

# **Midfield Satellite Concourse Draft EIR**

## **Appendix D**

### **Noise**



---

## Taxiway Noise

The proposed MSC North Project involves construction and operation of a new midfield satellite concourse at LAX in order to reduce reliance on the West Remote Gates/Pads, allow for the modernization of other outdated terminals, and for taxilane and apron pavement rehabilitation within the CTA at LAX. The MSC North Project will not increase passenger or gate capacity, nor flights and/or aircraft operations at LAX; the Project is only changing the location of aircraft gates. Therefore, the operational noise analysis associated with the proposed MSC North Project addresses potential impacts from aircraft taxi operations to and from the Project site.

Implementation of the proposed Project would result in a change to the normal taxi route that certain aircraft currently take (i.e., as the proposed Project would reduce reliance on the West Remote Gates/Pads located on the far west side of the Airport, these aircraft would now be traveling to/from a new location at the center of the airfield and may travel a different taxi route than what they do today under existing conditions). Additionally, as compared to the 2012 baseline and the 2019 Without Project scenario, the 2019 With Project scenario would include three additional taxiways/taxilanes: Taxiway C14, Taxilane C12, and the extension of Taxilane T. The addition of these taxiways/taxilanes would improve aircraft ground movements and improve the distribution of noise from aircraft traveling between the north and south airfields, as well as to and from the MSC North building. Detailed Project information regarding the new taxiways/taxilanes is outlined in Chapter 2, *Project Description*.

As the proposed MSC North Project would reduce reliance on the West Remote Gates/Pads (located on the far west side of the Airport), and allow for modernization of terminals and for taxilane and apron pavement rehabilitation within the CTA, aircraft utilizing the MSC North Project gates would now be traveling to/from the center of the airfield and would travel a different taxi route than what they do today under baseline conditions. The MSC North Project taxi routes would have both increased and decreased taxi distances depending on runway use; however, it is expected that these differences in taxi distances would generally even out between arrival and departure operations. Based on the 2019 With Project design day flight schedule (DDFS), it is estimated that a maximum of 106 aircraft operations (53 arrivals and 53 departures) would use the MSC North Project site on a daily basis. Daily aircraft arriving to and departing from the MSC North concourse based on time of day (day, evening, and night) are presented in **Table D-1**.

Based on the above, sound exposure level (SEL) noise footprints were prepared for typical Airplane Design Group (ADG) III (Boeing 737-800), ADG IV (Boeing 767-300), ADG V (Boeing 777-300), and ADG VI (Airbus A380-841) aircraft. **Table D-2** presents the footprints prepared for each ADG/runway combination. SEL noise footprints only consider the west flow runway operating configuration as it accounts for 97.9 percent of operations annually.

## Appendix D

**Table D-1**

**Daily Number of Operations Arriving/Departing at MSC North**

<b>Aircraft</b>	<b>Day<sup>1</sup></b>	<b>Evening<sup>2</sup></b>	<b>Night<sup>3</sup></b>	<b>Total</b>
B737-300	4	0	0	4
B737-700	4	2	2	8
B737-800	15	0	9	24
B747-400	8	4	1	13
B757-300	1	1	3	5
B757-RR	2	3	1	6
B767-300	1	2	1	4
B777-200	6	2	3	11
B777-300	6	0	0	6
A319	6	2	1	9
A320	0	2	0	2
A321	1	0	1	2
A340	2	0	0	2
A380	4	0	0	4
CRJ9-ER	2	2	0	4
EMB190	2	0	0	2
<b>Total</b>	<b>64</b>	<b>20</b>	<b>22</b>	<b>106</b>

Notes:

- 1 Daytime hours are between 7 a.m. and 6:59 p.m.
- 2 Evening hours are between 7 p.m. and 9:59 p.m.
- 3 Nighttime hours are between 10 p.m. and 6:59 a.m.

Source: Ricondo & Associates, Inc., November 2013.

**Table D-2**

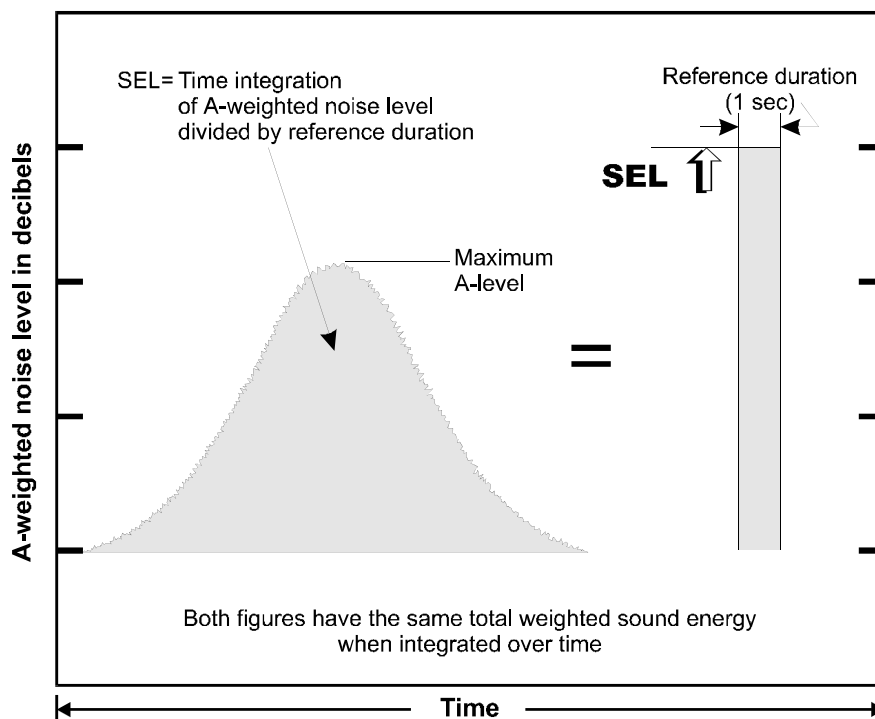
**Aircraft SEL Footprints**

<b>Airplane Design Group (ADG)</b>	<b>Representative Aircraft</b>	<b>Arrival Runway(s)</b>	<b>Departure Runway(s)</b>
III	B737-800	25L, 24R	25R, 24L
IV	B767-300	25L, 24R	25R, 24L
V	B777-300	25L, 24R	25R, 24L
VI	A380-841	25L, 24R	25L

Source: Ricondo & Associates, Inc., November 2013.

SEL is a time integrated measure that accounts for both the maximum sound level and the 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 an one-second duration allows the 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 maximum noise level ( $L_{\max}$ ) of the event. SEL values 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 concept is depicted on **Figure 1**.

**Figure 1**  
**Sound Exposure Level Concept**



Source: Brown-Buntin Associates, Inc.

## Appendix D

---

SEL contours were developed for the Boeing 737-800, Boeing 767-300, Boeing 777-300, and Airbus A380-841 aircraft using the Federal Aviation Administration (FAA) Integrated Noise Model (INM), Version 7.0d by approximating an overflight track and a fixed-point overflight profile to represent a taxi operation. Assumptions associated with movement to and from the proposed MSC North Project site were taken from the draft Project Description prepared for the MSC North Project. Assumptions include:

- Taxi paths delineating the routes of aircraft traveling to and from the Project site were defined based on conservative assumptions (i.e., long taxiing distances) regarding which runways those taxiing trips would begin or end. Modeled taxi paths are as follows:
  - Runway 25L Arrivals, utilizing Taxiways U, C, and R traveling to the west gates of the MSC North building;
  - Runway 25L Arrivals, utilizing Taxiways U and C, and Taxilane T traveling to the east gates of the MSC North building;
  - Runway 24R Arrivals, utilizing Taxiways BB and E, and Taxilane C12 traveling to the west gates of the MSC North building;
  - Runway 24R Arrivals, utilizing Taxiways BB and E, and Taxilane T traveling to the east gates of the MSC North building;
  - Runway 25R Departures, utilizing Taxilane T and Taxiway B traveling from the east gates of the MSC North building;
  - Runway 24L Departures, utilizing Taxilane T and Taxiways E and V, traveling from the east gates of the MSC North building; and
  - Runway 25L Departures, utilizing Taxilane T and Taxiways C, U, A and F, traveling from the east gates of the MSC North building.
- The altitude was assumed to be the average engine-installation height;
- A constant taxi speed of 15 knots was assumed; and
- Thrust setting assumed to be 10 percent of the maximum thrust value in the noise power distance (NPD) curves associated with the aircraft.

The following exhibits were created utilizing the corresponding taxiway/taxilane paths as outlined above:

- **Figure 2** shows the SEL noise exposure contour for a single Boeing 737-800 taxi operation from Runway 24R to the MSC North Project site;
- **Figure 3** shows the SEL noise exposure contour for a single Boeing 737-800 taxi operation from the MSC North Project site to Runway 24L;
- **Figure 4** shows the SEL noise exposure contour for a single Boeing 737-800 taxi operation from Runway 25L to the MSC North Project site;
- **Figure 5** shows the SEL noise exposure contour for a single Boeing 737-800 taxi operation from the MSC North Project site to Runway 25R;

- **Figure 6** shows the SEL noise exposure contour for a single Boeing 767-300 taxi operation from Runway 24R to the MSC North Project site;
- **Figure 7** shows the SEL noise exposure contour for a single Boeing 767-300 taxi operation from the MSC North Project site to Runway 24L;
- **Figure 8** shows the SEL noise exposure contour for a single Boeing 767-300 taxi operation from Runway 25L to the MSC North Project site;
- **Figure 9** shows the SEL noise exposure contour for a single Boeing 767-300 taxi operation from the MSC North Project site to Runway 25R;
- **Figure 10** shows the SEL noise exposure contour for a single Boeing 777-300 taxi operation from Runway 24R to the MSC North Project site;
- **Figure 11** shows the SEL noise exposure contour for a single Boeing 777-300 taxi operation from the MSC North Project site to Runway 24L;
- **Figure 12** shows the SEL noise exposure contour for a single Boeing 777-300 taxi operation from Runway 25L to the MSC North Project site;
- **Figure 13** shows the SEL noise exposure contour for a single Boeing 777-300 taxi operation from the MSC North Project site to Runway 25R;
- **Figure 14** shows the SEL noise exposure contour for a single Airbus 380-841 taxi operation from Runway 24R to the MSC North Project site;
- **Figure 15** shows the SEL noise exposure contour for a single Airbus 380-841 taxi operation from Runway 25L to the MSC North Project site; and
- **Figure 16** shows the SEL noise exposure contour for a single Airbus 380-841 taxi operation from the MSC North Project site to Runway 25L.

A noise level of 80 dBA is equivalent to the noise of a busy street. Thus at the airport boundary, the noise associated with the taxi operation may be perceptible if the ambient noise levels are lower than the noise associated with the taxi operation. However, noise levels associated with aircraft departures and arrivals at LAX will overshadow the minimal noise associated with these few aircraft taxi events. The following analysis was conducted to determine whether the noise associated with the taxiing operations resulting from the proposed Project would result in a significant noise impact for purposes of California Environmental Quality Act (CEQA) analysis.

The Los Angeles CEQA Thresholds Guide defines the significance threshold relative to aircraft taxiing noise as follows:

A significant impact on ambient noise levels would normally occur if noise levels at a noise sensitive use attributable to airport operations exceed 65 dB CNEL and the project increases ambient noise levels by 1.5 dB CNEL or greater

To relate the SEL values associated with the taxiing operations identified above, CNEL values were calculated based on the number and time of day operations were estimated to occur and added to the existing ambient CNELs in residential areas to the north and south of the airport, to determine whether the Project-related aircraft taxiing noise would result in a 1.5 dB CNEL or greater increase at a noise sensitive use. Information regarding existing CNEL values was

## Appendix D

obtained from LAWA's California State Airport Noise Standards Quarterly Report, Fourth Quarter 2012.<sup>1</sup>

The total average daytime noise level associated with Project operations, defined as occurring between 7:00 am and 7:00 pm, and the total average nighttime noise level associated with Project operations, defined as occurring between 7:00 pm and 7:00 am, were calculated. Those noise levels were compared, for informational purposes only, to the existing daytime ambient noise level and existing nighttime ambient noise levels that occur in residential areas to the north and south of the airport, being the community of Westchester and the City of El Segundo, respectively. Information regarding existing daytime and nighttime ambient noise levels in those areas was obtained from Section 4.10.3.3 of the LAX Specific Plan Amendment Study (SPAS) Draft EIR (July 2012).

Eight modeled noise receptor locations were chosen based on the proximity to the Project site. To correspond with existing ambient noise data, receptors were chosen at existing noise monitoring locations. These receptors, along with their coordinates, are shown in **Table D-3**.

**Table D-3**

**Modeled Receptor Locations**

Receptor ID #	Grid ID <sup>1</sup>	Latitude	Longitude
TXN1	PDR1	33.952166	-118.442827
TXN2	AIR1	33.933099	-118.432035
TXN3	S1 <sup>2</sup>	33.931548	-118.418734
TXN4	ESG5	33.926623	-118.400719
TXN5	DEL1	33.924552	-118.376804
TXN6	LNK1	33.938666	-118.362152
TXN7	WCH5	33.952663	-118.385877
TXN8	S7 <sup>2</sup>	33.953874	-118.414077

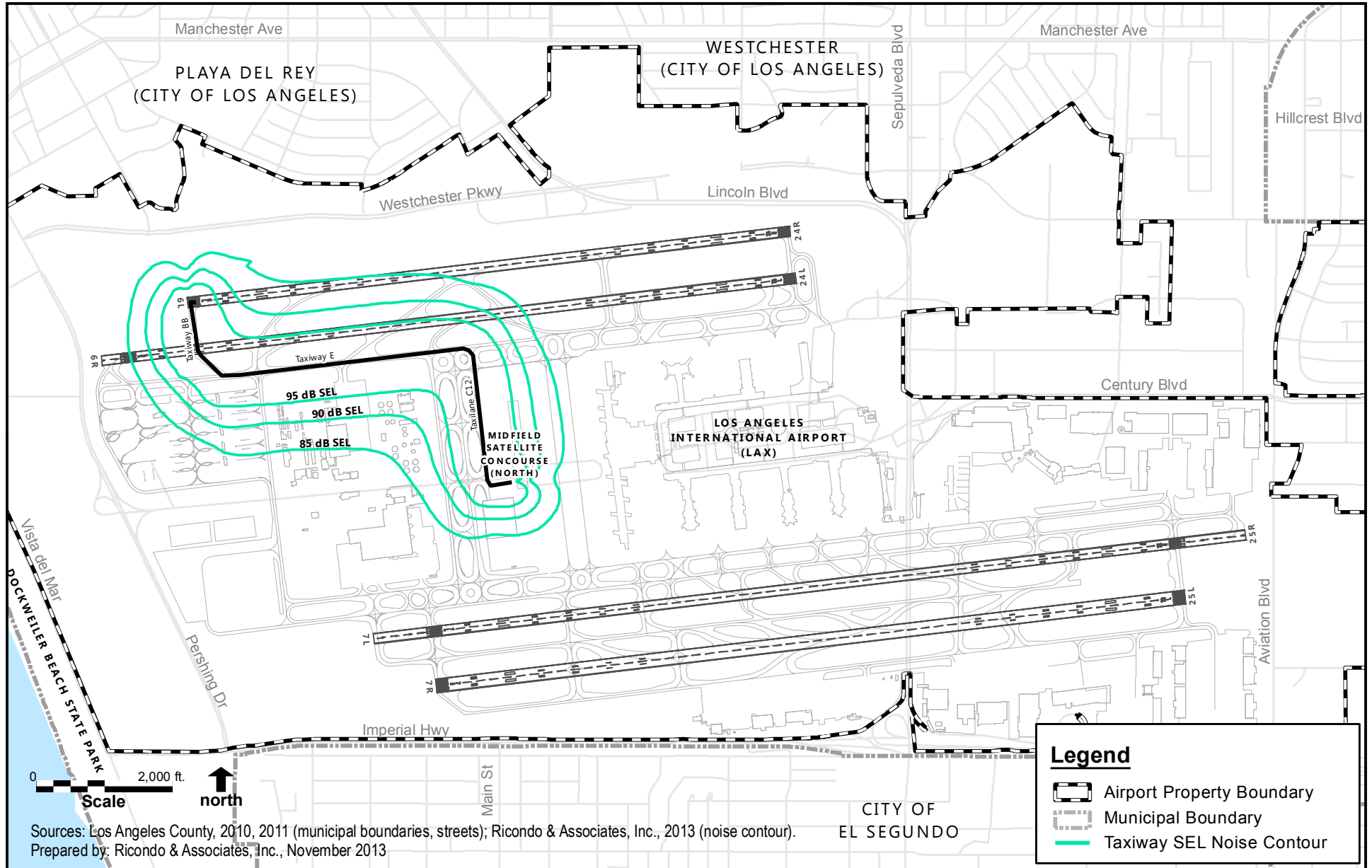
Notes:

- 1 Unless noted below, grid points correspond to the grid points in the LAWA "California State Airport Noise Standards Quarterly Report," Fourth Quarter 2012.
- 2 These grid nodes were chosen based on their proximity to the Project site.

Source: Ricondo & Associates, Inc., November 2013.

<sup>1</sup> City of Los Angeles, Los Angeles World Airports, "California State Airport Noise Standards Quarterly Report," Fourth Quarter 2012, Available: [http://lawa.org/uploadedFiles/LAX/pdf/4Q12 Quarterly Report map.pdf](http://lawa.org/uploadedFiles/LAX/pdf/4Q12%20Quarterly%20Report%20map.pdf), accessed January 9, 2014.

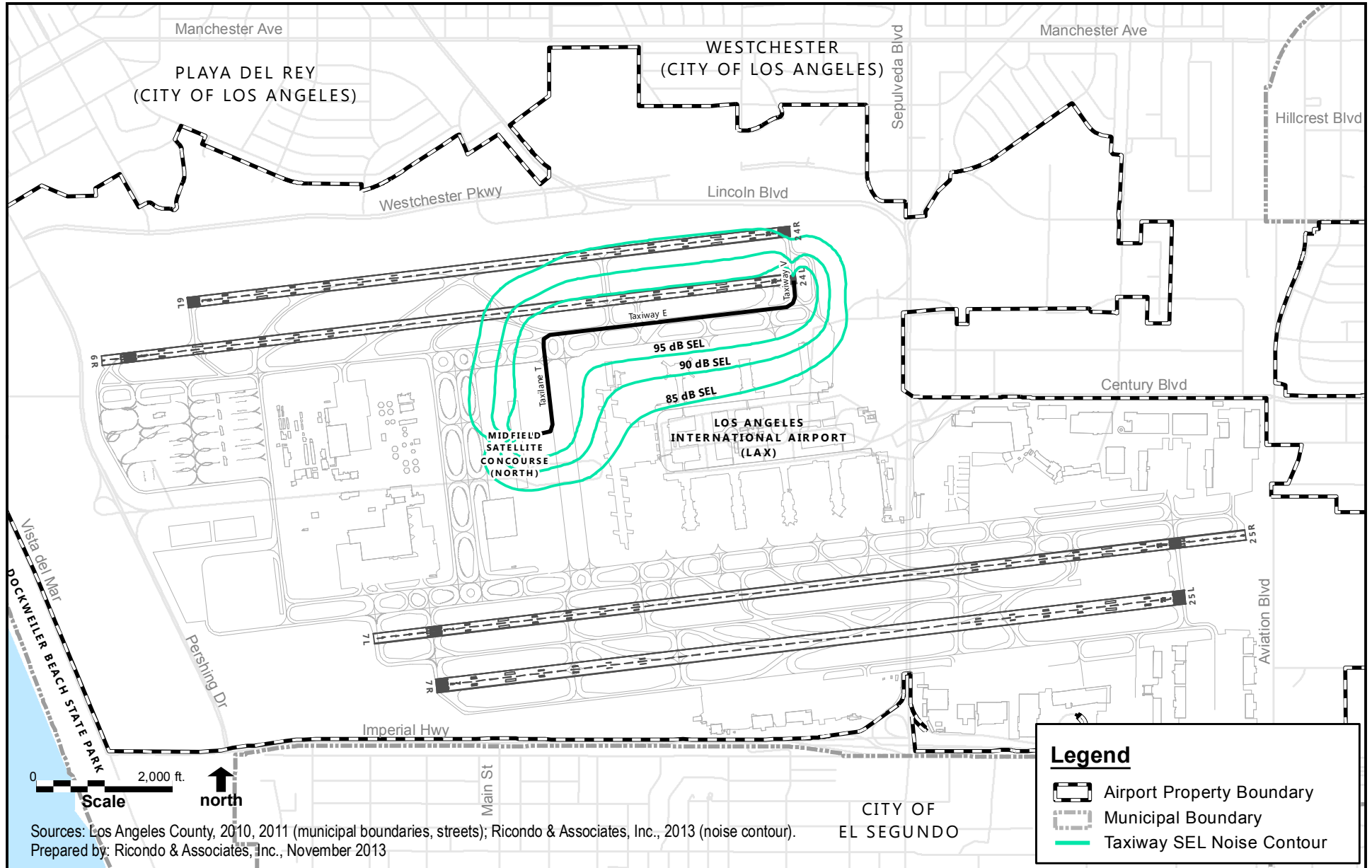




**LAX Midfield Satellite Concourse North**  
**Draft EIR Appendix D**

**Single Event Footprint Runway 24R Arrival**  
**Boeing 737-800 Taxi Operation**

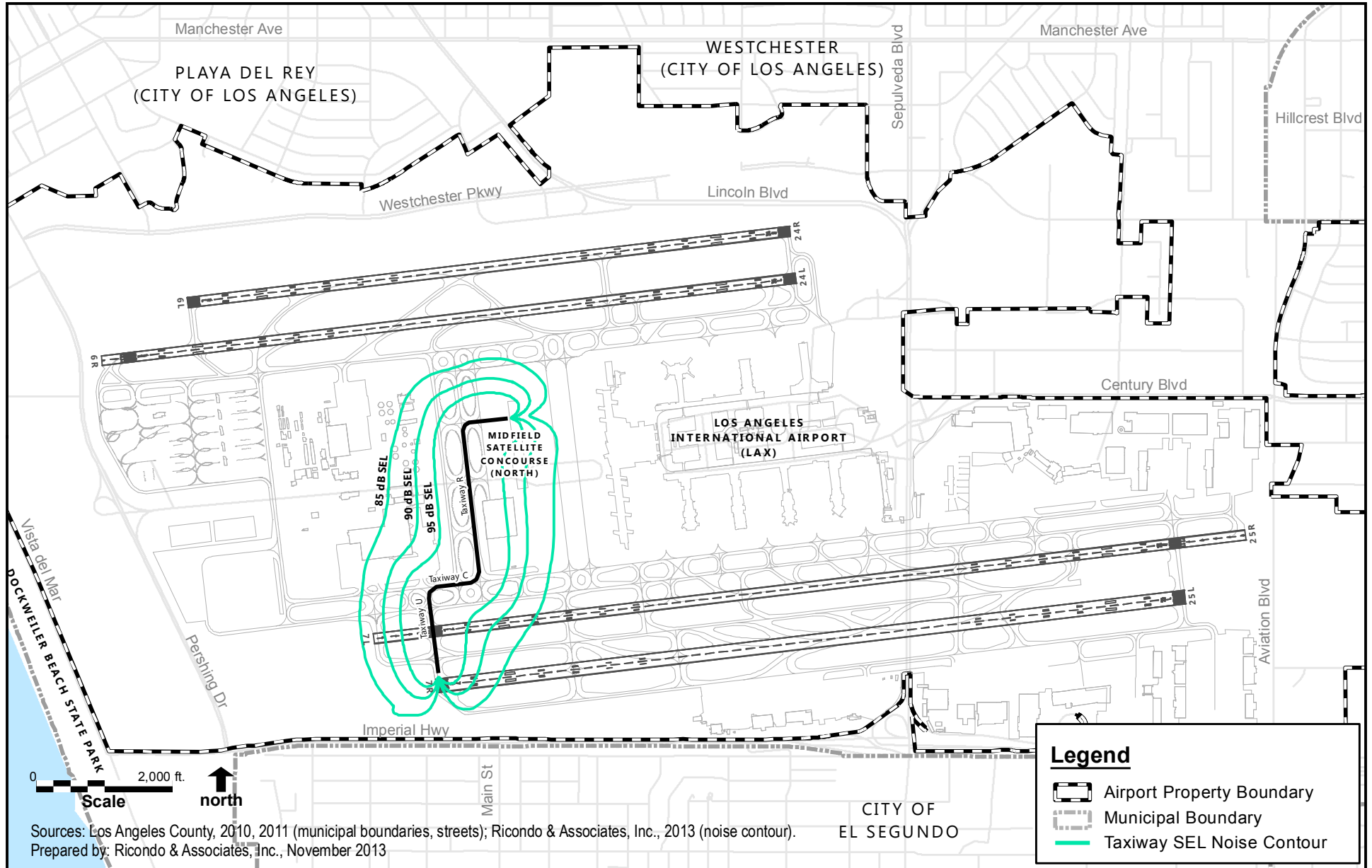
Figure  
2



**LAX Midfield Satellite Concourse North**  
**Draft EIR Appendix D**

**Single Event Footprint Runway 24L Departure**  
**Boeing 737-800 Taxi Operation**

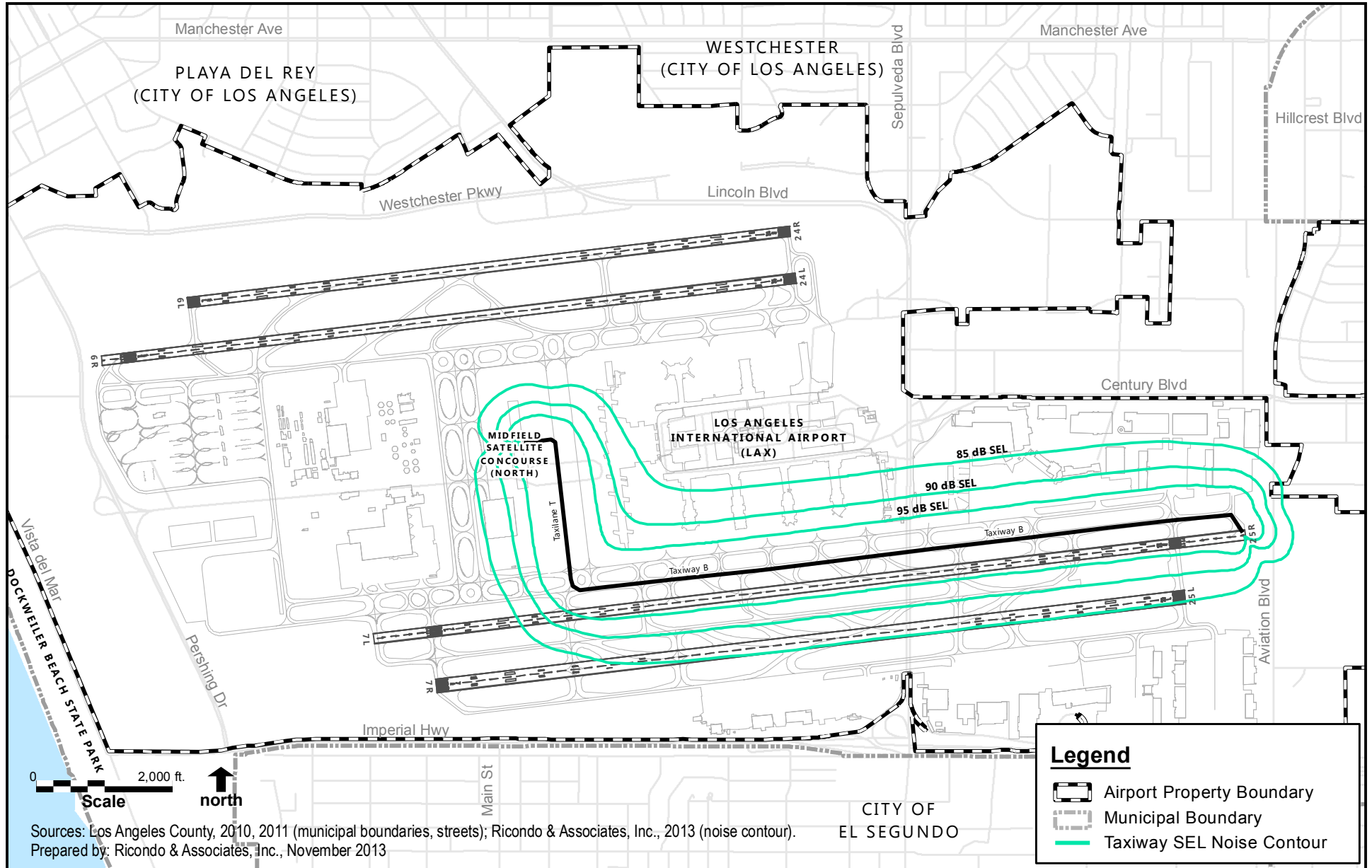
Figure  
3



**LAX Midfield Satellite Concourse North**  
**Draft EIR Appendix D**

**Single Event Footprint Runway 25L Arrival**  
**Boeing 737-800 Taxi Operation**

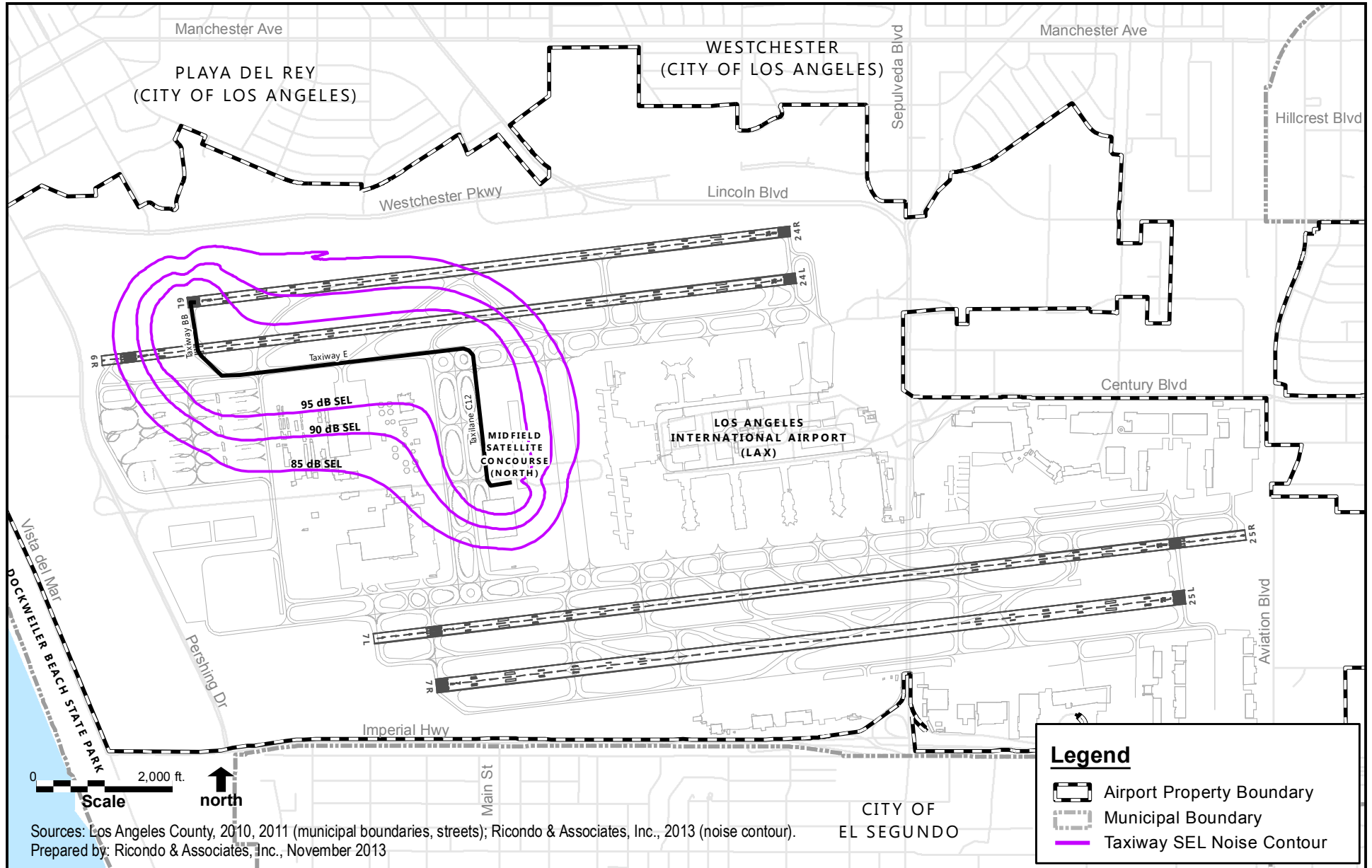
Figure  
4



**LAX Midfield Satellite Concourse North  
Draft EIR Appendix D**

**Single Event Footprint Runway 25R Departure  
Boeing 737-800 Taxi Operation**

**Figure  
5**

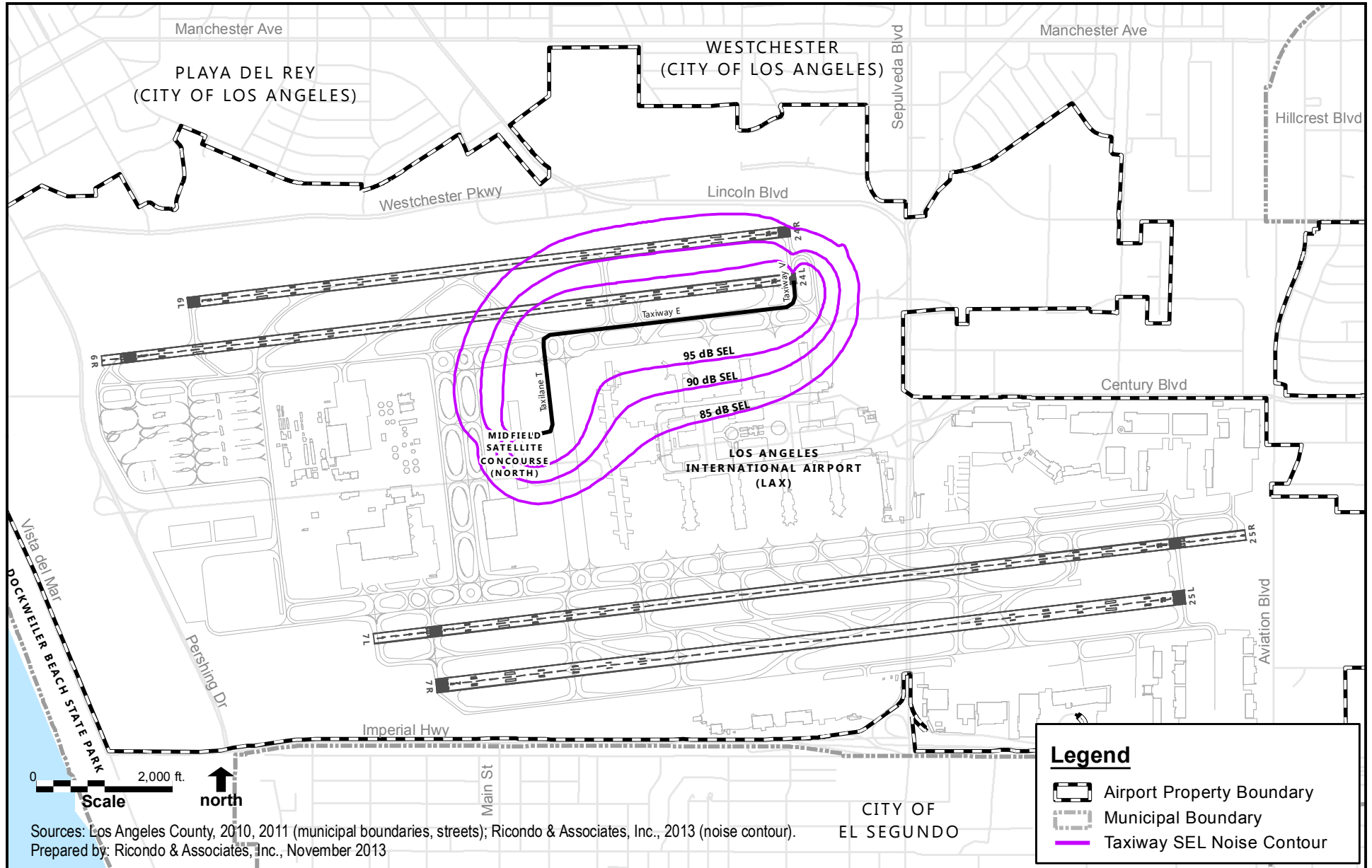


**LAX Midfield Satellite Concourse North**  
**Draft EIR Appendix D**

**Single Event Footprint Runway 24R Arrival**  
**Boeing 767-300 Taxi Operation**

Figure  
6

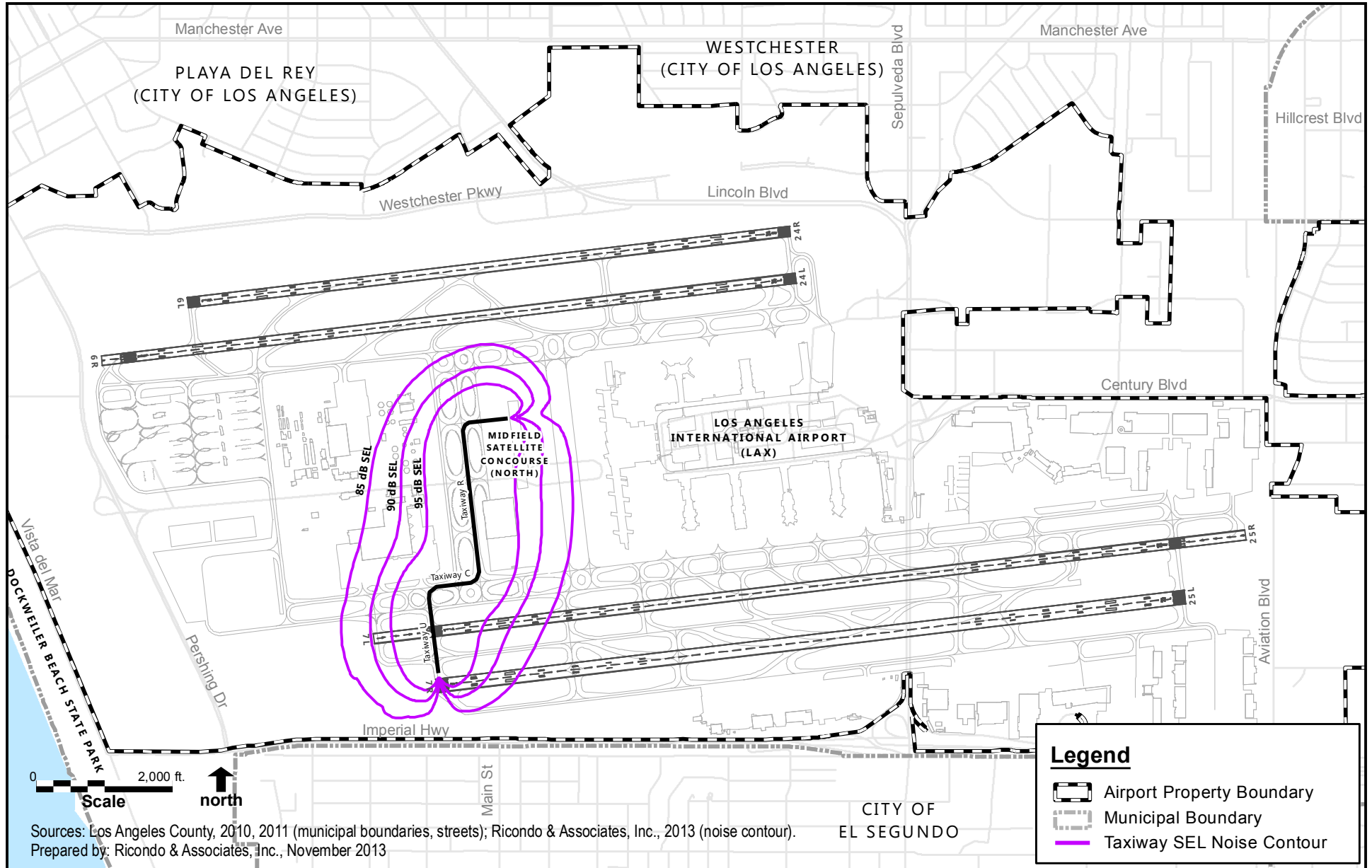




**LAX Midfield Satellite Concourse North**  
**Draft EIR Appendix D**

**Single Event Footprint Runway 24L Departure**  
**Boeing 767-300 Taxi Operation**

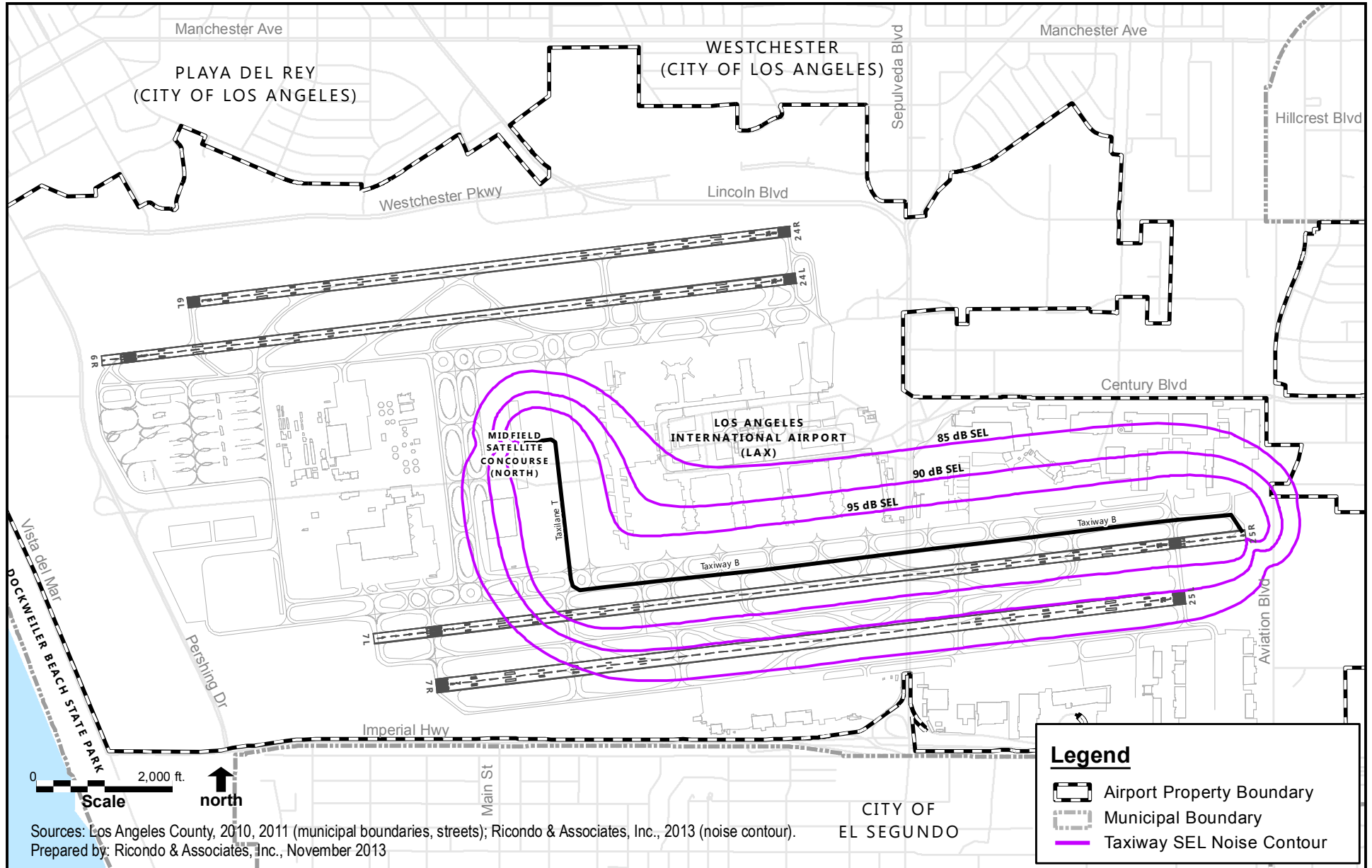
Figure  
7



**LAX Midfield Satellite Concourse North**  
**Draft EIR Appendix D**

**Single Event Footprint Runway 25L Arrival**  
**Boeing 767-300 Taxi Operation**

Figure  
8

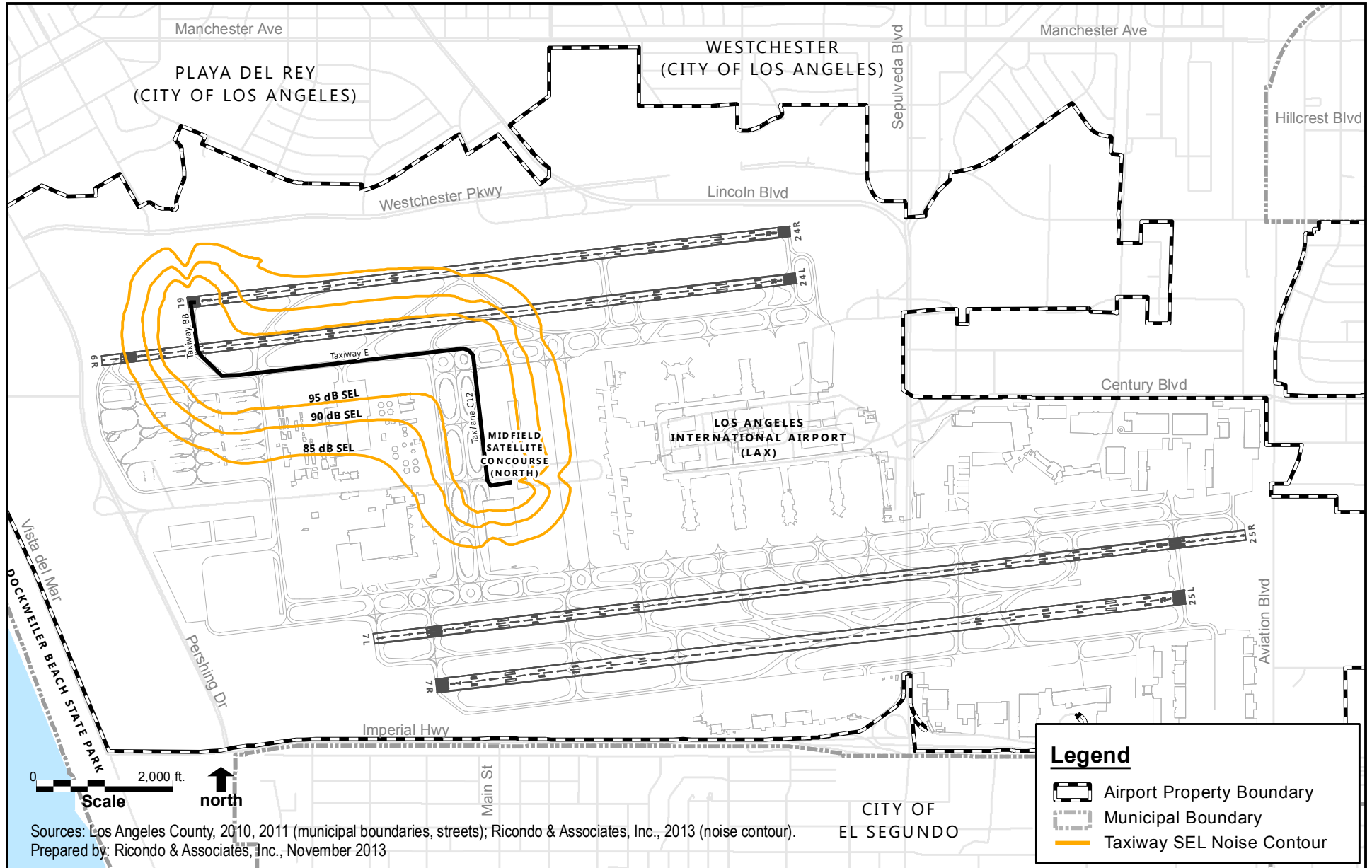


**LAX Midfield Satellite Concourse North  
Draft EIR Appendix D**

**Single Event Footprint Runway 25R Departure  
Boeing 767-300 Taxi Operation**

Figure  
9

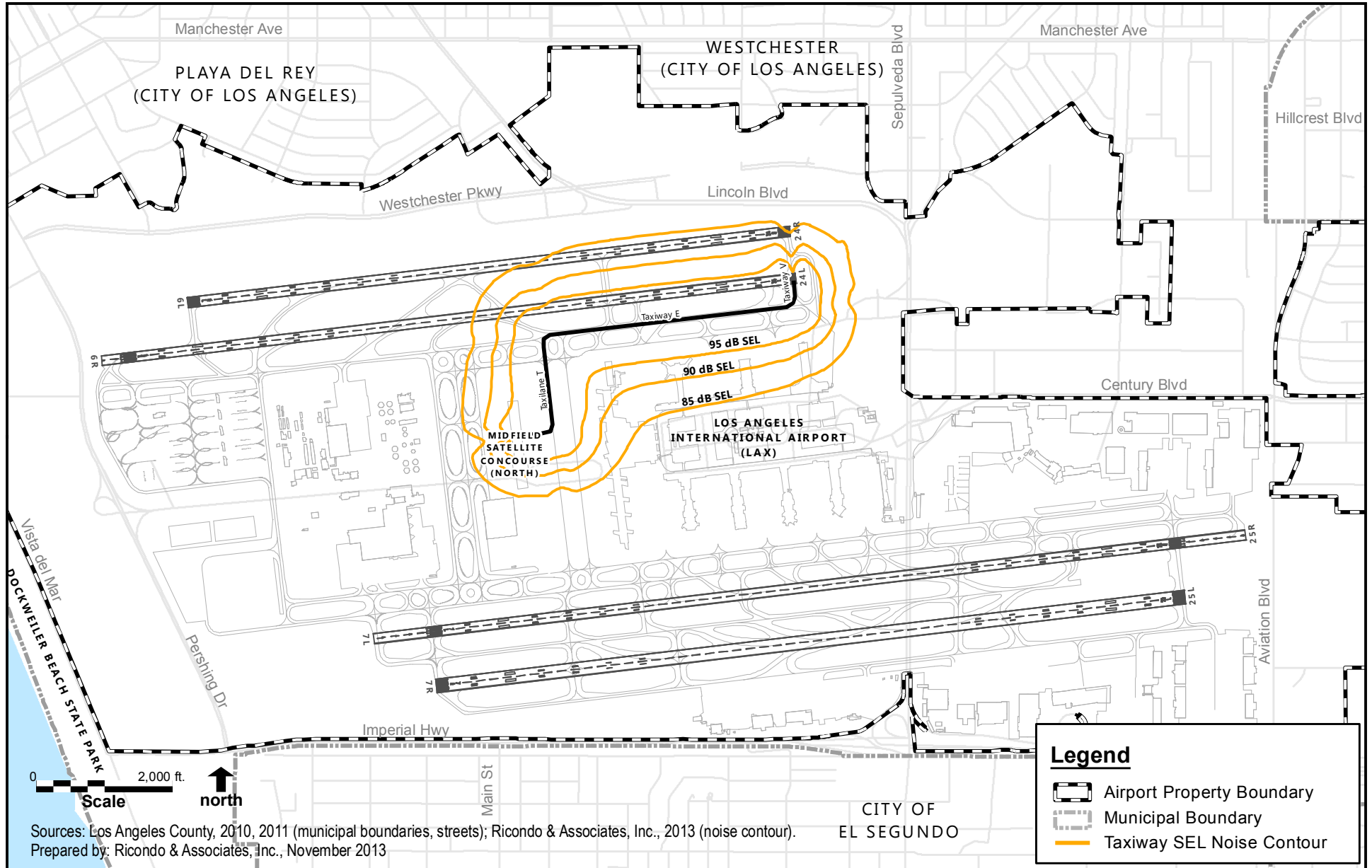




**LAX Midfield Satellite Concourse North**  
**Draft EIR Appendix D**

**Single Event Footprint Runway 24R Arrival**  
**Boeing 777-300 Taxi Operation**

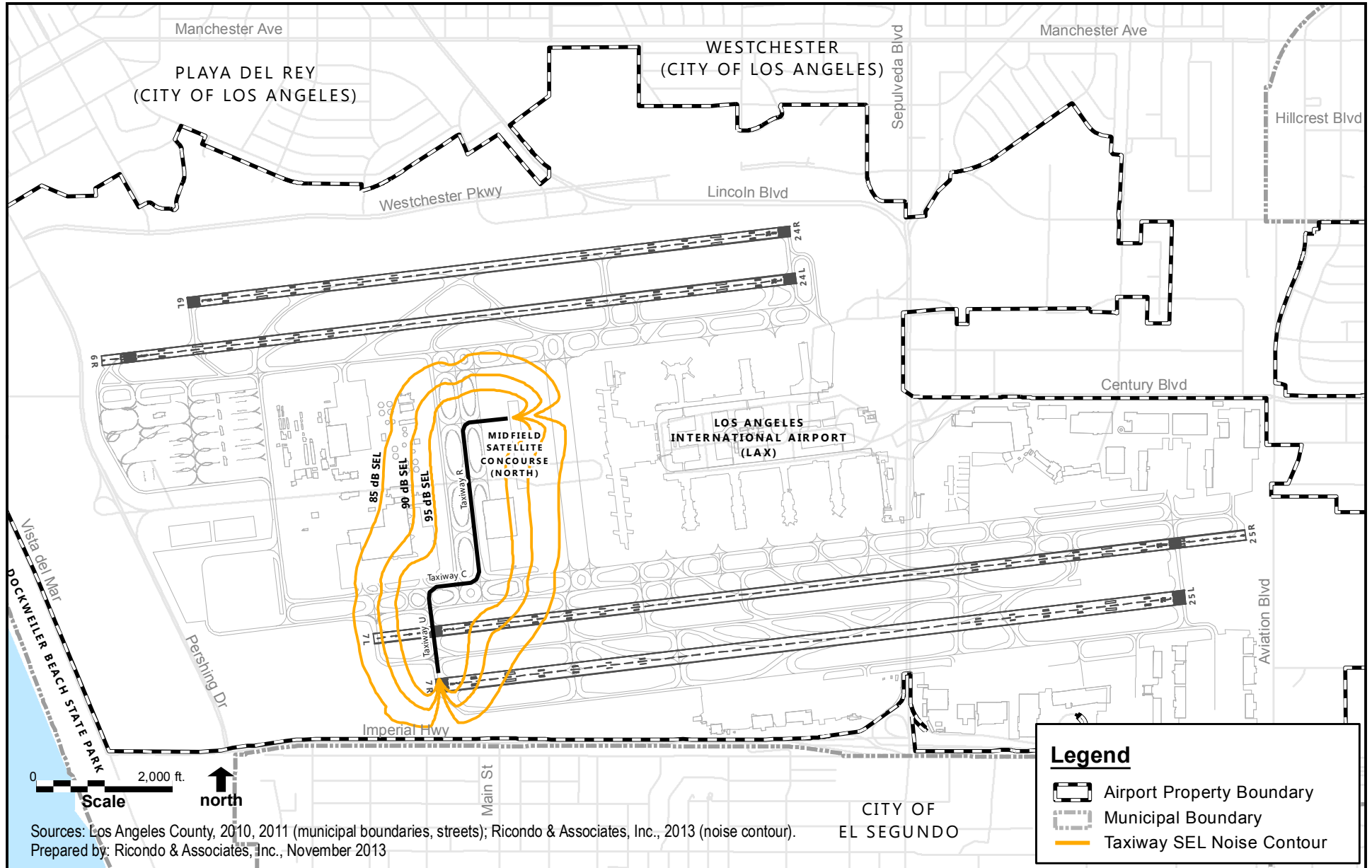
Figure  
 10



**LAX Midfield Satellite Concourse North**  
**Draft EIR Appendix D**

**Single Event Footprint Runway 24L Departure**  
**Boeing 777-300 Taxi Operation**

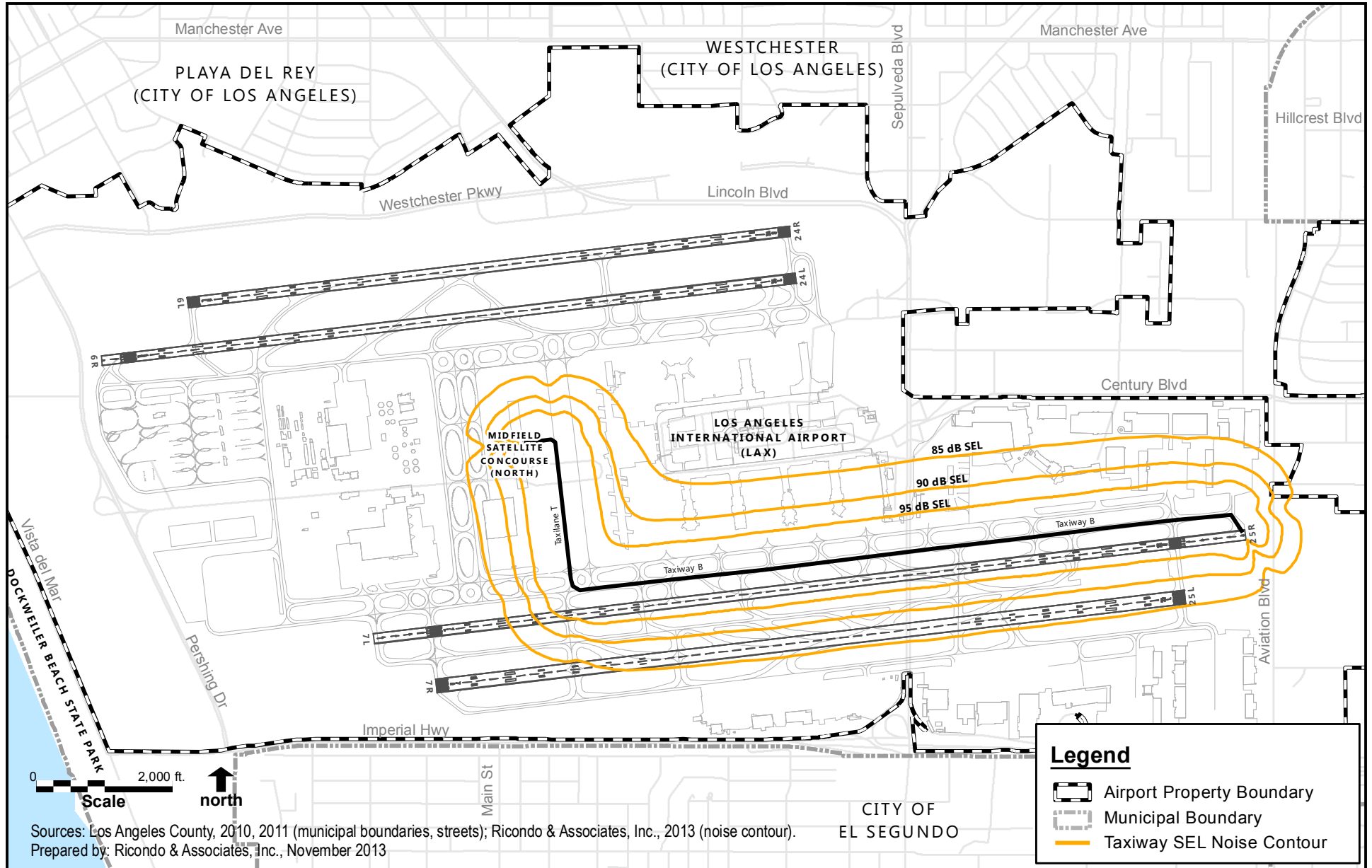
Figure  
 11



**LAX Midfield Satellite Concourse North**  
**Draft EIR Appendix D**

**Single Event Footprint Runway 25L Arrival**  
**Boeing 777-300 Taxi Operation**

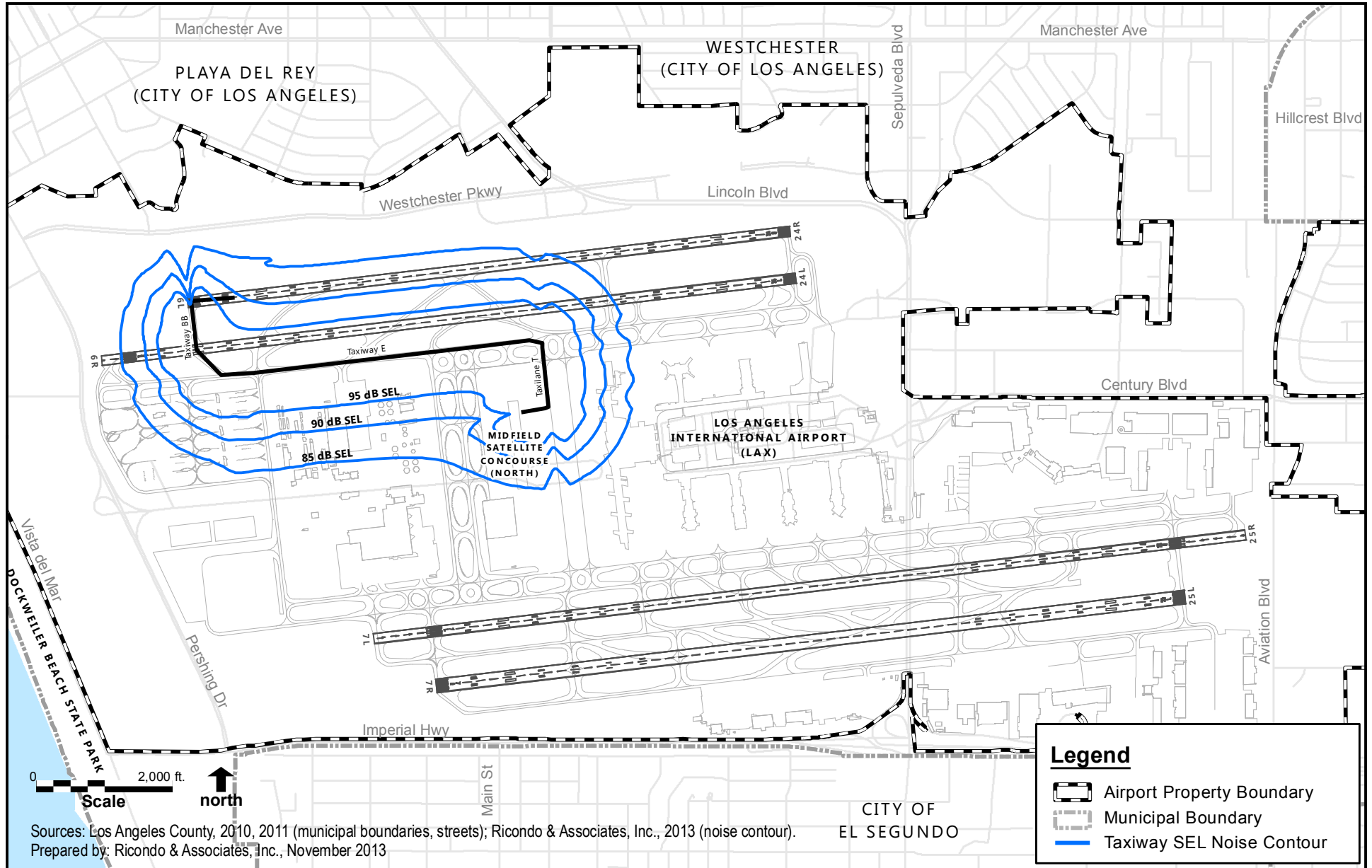
Figure  
12



LAX Midfield Satellite Concourse North  
Draft EIR Appendix D

Single Event Footprint Runway 25R Departure  
Boeing 777-300 Taxi Operation

Figure  
13

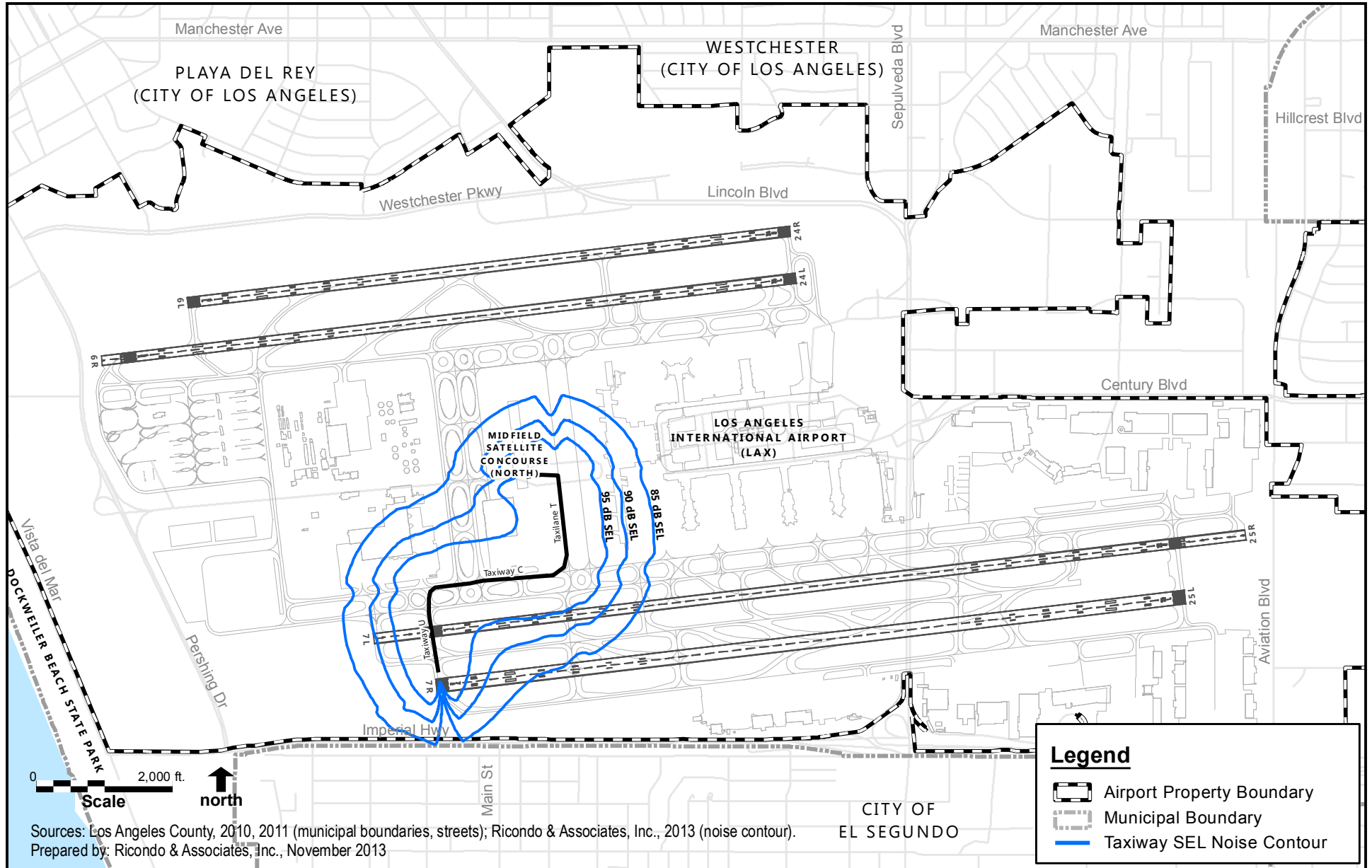


**LAX Midfield Satellite Concourse North**  
**Draft EIR Appendix D**

**Single Event Footprint Runway 24R Arrival**  
**Airbus 380-841 Taxi Operation**

Figure  
14

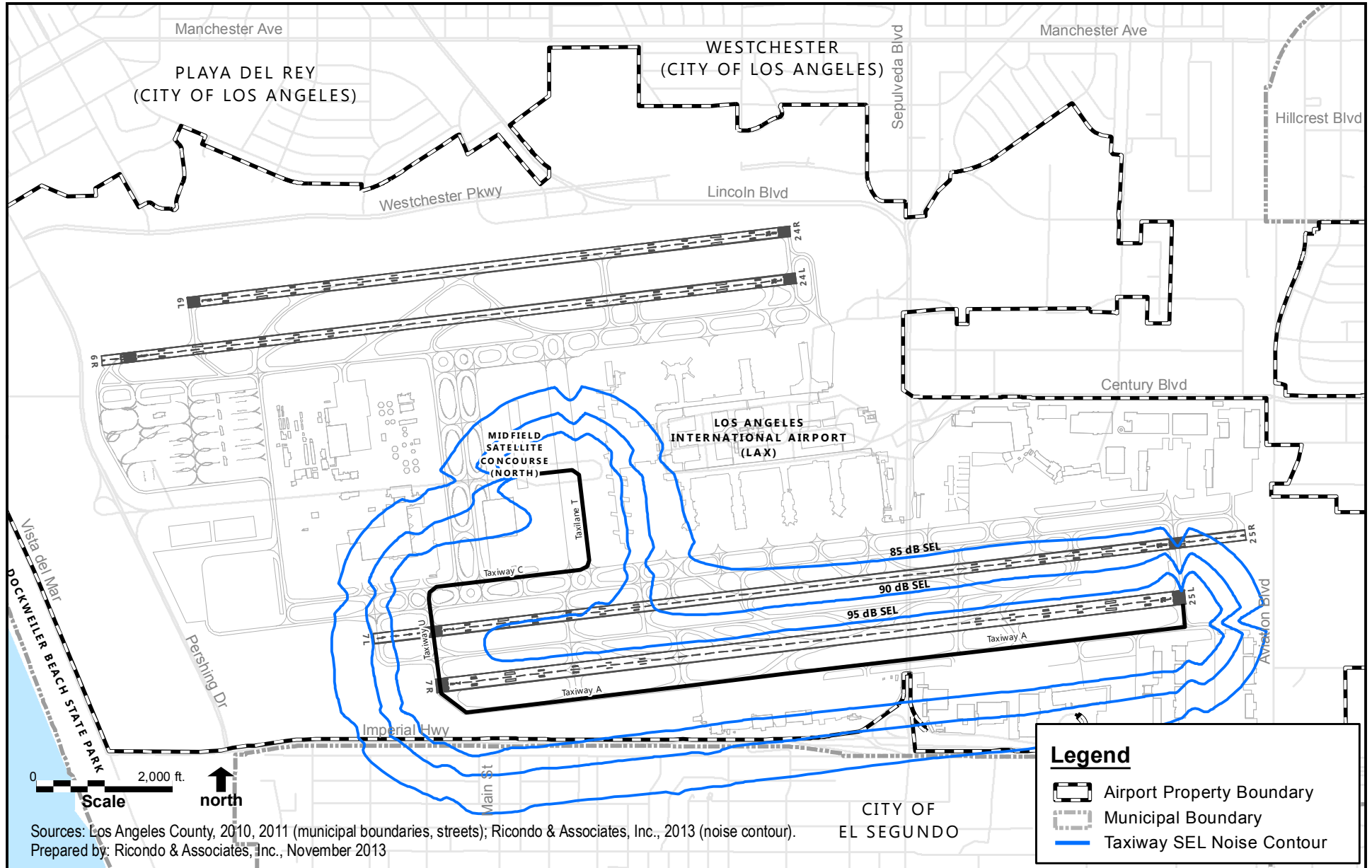




**LAX Midfield Satellite Concourse North**  
Draft EIR Appendix D

**Single Event Footprint Runway 25L Arrival**  
Airbus 380-841 Taxi Operation

Figure  
15



LAX Midfield Satellite Concourse North  
Draft EIR Appendix D

Single Event Footprint Runway 25L Departure  
Airbus 380-841 Taxi Operation

Figure  
16

