and not for the duration of the event. As an aircraft passes by an observer, the sound level increases to a maximum level and then decreases. Some sound level meters measure and record the maximum or Lmax level. The Lmax for an aircraft flyover is illustrated on **Exhibit 4-2**.

4.4.3 Sound Exposure Level (SEL)

SEL, expressed in dBA, is a time integrated measure, expressed in decibels, of the sound energy of a single noise event at a reference duration of one second. The sound level is integrated over the period that the level exceeds a threshold. Therefore, SEL accounts for both the maximum sound level and the duration of the sound. The standardization of discrete noise events into a one-second duration allows calculation of the cumulative noise exposure of a series of noise events that occur over a period of time. Because of this compression of sound energy, the SEL of an aircraft noise event is typically 7 to 12 dBA greater than the Lmax of the event. SELs for aircraft noise events depend on the location of the aircraft relative to the noise receptor, the type of operation (landing, takeoff, or overflight), and the type of aircraft. The SEL for an aircraft flyover is also illustrated on Exhibit 4-2.

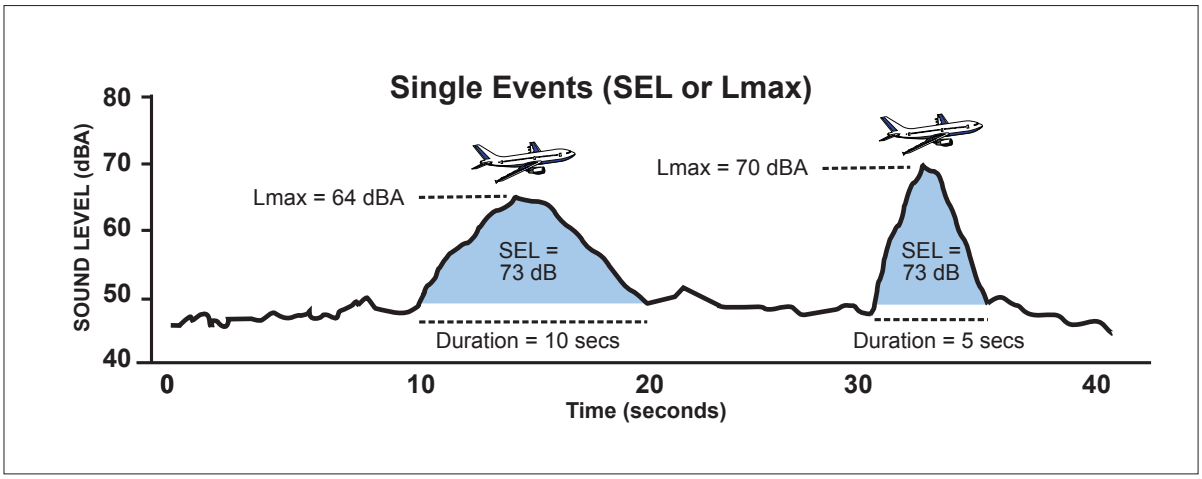
4.4.4 Equivalent Noise Level (LEQ)

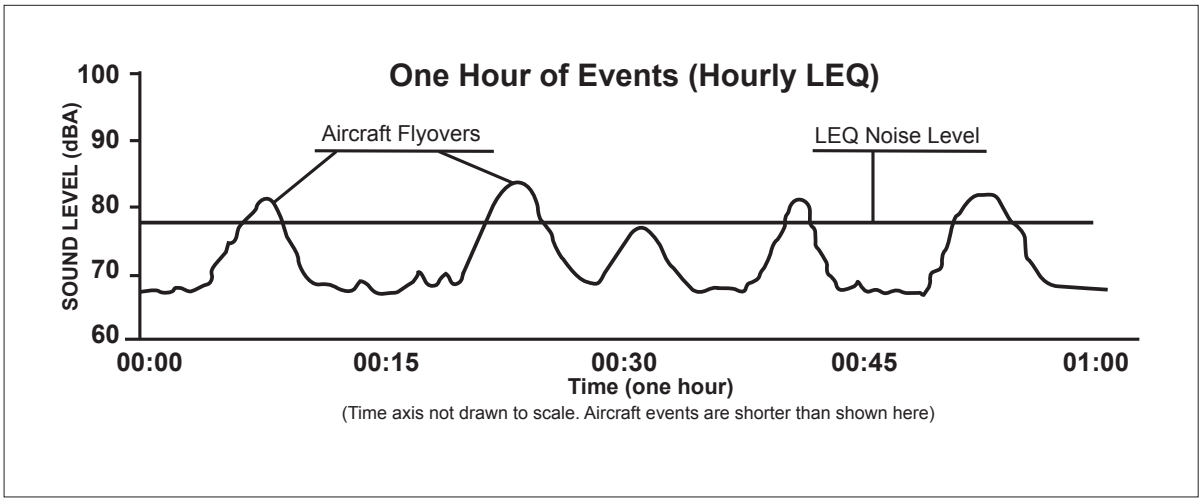
LEQ is the sound level corresponding to a steady state, A-weighted sound level containing the same total energy as a time-varying signal over a given sample period. LEQ is the “energy” average noise level during the time period of the sample. It is based on the observation that the potential for a noise to impact people is dependent on the total acoustical energy content of the noise. It is the energy sum of all the sound that occurs during that time period. This is graphically illustrated in the middle graph on Exhibit 4-2. LEQ can be measured for any time period, but is typically measured for 15 minutes, 1 hour, or 24 hours.

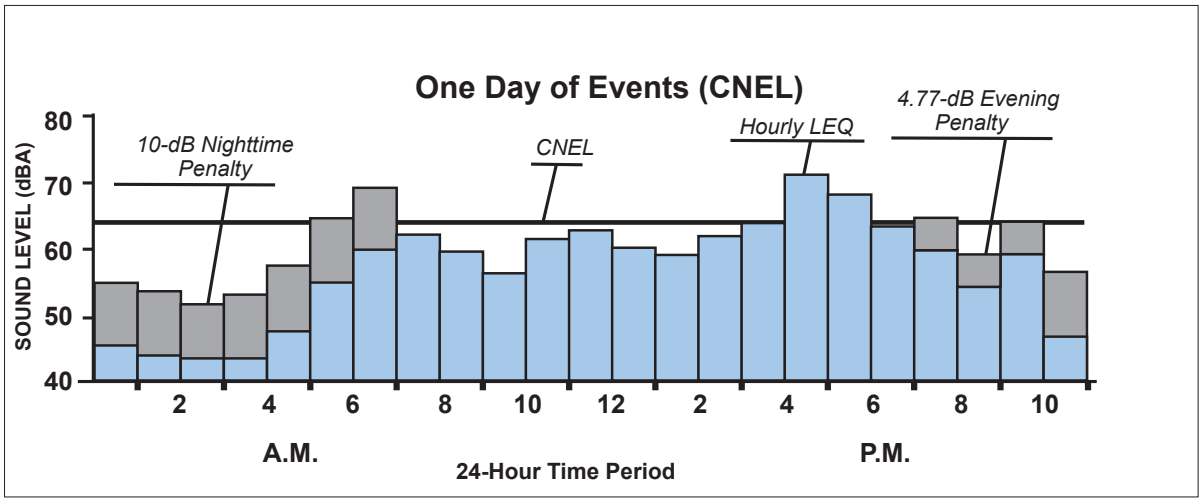
4.4.5 Day-Night Average Sound Level (DNL)

DNL, formerly referred to as Ldn, is expressed in dBA and represents the average noise level over a 24-hour period. DNL includes the cumulative effects of a number of sound events rather than a single event. It also accounts for increased sensitivity to noise during relaxation and sleeping hours. In the calculation of DNL, for each hour during the nighttime period (10:00 p.m. to 6:59 a.m.), the sound levels are increased by a 10 decibel-weighting penalty (equivalent to a 10 fold increase in aircraft operations) before the 24-hour value is computed. The weighting penalty accounts for the more intrusive nature of noise during the nighttime hours.

DNL is expressed as an average noise level on the basis of annual aircraft operations for a calendar year. To calculate the DNL at a specific location, the SELs at that location associated with each individual aircraft operation (landing or takeoff) are determined. Using the SEL for







Notes: SEL = Sound Exposure Level
LEQ = Equivalent Noise Level
CNEL = Community Noise Equivalent Level

SOURCE: ESA, 2014

Exhibit 4-2
SEL, LEQ, and CNEL Illustrations

each noise event and applying the 10-dB penalty for nighttime operations as appropriate, a partial DNL is then calculated for each aircraft operation. The partial DNLs for each aircraft operation are added logarithmically to determine the total DNL.

DNL is used to describe existing and predicted noise exposure in communities in airport environs based on the average daily operations over the year and the average annual operational conditions at the airport. Therefore, at a specific location near an airport, the noise exposure on a particular day is likely to be higher or lower than the annual average noise exposure, depending on the specific operations at the airport on that day.

The U.S. Environmental Protection Agency (EPA) introduced the DNL metric in 1976 as a single number measurement of community noise exposure. DNL is widely accepted as the best available method to describe aircraft noise exposure and is the noise descriptor required for aircraft noise exposure analyses and land use compatibility planning under 14 CFR Part 150 and for federal environmental reviews of airport improvement projects (FAA Order 10501.F).

4.4.6 Community Noise Equivalent Level (CNEL)

The cumulative noise descriptor required for aircraft noise analyses in the State of California is the Community Noise Equivalent Level (CNEL). CNEL is used to describe cumulative noise exposure for an annual-average day of aircraft operations. The CNEL is calculated by mathematically combining the number of single events that occur during a 24-hour day with how loud the events were and what time of day they occurred.

As shown on Exhibit 4-2, CNEL includes additional sound weightings, or penalties, applied to noise events occurring after 7:00 p.m. and before 7:00 a.m., when noise is considered more intrusive. The penalized time period is further subdivided into evening (7:00 p.m. through 10:00 p.m.) and nighttime (10:00 p.m. to 7:00 a.m.). CNEL treats every evening operation as though it were three operations and every night operation as though it were ten operations. This "weighting" adds a 4.77 dB penalty during the evening hours and a 10 dB penalty during the nighttime hours.

The CNEL metric used for this aircraft noise analysis is based on an average annual day of aircraft operations, generally derived from data for a calendar year. An annual-average day (AAD) activity profile is computed by adding all aircraft operations occurring during the course of a year and dividing the result by 365. As such, the AAD does not reflect activities on any one specific day, but represents average conditions as they occur during the course of the year. The evening weighting is the only difference between CNEL and DNL. For purposes of aircraft noise analysis in the State of California, the FAA recognizes the use of CNEL[1], and the metric is used to assess potentially significant impacts.

[1] Paragraph B-1 of FAA Order 1050.1F, *Environmental Impacts: Policies and Procedures*, and Paragraph 9(n) of FAA Order 5050.4B, *National Environmental Policy Act (NEPA) Implementing Instructions for Airport Actions*.

4.5 Integrated Noise Model

INM Version 7.0d was used to complete this NEM document prior to the FAA's public release of the Aviation Environmental Design Tool (AEDT) on May 29, 2015. At the time of the LAX NEM analyses, INM 7.0d was the most current FAA-approved, industry-accepted model for determining the total effect of aircraft noise exposure at and around airports. The AEDT model has replaced the INM for modeling of aircraft related noise and emissions.

The INM 7.0d aircraft database contains representative data for commercial, general aviation, and military aircraft powered by turbojet, turbofan, or propeller-driven engines. For each aircraft in the database, the following information is provided: (1) a set of departure profiles for each applicable trip length, (2) a set of approach parameters, and (3) SEL versus distance curves for several thrust settings. The INM uses runway and flight track information, operation levels distributed by time of day, aircraft fleet mix, and aircraft profiles as inputs. This information is needed to develop noise exposure contours. The INM calculates noise exposure levels at a series of "noise grids", and produces noise exposure contours based on the grid results, for a variety of noise metrics including CNEL, DNL, Lmax, Leq, and SEL. For the purposes of 14 CFR Part 150 NEMs, the FAA requires the use of DNL or CNEL.

4.5.1 CNEL and Noise Exposure Ranges

Noise exposure values of CNEL 75, 70, and 65 were used as the criterion levels for the noise analysis. Three specific ranges of noise exposure were modeled: (1) CNEL 75 dB and higher, (2) CNEL 70 dB to 75 dB, and (3) CNEL 65 dB to 70 dB.

Although the FAA considers aircraft noise exposure lower than CNEL/DNL 65 dB to be compatible with residential land uses, persons residing outside the area exposed to CNEL/DNL 65 dB and higher may still be annoyed by aircraft noise. The frequently cited "Schultz Curve"[2] shows that, at an aircraft noise exposure of DNL 65 dB, approximately 15 percent of the population would be expected to be "highly annoyed". At DNL 60 dB, approximately nine percent of the population would be expected to be highly annoyed by aircraft noise. At DNL 55 dB, approximately five percent of the population would be expected to be highly annoyed by aircraft noise.

4.5.2 The CNEL Descriptor

The validity and accuracy of CNEL calculations depend on the basic information used in the calculations. For future airport activities, the reliability of CNEL calculations is affected by a number of variables:

- Future aviation activity levels—the forecast number of aircraft operations, the types of aircraft serving the airport, the times of operations (daytime and nighttime), and aircraft flight tracks—are estimates. The activity forecasts were developed using the best available

[2] Schultz, T.J. "Synthesis of Social Surveys on Noise Annoyance." *Journal of the Acoustical Society of America*. V. 64 (2). 1978.

information at the time they were prepared and achievement of the estimated levels of activity may not occur.

- Acoustical and performance characteristics of future aircraft types are also estimates. When new aircraft designs are introduced, aircraft noise data and flight characteristics may vary from current model aircraft. The INM uses existing aircraft data to represent future aircraft types.
- The noise descriptors used as the basis for calculating CNEL represent typical human response (and reaction) to aircraft noise. Because people vary in their responses to noise and because the physical measure of noise accounts for only a portion of an individual's reaction to that noise, CNEL can only be used to obtain an average response to aircraft noise that might be expected from a community.
- Single flight tracks used in computer modeling represent a wider band of actual flight tracks.

These uncertainties aside, CNEL mapping was developed as a tool to assist in land use planning around airports in California. The mapping is best used for comparative purposes rather than for providing absolute values. CNEL calculations provide valid comparisons between different projected conditions, as long as consistent assumptions and basic data are used for all calculations.

Thus, sets of CNEL calculations can show anticipated changes in aircraft noise exposure over time, or can indicate which of a series of simulated situations is better, and generally how much better, from the standpoint of noise exposure. However, a line drawn on a map does not imply that a particular noise condition exists on one side of the line and not on the other. CNEL calculations are merely a means for comparing noise effects, not for precisely defining them relative to specific parcels of land. Nevertheless, CNEL contours can be used to: (1) highlight an existing or potential aircraft noise problem that requires attention, (2) assist in the preparation of noise compatibility programs, and (3) provide guidance in developing land use controls, such as zoning ordinances, subdivision regulations, and building codes. CNEL is still considered to be the best methodology available for depicting aircraft noise exposure in California.

4.5.3 Graphic Representation of Aircraft Noise Exposure

Contours are lines on a map that connect points of equal CNELs, much like topographic contour lines are drawn on maps to indicate ground elevation. For example, a contour may be drawn to connect all points of CNEL 70 dB; another may be drawn to connect all points of CNEL 65 dB; and so forth. Generally, noise contours are plotted at 5-dB intervals. Noise contours were developed for the Airport in conformance with FAA guidelines included in 14 CFR Part 150.

For this analysis, the INM was used to produce contours to delineate areas exposed to CNEL 65, 70, and 75 dB. These contours were used in conjunction with U.S. Census data and land use data provided by LAWA to estimate the numbers of dwelling units, residents, and noise-sensitive facilities located within the areas exposed to aircraft noise (1) of CNEL 75 dB and higher, (2) between CNEL 70 and 75 dB, (3) between CNEL 65 and 70 dB, and (4) CNEL 65 dB and higher.

4.6 Basic Data and Assumptions for Developing Noise Exposure Maps

The primary data required to develop noise exposure maps using INM 7.0d are:

- The existing and forecast number of aircraft operations by time of day, aircraft type, and stage length (nonstop departure trip length from the airport).
- Operational information, including runway use, location and use of flight tracks (the paths that pilots fly to arrive at and depart from the airport), departure profiles, and existing noise abatement procedures.

4.6.1 Aircraft Operations

To determine existing and projected aircraft noise exposure using the INM, aircraft operations associated with the average day of the year are used as input to the model. **Table 4-2** presents annual average day operations counts by INM aircraft type under existing (2015) conditions. **Table 4-3** presents annual average day operations counts by INM aircraft type for future (2020) conditions. **Tables D-1 and D-2** in **Appendix D** present AAD aircraft operations by INM aircraft type, type of operation, time of day, and departure stage length for existing and future conditions, respectively.

The annual and AAD aircraft operations data for the existing conditions are based on calendar year 2013 information collected by the FAA ATCT at LAX and operations flight information from LAX's ANOMS. The annual and AAD aircraft operations forecasts for 2020 are based on information contained in the FAA's 2014 TAF for LAX. The process used to calculate AAD operations is described on page 4-7. **Appendix E** contains a forecast technical memorandum and a letter from the FAA approving the use of the 2014 TAF in the 14 CFR Part 150 NEM Update.

Aircraft Fleet Mix

The INM aircraft types listed in Tables 4-2 and 4-3 have noise characteristics representative of a large variety of aircraft types that operate, or are anticipated to operate, at the Airport. In certain circumstances, it is appropriate to combine aircraft with similar engine types, numbers of engines, weights, performance characteristics, and (most importantly) noise exposure characteristics for the purposes of noise modeling. Examples of such circumstances include:

- A particular aircraft type that may not be included in the INM database may be modeled using a similar aircraft type that is included in the database.
- Only a small number of operations by a particular aircraft type may occur at an airport while a large number of operations by a similar aircraft type occur at the airport. The small number of operations of the first type could be combined with the operations of the more predominant aircraft type without resulting in a measurable effect on the noise analysis.
- The FAA has provided some aircraft types that are representative of a wide variety of specific aircraft types and can be used to represent the wide variety of aircraft types. The best examples of this are corporate and general aviation aircraft that can be modeled using a series of aircraft types that are representative of the overall fleet. For example, the INM aircraft type "GASEPV" is representative of a wide variety of single-engine propeller aircraft.

TABLE 4-2
ANNUAL AVERAGE DAY OPERATIONS BY INM AIRCRAFT TYPE – 2015
LOS ANGELES INTERNATIONAL AIRPORT

INM Aircraft Type	Aircraft Category	Arrivals	Departures	Total
1900D	Non-Jet Aircraft	8.62	8.62	17.24
727EM2	Large Narrow-Body Aircraft	0.22	0.22	0.43
737300	Small Narrow-Body Aircraft	25.34	25.34	50.67
737400	Small Narrow-Body Aircraft	7.11	7.11	14.23
737500	Small Narrow-Body Aircraft	0.07	0.07	0.14
737700	Small Narrow-Body Aircraft	84.74	84.74	169.48
737800	Small Narrow-Body Aircraft	122.50	122.50	245.00
747200	Large Wide-Body Aircraft	0.77	0.77	1.53
747400	Large Wide-Body Aircraft	19.50	19.50	39.01
7478	New Large Aircraft	3.53	3.53	7.05
757300	Large Narrow-Body Aircraft	14.27	14.27	28.55
757PW	Large Narrow-Body Aircraft	52.17	52.17	104.34
757RR	Large Narrow-Body Aircraft	22.14	22.14	44.28
767300	Small Wide-Body Aircraft	23.06	23.06	46.13
767400	Small Wide-Body Aircraft	0.22	0.22	0.44
767CF6	Small Wide-Body Aircraft	10.18	10.18	20.37
777200	Large Wide-Body Aircraft	12.51	12.51	25.02
777300	Large Wide-Body Aircraft	0.02	0.02	0.03
7773ER	Large Wide-Body Aircraft	23.26	23.26	46.52
7878R	Large Narrow-Body Aircraft	1.61	1.61	3.22
A300-622R	Small Wide-Body Aircraft	2.47	2.47	4.93
A300B4-203	Small Wide-Body Aircraft	1.56	1.55	3.11
A310-304	Small Wide-Body Aircraft	0.06	0.06	0.12
A319-131	Small Narrow-Body Aircraft	36.26	36.26	72.53
A320-211	Small Narrow-Body Aircraft	42.00	42.00	83.99
A320-232	Small Narrow-Body Aircraft	31.60	31.60	63.20
A321-232	Small Narrow-Body Aircraft	15.12	15.12	30.24
A330-301	Large Wide-Body Aircraft	1.35	1.34	2.69
A330-343	Large Wide-Body Aircraft	3.54	3.54	7.08
A340-211	Large Wide-Body Aircraft	3.67	3.67	7.34
A340-642	Large Wide-Body Aircraft	3.55	3.55	7.09
A380-841	New Large Aircraft	4.17	4.17	8.33
A380-861	New Large Aircraft	2.29	2.29	4.58
BEC58P	Non-Jet Aircraft	0.27	0.27	0.53
C17	Non-Jet Aircraft	0.03	0.03	0.07
C5A	Non-Jet Aircraft	0.01	0.01	0.03
CIT3	Small Jet Aircraft	0.13	0.13	0.26
CL600	Small Jet Aircraft	3.82	3.82	7.63
CL601	Small Jet Aircraft	66.84	66.84	133.69
CNA172	Non-Jet Aircraft	0.04	0.04	0.08
CNA182	Non-Jet Aircraft	0.01	0.01	0.02
CNA206	Non-Jet Aircraft	0.03	0.03	0.07
CNA208	Non-Jet Aircraft	0.53	0.53	1.06
CNA20T	Non-Jet Aircraft	0.01	0.01	0.02
CNA441	Non-Jet Aircraft	0.88	0.88	1.77
CNA500	Small Jet Aircraft	0.36	0.36	0.71

TABLE 4-2 (Continued)
ANNUAL AVERAGE DAY OPERATIONS BY INM AIRCRAFT TYPE – 2015
LOS ANGELES INTERNATIONAL AIRPORT

INM Aircraft Type	Aircraft Category	Arrivals	Departures	Total
CNA510	Small Jet Aircraft	0.74	0.74	1.49
CNA525C	Small Jet Aircraft	0.71	0.71	1.43
CNA55B	Small Jet Aircraft	0.52	0.52	1.04
CNA560E	Small Jet Aircraft	0.24	0.24	0.47
CNA560XL	Small Jet Aircraft	1.23	1.23	2.45
CNA680	Small Jet Aircraft	0.63	0.63	1.26
CNA750	Small Jet Aircraft	1.97	1.97	3.94
CRJ9-ER	Small Jet Aircraft	79.41	79.41	158.83
CVR580	Non-Jet Aircraft	0.61	0.61	1.23
DC1010	Large Wide-Body Aircraft	3.64	3.64	7.29
DC9Q9	Small Narrow-Body Aircraft	0.03	0.03	0.05
DHC6	Non-Jet Aircraft	0.06	0.06	0.13
DHC830	Non-Jet Aircraft	8.72	8.72	17.44
DO328	Non-Jet Aircraft	0.03	0.03	0.06
ECLIPSE500	Small Jet Aircraft	0.04	0.04	0.08
EMB120	Non-Jet Aircraft	47.91	47.91	95.81
EMB145	Small Jet Aircraft	1.46	1.46	2.92
EMB14L	Small Jet Aircraft	0.20	0.20	0.40
EMB170	Small Jet Aircraft	4.84	4.84	9.67
EMB190	Small Jet Aircraft	5.64	5.64	11.27
F10062	Small Jet Aircraft	1.12	1.12	2.25
FAL20	Small Jet Aircraft	0.09	0.09	0.17
GASEPV	Non-Jet Aircraft	0.11	0.11	0.21
GII	Small Jet Aircraft	0.12	0.12	0.24
GIIB	Small Jet Aircraft	0.53	0.53	1.06
GIV	Small Jet Aircraft	3.48	3.48	6.97
GV	Small Jet Aircraft	3.40	3.40	6.81
IA1125	Small Jet Aircraft	0.28	0.28	0.56
LEAR25	Small Jet Aircraft	0.06	0.06	0.12
LEAR35	Small Jet Aircraft	3.27	3.27	6.54
MD11GE	Large Wide-Body Aircraft	4.51	4.51	9.03
MD11PW	Large Wide-Body Aircraft	1.69	1.69	3.38
MD81	Small Narrow-Body Aircraft	0.03	0.03	0.07
MD82	Small Narrow-Body Aircraft	2.69	2.69	5.37
MD83	Small Narrow-Body Aircraft	5.07	5.07	10.14
MD9025	Small Narrow-Body Aircraft	0.02	0.02	0.03
MU3001	Small Jet Aircraft	1.17	1.17	2.34
PA28	Non-Jet Aircraft	0.02	0.02	0.05
PA31	Non-Jet Aircraft	0.02	0.02	0.03
PA42	Non-Jet Aircraft	0.02	0.02	0.04
SA365N	Helicopter	3.34	3.34	6.67
SD330	Non-Jet Aircraft	0.26	0.26	0.52
All Aircraft		**842.35**	**842.35**	**1,684.70**

NOTE: Values may not sum to totals shown due to rounding.
SOURCE: ESA Airports, October 2014.

TABLE 4-3
ANNUAL AVERAGE DAY OPERATIONS BY INM AIRCRAFT TYPE – 2020
LOS ANGELES INTERNATIONAL AIRPORT

INM Aircraft Type	Aircraft Category	Arrivals	Departures	Total
1900D	Non-Jet Aircraft	9.46	9.46	18.91
737700	Small Narrow-Body Aircraft	136.81	136.81	273.63
737800	Small Narrow-Body Aircraft	141.71	141.71	283.41
747400	Large Wide-Body Aircraft	17.10	17.10	34.19
7478	New Large Aircraft	4.08	4.08	8.16
757300	Large Narrow-Body Aircraft	16.51	16.51	33.02
757PW	Large Narrow-Body Aircraft	60.62	60.62	121.24
757RR	Large Narrow-Body Aircraft	25.65	25.65	51.30
767300	Small Wide-Body Aircraft	31.55	31.55	63.11
767400	Small Wide-Body Aircraft	0.25	0.25	0.51
767CF6	Small Wide-Body Aircraft	11.78	11.78	23.56
777200	Large Wide-Body Aircraft	26.22	26.22	52.43
777300	Large Wide-Body Aircraft	0.02	0.02	0.04
7773ER	Large Wide-Body Aircraft	26.90	26.90	53.81
7878R	Large Narrow-Body Aircraft	1.86	1.86	3.72
A319-131	Small Narrow-Body Aircraft	41.95	41.95	83.90
A320-211	Small Narrow-Body Aircraft	48.58	48.58	97.16
A320-232	Small Narrow-Body Aircraft	45.85	45.85	91.71
A321-232	Small Narrow-Body Aircraft	17.49	17.49	34.98
A330-301	Large Wide-Body Aircraft	1.56	1.56	3.11
A330-343	Large Wide-Body Aircraft	4.09	4.09	8.19
A340-211	Large Wide-Body Aircraft	4.24	4.24	8.49
A340-642	Large Wide-Body Aircraft	4.10	4.10	8.21
A380-841	New Large Aircraft	7.21	7.21	14.42
A380-861	New Large Aircraft	6.63	6.63	13.27
BEC58P	Non-Jet Aircraft	0.28	0.28	0.57
C17	Non-Jet Aircraft	0.03	0.03	0.07
C5A	Non-Jet Aircraft	0.01	0.01	0.03
CIT3	Small Jet Aircraft	0.14	0.14	0.27
CL600	Small Jet Aircraft	4.07	4.07	8.14
CL601	Small Jet Aircraft	73.33	73.33	146.65
CNA172	Non-Jet Aircraft	0.04	0.04	0.09
CNA182	Non-Jet Aircraft	0.01	0.01	0.02
CNA206	Non-Jet Aircraft	0.03	0.03	0.07
CNA208	Non-Jet Aircraft	0.56	0.56	1.13
CNA441	Non-Jet Aircraft	0.97	0.97	1.94
CNA500	Small Jet Aircraft	0.38	0.38	0.76
CNA510	Small Jet Aircraft	0.79	0.79	1.59
CNA525C	Small Jet Aircraft	0.76	0.76	1.52
CNA55B	Small Jet Aircraft	0.56	0.56	1.11
CNA560E	Small Jet Aircraft	0.25	0.25	0.50
CNA560XL	Small Jet Aircraft	1.31	1.31	2.61
CNA680	Small Jet Aircraft	0.67	0.67	1.34
CNA750	Small Jet Aircraft	2.10	2.10	4.20
CRJ9-ER	Small Jet Aircraft	91.87	91.87	183.73
DHC6	Non-Jet Aircraft	0.07	0.07	0.14

TABLE 4-3 (Continued)
ANNUAL AVERAGE DAY OPERATIONS BY INM AIRCRAFT TYPE – 2020
LOS ANGELES INTERNATIONAL AIRPORT

INM Aircraft Type	Aircraft Category	Arrivals	Departures	Total
DHC830	Non-Jet Aircraft	10.81	10.81	21.62
DO328	Non-Jet Aircraft	0.03	0.03	0.06
ECLIPSE500	Small Jet Aircraft	0.04	0.04	0.09
EMB120	Non-Jet Aircraft	52.55	52.55	105.10
EMB145	Small Jet Aircraft	1.60	1.60	3.21
EMB14L	Small Jet Aircraft	0.22	0.22	0.44
EMB170	Small Jet Aircraft	5.59	5.59	11.19
EMB190	Small Jet Aircraft	6.52	6.52	13.04
F10062	Small Jet Aircraft	1.20	1.20	2.40
FAL20	Small Jet Aircraft	0.09	0.09	0.18
GASEPV	Non-Jet Aircraft	0.12	0.12	0.25
GIV	Small Jet Aircraft	3.84	3.84	7.68
GV	Small Jet Aircraft	4.19	4.19	8.39
IA1125	Small Jet Aircraft	0.30	0.30	0.59
LEAR35	Small Jet Aircraft	3.55	3.55	7.10
MD9025	Small Narrow-Body Aircraft	0.02	0.02	0.04
MU3001	Small Jet Aircraft	1.25	1.25	2.49
PA28	Non-Jet Aircraft	0.03	0.03	0.05
PA31	Non-Jet Aircraft	0.02	0.02	0.03
PA42	Non-Jet Aircraft	0.02	0.02	0.04
SA365N	Helicopter	3.36	3.36	6.71
SD330	Non-Jet Aircraft	0.29	0.29	0.57
All Aircraft		**966.10**	**966.10**	**1,932.20**

NOTE: Values may not sum to totals shown due to rounding.
SOURCE: ESA Airports, October 2014.

The FAA has provided a list of pre-approved aircraft substitutions that can be used for noise modeling purposes using the INM. While some aircraft modeled in the existing and future year noise analyses appear on the pre-approved aircraft substitutions list, 24 aircraft types were found not to have INM standard substitutions. INM aircraft types used in the existing and future year noise analyses to model the 24 aircraft types without INM standard substitutions are described in a letter dated May 22, 2014 from the FAA's Office of Environment and Energy to the FAA's Los Angeles Airports District Office (See **Appendix E**).

Time of Day

FAA ATCT data and airline schedule data were used to determine the number of operations occurring during the daytime hours (7:00 a.m. to 7:00 p.m.), evening hours (7:00 p.m. to 10:00 p.m.) and nighttime hours (10:00 p.m. to 7:00 a.m.) at LAX. As stated in Section 4.4.6, the calculation of CNEL includes a 4.77-dB "weighting" penalty during the evening hours and a 10-dB penalty during the nighttime hours.

Table 4-4 presents time of day information for LAX by aircraft category under existing conditions. The daytime, evening, and nighttime splits data were developed using calendar year 2013 data from LAX's ANOMS. It is assumed that the split between daytime, evening, and nighttime operations for each INM aircraft type will be the same in 2015 and 2020; however, changes in the aircraft fleet mix between 2015 and 2020 will result in minor differences in the daytime, evening, and nighttime splits by aircraft category (see **Table 4-5**).

TABLE 4-4
AIRCRAFT OPERATIONS BY TIME OF DAY - EXISTING (2015) CONDITIONS
LOS ANGELES INTERNATIONAL AIRPORT

	Arrivals				Departures			
Aircraft Category	**Day**	**Evening**	**Night**	**Total**	**Day**	**Evening**	**Night**	**Total**
Large Narrow-Body Aircraft	49.45%	25.66%	24.90%	100.00%	73.93%	2.36%	23.71%	100.00%
Large Wide-Body Aircraft	67.99%	11.99%	20.01%	100.00%	48.64%	13.53%	37.82%	100.00%
Non-Jet Aircraft	74.40%	15.19%	10.41%	100.00%	72.35%	15.49%	12.16%	100.00%
New Large Aircraft	64.44%	17.34%	18.22%	100.00%	45.02%	3.04%	51.94%	100.00%
Small Jet Aircraft	72.04%	19.37%	8.59%	100.00%	74.75%	16.21%	9.04%	100.00%
Small Narrow-Body Aircraft	66.62%	20.36%	13.01%	100.00%	70.58%	10.89%	18.53%	100.00%
Small Wide-Body Aircraft	50.50%	23.12%	26.38%	100.00%	56.80%	10.77%	32.43%	100.00%
All Aircraft[1]	**65.96%**	**19.61%**	**14.43%**	**100.00%**	**69.03%**	**11.65%**	**19.32%**	**100.00%**

NOTES:
Values may not sum to 100% due to rounding.
[1] Does not include helicopter operations

SOURCE: ESA Airports, October 2014, based on LAX ANOMS data for calendar year 2013.

TABLE 4-5
AIRCRAFT OPERATIONS BY TIME OF DAY - FUTURE (2020) CONDITIONS
LOS ANGELES INTERNATIONAL AIRPORT

	Arrivals				Departures			
Aircraft Category	**Day**	**Evening**	**Night**	**Total**	**Day**	**Evening**	**Night**	**Total**
Large Narrow-Body Aircraft	49.38%	25.70%	24.92%	100.00%	73.91%	2.36%	23.74%	100.00%
Large Wide-Body Aircraft	75.55%	11.46%	12.99%	100.00%	54.66%	11.98%	33.36%	100.00%
Non-Jet Aircraft	75.12%	15.06%	9.81%	100.00%	72.93%	15.82%	11.25%	100.00%
New Large Aircraft	72.23%	13.31%	14.46%	100.00%	52.09%	2.54%	45.37%	100.00%
Small Jet Aircraft	72.01%	19.45%	8.54%	100.00%	74.70%	16.28%	9.03%	100.00%
Small Narrow-Body Aircraft	65.95%	20.38%	13.67%	100.00%	69.83%	10.93%	19.24%	100.00%
Small Wide-Body Aircraft	54.56%	24.69%	20.75%	100.00%	61.33%	11.89%	26.77%	100.00%
All Aircraft [1]	**66.60%**	**19.63%**	**13.78%**	**100.00%**	**69.51%**	**11.49%**	**19.00%**	**100.00%**

NOTES:
Values may not sum to 100% due to rounding.
[1] Does not include helicopter operations
SOURCE: ESA Airports, October 2014.

Departure Trip Length

Departure trip length, also called stage length (unrelated to "stage" classifications under 14 CFR Part 36 Noise Standards: Aircraft Type and Airworthiness Certification), refers to the nonstop distance an aircraft travels after departure. This information is needed to determine average gross takeoff weights for different aircraft types. Noise generated by departures of a specific aircraft type varies depending on the takeoff weight of the particular operation. For example, a fully loaded aircraft departing on a long flight will weigh more on departure than the same fully loaded aircraft departing on a shorter flight because the longer flight requires more fuel on board. It usually takes the heavier aircraft longer to reach its takeoff velocity, thereby using more runway length and climbing at a slower rate than a lighter aircraft. Therefore, more land area will be exposed to higher levels of aircraft noise by departures of heavier aircraft than by departures of the same aircraft with lighter loads. In the INM, nine different stage length categories have been established, representing different departure trip length distances, as presented in **Table 4-6**.

TABLE 4-6
INM DEPARTURE STAGE LENGTH CATEGORIES

Stage Length Category	Range of Departure Trip Length (nautical miles)
1	0-500
2	501-1000
3	1,001-1,500
4	1,501-2,500
5	2,501-3,500
6	3,501-4,500
7	4,501-5,500
8	5,501-6,500
9	Over 6,500

SOURCE: U.S. Department of Transportation. Federal Aviation Administration. *INM User's Guide*. April 2007.

Tables 4-7 and **4-8** present departure stage length information[3] organized by INM aircraft type used to model existing (2015) and future (2020) conditions. The departure stage length breakdown by INM aircraft type is not expected to change in the future however the overall stage length breakdown in 2015 and 2020 will be slightly different due to anticipated changes in the aircraft fleet mix in the future.

[3] The INM 7.0d database does not include stage length 8 or 9 departure profiles for the A330-301, A330-343, A340-211, or A340-642. Stage length 8 and 9 departures by these aircraft were modeled as stage length 7 departures. Similarly, the INM 7.0d database does not include stage length 9 departure profiles for the A380-841 or A380-861; stage length 9 departures by these aircraft were modeled as stage length 8 departures. These stage length adjustments are reflected in Tables 4-7 and 4-8.

TABLE 4-7
DEPARTURE STAGE LENGTH BY INM AIRCRAFT TYPE - EXISTING (2015) CONDITIONS
LOS ANGELES INTERNATIONAL AIRPORT

INM Aircraft Type	Departures by Stage Length (%)								
	1	2	3	4	5	6	7	8	9
1900D	99.38%	0.62%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
727EM2	40.35%	50.88%	5.26%	3.51%	0.00%	0.00%	0.00%	0.00%	0.00%
737300	62.53%	19.28%	12.67%	5.52%	0.00%	0.00%	0.00%	0.00%	0.00%
737400	0.58%	66.23%	32.65%	0.54%	0.00%	0.00%	0.00%	0.00%	0.00%
737500	64.02%	27.99%	7.99%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
737700	53.47%	12.83%	13.33%	20.33%	0.04%	0.00%	0.00%	0.00%	0.00%
737800	15.99%	14.30%	18.09%	45.05%	6.57%	0.00%	0.00%	0.00%	0.00%
747200	2.22%	0.00%	0.37%	1.48%	95.94%	0.00%	0.00%	0.00%	0.00%
747400	9.35%	1.05%	1.29%	9.63%	1.30%	0.11%	18.14%	28.88%	30.25%
7478	35.19%	2.98%	5.41%	15.36%	0.00%	0.00%	5.56%	33.70%	1.80%
757300	4.90%	9.28%	8.56%	43.17%	34.09%	0.00%	0.00%	0.00%	0.00%
757PW	5.42%	12.27%	7.76%	64.04%	10.51%	0.00%	0.00%	0.00%	0.00%
757RR	1.25%	1.16%	30.23%	33.33%	34.02%	0.01%	0.00%	0.00%	0.00%
767300	0.31%	1.84%	17.06%	60.18%	8.58%	7.08%	4.95%	0.00%	0.00%
767400	5.13%	8.97%	41.03%	30.77%	14.10%	0.00%	0.00%	0.00%	0.00%
767CF6	7.27%	1.93%	2.91%	86.88%	0.98%	0.03%	0.00%	0.00%	0.00%
777200	0.36%	0.05%	4.51%	16.34%	1.22%	3.41%	34.03%	31.88%	8.20%
777300	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	0.00%	0.00%
7773ER	0.06%	0.00%	0.06%	4.49%	0.15%	0.00%	19.97%	24.31%	50.96%
7878R	0.00%	0.17%	35.03%	0.17%	0.00%	14.14%	26.48%	24.01%	0.00%
A300-622R	53.09%	0.45%	3.15%	43.31%	0.00%	0.00%	0.00%	0.00%	0.00%
A300B4-203	0.00%	0.00%	65.01%	34.99%	0.00%	0.00%	0.00%	0.00%	0.00%
A310-304	0.00%	0.00%	4.56%	86.32%	4.56%	4.56%	0.00%	0.00%	0.00%
A319-131	36.76%	13.02%	20.11%	28.80%	1.31%	0.00%	0.00%	0.00%	0.00%
A320-211	21.79%	14.90%	4.34%	54.05%	4.92%	0.00%	0.00%	0.00%	0.00%
A320-232	15.30%	7.69%	11.65%	55.81%	9.55%	0.00%	0.00%	0.00%	0.00%
A321-232	27.18%	0.02%	0.07%	72.71%	0.02%	0.00%	0.00%	0.00%	0.00%
A330-301	0.41%	0.00%	0.00%	14.99%	0.21%	0.00%	84.39%	0.00%	0.00%
A330-343	0.08%	0.00%	0.63%	1.09%	68.80%	0.00%	29.40%	0.00%	0.00%
A340-211	0.00%	0.00%	0.00%	0.00%	0.23%	39.72%	60.05%	0.00%	0.00%
A340-642	0.00%	0.00%	0.00%	0.07%	0.00%	0.00%	99.93%	0.00%	0.00%
A380-841	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	28.50%	71.50%	0.00%
A380-861	0.00%	0.00%	0.00%	0.00%	0.12%	0.00%	0.00%	99.88%	0.00%
BEC58P	100.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
C17	100.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
C5A	100.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
CIT3	100.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
CL600	100.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
CL601	100.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
CNA172	100.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
CNA182	100.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
CNA206	100.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
CNA208	100.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
CNA20T	100.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
CNA441	100.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
CNA500	100.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%

TABLE 4-7 (Continued)
DEPARTURE STAGE LENGTH BY INM AIRCRAFT TYPE - EXISTING (2015) CONDITIONS
LOS ANGELES INTERNATIONAL AIRPORT

INM Aircraft Type	Departures by Stage Length (%)								
	1	2	3	4	5	6	7	8	9
CNA510	100.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
CNA525C	100.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
CNA55B	100.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
CNA560E	100.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
CNA560XL	100.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
CNA680	100.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
CNA750	100.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
CRJ9-ER	55.20%	23.93%	20.83%	0.04%	0.00%	0.00%	0.00%	0.00%	0.00%
CVR580	100.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
DC1010	18.36%	0.08%	14.31%	67.02%	0.23%	0.00%	0.00%	0.00%	0.00%
DC9Q9	39.99%	20.02%	39.99%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
DHC6	100.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
DHC830	100.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
DO328	100.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
ECLIPSE500	78.58%	21.42%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
EMB120	100.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
EMB145	15.04%	78.52%	1.17%	5.27%	0.00%	0.00%	0.00%	0.00%	0.00%
EMB14L	0.00%	4.23%	95.77%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
EMB170	86.64%	0.69%	12.67%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
EMB190	0.00%	3.24%	96.71%	0.05%	0.00%	0.00%	0.00%	0.00%	0.00%
F10062	74.15%	6.47%	19.38%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
FAL20	100.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
GASEPV	100.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
GII	100.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
GIIB	100.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
GIV	100.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
GV	100.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
IA1125	100.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
LEAR25	100.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
LEAR35	100.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
MD11GE	0.19%	0.06%	0.86%	77.65%	16.11%	0.07%	5.06%	0.00%	0.00%
MD11PW	10.59%	0.32%	2.41%	78.81%	7.87%	0.00%	0.00%	0.00%	0.00%
MD81	90.03%	0.00%	0.00%	9.97%	0.00%	0.00%	0.00%	0.00%	0.00%
MD82	11.74%	6.28%	43.15%	38.83%	0.00%	0.00%	0.00%	0.00%	0.00%
MD83	6.37%	22.14%	38.14%	33.35%	0.00%	0.00%	0.00%	0.00%	0.00%
MD9025	83.33%	0.00%	0.00%	16.67%	0.00%	0.00%	0.00%	0.00%	0.00%
MU3001	100.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
PA28	100.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
PA31	100.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
PA42	100.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
SA365N	100.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
SD330	100.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
All Aircraft	**39.55%**	**9.77%**	**11.58%**	**26.47%**	**4.53%**	**0.45%**	**2.80%**	**2.63%**	**2.24%**

NOTES: Values may not sum to 100% due to rounding.

SOURCE: ESA Airports, October 2014, based on LAX ANOMS data for calendar year 2013.

TABLE 4-8
DEPARTURE STAGE LENGTH BY INM AIRCRAFT TYPE - FUTURE (2020) CONDITIONS
LOS ANGELES INTERNATIONAL AIRPORT

INM Aircraft Type	Departures by Stage Length (%)								
	1	2	3	4	5	6	7	8	9
1900D	99.38%	0.62%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
737700	53.47%	12.83%	13.33%	20.33%	0.04%	0.00%	0.00%	0.00%	0.00%
737800	15.99%	14.30%	18.09%	45.05%	6.57%	0.00%	0.00%	0.00%	0.00%
747400	9.35%	1.05%	1.29%	9.63%	1.30%	0.11%	18.14%	28.88%	30.25%
7478	35.19%	2.98%	5.41%	15.36%	0.00%	0.00%	5.56%	33.70%	1.80%
757300	4.90%	9.28%	8.56%	43.17%	34.09%	0.00%	0.00%	0.00%	0.00%
757PW	5.42%	12.27%	7.76%	64.04%	10.51%	0.00%	0.00%	0.00%	0.00%
757RR	1.25%	1.16%	30.23%	33.33%	34.02%	0.01%	0.00%	0.00%	0.00%
767300	0.31%	1.84%	17.06%	60.18%	8.58%	7.08%	4.95%	0.00%	0.00%
767400	5.13%	8.97%	41.03%	30.77%	14.10%	0.00%	0.00%	0.00%	0.00%
767CF6	7.27%	1.93%	2.91%	86.88%	0.98%	0.03%	0.00%	0.00%	0.00%
777200	0.36%	0.05%	4.51%	16.34%	1.22%	3.41%	34.03%	31.88%	8.20%
777300	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	0.00%	0.00%
7773ER	0.06%	0.00%	0.06%	4.49%	0.15%	0.00%	19.97%	24.31%	50.96%
7878R	0.00%	0.17%	35.03%	0.17%	0.00%	14.14%	26.48%	24.01%	0.00%
A319-131	36.76%	13.02%	20.11%	28.80%	1.31%	0.00%	0.00%	0.00%	0.00%
A320-211	21.79%	14.90%	4.34%	54.05%	4.92%	0.00%	0.00%	0.00%	0.00%
A320-232	15.30%	7.69%	11.65%	55.81%	9.55%	0.00%	0.00%	0.00%	0.00%
A321-232	27.18%	0.02%	0.07%	72.71%	0.02%	0.00%	0.00%	0.00%	0.00%
A330-301	0.41%	0.00%	0.00%	14.99%	0.21%	0.00%	84.39%	0.00%	0.00%
A330-343	0.08%	0.00%	0.63%	1.09%	68.80%	0.00%	29.40%	0.00%	0.00%
A340-211	0.00%	0.00%	0.00%	0.00%	0.23%	39.72%	60.05%	0.00%	0.00%
A340-642	0.00%	0.00%	0.00%	0.07%	0.00%	0.00%	99.93%	0.00%	0.00%
A380-841	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	28.50%	71.50%	0.00%
A380-861	0.00%	0.00%	0.00%	0.00%	0.12%	0.00%	0.00%	99.88%	0.00%
BEC58P	100.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
C17	100.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
C5A	100.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
CIT3	100.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
CL600	100.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
CL601	100.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
CNA172	100.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
CNA182	100.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
CNA206	100.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
CNA208	100.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
CNA441	100.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
CNA500	100.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
CNA510	100.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
CNA525C	100.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
CNA55B	100.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
CNA560E	100.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%

TABLE 4-8 (Continued)
DEPARTURE STAGE LENGTH BY INM AIRCRAFT TYPE - FUTURE (2020) CONDITIONS
LOS ANGELES INTERNATIONAL AIRPORT

INM Aircraft Type	Departures by Stage Length (%)								
	1	2	3	4	5	6	7	8	9
CNA560XL	100.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
CNA680	100.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
CNA750	100.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
CRJ9-ER	55.20%	23.93%	20.83%	0.04%	0.00%	0.00%	0.00%	0.00%	0.00%
DHC6	100.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
DHC830	100.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
DO328	100.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
ECLIPSE500	78.58%	21.42%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
EMB120	100.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
EMB145	15.04%	78.52%	1.17%	5.27%	0.00%	0.00%	0.00%	0.00%	0.00%
EMB14L	0.00%	4.23%	95.77%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
EMB170	86.64%	0.69%	12.67%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
EMB190	0.00%	3.24%	96.71%	0.05%	0.00%	0.00%	0.00%	0.00%	0.00%
F10062	74.15%	6.47%	19.38%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
FAL20	100.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
GASEPV	100.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
GIV	100.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
GV	100.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
IA1125	100.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
LEAR35	100.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
MD9025	83.34%	0.00%	0.00%	16.66%	0.00%	0.00%	0.00%	0.00%	0.00%
MU3001	100.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
PA28	100.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
PA31	100.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
PA42	100.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
SA365N	100.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
SD330	100.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
All Aircraft	**38.82%**	**9.12%**	**11.22%**	**26.94%**	**4.52%**	**0.53%**	**3.20%**	**3.46%**	**2.18%**

NOTES: Values may not sum to 100% due to rounding.
SOURCE: ESA Airports, October 2014.

4.6.2 Airport Operational Information

The existing and assumed future uses of the runways and flight tracks to and from an airport are important in determining where aircraft are flying and, consequently, the noise levels generated in the airport vicinity.

Existing and Future Runway Use

Runway use at an airport is typically a function of prevailing wind and weather conditions, the lengths and widths of the runways, runway instrumentation, and the effects of other airports or air facilities in the area. To a certain extent, runway use is also determined based on the destination of a departing aircraft or origination of an arriving aircraft and the location of the aircraft parking position on the airfield. All of these factors, to varying degrees, affect runway use at LAX.

The runways available for departure and arrival are a function of the designated flow configuration at the airport. Typically, prevailing wind and weather conditions and the preferential runway use program determine the flow configuration at LAX. The actual runways that are used when the Airport is in a specific flow configuration are not limited to those that are oriented in the direction of the flow configuration. This is especially true during periods of calm to light winds.

Table 4-9 presents arrival runway use data by aircraft category and time of day for 2015 existing conditions. **Table 4-10** presents departure runway use data by aircraft category and time of day for 2015 existing conditions. Runway use data presented in Tables 4-9 and 4-10 are based on a full calendar year (2013) of operations data from LAX's ANOMS. Runway use patterns by individual INM aircraft types are not anticipated to change between 2015 and 2020; however, due to anticipated changes in the aircraft fleet mix in the future overall runway use patterns in 2020 will be slightly different than in 2015 as shown in **Table 4-11** and **Table 4-12**.

Flight Tracks and Flight Track Use

Flight track information is another important input to the INM. However, inputting individual tracks for each aircraft operation is not practical and the FAA suggests that flight tracks be consolidated into a set of generalized flight tracks that are representative of all flight tracks into and out of the airport. Deviations from the generalized flight tracks occur because of weather conditions, pilot technique, air traffic control procedures, and aircraft weight. However, the generalized flight tracks are representative of the arrival and departure flight tracks at an airport.

Exhibits 4-3 through **4-10** present INM arrival and departure flight tracks (and subtracks) for each of the eight runway ends at LAX. Consistent with 14 CFR Part 150 the flight tracks are superimposed on a map showing generalized existing land uses in the vicinity of LAX. The generalized existing land use map is at the same scale as the noise exposure map exhibits presented in Chapter 5 (see Exhibits 5-1 and 5-2). For informational purposes the INM arrival and departure flight tracks have also been superimposed on an aerial photograph, which is at a scale of 1 inch = 10,000 feet, to show larger extents of the flight tracks (See **Exhibits 4-3a** through **4-10a**).

TABLE 4-9
ARRIVAL RUNWAY USE BY AIRCRAFT CATEGORY - EXISTING (2015) CONDITIONS
LOS ANGELES INTERNATIONAL AIRPORT

Aircraft Category	06L	06R	07L	07R	24L	24R	25L	25R	Total
Daytime Arrivals									
Large Narrow-Body Aircraft	0.21%	0.00%	0.01%	0.90%	0.61%	20.54%	74.74%	2.99%	100.00%
Large Wide-Body Aircraft	0.72%	0.03%	0.00%	0.30%	3.24%	56.37%	37.93%	1.40%	100.00%
Non-Jet Aircraft	0.56%	0.01%	0.02%	0.47%	1.91%	45.85%	48.20%	2.98%	100.00%
New Large Aircraft	0.94%	0.04%	0.00%	0.34%	2.05%	72.68%	23.94%	0.00%	100.00%
Small Jet Aircraft	0.42%	0.01%	0.01%	0.54%	1.33%	41.93%	53.47%	2.29%	100.00%
Small Narrow-Body Aircraft	0.49%	0.01%	0.01%	0.52%	1.51%	52.03%	43.78%	1.65%	100.00%
Small Wide-Body Aircraft	0.13%	0.01%	0.06%	0.83%	0.74%	14.91%	80.04%	3.28%	100.00%
All Aircraft [1]	0.47%	0.01%	0.01%	0.54%	1.58%	45.91%	49.44%	2.04%	100.00%
Evening Arrivals									
Large Narrow-Body Aircraft	0.23%	0.00%	0.00%	0.38%	1.65%	30.36%	62.92%	4.47%	100.00%
Large Wide-Body Aircraft	0.36%	0.03%	0.00%	0.21%	8.61%	57.53%	32.07%	1.19%	100.00%
Non-Jet Aircraft	0.32%	0.00%	0.00%	0.25%	2.99%	43.69%	46.11%	6.64%	100.00%
New Large Aircraft	0.00%	0.00%	0.00%	0.32%	3.02%	42.69%	53.96%	0.00%	100.00%
Small Jet Aircraft	0.27%	0.00%	0.01%	0.22%	2.28%	49.18%	44.49%	3.53%	100.00%
Small Narrow-Body Aircraft	0.19%	0.00%	0.01%	0.25%	1.85%	51.86%	43.06%	2.77%	100.00%
Small Wide-Body Aircraft	0.16%	0.00%	0.00%	0.57%	1.97%	26.87%	67.03%	3.40%	100.00%
All Aircraft [1]	0.23%	0.00%	0.01%	0.28%	2.39%	46.64%	47.12%	3.33%	100.00%
Nighttime Arrivals									
Large Narrow-Body Aircraft	4.32%	20.51%	13.40%	6.20%	0.29%	9.95%	42.98%	2.34%	100.00%
Large Wide-Body Aircraft	5.73%	27.98%	16.35%	10.56%	0.59%	18.42%	18.15%	2.21%	100.00%
Non-Jet Aircraft	3.42%	17.31%	3.05%	1.86%	0.95%	30.38%	40.95%	2.07%	100.00%
New Large Aircraft	3.33%	23.49%	0.00%	27.41%	2.42%	27.28%	16.06%	0.00%	100.00%
Small Jet Aircraft	2.24%	10.36%	1.58%	1.74%	0.75%	29.92%	50.43%	2.99%	100.00%
Small Narrow-Body Aircraft	2.62%	9.52%	1.56%	1.04%	2.26%	49.70%	31.98%	1.32%	100.00%
Small Wide-Body Aircraft	5.06%	21.92%	11.55%	7.61%	0.56%	9.65%	40.57%	3.08%	100.00%
All Aircraft [1]	3.55%	15.73%	6.55%	4.30%	1.27%	30.97%	35.62%	2.01%	100.00%

NOTES:
Values may not sum to 100% due to rounding.
[1] Does not include helicopter operations

SOURCE: ESA Airports, October 2014, based on LAX ANOMS data for calendar year 2013.

TABLE 4-10
DEPARTURE RUNWAY USE BY AIRCRAFT CATEGORY - EXISTING (2015) CONDITIONS
LOS ANGELES INTERNATIONAL AIRPORT

Aircraft Category	06L	06R	07L	07R	24L	24R	25L	25R	Total
Daytime Departures									
Large Narrow-Body Aircraft	0.01%	0.41%	0.64%	0.00%	16.46%	0.18%	1.73%	80.57%	100.00%
Large Wide-Body Aircraft	0.00%	0.19%	0.79%	0.03%	33.94%	0.23%	7.31%	57.50%	100.00%
Non-Jet Aircraft	0.08%	0.56%	0.51%	0.02%	41.11%	4.61%	4.73%	48.39%	100.00%
New Large Aircraft	0.00%	0.62%	0.00%	0.31%	81.85%	0.00%	17.22%	0.00%	100.00%
Small Jet Aircraft	0.01%	0.43%	0.53%	0.02%	28.17%	0.93%	6.35%	63.55%	100.00%
Small Narrow-Body Aircraft	0.02%	0.50%	0.52%	0.00%	60.92%	1.83%	0.81%	35.40%	100.00%
Small Wide-Body Aircraft	0.00%	0.53%	0.50%	0.01%	17.78%	0.23%	4.24%	76.70%	100.00%
All Aircraft [1]	0.02%	0.46%	0.55%	0.01%	43.20%	1.49%	3.23%	51.04%	100.00%
Evening Departures									
Large Narrow-Body Aircraft	0.00%	0.26%	0.26%	0.00%	8.95%	0.13%	4.48%	85.92%	100.00%
Large Wide-Body Aircraft	0.00%	0.21%	0.20%	0.18%	27.99%	0.10%	19.63%	51.69%	100.00%
Non-Jet Aircraft	0.03%	0.32%	0.27%	0.00%	45.11%	2.10%	2.96%	49.22%	100.00%
New Large Aircraft	0.00%	0.00%	0.00%	0.00%	49.98%	0.00%	50.02%	0.00%	100.00%
Small Jet Aircraft	0.00%	0.22%	0.29%	0.00%	13.06%	0.08%	4.29%	82.05%	100.00%
Small Narrow-Body Aircraft	0.01%	0.26%	0.30%	0.00%	66.54%	0.49%	0.45%	31.95%	100.00%
Small Wide-Body Aircraft	0.00%	0.14%	0.20%	0.00%	4.71%	0.00%	21.03%	73.92%	100.00%
All Aircraft [1]	0.01%	0.24%	0.28%	0.02%	40.02%	0.47%	5.05%	53.91%	100.00%
Nighttime Departures									
Large Narrow-Body Aircraft	0.00%	0.18%	0.49%	0.18%	1.14%	0.05%	15.92%	82.04%	100.00%
Large Wide-Body Aircraft	0.00%	0.06%	0.83%	0.38%	13.29%	0.06%	11.76%	73.62%	100.00%
Non-Jet Aircraft	0.03%	0.47%	0.17%	0.03%	45.36%	2.19%	10.30%	41.44%	100.00%
New Large Aircraft	0.00%	0.37%	0.00%	0.48%	49.69%	0.00%	49.45%	0.00%	100.00%
Small Jet Aircraft	0.02%	0.17%	0.51%	0.10%	12.98%	0.35%	5.90%	79.97%	100.00%
Small Narrow-Body Aircraft	0.01%	0.31%	0.45%	0.09%	41.67%	2.70%	6.14%	48.63%	100.00%
Small Wide-Body Aircraft	0.00%	0.07%	0.52%	0.18%	4.35%	0.11%	16.63%	78.14%	100.00%
All Aircraft [1]	0.01%	0.22%	0.51%	0.17%	25.87%	1.33%	10.82%	61.08%	100.00%

NOTES:
Values may not sum to 100% due to rounding.
[1] Does not include helicopter operations

SOURCE: ESA Airports, October 2014, based on LAX ANOMS data for calendar year 2013.

TABLE 4-11
RUNWAY USE BY OPERATION TYPE AND TIME OF DAY - EXISTING (2015) CONDITIONS
LOS ANGELES INTERNATIONAL AIRPORT

	Arrival			Departure		
Runway	**Day**	**Evening**	**Night**	**Day**	**Evening**	**Night**
06L	0.47%	0.23%	3.55%	0.02%	0.01%	0.01%
06R	0.01%	0.00%	15.73%	0.46%	0.24%	0.22%
07L	0.01%	0.01%	6.55%	0.55%	0.28%	0.51%
07R	0.54%	0.28%	4.30%	0.01%	0.02%	0.17%
24L	1.58%	2.39%	1.27%	43.20%	40.02%	25.87%
24R	45.91%	46.64%	30.97%	1.49%	0.47%	1.33%
25L	49.44%	47.12%	35.62%	3.23%	5.05%	10.82%
25R	2.04%	3.33%	2.01%	51.04%	53.91%	61.08%
Total	**100.00%**	**100.00%**	**100.00%**	**100.00%**	**100.00%**	**100.00%**

NOTES:
Values may not sum to 100% due to rounding.
Does not include helicopter operations

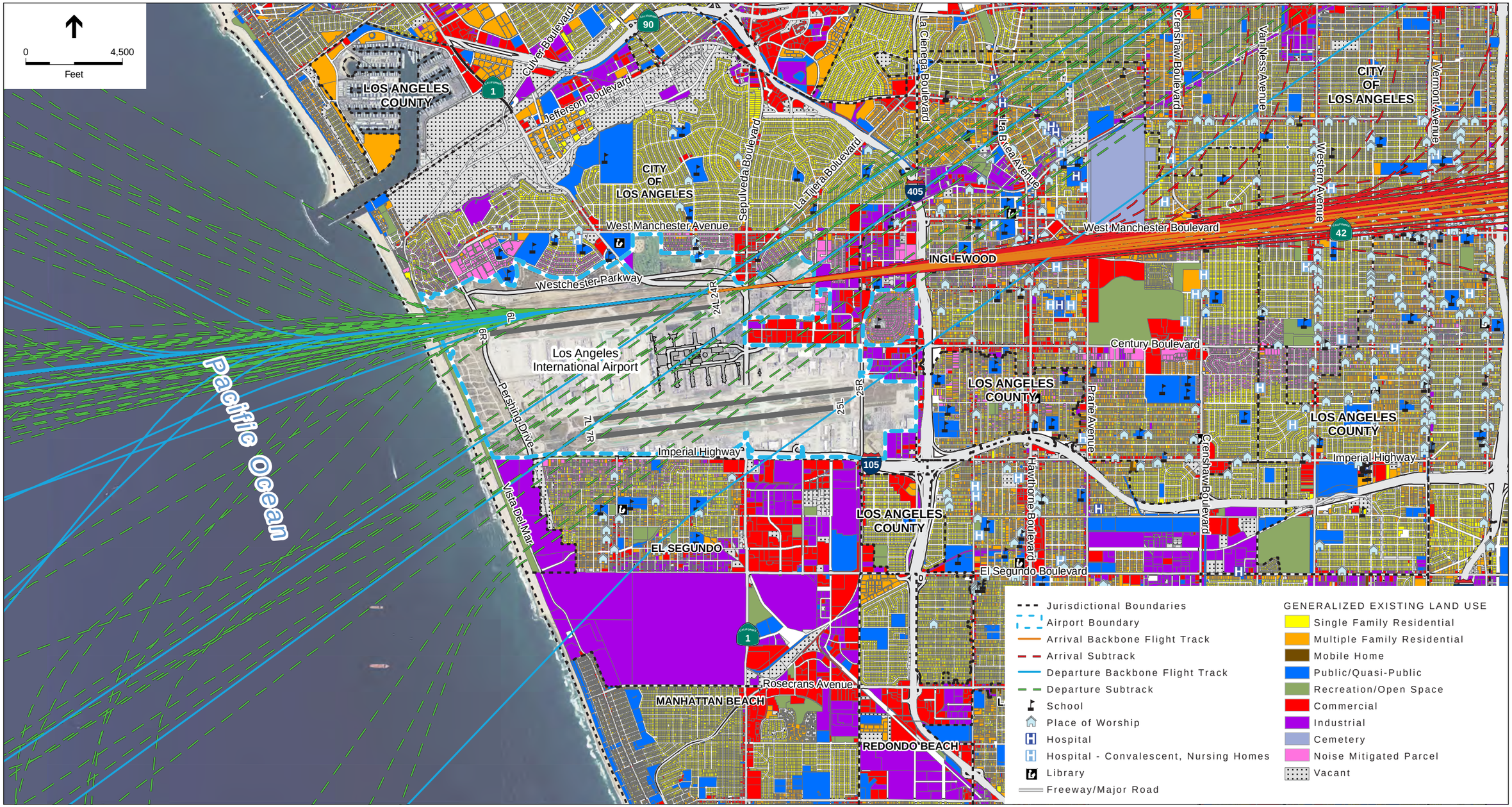
SOURCE: ESA Airports, October 2014, based on LAX ANOMS data for calendar year 2013.

TABLE 4-12
RUNWAY USE BY OPERATION TYPE AND TIME OF DAY - FUTURE (2020) CONDITIONS
LOS ANGELES INTERNATIONAL AIRPORT

	Arrival			Departure		
Runway	**Day**	**Evening**	**Night**	**Day**	**Evening**	**Night**
06L	0.48%	0.23%	3.38%	0.02%	0.01%	0.01%
06R	0.01%	0.00%	15.00%	0.45%	0.26%	0.24%
07L	0.01%	0.01%	4.90%	0.55%	0.28%	0.50%
07R	0.53%	0.28%	3.17%	0.01%	0.01%	0.17%
24L	1.58%	2.39%	1.43%	44.22%	42.15%	28.55%
24R	46.53%	47.21%	34.12%	1.50%	0.49%	1.43%
25L	48.82%	46.52%	36.09%	2.90%	3.45%	9.60%
25R	2.04%	3.36%	1.92%	50.35%	53.35%	59.51%
Total	**100.00%**	**100.00%**	**100.00%**	**100.00%**	**100.00%**	**100.00%**

NOTES:
Values may not sum to 100% due to rounding.
Does not include helicopter operations

SOURCE: ESA Airports, October 2014.



SOURCES: ESA Airports, 2014; ESRI ArcGIS Online, 2011; ESRI World Imagery - Aerial; PCR Services Corporation, 2012
NOTE: INM = Integrated Noise Model

Exhibit 4-3
INM Arrival and Departure Flight Tracks – Runway 24R

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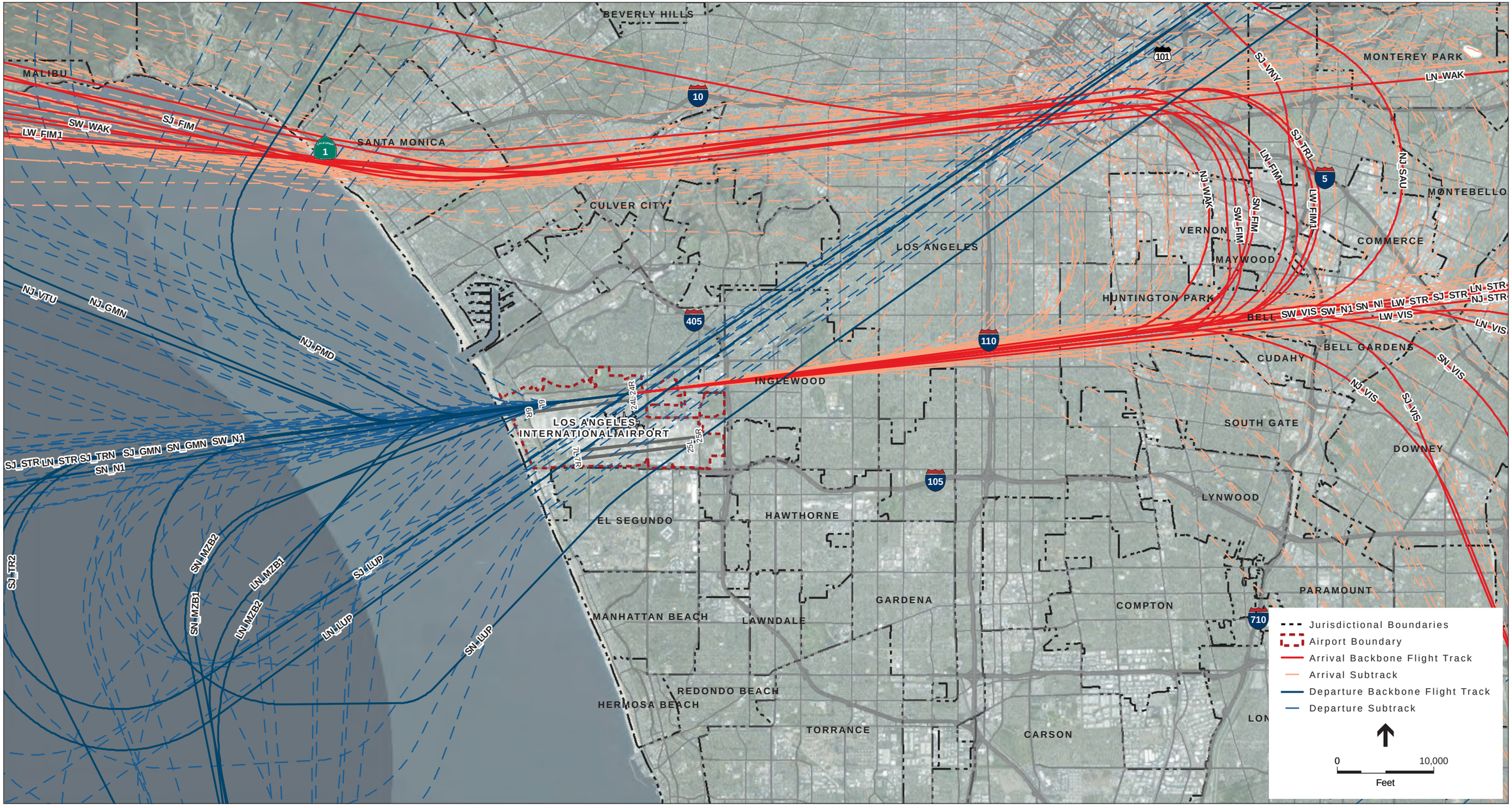

SOURCES: ESA Airports, 2014; LA Co. DRP, 2014; City of LA DCP, 2013; ESRI ArcGIS Online, 2011; PCR Services Corporation, 2012
NOTE: INM = Integrated Noise Model

Exhibit 4-3a
INM Arrival and Departure Flight Tracks – Runway 24R

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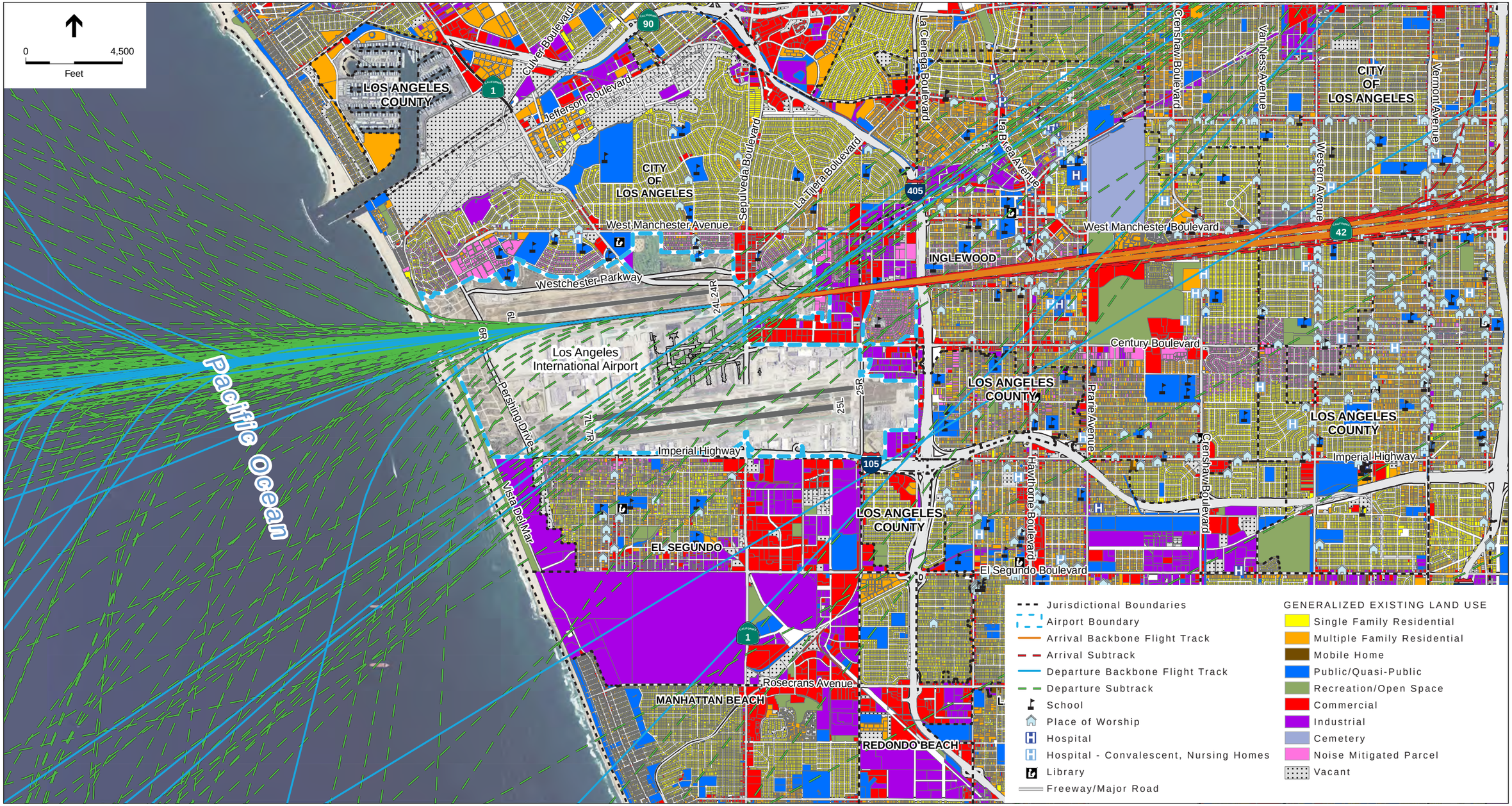

SOURCES: ESA Airports, 2014; ESRI ArcGIS Online, 2011; ESRI World Imagery - Aerial; PCR Services Corporation, 2012
NOTE: INM = Integrated Noise Model

Exhibit 4-4
INM Arrival and Departure Flight Tracks – Runway 24L

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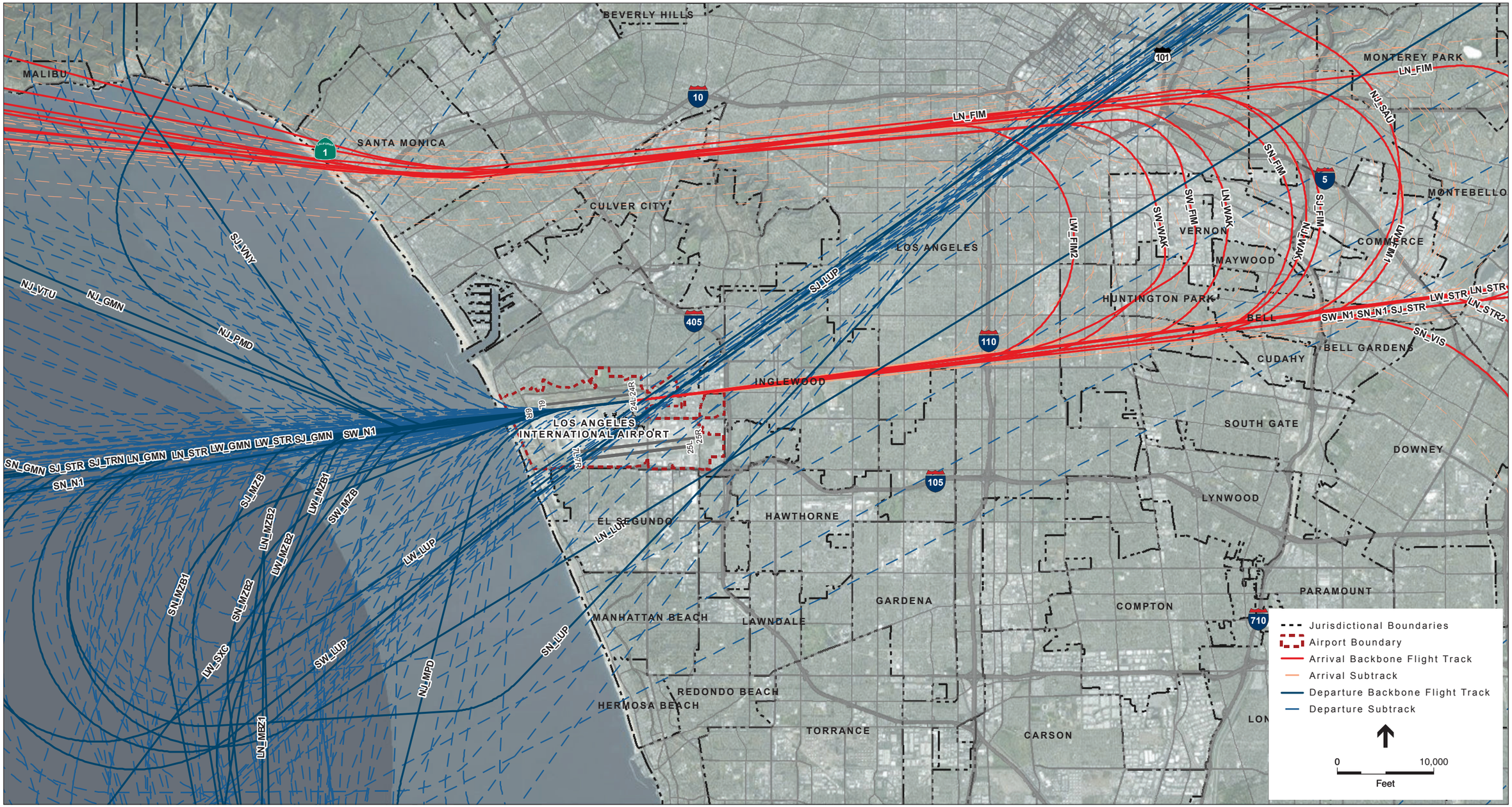

SOURCES: ESA Airports, 2014; LA Co. DRP, 2014; City of LA DCP, 2013; ESRI ArcGIS Online, 2011; PCR Services Corporation, 2012
NOTE: INM = Integrated Noise Model

Exhibit 4-4a
INM Arrival and Departure Flight Tracks – Runway 24L

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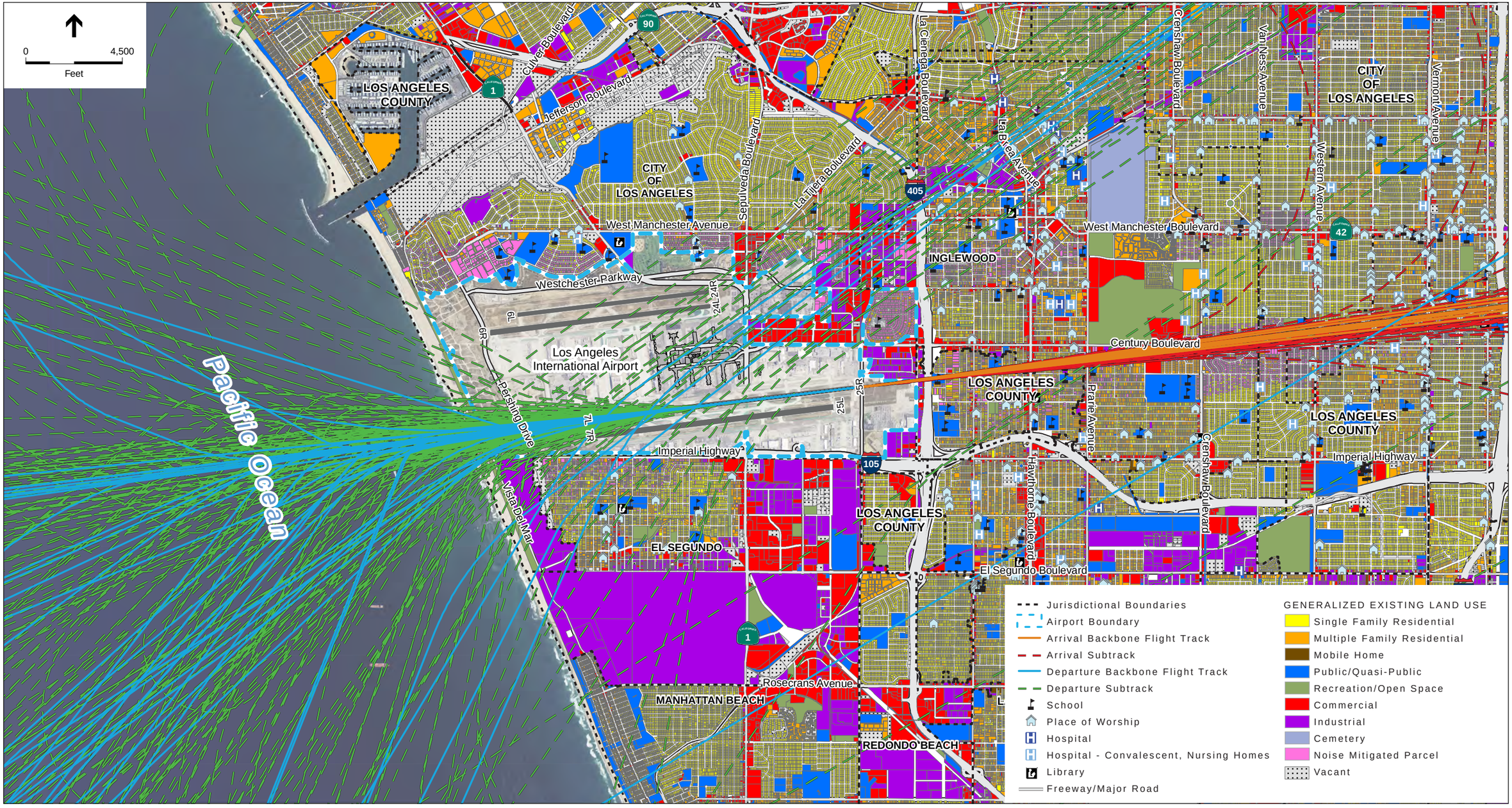

SOURCES: ESA Airports, 2014; ESRI ArcGIS Online, 2011; ESRI World Imagery - Aerial; PCR Services Corporation, 2012
NOTE: INM = Integrated Noise Model

Exhibit 4-5
INM Arrival and Departure Flight Tracks – Runway 25R

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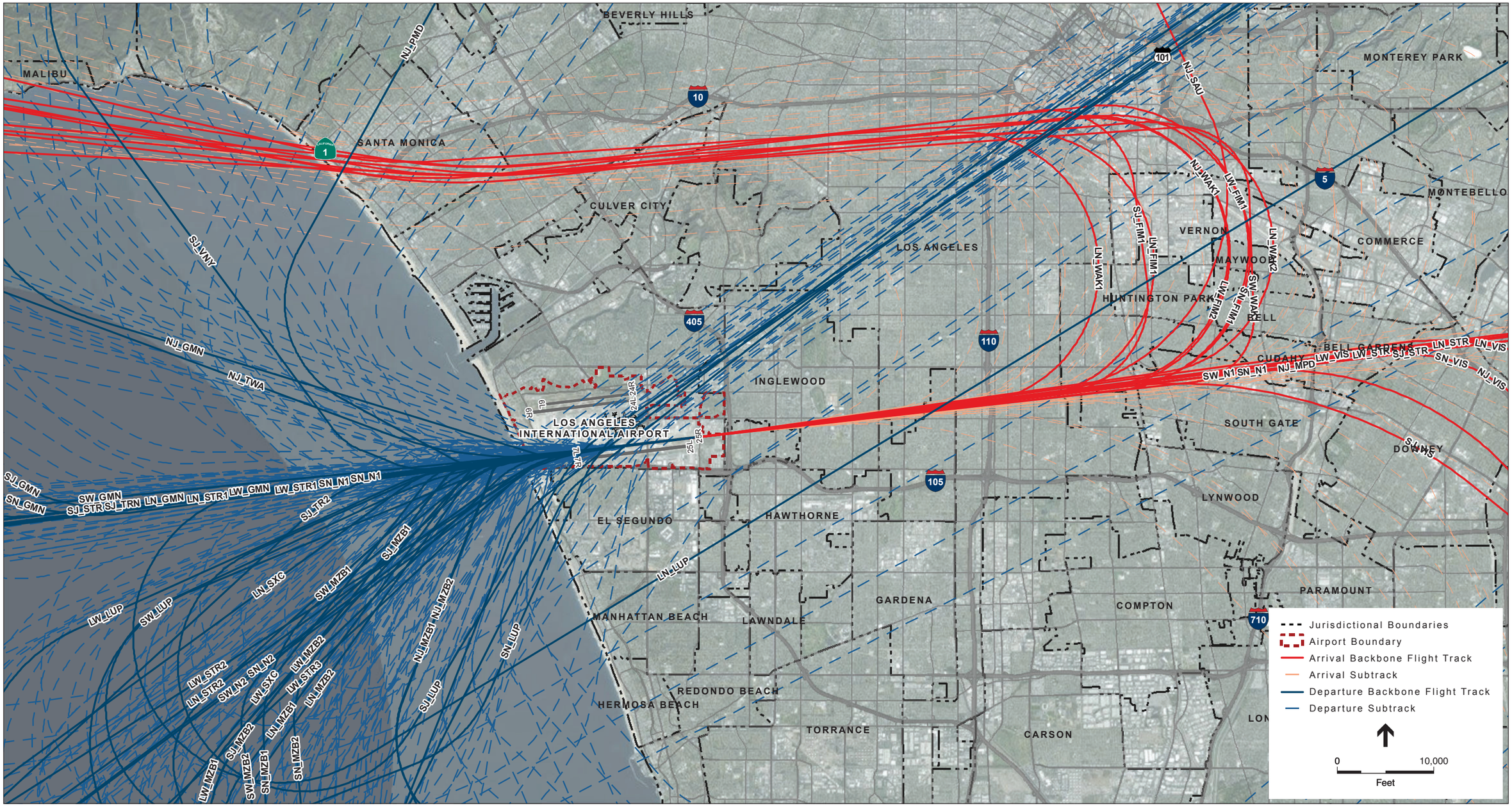

SOURCES: ESA Airports, 2014; LA Co. DRP, 2014; City of LA DCP, 2013; ESRI ArcGIS Online, 2011; PCR Services Corporation, 2012
NOTE: INM = Integrated Noise Model

Exhibit 4-5a
INM Arrival and Departure Flight Tracks – Runway 25R

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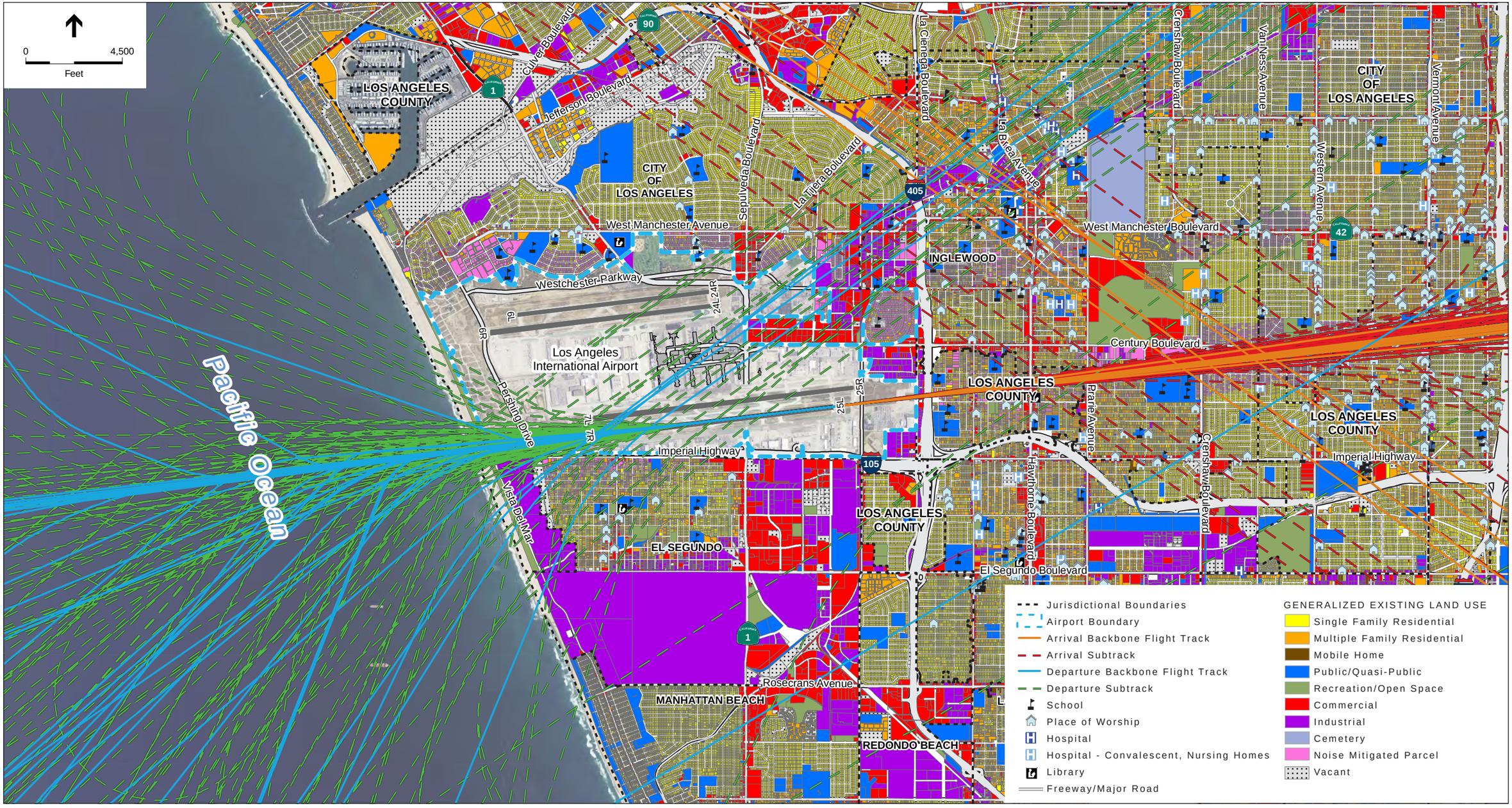

SOURCES: ESA Airports, 2014; ESRI ArcGIS Online, 2011; ESRI World Imagery - Aerial; PCR Services Corporation, 2012
NOTE: INM = Integrated Noise Model

Exhibit 4-6
INM Arrival and Departure Flight Tracks – Runway 25L

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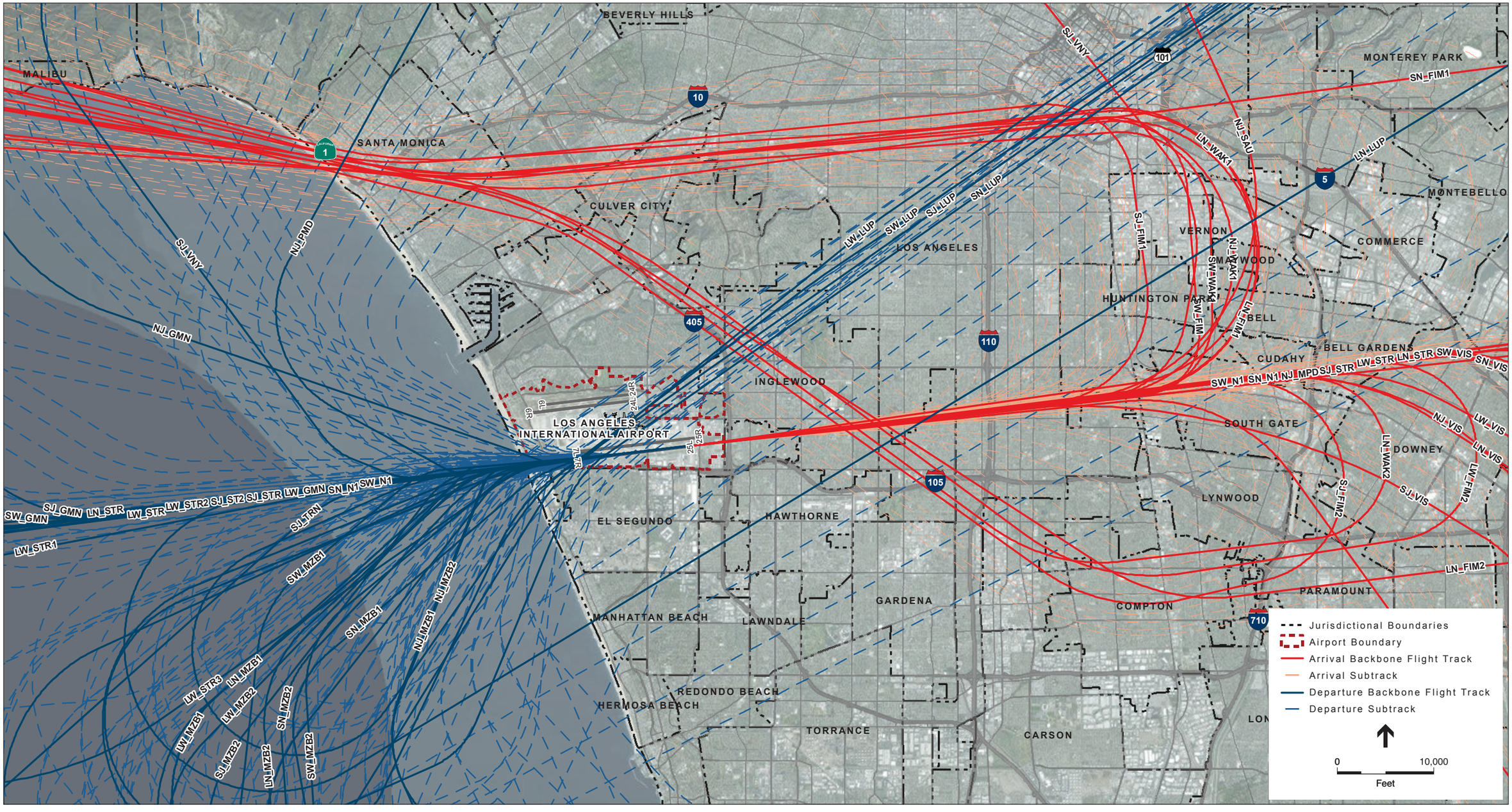

SOURCES: ESA Airports, 2014; LA Co. DRP, 2014; City of LA DCP, 2013; ESRI ArcGIS Online, 2011; PCR Services Corporation, 2012
NOTE: INM = Integrated Noise Model

Exhibit 4-6a
INM Arrival and Departure Flight Tracks – Runway 25L

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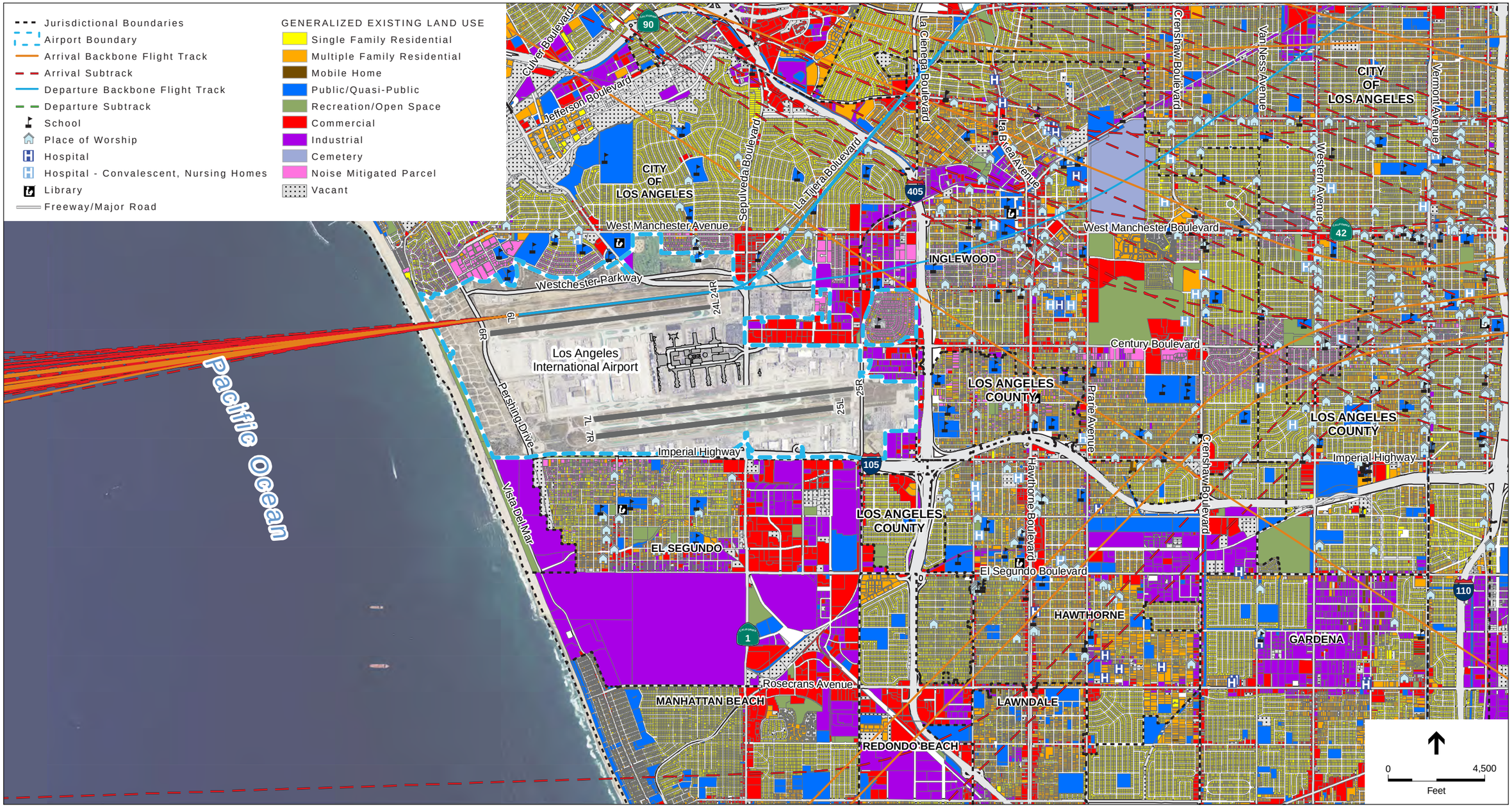
Jurisdictional Boundaries
Airport Boundary
Arrival Backbone Flight Track
Arrival Subtrack
Departure Backbone Flight Track
Departure Subtrack
School
Place of Worship
Hospital
Hospital - Convalescent, Nursing Homes
Library
Freeway/Major Road

GENERALIZED EXISTING LAND USE
Single Family Residential
Multiple Family Residential
Mobile Home
Public/Quasi-Public
Recreation/Open Space
Commercial
Industrial
Cemetery
Noise Mitigated Parcel
Vacant



SOURCES: ESA Airports, 2014; ESRI ArcGIS Online, 2011; ESRI World Imagery - Aerial; PCR Services Corporation, 2012
NOTE: INM = Integrated Noise Model

Exhibit 4-7
INM Arrival and Departure Flight Tracks – Runway 06L

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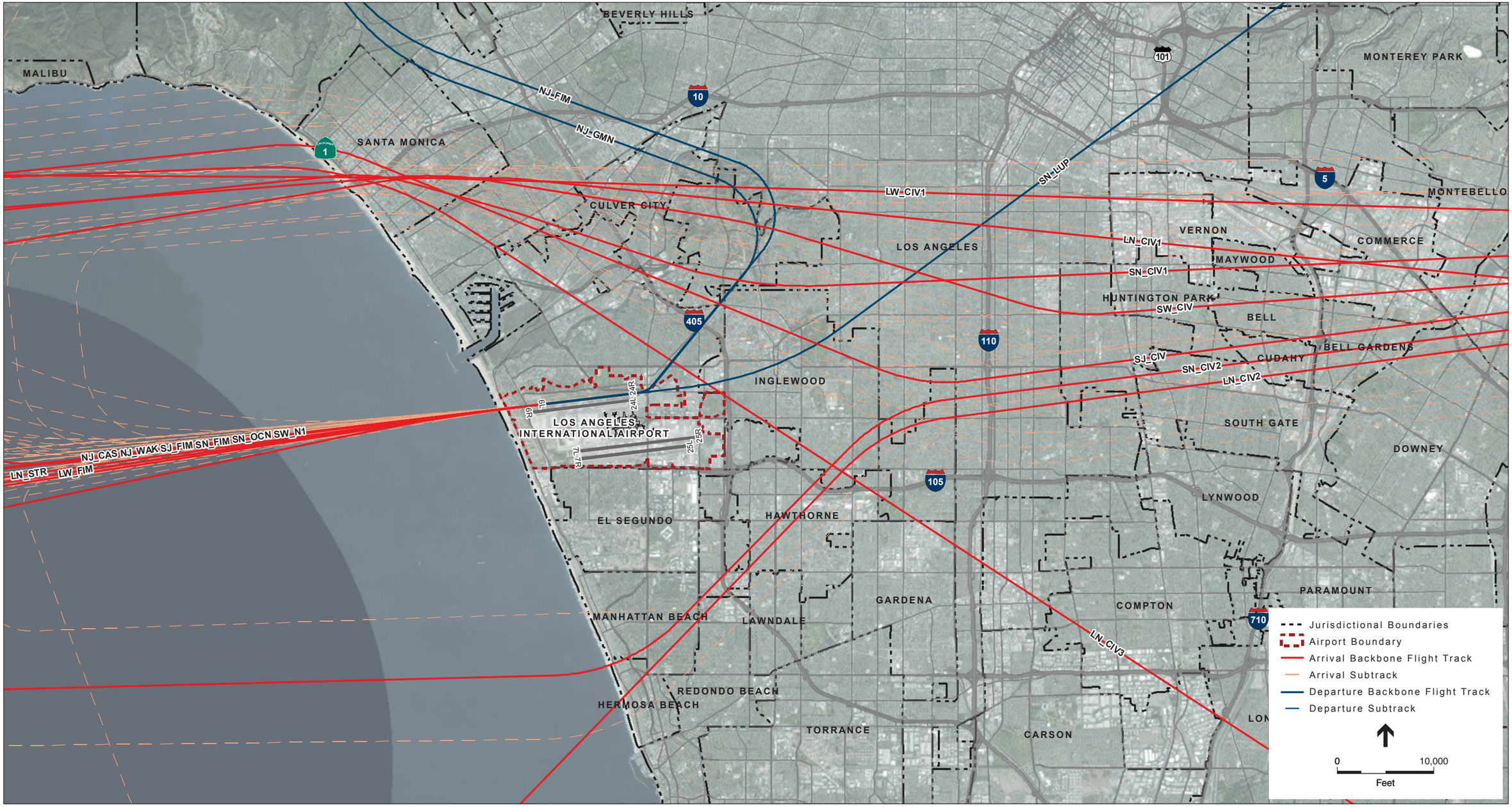

SOURCES: ESA Airports, 2014; LA Co. DRP, 2014; City of LA DCP, 2013; ESRI ArcGIS Online, 2011; PCR Services Corporation, 2012
NOTE: INM = Integrated Noise Model

Exhibit 4-7a
INM Arrival and Departure Flight Tracks – Runway 06L

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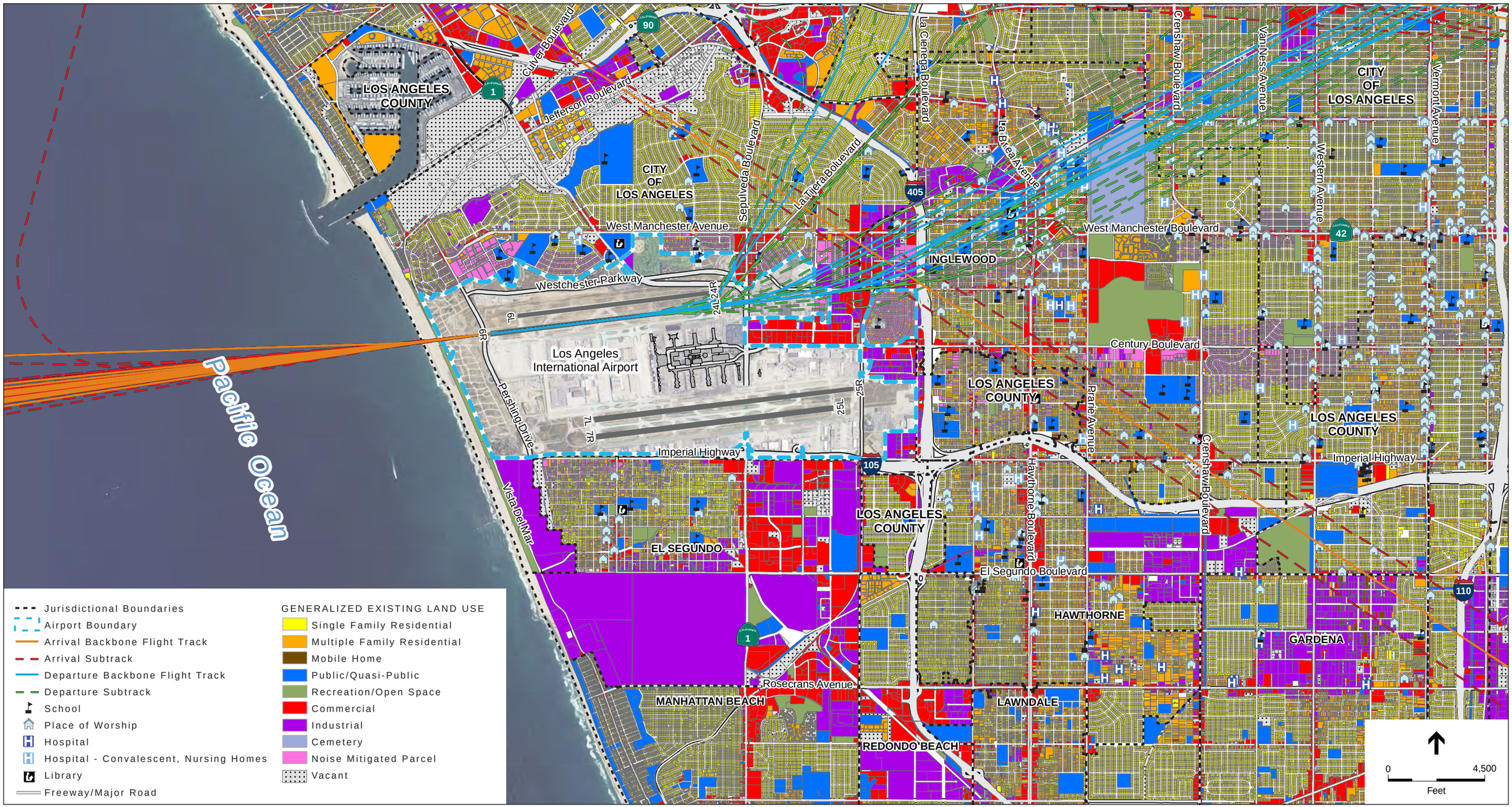

SOURCES: ESA Airports, 2014; ESRI ArcGIS Online, 2011; ESRI World Imagery - Aerial; PCR Services Corporation, 2012
NOTE: INM = Integrated Noise Model

Exhibit 4-8
INM Arrival and Departure Flight Tracks – Runway 06R

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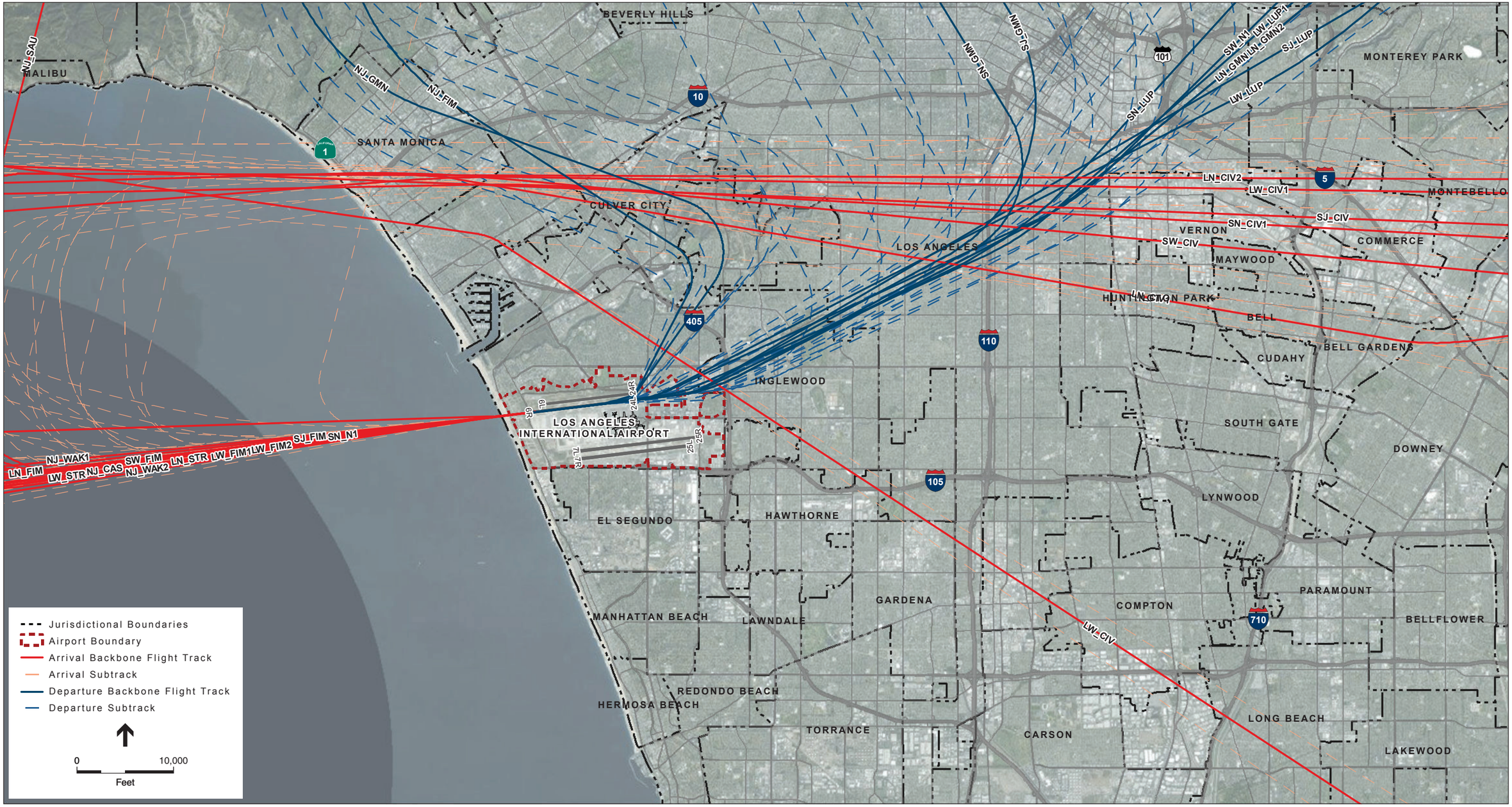

SOURCES: ESA Airports, 2014; LA Co. DRP, 2014; City of LA DCP, 2013; ESRI ArcGIS Online, 2011; PCR Services Corporation, 2012
NOTE: INM = Integrated Noise Model

Exhibit 4-8a
INM Arrival and Departure Flight Tracks – Runway 06R

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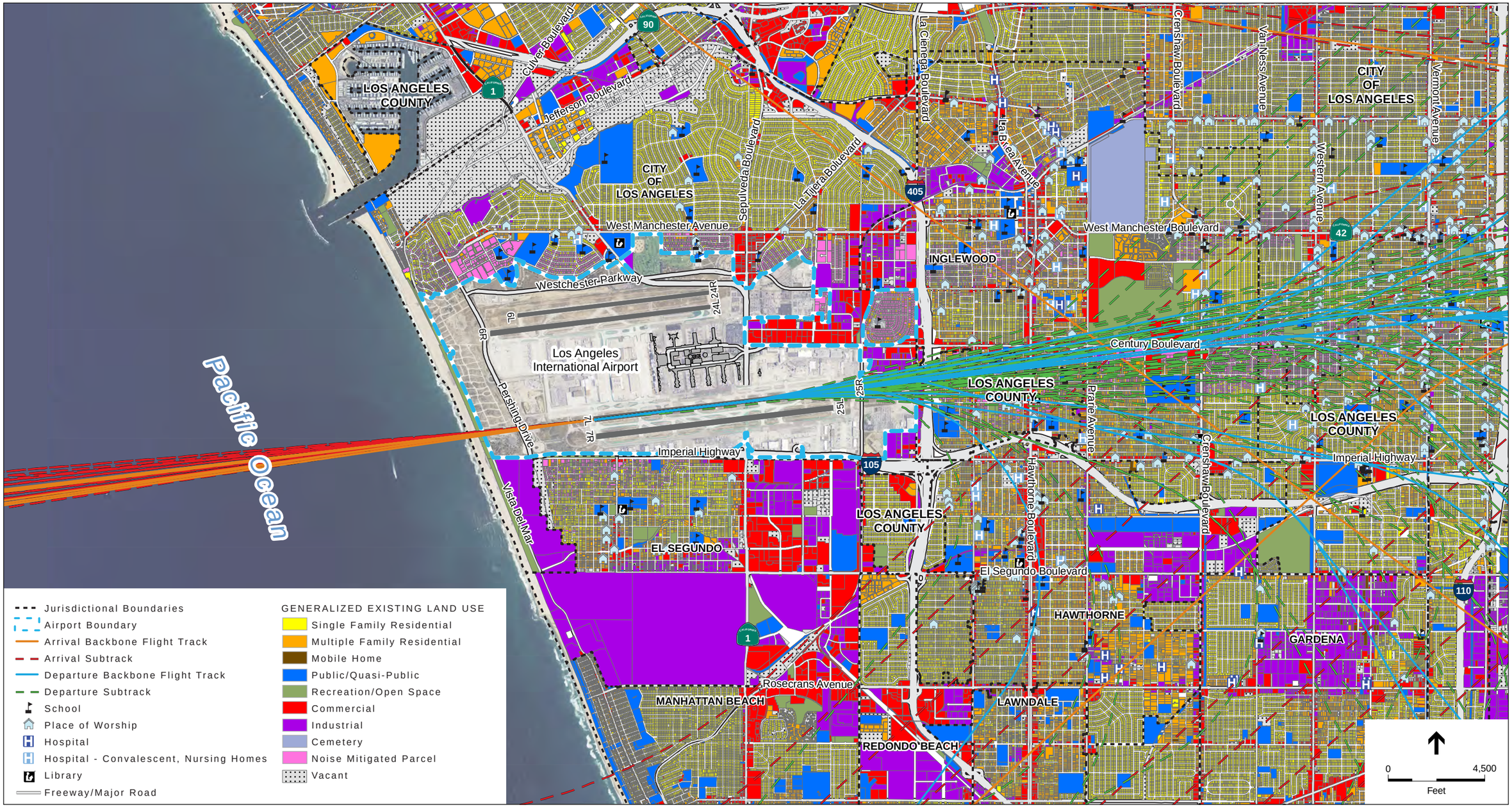

SOURCES: ESA Airports, 2014; ESRI ArcGIS Online, 2011; ESRI World Imagery - Aerial; PCR Services Corporation, 2012
NOTE: INM = Integrated Noise Model

Exhibit 4-9
INM Arrival and Departure Flight Tracks – Runway 07L

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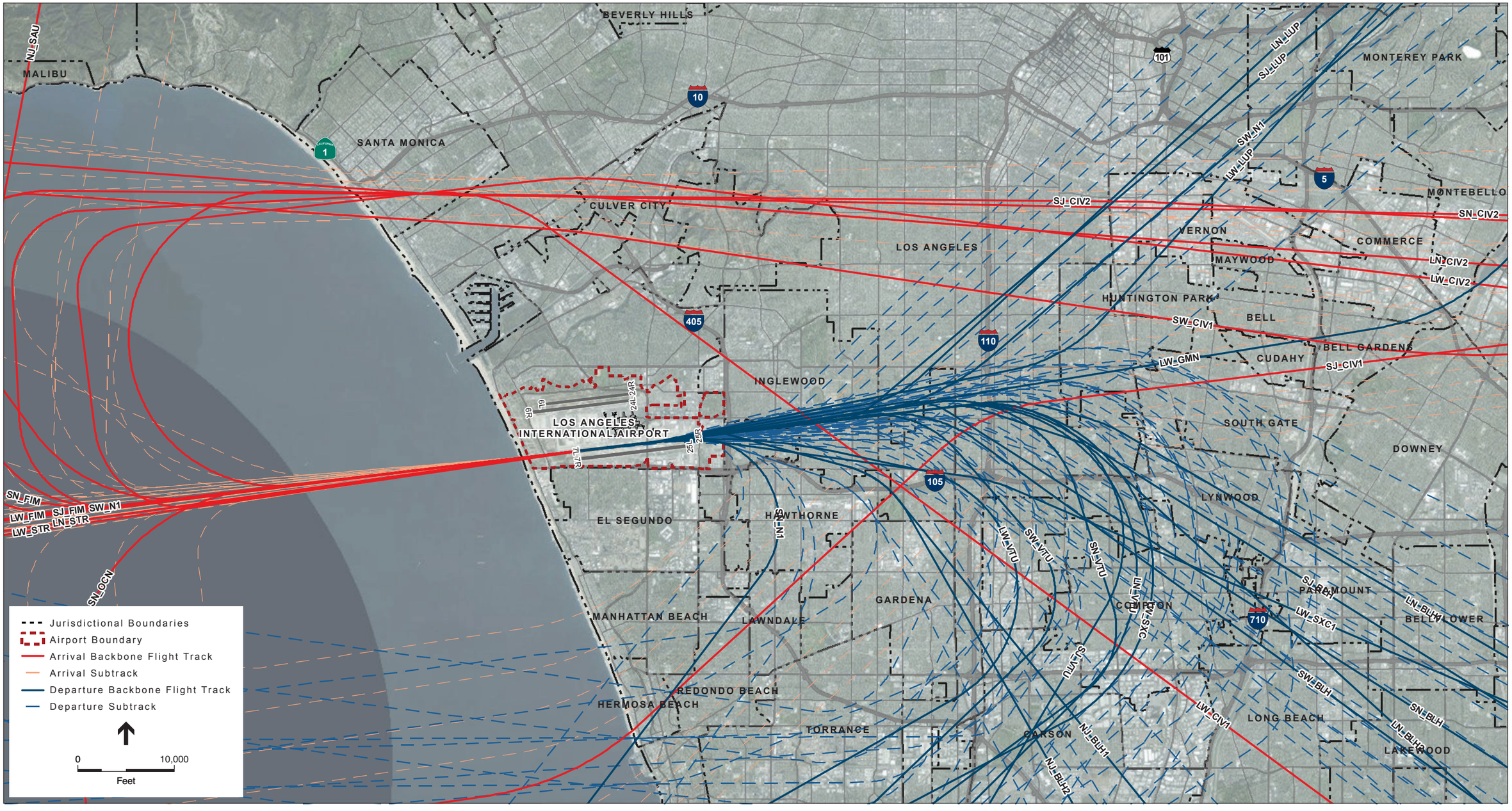

SOURCES: ESA Airports, 2014; LA Co. DRP, 2014; City of LA DCP, 2013; ESRI ArcGIS Online, 2011; PCR Services Corporation, 2012
NOTE: INM = Integrated Noise Model

Exhibit 4-9a
INM Arrival and Departure Flight Tracks – Runway 07L

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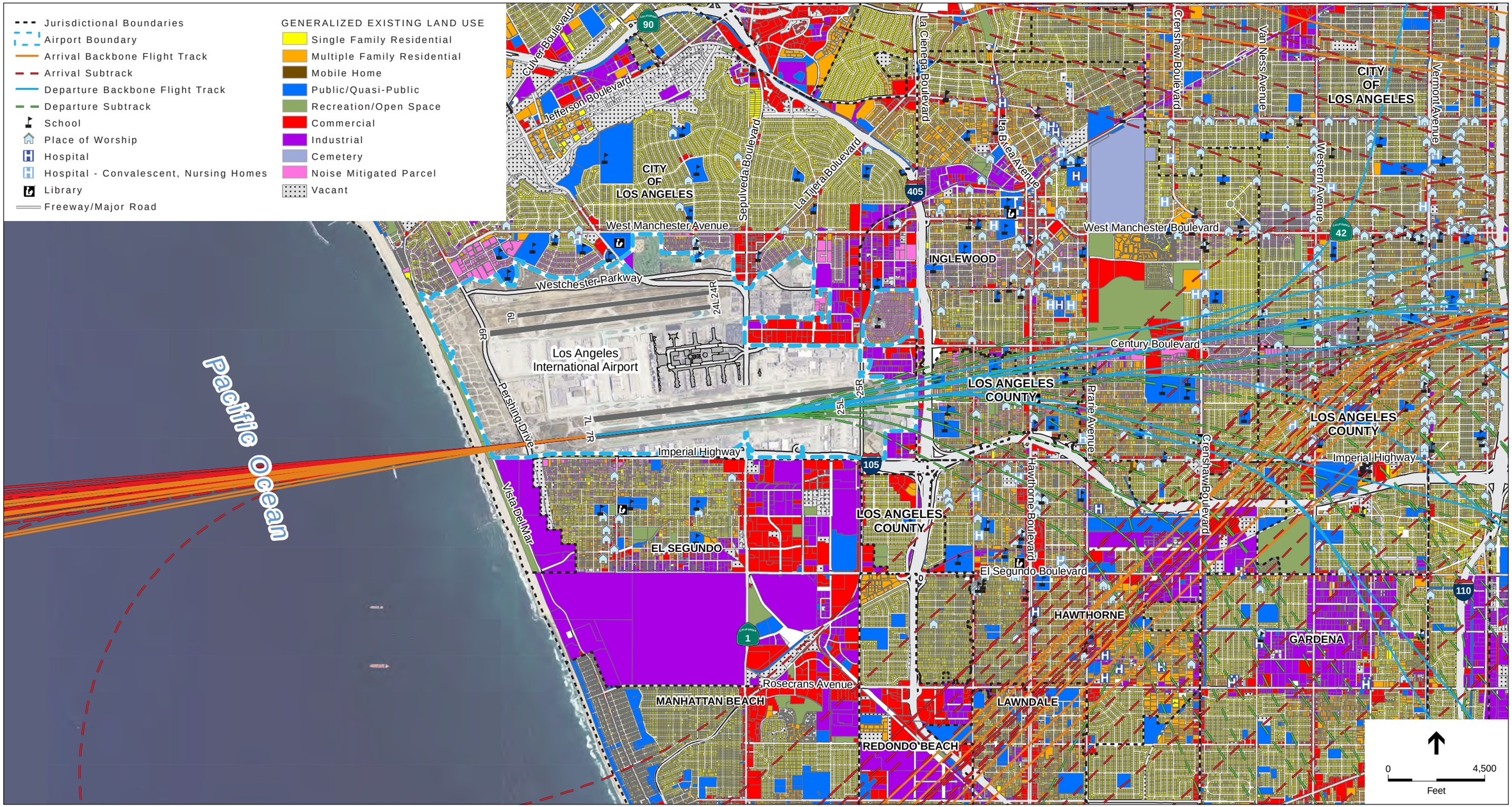
Jurisdictional Boundaries
Airport Boundary
Arrival Backbone Flight Track
Arrival Subtrack
Departure Backbone Flight Track
Departure Subtrack
School
Place of Worship
Hospital
Hospital - Convalescent, Nursing Homes
Library
Freeway/Major Road

GENERALIZED EXISTING LAND USE
Single Family Residential
Multiple Family Residential
Mobile Home
Public/Quasi-Public
Recreation/Open Space
Commercial
Industrial
Cemetery
Noise Mitigated Parcel
Vacant



SOURCES: ESA Airports, 2014; ESRI ArcGIS Online, 2011; ESRI World Imagery - Aerial; PCR Services Corporation, 2012
NOTE: INM = Integrated Noise Model

Exhibit 4-10
INM Arrival and Departure Flight Tracks – Runway 07R

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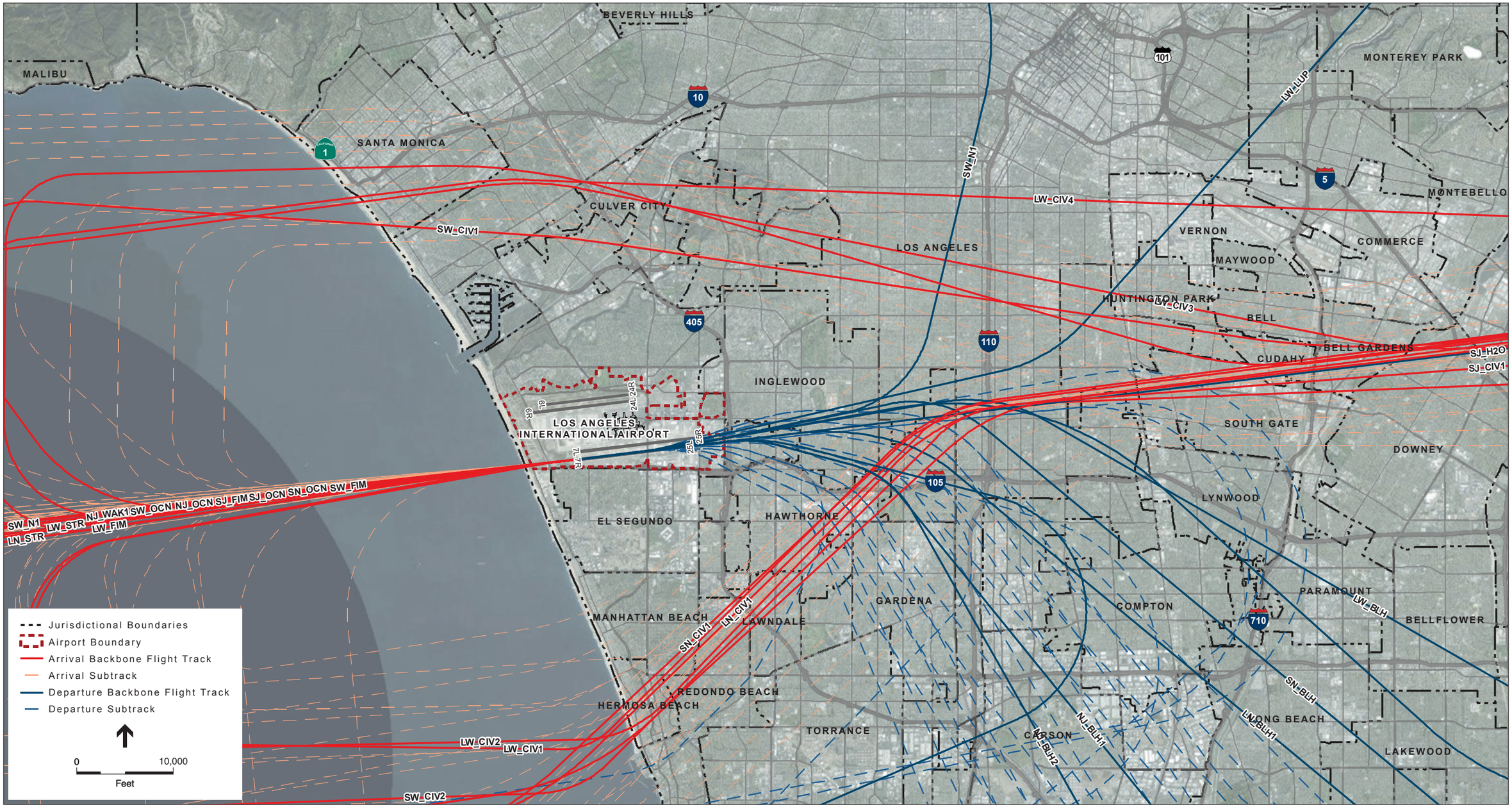

SOURCES: ESA Airports, 2014; LA Co. DRP, 2014; City of LA DCP, 2013; ESRI ArcGIS Online, 2011; PCR Services Corporation, 2012
NOTE: INM = Integrated Noise Model

Exhibit 4-10a
INM Arrival and Departure Flight Tracks – Runway 07R

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Tables 4-13 and **4-14** present flight track use data for existing (2015) conditions and future (2020) conditions, respectively. The arrival and departure flight track use data are grouped by runway end. Flight tracks included in Tables 4-10 and 4-11 are labeled on Exhibits 4-3a through 4-10a. The flight track use values presented in Tables 4-10 are based on a full calendar year (2013) of flight track data from LAX's ANOMS. Anticipated changes in the aircraft fleet mix at LAX between 2015 and 2020 account for the minor differences in the flight track use values presented in Tables 4-13 and 4-14.

4.7 Aircraft Noise Monitoring System

The ANOMS operated by LAWA includes 39 noise monitoring stations located in the communities around LAX. Using state-of-the-art technology, LAWA can monitor noise levels and link aircraft noise events and/or complaints to specific flights and aircraft types

Table 4-15 presents information regarding the locations of the 39 noise monitoring stations and the annual average aircraft and community noise levels measured at those same locations in 2013. **Exhibit 4-11** presents a graphical depiction of the location of most of the noise monitoring stations in the vicinity of LAX, superimposed on a map showing generalized existing land uses. The aircraft CNEL figures in Table 4-15 represent noise levels associated with aircraft noise events only. The Community CNEL figures in Table 4-15 represent ambient noise levels in the vicinity of the permanent noise monitoring stations (i.e., noise levels associated with sources other than aircraft such as traffic on highways and major streets, railroad operations, barking dogs, children playing, mechanical equipment, wind, fireworks, and residential maintenance activities). The ambient noise level provides a sense of how quiet or noisy the community is in the absence of aircraft noise events, which helps put the effects of aircraft noise into perspective. As shown in Table 4-15, the Community CNEL values are lower than the Aircraft CNEL values at some locations (e.g., PDR1 and PDR2) and higher at other locations (e.g., WCH1 and WCH4). The data provided in Table 4-15 were not used to develop the 2015 or 2020 NEMs and are provided for informational purposes only.

TABLE 4-13
FLIGHT TRACK USE BY OPERATION TYPE AND TIME OF DAY - EXISTING (2015) CONDITIONS
LOS ANGELES INTERNATIONAL AIRPORT

	Arrivals				Departures			
Runway/Flight Track	**Day**	**Evening**	**Night**	**Total**	**Day**	**Evening**	**Night**	**Total**
06L								
LN_CIV1	1.29%	4.73%	8.03%	5.44%	0.00%	0.00%	0.00%	0.00%
LN_CIV2	1.16%	4.25%	7.23%	4.89%	0.00%	0.00%	0.00%	0.00%
LN_CIV3	0.26%	0.95%	1.61%	1.09%	0.00%	0.00%	0.00%	0.00%
LN_STR	1.54%	5.67%	9.63%	6.52%	0.00%	0.00%	0.00%	0.00%
LW_CIV1	14.91%	7.82%	19.49%	17.25%	0.00%	0.00%	0.00%	0.00%
LW_FIM	2.03%	1.07%	2.66%	2.35%	0.00%	0.00%	0.00%	0.00%
NJ_CAS	5.42%	4.47%	2.83%	3.85%	0.00%	0.00%	0.00%	0.00%
NJ_FIM	0.00%	0.00%	0.00%	0.00%	12.24%	16.86%	8.49%	12.11%
NJ_GMN	0.00%	0.00%	0.00%	0.00%	24.46%	33.79%	16.99%	24.22%
NJ_WAK	5.42%	4.47%	2.83%	3.85%	0.00%	0.00%	0.00%	0.00%
SJ_CIV	2.74%	3.39%	1.06%	1.79%	0.00%	0.00%	0.00%	0.00%
SJ_FIM	18.29%	22.58%	7.09%	11.91%	0.00%	0.00%	0.00%	0.00%
SN_CIV1	23.49%	18.82%	13.16%	17.16%	0.00%	0.00%	0.00%	0.00%
SN_CIV2	1.00%	0.80%	0.56%	0.73%	0.00%	0.00%	0.00%	0.00%
SN_FIM	19.98%	16.02%	11.20%	14.60%	0.00%	0.00%	0.00%	0.00%
SN_LUP	0.00%	0.00%	0.00%	0.00%	63.30%	49.36%	74.53%	63.66%
SN_OCN	1.50%	1.20%	0.84%	1.10%	0.00%	0.00%	0.00%	0.00%
SW_CIV	0.57%	2.25%	7.07%	4.49%	0.00%	0.00%	0.00%	0.00%
SW_N1	0.38%	1.50%	4.71%	2.99%	0.00%	0.00%	0.00%	0.00%
Total	**100.00%**	**100.00%**	**100.00%**	**100.00%**	**100.00%**	**100.00%**	**100.00%**	**100.00%**
06R								
LN_CIV1	0.00%	0.00%	4.03%	4.01%	0.00%	0.00%	0.00%	0.00%
LN_CIV2	0.00%	0.00%	1.57%	1.56%	0.00%	0.00%	0.00%	0.00%
LN_FIM	0.00%	0.00%	1.12%	1.12%	0.00%	0.00%	0.00%	0.00%
LN_GMN	0.00%	0.00%	0.00%	0.00%	5.95%	1.17%	8.43%	5.88%
LN_GMN2	0.00%	0.00%	0.00%	0.00%	5.95%	1.17%	8.43%	5.88%
LN_STR	0.00%	0.00%	21.73%	21.64%	0.00%	0.00%	0.00%	0.00%
LW_CIV	3.53%	7.37%	3.65%	3.65%	0.00%	0.00%	0.00%	0.00%
LW_CIV1	2.01%	4.20%	2.08%	2.08%	0.00%	0.00%	0.00%	0.00%
LW_FIM1	13.61%	28.44%	14.06%	14.06%	0.00%	0.00%	0.00%	0.00%
LW_FIM2	4.03%	8.41%	4.17%	4.17%	0.00%	0.00%	0.00%	0.00%
LW_LUP	0.00%	0.00%	0.00%	0.00%	2.53%	6.13%	6.48%	3.23%
LW_LUP1	0.00%	0.00%	0.00%	0.00%	1.27%	3.07%	3.24%	1.62%
LW_STR	1.01%	2.10%	1.04%	1.04%	0.00%	0.00%	0.00%	0.00%
NJ_CAS	0.51%	0.00%	0.40%	0.40%	0.00%	0.00%	0.00%	0.00%
NJ_FIM	0.00%	0.00%	0.00%	0.00%	6.48%	8.88%	6.79%	6.69%
NJ_GMN	0.00%	0.00%	0.00%	0.00%	3.89%	5.33%	4.07%	4.01%
NJ_SAU	5.14%	0.00%	4.03%	4.03%	0.00%	0.00%	0.00%	0.00%
NJ_WAK1	0.51%	0.00%	0.40%	0.40%	0.00%	0.00%	0.00%	0.00%
NJ_WAK2	2.06%	0.00%	1.61%	1.61%	0.00%	0.00%	0.00%	0.00%
SJ_CIV	13.17%	0.00%	4.81%	4.84%	0.00%	0.00%	0.00%	0.00%
SJ_FIM	10.13%	0.00%	3.70%	3.72%	0.00%	0.00%	0.00%	0.00%
SJ_GMN	0.00%	0.00%	0.00%	0.00%	15.83%	19.96%	5.57%	14.98%
SJ_LUP	0.00%	0.00%	0.00%	0.00%	5.93%	7.49%	2.09%	5.62%

TABLE 4-13 (Continued)
FLIGHT TRACK USE BY OPERATION TYPE AND TIME OF DAY - EXISTING (2015) CONDITIONS
LOS ANGELES INTERNATIONAL AIRPORT

	Arrivals				Departures			
Runway/Flight Track	**Day**	**Evening**	**Night**	**Total**	**Day**	**Evening**	**Night**	**Total**
06R (cont.)								
SN_CIV1	32.80%	40.33%	16.31%	16.38%	0.00%	0.00%	0.00%	0.00%
SN_FIM	7.46%	9.14%	3.71%	3.72%	0.00%	0.00%	0.00%	0.00%
SN_GMN	0.00%	0.00%	0.00%	0.00%	18.08%	16.76%	19.80%	18.18%
SN_LUP	0.00%	0.00%	0.00%	0.00%	29.83%	27.66%	32.68%	29.99%
SW_CIV	1.83%	0.00%	5.24%	5.23%	0.00%	0.00%	0.00%	0.00%
SW_FIM	0.25%	0.00%	0.72%	0.72%	0.00%	0.00%	0.00%	0.00%
SW_N1	1.95%	0.00%	5.60%	5.59%	4.27%	2.36%	2.42%	3.93%
Total	**100.00%**	**100.00%**	**100.00%**	**100.00%**	**100.00%**	**100.00%**	**100.00%**	**100.00%**
07L								
LN_BLH1	0.00%	0.00%	0.00%	0.00%	2.20%	0.41%	2.02%	2.05%
LN_BLH2	0.00%	0.00%	0.00%	0.00%	5.13%	0.95%	4.71%	4.78%
LN_CIV2	1.60%	1.04%	8.00%	7.95%	0.00%	0.00%	0.00%	0.00%
LN_LUP	0.00%	0.00%	0.00%	0.00%	0.74%	0.14%	0.67%	0.69%
LN_STR	7.21%	4.64%	36.00%	35.77%	0.00%	0.00%	0.00%	0.00%
LN_VTU	0.00%	0.00%	0.00%	0.00%	8.06%	1.49%	7.41%	7.52%
LW_CIV1	0.00%	0.00%	2.45%	2.44%	0.00%	0.00%	0.00%	0.00%
LW_CIV2	0.00%	0.00%	9.82%	9.74%	0.00%	0.00%	0.00%	0.00%
LW_FIM	0.00%	0.00%	14.72%	14.60%	0.00%	0.00%	0.00%	0.00%
LW_GMN	0.00%	0.00%	0.00%	0.00%	0.19%	0.16%	0.61%	0.27%
LW_LUP	0.00%	0.00%	0.00%	0.00%	0.19%	0.16%	0.61%	0.27%
LW_STR	0.00%	0.00%	4.91%	4.87%	0.00%	0.00%	0.00%	0.00%
LW_SXC	0.00%	0.00%	0.00%	0.00%	0.96%	0.81%	3.03%	1.35%
LW_SXC1	0.00%	0.00%	0.00%	0.00%	0.38%	0.32%	1.21%	0.54%
LW_VTU	0.00%	0.00%	0.00%	0.00%	7.66%	6.46%	24.23%	10.77%
NJ_BLH1	0.00%	0.00%	0.00%	0.00%	3.50%	4.62%	0.77%	3.05%
NJ_BLH2	0.00%	0.00%	0.00%	0.00%	4.38%	5.77%	0.96%	3.81%
NJ_SAU	18.04%	0.00%	2.73%	2.82%	0.00%	0.00%	0.00%	0.00%
SJ_BLH	0.00%	0.00%	0.00%	0.00%	11.44%	15.99%	5.13%	10.52%
SJ_CIV1	9.52%	17.59%	1.74%	1.81%	0.00%	0.00%	0.00%	0.00%
SJ_CIV2	5.72%	10.54%	1.04%	1.09%	0.00%	0.00%	0.00%	0.00%
SJ_FIM	1.90%	3.50%	0.35%	0.36%	0.00%	0.00%	0.00%	0.00%
SJ_LUP	0.00%	0.00%	0.00%	0.00%	4.58%	6.39%	2.05%	4.21%
SJ_VTU	0.00%	0.00%	0.00%	0.00%	6.86%	9.59%	3.08%	6.31%
SN_BLH	0.00%	0.00%	0.00%	0.00%	22.63%	24.58%	20.06%	22.26%
SN_CIV2	8.12%	15.68%	0.89%	0.96%	0.00%	0.00%	0.00%	0.00%
SN_FIM	16.23%	31.34%	1.78%	1.92%	0.00%	0.00%	0.00%	0.00%
SN_N1	0.00%	0.00%	0.00%	0.00%	3.14%	3.41%	2.79%	3.09%
SN_OCN	8.12%	15.68%	0.89%	0.96%	0.00%	0.00%	0.00%	0.00%
SN_VTU	0.00%	0.00%	0.00%	0.00%	14.46%	15.70%	12.82%	14.23%
SW_BLH	0.00%	0.00%	0.00%	0.00%	1.31%	1.15%	2.94%	1.61%
SW_CIV1	13.08%	0.00%	8.17%	8.18%	0.00%	0.00%	0.00%	0.00%
SW_N1	10.47%	0.00%	6.53%	6.54%	0.65%	0.57%	1.47%	0.81%
SW_VTU	0.00%	0.00%	0.00%	0.00%	1.53%	1.34%	3.43%	1.88%
Total	**100.00%**	**100.00%**	**100.00%**	**100.00%**	**100.00%**	**100.00%**	**100.00%**	**100.00%**

TABLE 4-13 (Continued)
FLIGHT TRACK USE BY OPERATION TYPE AND TIME OF DAY - EXISTING (2015) CONDITIONS
LOS ANGELES INTERNATIONAL AIRPORT

	Arrivals				Departures			
Runway/Flight Track	**Day**	**Evening**	**Night**	**Total**	**Day**	**Evening**	**Night**	**Total**
07R								
LN_BLH1	0.00%	0.00%	0.00%	0.00%	4.30%	0.00%	15.28%	12.34%
LN_CIV1	4.68%	6.60%	8.50%	7.08%	0.00%	0.00%	0.00%	0.00%
LN_STR	11.70%	16.51%	21.25%	17.70%	0.00%	0.00%	0.00%	0.00%
LW_BLH	0.00%	0.00%	0.00%	0.00%	2.44%	7.27%	3.55%	3.53%
LW_CIV1	0.74%	0.65%	4.97%	3.28%	0.00%	0.00%	0.00%	0.00%
LW_CIV2	0.74%	0.65%	4.97%	3.28%	0.00%	0.00%	0.00%	0.00%
LW_CIV3	0.37%	0.33%	2.48%	1.64%	0.00%	0.00%	0.00%	0.00%
LW_CIV4	1.47%	1.31%	9.94%	6.56%	0.00%	0.00%	0.00%	0.00%
LW_FIM	2.02%	1.80%	13.67%	9.02%	0.00%	0.00%	0.00%	0.00%
LW_LUP	0.00%	0.00%	0.00%	0.00%	2.44%	7.26%	3.55%	3.53%
LW_STR	0.74%	0.65%	4.97%	3.28%	0.00%	0.00%	0.00%	0.00%
LW_VTU	0.00%	0.00%	0.00%	0.00%	28.55%	84.77%	41.52%	41.19%
NJ_BLH1	0.00%	0.00%	0.00%	0.00%	4.62%	0.00%	0.40%	1.21%
NJ_BLH2	0.00%	0.00%	0.00%	0.00%	6.93%	0.00%	0.60%	1.81%
NJ_OCN	6.28%	4.37%	2.00%	3.60%	0.00%	0.00%	0.00%	0.00%
NJ_WAK1	1.71%	1.19%	0.54%	0.98%	0.00%	0.00%	0.00%	0.00%
SJ_CIV1	5.78%	4.16%	1.27%	2.98%	0.00%	0.00%	0.00%	0.00%
SJ_CIV2	5.78%	4.16%	1.27%	2.98%	0.00%	0.00%	0.00%	0.00%
SJ_FIM	1.45%	1.04%	0.32%	0.75%	0.00%	0.00%	0.00%	0.00%
SJ_H20	0.00%	0.00%	0.00%	0.00%	39.84%	0.00%	5.93%	12.29%
SJ_OCN	10.85%	7.79%	2.38%	5.59%	0.00%	0.00%	0.00%	0.00%
SN_BLH	0.00%	0.00%	0.00%	0.00%	6.99%	0.00%	21.06%	17.22%
SN_CIV1	24.68%	23.15%	4.12%	12.23%	0.00%	0.00%	0.00%	0.00%
SN_OCN	15.71%	14.73%	2.62%	7.79%	0.00%	0.00%	0.00%	0.00%
SW_CIV1	1.77%	3.64%	4.91%	3.76%	0.00%	0.00%	0.00%	0.00%
SW_CIV2	1.77%	3.64%	4.91%	3.76%	0.00%	0.00%	0.00%	0.00%
SW_FIM	0.63%	1.30%	1.75%	1.34%	0.00%	0.00%	0.00%	0.00%
SW_N1	1.01%	2.08%	2.80%	2.15%	1.29%	0.22%	2.70%	2.29%
SW_N2	0.00%	0.00%	0.00%	0.00%	2.59%	0.47%	5.40%	4.59%
SW_OCN	0.13%	0.26%	0.35%	0.27%	0.00%	0.00%	0.00%	0.00%
Total	**100.00%**	**100.00%**	**100.00%**	**100.00%**	**100.00%**	**100.00%**	**100.00%**	**100.00%**
24L								
LN_FIM	0.67%	1.91%	1.04%	1.06%	0.00%	0.00%	0.00%	0.00%
LN_GMN	0.00%	0.00%	0.00%	0.00%	0.11%	0.01%	0.07%	0.09%
LN_LUP	0.00%	0.00%	0.00%	0.00%	1.71%	0.19%	1.15%	1.46%
LN_MZB1	0.00%	0.00%	0.00%	0.00%	1.86%	0.21%	1.24%	1.59%
LN_MZB2	0.00%	0.00%	0.00%	0.00%	0.50%	0.06%	0.33%	0.43%
LN_STR	2.36%	6.69%	3.62%	3.70%	1.34%	0.15%	0.90%	1.15%
LN_STR2	0.34%	0.96%	0.51%	0.53%	0.00%	0.00%	0.00%	0.00%
LN_WAK	0.67%	1.91%	1.04%	1.06%	0.00%	0.00%	0.00%	0.00%
LW_FIM1	17.17%	17.64%	7.15%	16.21%	0.00%	0.00%	0.00%	0.00%
LW_FIM2	0.86%	0.88%	0.36%	0.81%	0.00%	0.00%	0.00%	0.00%
LW_GMN	0.00%	0.00%	0.00%	0.00%	0.34%	0.41%	0.79%	0.40%
LW_LUP	0.00%	0.00%	0.00%	0.00%	1.00%	1.20%	2.34%	1.19%

TABLE 4-13 (Continued)
FLIGHT TRACK USE BY OPERATION TYPE AND TIME OF DAY - EXISTING (2015) CONDITIONS
LOS ANGELES INTERNATIONAL AIRPORT

	Arrivals				Departures			
Runway/Flight Track	**Day**	**Evening**	**Night**	**Total**	**Day**	**Evening**	**Night**	**Total**
24L (cont.)								
LW_MZB1	0.00%	0.00%	0.00%	0.00%	0.56%	0.68%	1.32%	0.67%
LW_MZB2	0.00%	0.00%	0.00%	0.00%	1.37%	1.64%	3.21%	1.63%
LW_STR	3.15%	3.23%	1.31%	2.97%	3.30%	3.96%	7.74%	3.94%
LW_SXC	0.00%	0.00%	0.00%	0.00%	0.03%	0.04%	0.08%	0.04%
NJ_GMN	0.00%	0.00%	0.00%	0.00%	3.38%	5.09%	3.75%	3.63%
NJ_MPD	0.00%	0.00%	0.00%	0.00%	0.29%	0.43%	0.32%	0.31%
NJ_PMD	0.00%	0.00%	0.00%	0.00%	0.51%	0.76%	0.56%	0.55%
NJ_SAU	5.19%	3.67%	2.06%	4.43%	0.00%	0.00%	0.00%	0.00%
NJ_VTU	0.00%	0.00%	0.00%	0.00%	3.92%	5.90%	4.34%	4.21%
NJ_WAK	5.93%	4.20%	2.35%	5.06%	0.00%	0.00%	0.00%	0.00%
SJ_FIM	16.24%	16.63%	6.19%	15.26%	0.00%	0.00%	0.00%	0.00%
SJ_GMN	0.00%	0.00%	0.00%	0.00%	6.45%	4.15%	2.15%	5.64%
SJ_MZB	0.00%	0.00%	0.00%	0.00%	0.64%	0.41%	0.21%	0.56%
SJ_STR	3.78%	3.87%	1.44%	3.55%	1.96%	1.26%	0.65%	1.71%
SJ_TRN	0.00%	0.00%	0.00%	0.00%	4.91%	3.16%	1.63%	4.29%
SJ_VNY	0.00%	0.00%	0.00%	0.00%	0.13%	0.08%	0.04%	0.11%
SN_FIM	18.62%	15.08%	30.73%	18.95%	0.00%	0.00%	0.00%	0.00%
SN_GMN	0.00%	0.00%	0.00%	0.00%	12.29%	13.46%	12.79%	12.49%
SN_LUP	0.00%	0.00%	0.00%	0.00%	15.70%	16.64%	15.45%	15.78%
SN_MZB1	0.00%	0.00%	0.00%	0.00%	21.94%	24.03%	22.83%	22.30%
SN_MZB2	0.00%	0.00%	0.00%	0.00%	1.95%	2.14%	2.04%	1.99%
SN_N1	22.40%	18.13%	36.95%	22.79%	12.27%	13.45%	12.78%	12.48%
SN_VIS	1.01%	0.82%	1.66%	1.02%	0.00%	0.00%	0.00%	0.00%
SW_FIM	0.41%	1.10%	0.90%	0.65%	0.00%	0.00%	0.00%	0.00%
SW_LUP	0.00%	0.00%	0.00%	0.00%	0.25%	0.08%	0.20%	0.22%
SW_MZB	0.00%	0.00%	0.00%	0.00%	0.43%	0.14%	0.36%	0.39%
SW_N1	0.41%	1.10%	0.90%	0.65%	0.86%	0.28%	0.71%	0.77%
SW_WAK	0.82%	2.20%	1.80%	1.31%	0.00%	0.00%	0.00%	0.00%
Total	**100.00%**	**100.00%**	**100.00%**	**100.00%**	**100.00%**	**100.00%**	**100.00%**	**100.00%**
24R								
LN_FIM	0.57%	1.38%	0.95%	0.78%	0.00%	0.00%	0.00%	0.00%
LN_LUP	0.00%	0.00%	0.00%	0.00%	0.34%	0.13%	0.35%	0.34%
LN_MZB1	0.00%	0.00%	0.00%	0.00%	1.08%	0.42%	1.12%	1.06%
LN_MZB2	0.00%	0.00%	0.00%	0.00%	0.16%	0.06%	0.16%	0.15%
LN_STR	3.13%	7.49%	5.18%	4.24%	0.13%	0.05%	0.14%	0.13%
LN_VIS	0.10%	0.23%	0.16%	0.13%	0.00%	0.00%	0.00%	0.00%
LN_WAK	0.70%	1.68%	1.16%	0.95%	0.00%	0.00%	0.00%	0.00%
LW_FIM1	9.81%	5.74%	6.45%	8.62%	0.00%	0.00%	0.00%	0.00%
LW_FIM2	1.34%	0.79%	0.89%	1.18%	0.00%	0.00%	0.00%	0.00%
LW_STR	2.18%	1.27%	1.43%	1.91%	0.00%	0.00%	0.00%	0.00%
LW_VIS	0.26%	0.15%	0.17%	0.23%	0.00%	0.00%	0.00%	0.00%
NJ_GMN	0.00%	0.00%	0.00%	0.00%	9.84%	18.04%	3.16%	8.90%
NJ_PMD	0.00%	0.00%	0.00%	0.00%	2.83%	5.18%	0.90%	2.56%
NJ_SAU	4.69%	3.02%	2.94%	4.16%	0.00%	0.00%	0.00%	0.00%

TABLE 4-13 (Continued)
FLIGHT TRACK USE BY OPERATION TYPE AND TIME OF DAY - EXISTING (2015) CONDITIONS
LOS ANGELES INTERNATIONAL AIRPORT

	Arrivals				Departures			
Runway/Flight Track	**Day**	**Evening**	**Night**	**Total**	**Day**	**Evening**	**Night**	**Total**
24R (cont.)								
NJ_STR	0.06%	0.04%	0.04%	0.06%	0.00%	0.00%	0.00%	0.00%
NJ_VIS	0.11%	0.07%	0.07%	0.10%	0.00%	0.00%	0.00%	0.00%
NJ_VTU	0.00%	0.00%	0.00%	0.00%	13.68%	25.09%	4.39%	12.37%
NJ_WAK	4.29%	2.77%	2.70%	3.81%	0.00%	0.00%	0.00%	0.00%
SJ_FIM	17.60%	18.37%	10.14%	17.00%	0.00%	0.00%	0.00%	0.00%
SJ_GMN	0.00%	0.00%	0.00%	0.00%	6.05%	2.24%	1.11%	4.95%
SJ_LUP	0.00%	0.00%	0.00%	0.00%	1.57%	0.58%	0.29%	1.29%
SJ_STR	2.30%	2.41%	1.33%	2.23%	1.58%	0.58%	0.29%	1.29%
SJ_TR1	1.20%	1.25%	0.69%	1.16%	0.00%	0.00%	0.00%	0.00%
SJ_TR2	0.00%	0.00%	0.00%	0.00%	1.58%	0.58%	0.29%	1.29%
SJ_TRN	0.00%	0.00%	0.00%	0.00%	4.00%	1.48%	0.73%	3.27%
SJ_VIS	0.24%	0.25%	0.14%	0.23%	0.00%	0.00%	0.00%	0.00%
SJ_VNY	0.33%	0.35%	0.19%	0.32%	0.00%	0.00%	0.00%	0.00%
SN_FIM	26.14%	26.00%	32.85%	26.80%	0.00%	0.00%	0.00%	0.00%
SN_GMN	0.00%	0.00%	0.00%	0.00%	11.42%	8.88%	17.59%	12.50%
SN_LUP	0.00%	0.00%	0.00%	0.00%	9.17%	7.13%	14.13%	10.04%
SN_MZB1	0.00%	0.00%	0.00%	0.00%	17.59%	13.68%	27.11%	19.25%
SN_MZB2	0.00%	0.00%	0.00%	0.00%	3.09%	2.40%	4.76%	3.38%
SN_N1	22.88%	22.76%	28.76%	23.45%	14.32%	11.13%	22.07%	15.67%
SN_VIS	0.93%	0.92%	1.16%	0.95%	0.00%	0.00%	0.00%	0.00%
SW_FIM	0.18%	0.49%	0.42%	0.27%	0.00%	0.00%	0.00%	0.00%
SW_N1	0.43%	1.17%	0.99%	0.64%	1.57%	2.34%	1.41%	1.57%
SW_VIS	0.02%	0.05%	0.04%	0.03%	0.00%	0.00%	0.00%	0.00%
SW_WAK	0.50%	1.36%	1.15%	0.75%	0.00%	0.00%	0.00%	0.00%
Total	**100.00%**	**100.00%**	**100.00%**	**100.00%**	**100.00%**	**100.00%**	**100.00%**	**100.00%**
25L								
25LRNP	10.11%	8.80%	8.95%	9.72%	0.00%	0.00%	0.00%	0.00%
LN_FIM1	0.19%	0.28%	0.32%	0.22%	0.00%	0.00%	0.00%	0.00%
LN_FIM2	0.04%	0.05%	0.06%	0.04%	0.00%	0.00%	0.00%	0.00%
LN_GMN	0.00%	0.00%	0.00%	0.00%	0.42%	0.21%	1.23%	0.74%
LN_LUP	0.00%	0.00%	0.00%	0.00%	1.21%	0.61%	3.50%	2.11%
LN_MZB1	0.00%	0.00%	0.00%	0.00%	4.29%	2.17%	12.43%	7.50%
LN_MZB2	0.00%	0.00%	0.00%	0.00%	1.03%	0.52%	2.98%	1.80%
LN_STR	13.12%	19.87%	22.34%	15.46%	0.48%	0.24%	1.40%	0.85%
LN_VIS	0.59%	0.88%	0.95%	0.68%	0.00%	0.00%	0.00%	0.00%
LN_WAK1	0.74%	1.12%	1.26%	0.87%	0.00%	0.00%	0.00%	0.00%
LN_WAK2	0.05%	0.08%	0.09%	0.06%	0.00%	0.00%	0.00%	0.00%
LW_FIM1	1.60%	1.02%	1.46%	1.47%	0.00%	0.00%	0.00%	0.00%
LW_FIM2	0.05%	0.03%	0.05%	0.05%	0.00%	0.00%	0.00%	0.00%
LW_GMN	0.00%	0.00%	0.00%	0.00%	0.97%	2.31%	1.76%	1.47%
LW_LUP	0.00%	0.00%	0.00%	0.00%	0.30%	0.72%	0.55%	0.46%
LW_MZB1	0.00%	0.00%	0.00%	0.00%	5.14%	12.25%	9.34%	7.78%
LW_MZB2	0.00%	0.00%	0.00%	0.00%	0.85%	2.02%	1.54%	1.28%
LW_STR	3.62%	2.31%	3.31%	3.33%	4.60%	10.96%	8.35%	6.96%

TABLE 4-13 (Continued)
FLIGHT TRACK USE BY OPERATION TYPE AND TIME OF DAY - EXISTING (2015) CONDITIONS
LOS ANGELES INTERNATIONAL AIRPORT

	Arrivals				Departures			
Runway/Flight Track	**Day**	**Evening**	**Night**	**Total**	**Day**	**Evening**	**Night**	**Total**
25L (cont.)								
LW_STR1	0.00%	0.00%	0.00%	0.00%	0.67%	1.58%	1.21%	1.01%
LW_STR2	0.00%	0.00%	0.00%	0.00%	3.45%	8.21%	6.27%	5.22%
LW_STR3	0.00%	0.00%	0.00%	0.00%	2.90%	6.92%	5.28%	4.40%
LW_VIS	1.31%	0.83%	1.19%	1.20%	0.00%	0.00%	0.00%	0.00%
NJ_GMN	0.00%	0.00%	0.00%	0.00%	0.63%	0.32%	0.25%	0.43%
NJ_MPD	1.42%	0.98%	1.07%	1.29%	0.00%	0.00%	0.00%	0.00%
NJ_MZB1	0.00%	0.00%	0.00%	0.00%	7.80%	3.96%	3.04%	5.31%
NJ_MZB2	0.00%	0.00%	0.00%	0.00%	3.66%	1.86%	1.43%	2.49%
NJ_PMD	0.00%	0.00%	0.00%	0.00%	0.39%	0.20%	0.15%	0.27%
NJ_SAU	0.73%	0.50%	0.55%	0.66%	0.00%	0.00%	0.00%	0.00%
NJ_VIS	3.31%	2.28%	2.50%	3.02%	0.00%	0.00%	0.00%	0.00%
NJ_WAK1	0.80%	0.55%	0.60%	0.73%	0.00%	0.00%	0.00%	0.00%
SJ_FIM1	3.63%	2.87%	2.59%	3.37%	0.00%	0.00%	0.00%	0.00%
SJ_FIM2	0.17%	0.14%	0.12%	0.16%	0.00%	0.00%	0.00%	0.00%
SJ_GMN	0.00%	0.00%	0.00%	0.00%	3.85%	2.14%	0.46%	2.20%
SJ_LUP	0.00%	0.00%	0.00%	0.00%	9.79%	5.44%	1.17%	5.60%
SJ_MZB1	0.00%	0.00%	0.00%	0.00%	19.26%	10.71%	2.31%	11.02%
SJ_MZB2	0.00%	0.00%	0.00%	0.00%	3.69%	2.05%	0.44%	2.11%
SJ_ST2	0.00%	0.00%	0.00%	0.00%	3.21%	1.78%	0.38%	1.84%
SJ_STR	16.67%	13.16%	11.89%	15.46%	1.93%	1.07%	0.23%	1.10%
SJ_TRN	0.00%	0.00%	0.00%	0.00%	0.96%	0.53%	0.12%	0.55%
SJ_VIS	2.44%	1.93%	1.74%	2.26%	0.00%	0.00%	0.00%	0.00%
SJ_VNY	0.18%	0.15%	0.13%	0.17%	3.53%	1.96%	0.42%	2.02%
SN_FIM1	1.19%	1.23%	1.05%	1.18%	0.00%	0.00%	0.00%	0.00%
SN_LUP	0.00%	0.00%	0.00%	0.00%	1.36%	0.25%	2.98%	1.92%
SN_MZB1	0.00%	0.00%	0.00%	0.00%	6.72%	1.24%	14.74%	9.48%
SN_MZB2	0.00%	0.00%	0.00%	0.00%	1.52%	0.28%	3.33%	2.14%
SN_N1	30.09%	31.16%	26.72%	29.93%	0.48%	0.09%	1.05%	0.68%
SN_VIS	2.77%	2.80%	2.41%	2.74%	0.00%	0.00%	0.00%	0.00%
SW_FIM	0.11%	0.14%	0.18%	0.12%	0.00%	0.00%	0.00%	0.00%
SW_GMN	0.00%	0.00%	0.00%	0.00%	0.26%	0.94%	0.63%	0.50%
SW_LUP	0.00%	0.00%	0.00%	0.00%	0.50%	1.77%	1.19%	0.94%
SW_MZB1	0.00%	0.00%	0.00%	0.00%	3.55%	12.59%	8.43%	6.71%
SW_MZB2	0.00%	0.00%	0.00%	0.00%	0.21%	0.73%	0.49%	0.39%
SW_N1	4.33%	5.85%	7.25%	4.95%	0.38%	1.35%	0.91%	0.72%
SW_VIS	0.43%	0.58%	0.73%	0.50%	0.00%	0.00%	0.00%	0.00%
SW_WAK1	0.30%	0.40%	0.50%	0.34%	0.00%	0.00%	0.00%	0.00%
Total	**100.00%**	**100.00%**	**100.00%**	**100.00%**	**100.00%**	**100.00%**	**100.00%**	**100.00%**
25R								
LN_FIM1	0.28%	0.45%	0.51%	0.36%	0.00%	0.00%	0.00%	0.00%
LN_GMN	0.00%	0.00%	0.00%	0.00%	0.15%	0.03%	0.14%	0.13%
LN_LUP	0.00%	0.00%	0.00%	0.00%	4.09%	0.92%	3.92%	3.68%
LN_MZB1	0.00%	0.00%	0.00%	0.00%	10.12%	2.27%	9.70%	9.10%
LN_MZB2	0.00%	0.00%	0.00%	0.00%	2.40%	0.54%	2.30%	2.16%

TABLE 4-13 (Continued)
FLIGHT TRACK USE BY OPERATION TYPE AND TIME OF DAY - EXISTING (2015) CONDITIONS
LOS ANGELES INTERNATIONAL AIRPORT

	Arrivals				Departures			
Runway/Flight Track	**Day**	**Evening**	**Night**	**Total**	**Day**	**Evening**	**Night**	**Total**
25R (cont.)								
LN_STR	9.94%	15.78%	17.83%	12.60%	0.00%	0.00%	0.00%	0.00%
LN_STR1	0.00%	0.00%	0.00%	0.00%	3.99%	0.89%	3.82%	3.59%
LN_STR2	0.00%	0.00%	0.00%	0.00%	0.83%	0.19%	0.80%	0.75%
LN_SXC	0.00%	0.00%	0.00%	0.00%	0.04%	0.01%	0.03%	0.03%
LN_VIS	2.27%	3.61%	4.07%	2.88%	0.00%	0.00%	0.00%	0.00%
LN_WAK1	1.28%	2.03%	2.29%	1.62%	0.00%	0.00%	0.00%	0.00%
LN_WAK2	0.57%	0.90%	1.02%	0.72%	0.00%	0.00%	0.00%	0.00%
LW_FIM1	1.39%	0.42%	3.02%	1.32%	0.00%	0.00%	0.00%	0.00%
LW_FIM2	0.46%	0.14%	1.01%	0.44%	0.00%	0.00%	0.00%	0.00%
LW_GMN	0.00%	0.00%	0.00%	0.00%	0.19%	0.27%	0.58%	0.29%
LW_LUP	0.00%	0.00%	0.00%	0.00%	0.61%	0.87%	1.83%	0.91%
LW_MZB1	0.00%	0.00%	0.00%	0.00%	0.95%	1.34%	2.84%	1.41%
LW_MZB2	0.00%	0.00%	0.00%	0.00%	0.76%	1.07%	2.26%	1.13%
LW_STR	2.44%	0.74%	5.28%	2.31%	0.00%	0.00%	0.00%	0.00%
LW_STR1	0.00%	0.00%	0.00%	0.00%	3.54%	5.00%	10.59%	5.27%
LW_STR2	0.00%	0.00%	0.00%	0.00%	1.13%	1.60%	3.39%	1.69%
LW_STR3	0.00%	0.00%	0.00%	0.00%	0.10%	0.14%	0.30%	0.15%
LW_SXC	0.00%	0.00%	0.00%	0.00%	0.01%	0.01%	0.03%	0.02%
LW_VIS	2.21%	0.67%	4.78%	2.09%	0.00%	0.00%	0.00%	0.00%
NJ_GMN	0.00%	0.00%	0.00%	0.00%	0.13%	0.15%	0.05%	0.11%
NJ_MPD	1.55%	1.46%	0.70%	1.42%	0.00%	0.00%	0.00%	0.00%
NJ_MZB1	0.00%	0.00%	0.00%	0.00%	4.90%	5.99%	2.11%	4.41%
NJ_MZB2	0.00%	0.00%	0.00%	0.00%	2.29%	2.80%	0.98%	2.06%
NJ_PMD	0.00%	0.00%	0.00%	0.00%	0.51%	0.62%	0.22%	0.46%
NJ_SAU	1.19%	1.12%	0.54%	1.09%	0.00%	0.00%	0.00%	0.00%
NJ_TWA	0.00%	0.00%	0.00%	0.00%	0.25%	0.31%	0.11%	0.23%
NJ_VIS	9.56%	8.97%	4.31%	8.73%	0.00%	0.00%	0.00%	0.00%
NJ_WAK1	1.08%	1.01%	0.48%	0.98%	0.00%	0.00%	0.00%	0.00%
SJ_FIM1	4.69%	4.02%	3.40%	4.34%	0.00%	0.00%	0.00%	0.00%
SJ_GMN	0.00%	0.00%	0.00%	0.00%	3.91%	6.13%	1.77%	3.70%
SJ_LUP	0.00%	0.00%	0.00%	0.00%	3.98%	6.26%	1.81%	3.77%
SJ_MZB1	0.00%	0.00%	0.00%	0.00%	15.29%	24.01%	6.95%	14.47%
SJ_MZB2	0.00%	0.00%	0.00%	0.00%	0.71%	1.12%	0.32%	0.67%
SJ_STR	16.26%	13.93%	11.78%	15.03%	1.39%	2.18%	0.63%	1.31%
SJ_TR2	0.00%	0.00%	0.00%	0.00%	0.60%	0.95%	0.27%	0.57%
SJ_TRN	0.00%	0.00%	0.00%	0.00%	2.86%	4.49%	1.30%	2.70%
SJ_VIS	5.63%	4.82%	4.08%	5.20%	0.00%	0.00%	0.00%	0.00%
SJ_VNY	0.00%	0.00%	0.00%	0.00%	0.56%	0.87%	0.25%	0.53%
SN_FIM1	1.87%	1.92%	1.24%	1.80%	0.00%	0.00%	0.00%	0.00%
SN_GMN	0.00%	0.00%	0.00%	0.00%	0.71%	0.58%	0.78%	0.71%
SN_LUP	0.00%	0.00%	0.00%	0.00%	6.37%	5.28%	7.03%	6.39%
SN_MZB1	0.00%	0.00%	0.00%	0.00%	15.14%	12.53%	16.69%	15.18%
SN_MZB2	0.00%	0.00%	0.00%	0.00%	2.31%	1.91%	2.55%	2.32%
SN_N1	25.52%	26.18%	16.88%	24.62%	3.01%	2.49%	3.32%	3.01%

TABLE 4-13 (Continued)
FLIGHT TRACK USE BY OPERATION TYPE AND TIME OF DAY - EXISTING (2015) CONDITIONS
LOS ANGELES INTERNATIONAL AIRPORT

	Arrivals				Departures			
Runway/Flight Track	**Day**	**Evening**	**Night**	**Total**	**Day**	**Evening**	**Night**	**Total**
25R (cont.)								
SN_N2	0.00%	0.00%	0.00%	0.00%	0.54%	0.45%	0.60%	0.54%
SN_VIS	6.96%	7.10%	5.79%	6.85%	0.00%	0.00%	0.00%	0.00%
SW_GMN	0.00%	0.00%	0.00%	0.00%	0.16%	0.16%	0.27%	0.18%
SW_LUP	0.00%	0.00%	0.00%	0.00%	0.60%	0.61%	1.03%	0.70%
SW_MZB1	0.00%	0.00%	0.00%	0.00%	3.31%	3.37%	5.72%	3.85%
SW_MZB2	0.00%	0.00%	0.00%	0.00%	0.38%	0.38%	0.65%	0.44%
SW_N1	3.79%	3.70%	8.61%	4.37%	0.90%	0.91%	1.55%	1.04%
SW_N2	0.00%	0.00%	0.00%	0.00%	0.28%	0.29%	0.48%	0.33%
SW_WAK1	1.05%	1.03%	2.39%	1.21%	0.00%	0.00%	0.00%	0.00%
Total	**100.00%**	**100.00%**	**100.00%**	**100.00%**	**100.00%**	**100.00%**	**100.00%**	**100.00%**

NOTES:
Values may not sum to 100% due to rounding.
Does not include helicopter operations.

SOURCES: ESA Airports, October 2014 using information presented in Appendix J1-1 of the Draft EIR for the LAX Specific Plan Amendment Study and LAX ANOMS data for calendar year 2013.

TABLE 4-14
FLIGHT TRACK USE BY OPERATION TYPE AND TIME OF DAY - FUTURE (2020) CONDITIONS
LOS ANGELES INTERNATIONAL AIRPORT

	Arrivals				Departures			
Runway/Flight Track	**Day**	**Evening**	**Night**	**Total**	**Day**	**Evening**	**Night**	**Total**
06L								
LN_CIV1	1.25%	4.75%	8.93%	5.76%	0.00%	0.00%	0.00%	0.00%
LN_CIV2	1.12%	4.27%	8.04%	5.18%	0.00%	0.00%	0.00%	0.00%
LN_CIV3	0.25%	0.95%	1.79%	1.15%	0.00%	0.00%	0.00%	0.00%
LN_STR	1.49%	5.70%	10.72%	6.91%	0.00%	0.00%	0.00%	0.00%
LW_CIV1	17.60%	7.59%	13.61%	14.82%	0.00%	0.00%	0.00%	0.00%
LW_FIM	2.40%	1.04%	1.86%	2.02%	0.00%	0.00%	0.00%	0.00%
NJ_CAS	5.17%	4.42%	2.98%	3.90%	0.00%	0.00%	0.00%	0.00%
NJ_FIM	0.00%	0.00%	0.00%	0.00%	11.71%	16.42%	7.41%	11.51%
NJ_GMN	0.00%	0.00%	0.00%	0.00%	23.40%	32.89%	14.84%	23.01%
NJ_WAK	5.17%	4.42%	2.98%	3.90%	0.00%	0.00%	0.00%	0.00%
SJ_CIV	2.64%	3.31%	1.12%	1.82%	0.00%	0.00%	0.00%	0.00%
SJ_FIM	17.63%	22.05%	7.48%	12.16%	0.00%	0.00%	0.00%	0.00%
SN_CIV1	22.58%	19.07%	15.38%	18.34%	0.00%	0.00%	0.00%	0.00%
SN_CIV2	0.96%	0.81%	0.65%	0.78%	0.00%	0.00%	0.00%	0.00%
SN_FIM	19.21%	16.23%	13.09%	15.61%	0.00%	0.00%	0.00%	0.00%
SN_LUP	0.00%	0.00%	0.00%	0.00%	64.89%	50.68%	77.75%	65.48%
SN_OCN	1.44%	1.22%	0.98%	1.17%	0.00%	0.00%	0.00%	0.00%
SW_CIV	0.65%	2.50%	6.23%	3.89%	0.00%	0.00%	0.00%	0.00%
SW_N1	0.43%	1.66%	4.15%	2.59%	0.00%	0.00%	0.00%	0.00%
Total	**100.00%**	**100.00%**	**100.00%**	**100.00%**	**100.00%**	**100.00%**	**100.00%**	**100.00%**
06R								
LN_CIV1	0.00%	0.00%	4.50%	4.48%	0.00%	0.00%	0.00%	0.00%
LN_CIV2	0.00%	0.00%	1.75%	1.74%	0.00%	0.00%	0.00%	0.00%
LN_FIM	0.00%	0.00%	1.25%	1.24%	0.00%	0.00%	0.00%	0.00%
LN_GMN	0.00%	0.00%	0.00%	0.00%	6.01%	1.13%	8.27%	5.90%
LN_GMN2	0.00%	0.00%	0.00%	0.00%	6.01%	1.13%	8.27%	5.90%
LN_STR	0.00%	0.00%	24.24%	24.14%	0.00%	0.00%	0.00%	0.00%
LW_CIV	3.49%	0.00%	2.82%	2.82%	0.00%	0.00%	0.00%	0.00%
LW_CIV1	2.00%	0.00%	1.61%	1.61%	0.00%	0.00%	0.00%	0.00%
LW_FIM1	13.48%	0.00%	10.87%	10.88%	0.00%	0.00%	0.00%	0.00%
LW_FIM2	3.99%	0.00%	3.22%	3.23%	0.00%	0.00%	0.00%	0.00%
LW_LUP	0.00%	0.00%	0.00%	0.00%	3.34%	7.45%	8.02%	4.19%
LW_LUP1	0.00%	0.00%	0.00%	0.00%	1.67%	3.73%	4.01%	2.10%
LW_STR	1.00%	0.00%	0.81%	0.81%	0.00%	0.00%	0.00%	0.00%
NJ_CAS	0.48%	0.00%	0.42%	0.42%	0.00%	0.00%	0.00%	0.00%
NJ_FIM	0.00%	0.00%	0.00%	0.00%	6.36%	8.28%	6.43%	6.51%
NJ_GMN	0.00%	0.00%	0.00%	0.00%	3.82%	4.97%	3.86%	3.91%
NJ_SAU	4.82%	0.00%	4.22%	4.22%	0.00%	0.00%	0.00%	0.00%
NJ_WAK1	0.48%	0.00%	0.42%	0.42%	0.00%	0.00%	0.00%	0.00%
NJ_WAK2	1.93%	0.00%	1.69%	1.69%	0.00%	0.00%	0.00%	0.00%
SJ_CIV	12.63%	0.00%	5.07%	5.10%	0.00%	0.00%	0.00%	0.00%
SJ_FIM	9.72%	0.00%	3.90%	3.93%	0.00%	0.00%	0.00%	0.00%
SJ_GMN	0.00%	0.00%	0.00%	0.00%	15.56%	18.75%	5.36%	14.63%
SJ_LUP	0.00%	0.00%	0.00%	0.00%	5.84%	7.03%	2.01%	5.49%

TABLE 4-14 (Continued)
FLIGHT TRACK USE BY OPERATION TYPE AND TIME OF DAY - FUTURE (2020) CONDITIONS
LOS ANGELES INTERNATIONAL AIRPORT

	Arrivals				Departures			
Runway/Flight Track	**Day**	**Evening**	**Night**	**Total**	**Day**	**Evening**	**Night**	**Total**
06R (cont.)								
SN_CIV1	33.64%	81.47%	18.78%	18.86%	0.00%	0.00%	0.00%	0.00%
SN_FIM	7.64%	18.53%	4.27%	4.29%	0.00%	0.00%	0.00%	0.00%
SN_GMN	0.00%	0.00%	0.00%	0.00%	17.68%	17.01%	19.68%	17.86%
SN_LUP	0.00%	0.00%	0.00%	0.00%	29.17%	28.06%	32.47%	29.47%
SW_CIV	2.13%	0.00%	4.60%	4.59%	0.00%	0.00%	0.00%	0.00%
SW_FIM	0.29%	0.00%	0.63%	0.63%	0.00%	0.00%	0.00%	0.00%
SW_N1	2.28%	0.00%	4.91%	4.90%	4.54%	2.47%	1.61%	4.05%
Total	**100.00%**	**100.00%**	**100.00%**	**100.00%**	**100.00%**	**100.00%**	**100.00%**	**100.00%**
07L								
LN_BLH1	0.00%	0.00%	0.00%	0.00%	2.21%	0.41%	2.11%	2.08%
LN_BLH2	0.00%	0.00%	0.00%	0.00%	5.15%	0.95%	4.93%	4.84%
LN_CIV2	1.56%	1.03%	11.32%	11.21%	0.00%	0.00%	0.00%	0.00%
LN_LUP	0.00%	0.00%	0.00%	0.00%	0.74%	0.14%	0.70%	0.69%
LN_STR	7.03%	4.62%	50.93%	50.44%	0.00%	0.00%	0.00%	0.00%
LN_VTU	0.00%	0.00%	0.00%	0.00%	8.10%	1.49%	7.75%	7.60%
LW_CIV1	0.00%	0.00%	1.21%	1.19%	0.00%	0.00%	0.00%	0.00%
LW_CIV2	0.00%	0.00%	4.83%	4.77%	0.00%	0.00%	0.00%	0.00%
LW_FIM	0.00%	0.00%	7.24%	7.16%	0.00%	0.00%	0.00%	0.00%
LW_GMN	0.00%	0.00%	0.00%	0.00%	0.21%	0.18%	0.59%	0.28%
LW_LUP	0.00%	0.00%	0.00%	0.00%	0.21%	0.18%	0.59%	0.28%
LW_STR	0.00%	0.00%	2.41%	2.39%	0.00%	0.00%	0.00%	0.00%
LW_SXC	0.00%	0.00%	0.00%	0.00%	1.05%	0.89%	2.95%	1.39%
LW_SXC1	0.00%	0.00%	0.00%	0.00%	0.42%	0.35%	1.18%	0.56%
LW_VTU	0.00%	0.00%	0.00%	0.00%	8.39%	7.10%	23.57%	11.14%
NJ_BLH1	0.00%	0.00%	0.00%	0.00%	3.36%	4.37%	0.45%	2.89%
NJ_BLH2	0.00%	0.00%	0.00%	0.00%	4.21%	5.47%	0.57%	3.61%
NJ_SAU	17.27%	0.00%	3.65%	3.75%	0.00%	0.00%	0.00%	0.00%
SJ_BLH	0.00%	0.00%	0.00%	0.00%	11.12%	15.57%	5.20%	10.30%
SJ_CIV1	9.21%	17.61%	2.24%	2.34%	0.00%	0.00%	0.00%	0.00%
SJ_CIV2	5.52%	10.55%	1.34%	1.40%	0.00%	0.00%	0.00%	0.00%
SJ_FIM	1.84%	3.52%	0.45%	0.47%	0.00%	0.00%	0.00%	0.00%
SJ_LUP	0.00%	0.00%	0.00%	0.00%	4.45%	6.23%	2.08%	4.12%
SJ_VTU	0.00%	0.00%	0.00%	0.00%	6.67%	9.34%	3.12%	6.18%
SN_BLH	0.00%	0.00%	0.00%	0.00%	22.29%	24.60%	20.85%	22.17%
SN_CIV2	7.37%	15.67%	1.26%	1.35%	0.00%	0.00%	0.00%	0.00%
SN_FIM	14.74%	31.34%	2.52%	2.70%	0.00%	0.00%	0.00%	0.00%
SN_N1	0.00%	0.00%	0.00%	0.00%	3.10%	3.42%	2.90%	3.08%
SN_OCN	7.37%	15.67%	1.26%	1.35%	0.00%	0.00%	0.00%	0.00%
SN_VTU	0.00%	0.00%	0.00%	0.00%	14.25%	15.72%	13.32%	14.17%
SW_BLH	0.00%	0.00%	0.00%	0.00%	1.53%	1.35%	2.67%	1.73%
SW_CIV1	15.62%	0.00%	5.19%	5.26%	0.00%	0.00%	0.00%	0.00%
SW_N1	12.49%	0.00%	4.15%	4.21%	0.77%	0.68%	1.34%	0.87%
SW_VTU	0.00%	0.00%	0.00%	0.00%	1.79%	1.58%	3.12%	2.02%
Total	**100.00%**	**100.00%**	**100.00%**	**100.00%**	**100.00%**	**100.00%**	**100.00%**	**100.00%**

TABLE 4-14 (Continued)
FLIGHT TRACK USE BY OPERATION TYPE AND TIME OF DAY - FUTURE (2020) CONDITIONS
LOS ANGELES INTERNATIONAL AIRPORT

	Arrivals				Departures			
Runway/Flight Track	**Day**	**Evening**	**Night**	**Total**	**Day**	**Evening**	**Night**	**Total**
07R								
LN_BLH1	0.00%	0.00%	0.00%	0.00%	4.19%	0.00%	16.04%	13.12%
LN_CIV1	4.75%	6.55%	12.21%	8.72%	0.00%	0.00%	0.00%	0.00%
LN_STR	11.88%	16.37%	30.52%	21.79%	0.00%	0.00%	0.00%	0.00%
LW_BLH	0.00%	0.00%	0.00%	0.00%	3.21%	7.27%	3.49%	3.56%
LW_CIV1	0.77%	0.65%	3.30%	2.07%	0.00%	0.00%	0.00%	0.00%
LW_CIV2	0.77%	0.65%	3.30%	2.07%	0.00%	0.00%	0.00%	0.00%
LW_CIV3	0.38%	0.33%	1.65%	1.03%	0.00%	0.00%	0.00%	0.00%
LW_CIV4	1.54%	1.31%	6.60%	4.14%	0.00%	0.00%	0.00%	0.00%
LW_FIM	2.11%	1.80%	9.08%	5.69%	0.00%	0.00%	0.00%	0.00%
LW_LUP	0.00%	0.00%	0.00%	0.00%	3.21%	7.27%	3.49%	3.56%
LW_STR	0.77%	0.65%	3.30%	2.07%	0.00%	0.00%	0.00%	0.00%
LW_VTU	0.00%	0.00%	0.00%	0.00%	37.53%	84.78%	40.71%	41.54%
NJ_BLH1	0.00%	0.00%	0.00%	0.00%	4.55%	0.00%	0.40%	1.22%
NJ_BLH2	0.00%	0.00%	0.00%	0.00%	6.83%	0.00%	0.60%	1.83%
NJ_OCN	6.09%	4.09%	2.66%	4.19%	0.00%	0.00%	0.00%	0.00%
NJ_WAK1	1.66%	1.12%	0.73%	1.14%	0.00%	0.00%	0.00%	0.00%
SJ_CIV1	5.65%	3.99%	1.75%	3.53%	0.00%	0.00%	0.00%	0.00%
SJ_CIV2	5.65%	3.99%	1.75%	3.53%	0.00%	0.00%	0.00%	0.00%
SJ_FIM	1.41%	1.00%	0.44%	0.88%	0.00%	0.00%	0.00%	0.00%
SJ_H20	0.00%	0.00%	0.00%	0.00%	36.67%	0.00%	6.07%	12.02%
SJ_OCN	10.60%	7.48%	3.28%	6.62%	0.00%	0.00%	0.00%	0.00%
SN_BLH	0.00%	0.00%	0.00%	0.00%	3.63%	0.00%	21.89%	17.49%
SN_CIV1	24.57%	23.04%	5.96%	14.87%	0.00%	0.00%	0.00%	0.00%
SN_OCN	15.64%	14.66%	3.79%	9.46%	0.00%	0.00%	0.00%	0.00%
SW_CIV1	1.91%	4.11%	3.23%	2.73%	0.00%	0.00%	0.00%	0.00%
SW_CIV2	1.91%	4.11%	3.23%	2.73%	0.00%	0.00%	0.00%	0.00%
SW_FIM	0.68%	1.47%	1.15%	0.98%	0.00%	0.00%	0.00%	0.00%
SW_N1	1.09%	2.35%	1.84%	1.56%	0.05%	0.24%	2.44%	1.89%
SW_N2	0.00%	0.00%	0.00%	0.00%	0.12%	0.45%	4.88%	3.78%
SW_OCN	0.14%	0.29%	0.23%	0.20%	0.00%	0.00%	0.00%	0.00%
Total	**100.00%**	**100.00%**	**100.00%**	**100.00%**	**100.00%**	**100.00%**	**100.00%**	**100.00%**
24L								
LN_FIM	0.67%	1.94%	1.00%	1.05%	0.00%	0.00%	0.00%	0.00%
LN_GMN	0.00%	0.00%	0.00%	0.00%	0.10%	0.01%	0.07%	0.09%
LN_LUP	0.00%	0.00%	0.00%	0.00%	1.68%	0.19%	1.12%	1.43%
LN_MZB1	0.00%	0.00%	0.00%	0.00%	1.83%	0.20%	1.22%	1.56%
LN_MZB2	0.00%	0.00%	0.00%	0.00%	0.49%	0.06%	0.33%	0.42%
LN_STR	2.35%	6.77%	3.50%	3.69%	1.32%	0.14%	0.87%	1.12%
LN_STR2	0.33%	0.97%	0.50%	0.53%	0.00%	0.00%	0.00%	0.00%
LN_WAK	0.67%	1.94%	1.00%	1.05%	0.00%	0.00%	0.00%	0.00%
LW_FIM1	18.39%	16.23%	7.00%	16.50%	0.00%	0.00%	0.00%	0.00%
LW_FIM2	0.92%	0.81%	0.35%	0.82%	0.00%	0.00%	0.00%	0.00%
LW_GMN	0.00%	0.00%	0.00%	0.00%	0.40%	0.43%	0.92%	0.47%
LW_LUP	0.00%	0.00%	0.00%	0.00%	1.17%	1.28%	2.70%	1.39%

TABLE 4-14 (Continued)
FLIGHT TRACK USE BY OPERATION TYPE AND TIME OF DAY - FUTURE (2020) CONDITIONS
LOS ANGELES INTERNATIONAL AIRPORT

	Arrivals				Departures			
Runway/Flight Track	**Day**	**Evening**	**Night**	**Total**	**Day**	**Evening**	**Night**	**Total**
24L (cont.)								
LW_MZB1	0.00%	0.00%	0.00%	0.00%	0.66%	0.72%	1.53%	0.78%
LW_MZB2	0.00%	0.00%	0.00%	0.00%	1.61%	1.75%	3.71%	1.90%
LW_STR	3.37%	2.97%	1.28%	3.03%	3.87%	4.22%	8.94%	4.59%
LW_SXC	0.00%	0.00%	0.00%	0.00%	0.04%	0.04%	0.09%	0.04%
NJ_GMN	0.00%	0.00%	0.00%	0.00%	3.23%	4.91%	3.34%	3.44%
NJ_MPD	0.00%	0.00%	0.00%	0.00%	0.28%	0.42%	0.29%	0.29%
NJ_PMD	0.00%	0.00%	0.00%	0.00%	0.48%	0.74%	0.50%	0.52%
NJ_SAU	4.99%	3.69%	1.82%	4.27%	0.00%	0.00%	0.00%	0.00%
NJ_VTU	0.00%	0.00%	0.00%	0.00%	3.74%	5.70%	3.88%	3.99%
NJ_WAK	5.71%	4.21%	2.08%	4.88%	0.00%	0.00%	0.00%	0.00%
SJ_FIM	15.65%	16.36%	5.63%	14.70%	0.00%	0.00%	0.00%	0.00%
SJ_GMN	0.00%	0.00%	0.00%	0.00%	6.18%	3.99%	1.95%	5.36%
SJ_MZB	0.00%	0.00%	0.00%	0.00%	0.61%	0.40%	0.19%	0.53%
SJ_STR	3.64%	3.81%	1.31%	3.42%	1.88%	1.21%	0.59%	1.63%
SJ_TRN	0.00%	0.00%	0.00%	0.00%	4.70%	3.04%	1.48%	4.08%
SJ_VNY	0.00%	0.00%	0.00%	0.00%	0.12%	0.08%	0.04%	0.10%
SN_FIM	18.40%	15.59%	31.46%	19.13%	0.00%	0.00%	0.00%	0.00%
SN_GMN	0.00%	0.00%	0.00%	0.00%	12.24%	13.51%	12.60%	12.44%
SN_LUP	0.00%	0.00%	0.00%	0.00%	15.59%	16.66%	15.18%	15.66%
SN_MZB1	0.00%	0.00%	0.00%	0.00%	21.85%	24.11%	22.49%	22.20%
SN_MZB2	0.00%	0.00%	0.00%	0.00%	1.95%	2.15%	2.01%	1.98%
SN_N1	22.13%	18.74%	37.82%	23.00%	12.23%	13.49%	12.58%	12.42%
SN_VIS	0.99%	0.84%	1.70%	1.03%	0.00%	0.00%	0.00%	0.00%
SW_FIM	0.44%	1.28%	0.89%	0.72%	0.00%	0.00%	0.00%	0.00%
SW_LUP	0.00%	0.00%	0.00%	0.00%	0.28%	0.09%	0.22%	0.25%
SW_MZB	0.00%	0.00%	0.00%	0.00%	0.49%	0.16%	0.39%	0.43%
SW_N1	0.44%	1.28%	0.89%	0.72%	0.97%	0.32%	0.78%	0.87%
SW_WAK	0.89%	2.57%	1.78%	1.45%	0.00%	0.00%	0.00%	0.00%
Total	**100.00%**	**100.00%**	**100.00%**	**100.00%**	**100.00%**	**100.00%**	**100.00%**	**100.00%**
24R								
LN_FIM	0.56%	1.37%	0.92%	0.77%	0.00%	0.00%	0.00%	0.00%
LN_LUP	0.00%	0.00%	0.00%	0.00%	0.35%	0.13%	0.35%	0.34%
LN_MZB1	0.00%	0.00%	0.00%	0.00%	1.09%	0.42%	1.11%	1.06%
LN_MZB2	0.00%	0.00%	0.00%	0.00%	0.16%	0.06%	0.16%	0.15%
LN_STR	3.06%	7.47%	5.03%	4.17%	0.13%	0.05%	0.13%	0.13%
LN_VIS	0.10%	0.23%	0.15%	0.13%	0.00%	0.00%	0.00%	0.00%
LN_WAK	0.69%	1.67%	1.13%	0.94%	0.00%	0.00%	0.00%	0.00%
LW_FIM1	11.57%	5.77%	6.54%	9.85%	0.00%	0.00%	0.00%	0.00%
LW_FIM2	1.59%	0.79%	0.90%	1.35%	0.00%	0.00%	0.00%	0.00%
LW_STR	2.57%	1.28%	1.45%	2.19%	0.00%	0.00%	0.00%	0.00%
LW_VIS	0.30%	0.15%	0.17%	0.26%	0.00%	0.00%	0.00%	0.00%
NJ_GMN	0.00%	0.00%	0.00%	0.00%	9.53%	17.43%	2.88%	8.53%
NJ_PMD	0.00%	0.00%	0.00%	0.00%	2.74%	5.01%	0.82%	2.45%
NJ_SAU	4.49%	2.98%	2.68%	3.99%	0.00%	0.00%	0.00%	0.00%

TABLE 4-14 (Continued)
FLIGHT TRACK USE BY OPERATION TYPE AND TIME OF DAY - FUTURE (2020) CONDITIONS
LOS ANGELES INTERNATIONAL AIRPORT

	Arrivals				Departures			
Runway/Flight Track	**Day**	**Evening**	**Night**	**Total**	**Day**	**Evening**	**Night**	**Total**
24R (cont.)								
NJ_STR	0.06%	0.04%	0.04%	0.05%	0.00%	0.00%	0.00%	0.00%
NJ_VIS	0.10%	0.07%	0.06%	0.09%	0.00%	0.00%	0.00%	0.00%
NJ_VTU	0.00%	0.00%	0.00%	0.00%	13.25%	24.24%	4.00%	11.87%
NJ_WAK	4.12%	2.73%	2.45%	3.66%	0.00%	0.00%	0.00%	0.00%
SJ_FIM	16.87%	17.86%	9.42%	16.29%	0.00%	0.00%	0.00%	0.00%
SJ_GMN	0.00%	0.00%	0.00%	0.00%	5.90%	2.16%	1.05%	4.78%
SJ_LUP	0.00%	0.00%	0.00%	0.00%	1.53%	0.56%	0.27%	1.24%
SJ_STR	2.21%	2.34%	1.23%	2.13%	1.53%	0.56%	0.27%	1.24%
SJ_TR1	1.15%	1.22%	0.64%	1.11%	0.00%	0.00%	0.00%	0.00%
SJ_TR2	0.00%	0.00%	0.00%	0.00%	1.53%	0.56%	0.27%	1.24%
SJ_TRN	0.00%	0.00%	0.00%	0.00%	3.89%	1.42%	0.69%	3.16%
SJ_VIS	0.23%	0.24%	0.13%	0.22%	0.00%	0.00%	0.00%	0.00%
SJ_VNY	0.32%	0.34%	0.18%	0.31%	0.00%	0.00%	0.00%	0.00%
SN_FIM	25.53%	26.14%	33.55%	26.50%	0.00%	0.00%	0.00%	0.00%
SN_GMN	0.00%	0.00%	0.00%	0.00%	11.67%	9.27%	17.77%	12.78%
SN_LUP	0.00%	0.00%	0.00%	0.00%	9.37%	7.44%	14.27%	10.27%
SN_MZB1	0.00%	0.00%	0.00%	0.00%	17.98%	14.28%	27.38%	19.69%
SN_MZB2	0.00%	0.00%	0.00%	0.00%	3.16%	2.51%	4.81%	3.46%
SN_N1	22.35%	22.88%	29.37%	23.19%	14.64%	11.62%	22.29%	16.03%
SN_VIS	0.90%	0.93%	1.19%	0.94%	0.00%	0.00%	0.00%	0.00%
SW_FIM	0.20%	0.56%	0.44%	0.30%	0.00%	0.00%	0.00%	0.00%
SW_N1	0.47%	1.33%	1.05%	0.71%	1.55%	2.29%	1.46%	1.56%
SW_VIS	0.02%	0.06%	0.04%	0.03%	0.00%	0.00%	0.00%	0.00%
SW_WAK	0.55%	1.55%	1.22%	0.83%	0.00%	0.00%	0.00%	0.00%
Total	**100.00%**	**100.00%**	**100.00%**	**100.00%**	**100.00%**	**100.00%**	**100.00%**	**100.00%**
25L								
25LRNP	10.02%	8.60%	8.48%	9.57%	0.00%	0.00%	0.00%	0.00%
LN_FIM1	0.19%	0.29%	0.33%	0.22%	0.00%	0.00%	0.00%	0.00%
LN_FIM2	0.04%	0.05%	0.06%	0.04%	0.00%	0.00%	0.00%	0.00%
LN_GMN	0.00%	0.00%	0.00%	0.00%	0.46%	0.30%	1.42%	0.86%
LN_LUP	0.00%	0.00%	0.00%	0.00%	1.32%	0.87%	4.05%	2.45%
LN_MZB1	0.00%	0.00%	0.00%	0.00%	4.68%	3.08%	14.38%	8.71%
LN_MZB2	0.00%	0.00%	0.00%	0.00%	1.12%	0.74%	3.44%	2.09%
LN_STR	13.27%	20.28%	23.47%	15.73%	0.53%	0.35%	1.62%	0.98%
LN_VIS	0.59%	0.89%	1.00%	0.70%	0.00%	0.00%	0.00%	0.00%
LN_WAK1	0.75%	1.15%	1.32%	0.89%	0.00%	0.00%	0.00%	0.00%
LN_WAK2	0.06%	0.08%	0.09%	0.06%	0.00%	0.00%	0.00%	0.00%
LW_FIM1	1.59%	0.87%	0.97%	1.38%	0.00%	0.00%	0.00%	0.00%
LW_FIM2	0.05%	0.03%	0.03%	0.04%	0.00%	0.00%	0.00%	0.00%
LW_GMN	0.00%	0.00%	0.00%	0.00%	0.83%	0.99%	1.58%	1.17%
LW_LUP	0.00%	0.00%	0.00%	0.00%	0.26%	0.31%	0.49%	0.36%
LW_MZB1	0.00%	0.00%	0.00%	0.00%	4.40%	5.27%	8.37%	6.19%
LW_MZB2	0.00%	0.00%	0.00%	0.00%	0.73%	0.87%	1.38%	1.02%
LW_STR	3.60%	1.96%	2.19%	3.13%	3.94%	4.71%	7.48%	5.54%

TABLE 4-14 (Continued)
FLIGHT TRACK USE BY OPERATION TYPE AND TIME OF DAY - FUTURE (2020) CONDITIONS
LOS ANGELES INTERNATIONAL AIRPORT

	Arrivals				Departures			
Runway/Flight Track	**Day**	**Evening**	**Night**	**Total**	**Day**	**Evening**	**Night**	**Total**
25L (cont.)								
LW_STR1	0.00%	0.00%	0.00%	0.00%	0.57%	0.68%	1.08%	0.80%
LW_STR2	0.00%	0.00%	0.00%	0.00%	2.95%	3.53%	5.61%	4.15%
LW_STR3	0.00%	0.00%	0.00%	0.00%	2.49%	2.98%	4.73%	3.50%
LW_VIS	1.30%	0.70%	0.79%	1.13%	0.00%	0.00%	0.00%	0.00%
NJ_GMN	0.00%	0.00%	0.00%	0.00%	0.67%	0.46%	0.19%	0.44%
NJ_MPD	1.37%	0.90%	0.93%	1.23%	0.00%	0.00%	0.00%	0.00%
NJ_MZB1	0.00%	0.00%	0.00%	0.00%	8.26%	5.63%	2.28%	5.44%
NJ_MZB2	0.00%	0.00%	0.00%	0.00%	3.87%	2.64%	1.07%	2.55%
NJ_PMD	0.00%	0.00%	0.00%	0.00%	0.41%	0.28%	0.11%	0.27%
NJ_SAU	0.70%	0.46%	0.48%	0.63%	0.00%	0.00%	0.00%	0.00%
NJ_VIS	3.21%	2.10%	2.17%	2.88%	0.00%	0.00%	0.00%	0.00%
NJ_WAK1	0.77%	0.51%	0.52%	0.70%	0.00%	0.00%	0.00%	0.00%
SJ_FIM1	3.56%	2.84%	2.61%	3.32%	0.00%	0.00%	0.00%	0.00%
SJ_FIM2	0.17%	0.13%	0.12%	0.16%	0.00%	0.00%	0.00%	0.00%
SJ_GMN	0.00%	0.00%	0.00%	0.00%	4.02%	2.99%	0.51%	2.41%
SJ_LUP	0.00%	0.00%	0.00%	0.00%	10.23%	7.60%	1.30%	6.13%
SJ_MZB1	0.00%	0.00%	0.00%	0.00%	20.12%	14.96%	2.55%	12.07%
SJ_MZB2	0.00%	0.00%	0.00%	0.00%	3.86%	2.87%	0.49%	2.31%
SJ_ST2	0.00%	0.00%	0.00%	0.00%	3.35%	2.49%	0.42%	2.01%
SJ_STR	16.31%	13.04%	11.99%	15.21%	2.01%	1.50%	0.25%	1.21%
SJ_TRN	0.00%	0.00%	0.00%	0.00%	1.00%	0.75%	0.13%	0.60%
SJ_VIS	2.39%	1.91%	1.76%	2.23%	0.00%	0.00%	0.00%	0.00%
SJ_VNY	0.18%	0.14%	0.13%	0.17%	3.69%	2.74%	0.47%	2.21%
SN_FIM1	1.20%	1.25%	1.14%	1.20%	0.00%	0.00%	0.00%	0.00%
SN_LUP	0.00%	0.00%	0.00%	0.00%	1.43%	0.36%	3.49%	2.22%
SN_MZB1	0.00%	0.00%	0.00%	0.00%	7.05%	1.80%	17.25%	10.95%
SN_MZB2	0.00%	0.00%	0.00%	0.00%	1.59%	0.41%	3.90%	2.48%
SN_N1	30.30%	31.62%	29.01%	30.42%	0.50%	0.13%	1.23%	0.78%
SN_VIS	2.79%	2.84%	2.62%	2.78%	0.00%	0.00%	0.00%	0.00%
SW_FIM	0.12%	0.15%	0.16%	0.13%	0.00%	0.00%	0.00%	0.00%
SW_GMN	0.00%	0.00%	0.00%	0.00%	0.20%	1.49%	0.47%	0.44%
SW_LUP	0.00%	0.00%	0.00%	0.00%	0.37%	2.82%	0.89%	0.82%
SW_MZB1	0.00%	0.00%	0.00%	0.00%	2.63%	20.09%	6.32%	5.85%
SW_MZB2	0.00%	0.00%	0.00%	0.00%	0.15%	1.16%	0.37%	0.34%
SW_N1	4.71%	6.16%	6.52%	5.19%	0.28%	2.16%	0.68%	0.63%
SW_VIS	0.47%	0.61%	0.65%	0.52%	0.00%	0.00%	0.00%	0.00%
SW_WAK1	0.32%	0.42%	0.45%	0.36%	0.00%	0.00%	0.00%	0.00%
Total	**100.00%**	**100.00%**	**100.00%**	**100.00%**	**100.00%**	**100.00%**	**100.00%**	**100.00%**
25R								
LN_FIM1	0.28%	0.45%	0.57%	0.37%	0.00%	0.00%	0.00%	0.00%
LN_GMN	0.00%	0.00%	0.00%	0.00%	0.15%	0.03%	0.15%	0.14%
LN_LUP	0.00%	0.00%	0.00%	0.00%	4.12%	0.93%	4.15%	3.75%
LN_MZB1	0.00%	0.00%	0.00%	0.00%	10.19%	2.31%	10.26%	9.28%
LN_MZB2	0.00%	0.00%	0.00%	0.00%	2.42%	0.55%	2.44%	2.20%

TABLE 4-14 (Continued)
FLIGHT TRACK USE BY OPERATION TYPE AND TIME OF DAY - FUTURE (2020) CONDITIONS
LOS ANGELES INTERNATIONAL AIRPORT

	Arrivals				Departures			
Runway/Flight Track	**Day**	**Evening**	**Night**	**Total**	**Day**	**Evening**	**Night**	**Total**
25R (cont.)								
LN_STR	9.95%	15.82%	19.82%	12.79%	0.00%	0.00%	0.00%	0.00%
LN_STR1	0.00%	0.00%	0.00%	0.00%	4.02%	0.91%	4.05%	3.66%
LN_STR2	0.00%	0.00%	0.00%	0.00%	0.84%	0.19%	0.84%	0.76%
LN_SXC	0.00%	0.00%	0.00%	0.00%	0.04%	0.01%	0.03%	0.03%
LN_VIS	2.27%	3.62%	4.53%	2.92%	0.00%	0.00%	0.00%	0.00%
LN_WAK1	1.28%	2.03%	2.55%	1.64%	0.00%	0.00%	0.00%	0.00%
LN_WAK2	0.57%	0.91%	1.13%	0.73%	0.00%	0.00%	0.00%	0.00%
LW_FIM1	1.55%	0.41%	1.72%	1.24%	0.00%	0.00%	0.00%	0.00%
LW_FIM2	0.52%	0.14%	0.57%	0.41%	0.00%	0.00%	0.00%	0.00%
LW_GMN	0.00%	0.00%	0.00%	0.00%	0.22%	0.26%	0.51%	0.29%
LW_LUP	0.00%	0.00%	0.00%	0.00%	0.70%	0.82%	1.61%	0.91%
LW_MZB1	0.00%	0.00%	0.00%	0.00%	1.09%	1.27%	2.50%	1.42%
LW_MZB2	0.00%	0.00%	0.00%	0.00%	0.87%	1.01%	1.99%	1.13%
LW_STR	2.72%	0.71%	3.01%	2.17%	0.00%	0.00%	0.00%	0.00%
LW_STR1	0.00%	0.00%	0.00%	0.00%	4.06%	4.73%	9.31%	5.27%
LW_STR2	0.00%	0.00%	0.00%	0.00%	1.30%	1.51%	2.99%	1.69%
LW_STR3	0.00%	0.00%	0.00%	0.00%	0.12%	0.14%	0.27%	0.15%
LW_SXC	0.00%	0.00%	0.00%	0.00%	0.01%	0.01%	0.03%	0.02%
LW_VIS	2.46%	0.65%	2.72%	1.97%	0.00%	0.00%	0.00%	0.00%
NJ_GMN	0.00%	0.00%	0.00%	0.00%	0.12%	0.15%	0.05%	0.11%
NJ_MPD	1.49%	1.38%	0.73%	1.37%	0.00%	0.00%	0.00%	0.00%
NJ_MZB1	0.00%	0.00%	0.00%	0.00%	4.74%	5.92%	1.89%	4.26%
NJ_MZB2	0.00%	0.00%	0.00%	0.00%	2.22%	2.77%	0.88%	1.99%
NJ_PMD	0.00%	0.00%	0.00%	0.00%	0.49%	0.62%	0.20%	0.44%
NJ_SAU	1.14%	1.06%	0.56%	1.05%	0.00%	0.00%	0.00%	0.00%
NJ_TWA	0.00%	0.00%	0.00%	0.00%	0.24%	0.30%	0.10%	0.22%
NJ_VIS	9.14%	8.48%	4.51%	8.42%	0.00%	0.00%	0.00%	0.00%
NJ_WAK1	1.03%	0.95%	0.51%	0.95%	0.00%	0.00%	0.00%	0.00%
SJ_FIM1	4.57%	3.93%	3.57%	4.27%	0.00%	0.00%	0.00%	0.00%
SJ_GMN	0.00%	0.00%	0.00%	0.00%	3.84%	6.17%	1.81%	3.67%
SJ_LUP	0.00%	0.00%	0.00%	0.00%	3.92%	6.29%	1.84%	3.75%
SJ_MZB1	0.00%	0.00%	0.00%	0.00%	15.03%	24.14%	7.08%	14.38%
SJ_MZB2	0.00%	0.00%	0.00%	0.00%	0.70%	1.12%	0.33%	0.67%
SJ_STR	15.83%	13.61%	12.37%	14.79%	1.36%	2.19%	0.64%	1.31%
SJ_TR2	0.00%	0.00%	0.00%	0.00%	0.59%	0.95%	0.28%	0.57%
SJ_TRN	0.00%	0.00%	0.00%	0.00%	2.81%	4.51%	1.32%	2.69%
SJ_VIS	5.48%	4.71%	4.28%	5.12%	0.00%	0.00%	0.00%	0.00%
SJ_VNY	0.00%	0.00%	0.00%	0.00%	0.55%	0.88%	0.26%	0.52%
SN_FIM1	1.87%	1.95%	1.44%	1.84%	0.00%	0.00%	0.00%	0.00%
SN_GMN	0.00%	0.00%	0.00%	0.00%	0.68%	0.57%	0.84%	0.70%
SN_LUP	0.00%	0.00%	0.00%	0.00%	6.13%	5.16%	7.61%	6.34%
SN_MZB1	0.00%	0.00%	0.00%	0.00%	14.57%	12.26%	18.08%	15.06%
SN_MZB2	0.00%	0.00%	0.00%	0.00%	2.23%	1.87%	2.76%	2.30%
SN_N1	25.48%	26.61%	19.62%	25.13%	2.89%	2.44%	3.59%	2.99%

TABLE 4-14 (Continued)
FLIGHT TRACK USE BY OPERATION TYPE AND TIME OF DAY - FUTURE (2020) CONDITIONS
LOS ANGELES INTERNATIONAL AIRPORT

	Arrivals				Departures			
Runway/Flight Track	**Day**	**Evening**	**Night**	**Total**	**Day**	**Evening**	**Night**	**Total**
25R (cont.)								
SN_N2	0.00%	0.00%	0.00%	0.00%	0.52%	0.44%	0.65%	0.54%
SN_VIS	7.03%	7.30%	6.24%	7.01%	0.00%	0.00%	0.00%	0.00%
SW_GMN	0.00%	0.00%	0.00%	0.00%	0.18%	0.18%	0.24%	0.19%
SW_LUP	0.00%	0.00%	0.00%	0.00%	0.66%	0.70%	0.92%	0.72%
SW_MZB1	0.00%	0.00%	0.00%	0.00%	3.67%	3.86%	5.09%	4.00%
SW_MZB2	0.00%	0.00%	0.00%	0.00%	0.42%	0.44%	0.58%	0.46%
SW_N1	4.18%	4.15%	7.47%	4.55%	0.99%	1.04%	1.38%	1.08%
SW_N2	0.00%	0.00%	0.00%	0.00%	0.31%	0.33%	0.43%	0.34%
SW_WAK1	1.16%	1.15%	2.08%	1.26%	0.00%	0.00%	0.00%	0.00%
Total	**100.00%**	**100.00%**	**100.00%**	**100.00%**	**100.00%**	**100.00%**	**100.00%**	**100.00%**

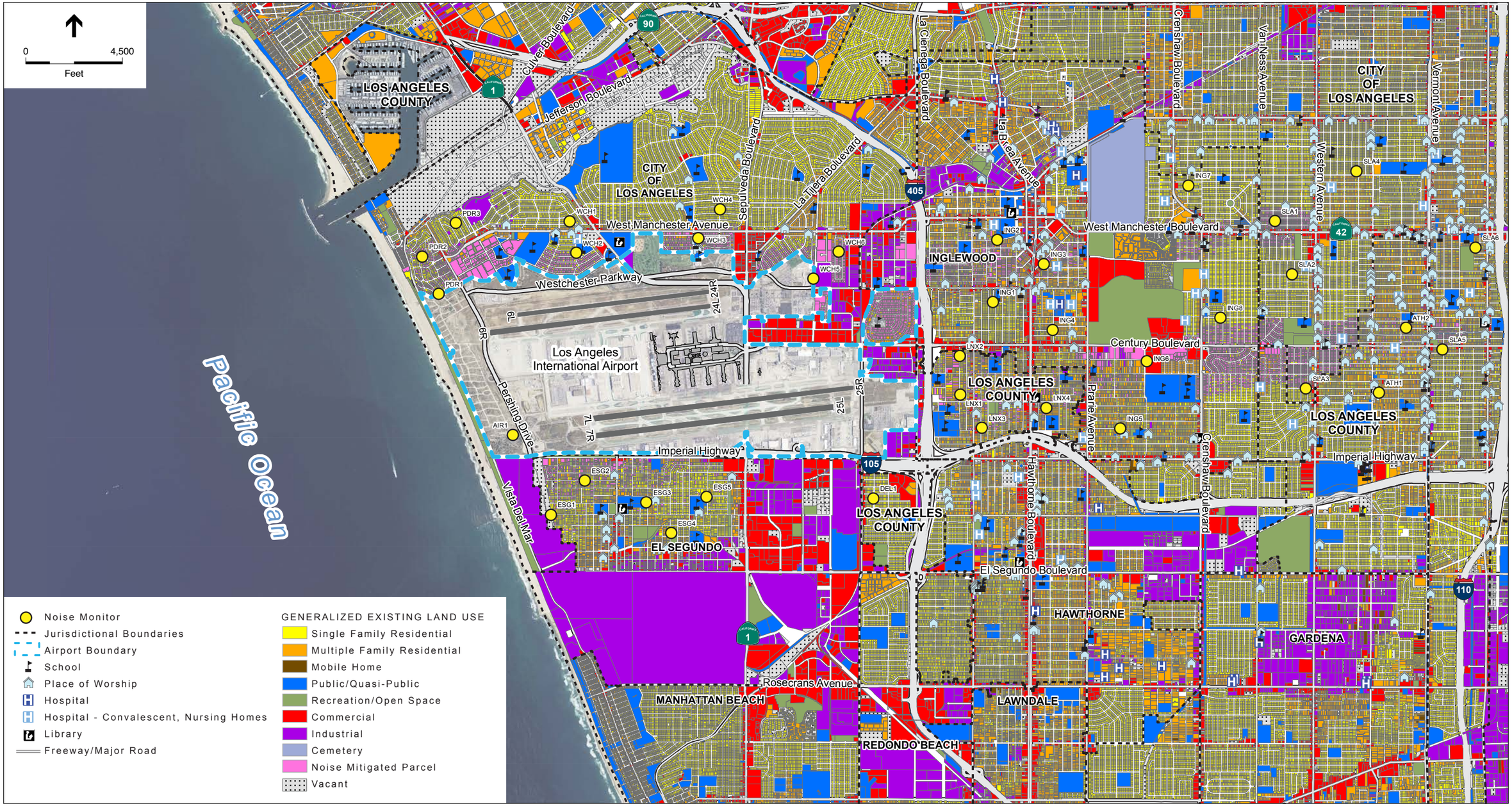
NOTES:
Values may not sum to 100% due to rounding.
Does not include helicopter operations.

SOURCE: ESA Airports, October 2014 using information presented in Appendix J1-1 of the Draft EIR for the LAX Specific Plan Amendment Study and LAX ANOMS data for calendar year 2013.

TABLE 4-15
NOISE MONITORING STATIONS IN THE VICINITY OF LOS ANGELES INTERNATIONAL AIRPORT

			2013 CNEL (dBA)			
Site	**Address**	**City**	**LAX Aircraft**	**All Aircraft**	**Community**	**Total**
AIR1	On Airport	Los Angeles	79.4	79.6	77.7	81.8
PDR1	255 Waterview St.	Playa Del Rey	68.3	68.3	60.5	69.0
PDR2	216 Sunridge St.	Playa Del Rey	62.2	62.2	57.2	63.4
PDR3	8151 Tuscany Ave.	Playa Del Rey	57.4	57.5	74.8	74.9
ESG1	745 W. Mariposa Ave.	El Segundo	n.a.	n.a.	n.a.	n.a.
ESG2	425 W Sycamore Ave.	El Segundo	68.5	68.5	60.1	69.1
ESG3	649 Sheldon St.	El Segundo	63.1	63.1	61.2	65.3
ESG4	333 Lomita St.	El Segundo	59.7	59.8	61.6	63.8
ESG5	Near 727 California St.	El Segundo	61.4	61.5	65.1	66.7
DEL1	Near 5501 119th St.	Del Aire	54.7	55.4	84.0	84.0
WCH1	Near 7314 W. 85th St.	Los Angeles	54.8	54.9	60.1	61.2
WCH2	8821 Villanova Ave.	Westchester	62.0	62.0	59.4	63.9
WCH3	6457 W. 87th St.	Westchester	61.1	61.2	60.6	63.9
WCH4	6431 84th Pl.	Los Angeles	58.2	58.4	64.7	65.6
WCH5	9131 Airport Bl.	Los Angeles	74.8	74.8	72.7	76.9
WCH6	8816 Ramsgate Ave.	Los Angeles	63.9	63.9	90.6	90.6
ING1	944 S. Eucalyptus Ave.	Inglewood	61.6	61.6	60.8	64.2
ING2	215 W. Kelso St.	Inglewood	66.5	66.5	95.4	95.4
ING3	800 La Brea Dr.	Inglewood	67.4	67.4	83.4	83.5
ING4	439 E. 98th St.	Inglewood	n.a.	n.a.	n.a.	n.a.
ING5	11028 Doty Ave.	Inglewood	58.4	58.7	70.6	70.8
ING6	10220 South Yukon Ave.	Inglewood	69.6	69.6	67.8	71.8
ING7	3301 W. 81st St.	Inglewood	n.a.	n.a.	n.a.	n.a.
ING8	9601 6th Ave.	Inglewood	61.1	61.0	87.0	87.0
LNX1	10706 Buford Ave.	Lennox	74.2	74.2	66.7	74.9
LNX2	10121 Buford Ave.	Lennox	63.2	63.2	65.6	67.6
LNX3	11034 Dalerose Ave.	Lennox	62.5	62.4	95.4	95.4
LNX4	10820 Larch Ave.	Lennox	65.6	65.7	95.4	95.4
ATH1	1340 W. 106th St.	Athens	60.3	60.7	62.3	64.5
ATH2	1147 W. 97th St.	Los Angeles	66.0	66.1	64.9	68.5
SLA1	2058 W. 84th Pl.	Los Angeles	64.9	64.9	60.5	66.3
SLA2	8956 S. Gramercy Pl.	South Los Angeles	59.3	59.4	59.4	62.4
SLA3	10525 S. Manhattan Pl.	Los Angeles	61.4	61.5	60.3	64.0
SLA4	1515 W. 79th St.	South Los Angeles	59.4	59.6	58.5	62.1
SLA5	814 Century Blvd.	South Los Angeles	63.6	63.6	64.5	67.1
SLA6	8720 Regina Ct.	South Los Angeles	62.7	63.5	65.5	67.6
SLA7	Near 9605 Wall St.	South Los Angeles	63.8	64.1	61.8	66.1
SLA8	403 E. 104th St.	South Los Angeles	61.2	62.2	95.4	95.4
SLA9	8022 McKinney Ave.	South Los Angeles	61.1	61.6	61.2	64.4

NOTES:
n.a. = missing or incomplete data; LAX = Los Angeles International Airport
All Aircraft CNEL values include aircraft noise associated with aircraft operating at LAX and at other airports in the region.
SOURCE: Los Angeles World Airports, April 2014.



SOURCES: LAWA, 2014; ESA Airports, 2014; ESRI ArcGIS Online, 2011; ESRI World Imagery - Aerial; PCR Services Corporation, 2012
NOTE: The following LAX noise monitors are outside the geographic extents of the exhibit – SLA7, SLA8, and SLA9.

Exhibit 4-11
Location of Noise Monitors in the Vicinity of Los Angeles International Airport

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