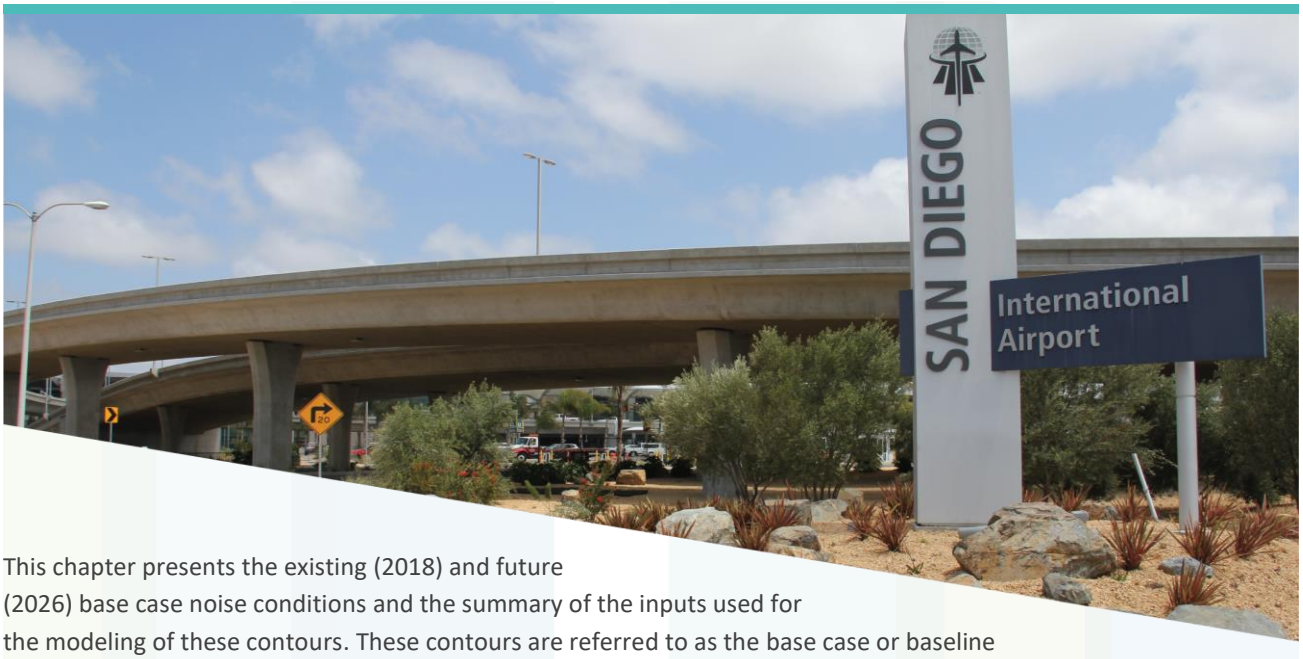
4 EXISTING AND FUTURE NOISE EXPOSURE

14 CFR PART 150 UPDATE

CHAPTER 4. EXISTING AND FUTURE NOISE EXPOSURE



This chapter presents the existing (2018) and future (2026) base case noise conditions and the summary of the inputs used for the modeling of these contours. These contours are referred to as the base case or baseline noise contours, as they are the contours to which the positive and negative results of various alternatives will be compared. Community Noise Equivalent Level (CNEL) noise contours for this Title 14, Code of Federal Regulations (CFR) Part 150 Study Update (14 CFR Part 150 Study) were prepared based upon existing and forecast operational conditions at San Diego International Airport (SDIA) presented in **Chapter 2**. The contours in this chapter show the 65 CNEL, 70 CNEL, and 75 CNEL contours per 14 CFR Part 150 Study guidance. The full noise input report prepared is included in **Appendix E - Noise**. The following narrative summarizes the inputs from the noise analysis report.

4.1 EXISTING BASE CASE NOISE MODELING INPUTS

Both the existing and future noise contours were generated using the Federal Aviation Administration (FAA) approved noise model, the Aviation Environmental Design Tool (AEDT), Version 2d. This is the approved model for generating aircraft noise contours for 14 CFR Part 150 noise studies and this version was the most recent version when the Study was initiated. The subsequent sections address inputs for the AEDT model, developed under the following categories:

- **Physical description of the airport layout**
- **Aircraft operations**
- **Aircraft noise and performance characteristics**

- **Runway utilization**
- **Flight track geometry and use**
- **Meteorological conditions**
- **Terrain data**

4.1.1 Physical Description of the Airport

As described in **Chapter 1**, SDIA is located within San Diego County and the City of San Diego, approximately 1.5 miles south of the intersection of interstate Highways 5 and 8. The airport has one runway: 09/27. The data for the Runway including length, approach angle and displaced threshold information is included below. As noted in **Table 4.1**, the final approach angle for landings on Runway 27 is 3.5 degrees. Standard approach angle in AEDT is traditionally 3.0 degrees. Therefore, for this analysis, custom profiles were developed for each aircraft for the approach on Runway 27 to account for this specialized condition. This requires FAA approval. The technical analysis and FAA approval of these customizations can be found in **Appendix E - Noise**.

TABLE 4.1 **RUNWAY DATA**

Runway/ Helipad	Latitude	Longitude	Elevation (ft. MSL)	Length (ft.)	Approach Angle (degrees)	Displaced Arrival Thresholds (ft.)
09	32.737123	-117.204357	13.7	9,400	3.0	1,000
27	32.730002	-117.174973	16.4	9,400	3.5	1,810
H1	32.732789	-117.182452	14.0		N/A	

SOURCE: HMMH Technical Report, Appendix E - Noise, 2020. AEDT, Version 2d.

4.1.2 Aircraft Operations

14 CFR Part 150 and its table of noise/land use compatibility guidelines require the calculation of "Annual Day-Night Average Sound Level (DNL)" values. Per FAA Order 1050.1F, CNEL may be used in lieu of DNL in California to replace DNL for the purposes of airport planning and represents an additional weighting of evening hours from 7 p.m. to 10 p.m. This metric is the daily noise exposure averaged over a year – typically a calendar year. AEDT produces these values of exposure utilizing an "average annual day" of airport operations. Aircraft operations and fleet mix data were analyzed to develop the average annual day's operations for all modeling scenarios. As previously introduced in **Chapter 2**, **Table 4.2** provides a summary of historical aircraft operations for 2018 and the forecasted operations for 2026. It is important to note that run-up operations will be omitted from the noise analyses due to negligible contributions.

TABLE 4.2 **FORECAST OF AIRCRAFT OPERATIONS (2018 AND 2026)**

Aircraft Category	2018 Operations	2026 Operations
Commercial/Cargo	212,430	247,105
Air Taxi/Charter	365	730
General Aviation	11,680	9,855
Military	730	730
Helicopter	365	365
TOTAL	**225,570**	**258,785**

SOURCE: 2019 Aviation Activity Forecast Update Technical Report, LeighFisher. Note that the forecast was then further extrapolated for additional years (2026) for noise analysis by HMMH and KB Environmental.

This 14 CFR Part 150 Study will use the actual 2018 operations to generate the existing noise contours and the forecasted 2026 operations to generate the future contours (five years from year of submittal of this report). The 2026 operations will be used to generate all future aircraft operational alternative contours.

The aircraft operations format for entering data into AEDT includes day, evening, and night arrivals, departures, and pattern/touch-and-go operations (as appropriate) expressed in terms of an annual average day. The annual average day operations are determined by dividing the annual operations by 365 days. **Tables 4.3** and **4.4** list the average annual daily operations by aircraft type, operation mode (arrival or departure), and time of day for 2018 and 2026. Additional information on the stages of the aircraft listed in **Tables 4.3** and **4.4** can be found in **Appendix F - Aircraft Stages.**

TABLE 4.3 **MODELED AVERAGE DAILY AIRCRAFT OPERATIONS BY GENERALIZED AIRCRAFT TYPE (2018)**

Aircraft Type	Arrivals			Departures			Total
	Day	Evening	Night	Day	Evening	Night	
717200	0.9992	0.4565	0.732	1.4557	0.7265	0	**4.3699**
737300-800	108.4856	31.8309	22.9101	127.5297	28.4714	6.7414	**325.969**
747400	0.3841	0.0167	0	0	0.3841	0.0195	**0.8044**
757300	0.7766	0.1169	0.0362	0.5817	0.1447	0.1921	**1.8482**
767300	1.7396	0.231	1.8231	1.2024	2.1989	0.3925	**7.5875**
777200-300	0.0334	0	0	0.0028	0.0306	0.0028	**0.0696**
1900D	0.0056	0.0028	0	0.0056	0.0028	0	**0.0167**
7378MAX	0.7654	0.2171	0.1169	0.9324	0.1475	0.0139	**2.1933**
757PW	3.0339	0.7766	1.3499	3.9079	1.0271	0.2199	**10.3153**
767CF6	0.6096	0	0.1113	0.6652	0.0529	0	**1.439**
7773ER	0.4509	0.1225	0	0.0056	0.5483	0.0195	**1.1468**
7878R	1.0104	0	0.0028	1.0159	0	0	**2.0291**
A109	0.0251	0	0.0028	0.0167	0.0111	0	**0.0557**
A310-304	0	0	0	0.0056	0	0	**0.0056**
A319-21	37.8152	11.7932	6.9446	42.5052	10.7411	3.1898	**112.9892**
A330-40	0.6653	0.167	0.8656	1.5698	0.1058	0.0167	**3.3902**
B206L	0.0084	0	0	0.0139	0	0	**0.0223**
BD-700-1A	0.4593	0.0891	0.0641	0.5289	0.078	0.0084	**1.2275**
BEC58P	0.2589	0.0028	0.0028	0.2366	0.0167	0	**0.5177**
CL600	3.4653	0.5177	0.0668	3.7632	0.3117	0.0139	**8.1386**
CL601	0.8016	0.0974	0.0306	0.8656	0.0557	0.0139	**1.8649**
CNA172-208	3.098	0.0724	0.0334	2.7974	0.4843	0	**6.4853**
CNA560	4.7568	0.4454	0.192	4.999	0.4091	0.0252	**10.8273**
CNA680	1.0187	0.0612	0.0223	1.0382	0.0724	0.0139	**2.2267**
CNA750	2.8224	0.3368	0.1141	3.0172	0.231	0.0557	**6.5772**
CRJ9-ER	4.7346	1.2136	1.5531	6.3155	1.1579	0.0167	**14.9914**
DHC	3.251	0.1504	0.0195	2.8781	0.7348	0.0056	**7.0392**
EMB175	25.34	5.5111	3.2761	29.2423	4.7763	0.0919	**68.2377**
GASEPF/V	0.4982	0.0585	0.0195	0.5622	0.0724	0.0028	**1.2136**
GIV/GV	1.7619	0.2477	0.0919	1.851	0.2254	0.0334	**4.2113**
IA1125	0.334	0.0251	0.0139	0.3451	0.0278	0.0056	**0.7515**
LEAR35	2.0959	0.1837	0.1169	2.2044	0.2115	0.0111	**4.8236**
MU3001	0.5288	0.039	0.0167	0.5455	0.0445	0	**1.1746**
Other	1.5393	0.1311	0.0308	1.3029	0.3898	0.0474	**3.4405**
TOTAL	**213.5727**	**54.9136**	**40.5596**	**243.9089**	**53.8921**	**11.1531**	**618**

SOURCE: HMMH Technical Report, Appendix E - Noise, 2020. Some types are combined; full split is listed in Appendix E - Noise.

TABLE 4.4 **MODELED AVERAGE DAILY AIRCRAFT OPERATIONS BY GENERALIZED AIRCRAFT TYPE (2026)**

Aircraft Type	Arrivals			Departures			Total
	Day	Evening	Night	Day	Evening	Night	
CL600	3.6923	0.0000	0.0000	3.6923	0.0000	0.0000	**7.3846**
CNA500	1.0000	0.0000	0.0000	1.0000	0.0000	0.0000	**2.0000**
CNA510	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	**0.0000**
CNA560XL	1.2308	0.0000	0.0000	1.2308	0.0000	0.0000	**2.4615**
CNA750	2.0000	0.0000	0.0000	2.0000	0.0000	0.0000	**4.0000**
DHC6	4.0000	0.0000	1.0000	4.0000	1.0000	1.0000	**11.0000**
GIV	1.8462	0.0000	0.0000	1.8462	0.0000	0.0000	**3.6923**
GV	2.2308	0.0000	0.0000	2.2308	0.0000	0.0000	**4.4615**
LEAR35	1.0000	0.0000	0.0000	1.0000	0.0000	0.0000	**2.0000**
717200	1.0000	0.0000	0.0000	1.0000	0.0000	0.0000	**2.0000**
737300	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	**0.0000**
737700	124.7922	35.6634	34.6040	67.0000	17.0000	15.0000	**294.0596**
737800	1.2078	0.3366	0.3960	70.0000	12.0000	16.0000	**99.9404**
767300	1.0000	0.0000	4.0000	0.0000	2.0000	3.0000	**10.0000**
777300	0.0198	0.0000	0.0000	1.0000	0.0000	0.0000	**1.0198**
7378MAX	1.0000	0.0000	1.0000	2.0000	0.0000	0.0000	**4.0000**
757PW	2.0000	2.0000	1.0000	2.0000	1.0000	2.0000	**10.0000**
7773ER	0.9802	0.0000	0.0000	0.0000	0.0000	0.0000	**0.9802**
7878R	3.0000	0.0000	0.0000	2.0000	1.0000	0.0000	**6.0000**
A319-131	4.0000	0.0000	1.0000	4.0000	0.0000	1.0000	**10.0000**
A320-211	3.0000	3.0000	0.0000	3.0000	3.0000	0.0000	**12.0000**
A320-232	23.0000	8.0000	3.0000	24.0000	4.0000	6.0000	**68.0000**
A321-232	35.0000	8.0000	9.0000	39.0000	4.0000	9.0000	**104.0000**
A330-343	0.0000	0.0000	1.0000	1.0000	0.0000	0.0000	**2.0000**
A340-211	1.0000	0.0000	0.0000	1.0000	0.0000	0.0000	**2.0000**
EMB175	13.0000	6.0000	1.0000	16.0000	3.0000	1.0000	**40.0000**
EMB190	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	**0.0000**
CRJ9-ER	2.0000	0.0000	0.0000	1.0000	0.0000	0.0000	**3.0000**
CNA208	1.0000	0.0000	0.0000	1.0000	0.0000	0.0000	**2.0000**
CNA172	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	**0.0000**
T41	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	**0.0000**
R44	0.5000	0.0000	0.0000	0.5000	0.0000	0.0000	**1.0000**
TOTAL	**234.5000**	**63.0000**	**57.0000**	**252.5000**	**48.0000**	**54.0000**	**709.0000**

NOTE: The A320-211 AEDT aircraft type was used as an FAA-approved substitution to represent the 12 forecast Airbus 320 NEO aircraft; the A321-232 AEDT aircraft was used to represent the 32 forecast Airbus 321 NEO operations.

SOURCE: HMMH Technical Report, Appendix E - Noise, 2020.

4.1.3 Aircraft Noise and Performance Characteristics

Specific noise and performance data must be entered into AEDT for each aircraft type operating at the airport. Noise data are included in the form of Sound Exposure Level (SEL) at a range of distances (from 200 feet to 25,000 feet) from a particular aircraft with engines at a specific thrust level. Performance data include thrust, speed and altitude profiles for takeoff and landing operations. The AEDT database contains standard noise and performance data for over 300 different fixed-wing aircraft types, most of which are civilian aircraft. AEDT automatically accesses the noise and performance data for takeoff and landing operations by those aircraft.

Within the AEDT database, aircraft takeoff or departure profiles are usually defined by a range of trip distances identified as "stage lengths." A longer trip distance or higher stage length is associated with a heavier aircraft due to the increase in fuel requirements for the flight. Stage length determinations were obtained from gated schedules and used in the inputs for AEDT. **Table 4.5** and **Table 4.6** give the stage length use percentages for both takeoffs and landings by aircraft for 2018 and 2026.

Besides identifying the aircraft type in the database, AEDT has STANDARD and ICAO aircraft flight profiles for takeoffs, landings, and flight patterns or touch-and-go operations. These standard profiles were used for all aircraft types for landings to Runway 09 and takeoffs from Runways 09 and 27. As part of this 14 CFR Part 150 Study, non-standard AEDT inputs (for use with AEDT 2d only) were requested and approved for use by the FAA. Custom profiles for every aircraft type were used for landings to Runway 27 to more accurately account for the 3.5-degree approach to Runway 27. FAA approvals of the non-standard inputs are included on pages 467 and 468 in **Appendix E - Noise**. Any additional projects at SDIA would require separate approval of further non-standard AEDT inputs.

TABLE 4.5 **STAGE LENGTH USE BY AIRCRAFT TYPE (2018)**

Aircraft Type	Day									Evening									Night					Total
	1	2	3	4	5	6	7	8	7+	1	2	3	4	5	6	7	8	7+	1	2	3	4	5	
717200	24%	32%	0%	0%	0%	0%	0%	0%	0%	11%	0%	0%	0%	0%	16%	0%	0%	0%	17%	0%	0%	0%	0%	100%
737300	59%	6%	6%	6%	0%	0%	0%	0%	0%	18%	0%	0%	0%	0%	0%	0%	0%	0%	6%	0%	0%	0%	0%	100%
737400	38%	3%	2%	0%	0%	0%	0%	0%	0%	53%	0%	0%	0%	0%	0%	0%	0%	2%	0%	0%	2%	0%	0%	100%
737500	50%	0%	50%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%
737700	59%	6%	6%	2%	0%	3%	0%	0%	0%	12%	1%	0%	0%	0%	4%	0%	0%	0%	6%	0%	0%	0%	0%	100%
737800	38%	9%	11%	9%	0%	2%	0%	0%	0%	13%	1%	0%	0%	0%	5%	0%	0%	0%	10%	1%	2%	0%	0%	100%
747400	48%	0%	0%	0%	0%	0%	0%	0%	0%	2%	0%	0%	0%	20%	28%	0%	0%	0%	0%	2%	0%	0%	1%	100%
757300	42%	0%	0%	31%	0%	0%	0%	0%	0%	6%	0%	0%	0%	0%	8%	0%	0%	0%	2%	0%	10%	0%	0%	100%
767300	23%	0%	8%	8%	0%	0%	0%	0%	0%	3%	4%	10%	8%	0%	0%	6%	0%	0%	24%	1%	4%	0%	0%	100%
777200	50%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	12%	33%	0%	0%	0%	0%	0%	0%	0%	4%	100%
777300	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%
1900D	67%	0%	0%	0%	0%	0%	0%	0%	0%	33%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%
7378MAX	46%	4%	14%	8%	0%	0%	0%	0%	4%	11%	1%	0%	0%	0%	2%	0%	0%	2%	5%	1%	0%	0%	0%	100%
757PW	39%	2%	1%	22%	0%	0%	4%	0%	0%	11%	0%	2%	0%	0%	0%	4%	0%	0%	13%	0%	2%	0%	0%	100%
767CF6	85%	0%	0%	1%	0%	0%	3%	0%	0%	3%	0%	0%	0%	0%	0%	0%	0%	0%	8%	0%	0%	0%	0%	100%
7773ER	39%	0%	0%	0%	0%	0%	0%	0%	0%	11%	0%	0%	0%	27%	21%	0%	0%	0%	0%	1%	0%	0%	1%	100%
7878R	50%	0%	0%	0%	0%	25%	25%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%
A109	75%	0%	0%	0%	0%	0%	0%	0%	0%	20%	0%	0%	0%	0%	0%	0%	0%	0%	5%	0%	0%	0%	0%	100%
A310-304	0%	0%	0%	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%
A319-131	53%	10%	11%	4%	1%	0%	0%	0%	0%	7%	0%	0%	0%	5%	0%	0%	0%	0%	8%	0%	0%	0%	0%	100%
A320-232	48%	10%	8%	2%	2%	0%	0%	0%	0%	16%	0%	2%	2%	3%	0%	0%	0%	0%	5%	1%	1%	0%	0%	100%
A321-232	35%	2%	15%	18%	1%	0%	0%	0%	0%	11%	0%	2%	2%	5%	0%	0%	0%	0%	7%	1%	3%	0%	0%	100%
A330-301	0%	0%	0%	50%	0%	0%	0%	0%	0%	7%	0%	0%	0%	0%	0%	0%	0%	0%	42%	0%	0%	0%	0%	100%
A340-211	49%	0%	0%	0%	0%	26%	15%	0%	0%	1%	0%	0%	0%	5%	3%	0%	0%	0%	0%	0%	0%	0%	1%	100%
B206L	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%
BD-700-1A10	59%	3%	7%	6%	0%	1%	0%	2%	0%	10%	1%	1%	0%	1%	1%	0%	2%	0%	6%	0%	0%	0%	0%	100%
BD-700-1A11	69%	2%	5%	9%	1%	0%	3%	0%	0%	7%	0%	0%	0%	0%	1%	0%	0%	0%	3%	0%	0%	0%	0%	100%

Aircraft Type	Day									Evening									Night					Total
	1	2	3	4	5	6	7	8	7+	1	2	3	4	5	6	7	8	7+	1	2	3	4	5	
BEC58P	96%	0%	0%	0%	0%	0%	0%	0%	0%	4%	0%	0%	0%	0%	0%	0%	0%	0%	1%	0%	0%	0%	0%	100%
CIT3	92%	0%	0%	0%	0%	0%	0%	0%	0%	8%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%
CL600	89%	0%	0%	0%	0%	0%	0%	0%	0%	10%	0%	0%	0%	0%	0%	0%	0%	0%	1%	0%	0%	0%	0%	100%
CL601	89%	0%	0%	0%	0%	0%	0%	0%	0%	8%	0%	0%	0%	0%	0%	0%	0%	0%	2%	0%	0%	0%	0%	100%
CNA172	84%	0%	0%	0%	0%	0%	0%	0%	0%	15%	0%	0%	0%	0%	0%	0%	0%	0%	1%	0%	0%	0%	0%	100%
CNA182	89%	0%	0%	0%	0%	0%	0%	0%	0%	11%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%
CNA206	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%
CNA208	91%	0%	0%	0%	0%	0%	0%	0%	0%	8%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%
CNA20T	97%	0%	0%	0%	0%	0%	0%	0%	0%	3%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%
CNA441	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%
CNA510	86%	0%	0%	0%	0%	0%	0%	0%	0%	12%	0%	0%	0%	0%	0%	0%	0%	0%	2%	0%	0%	0%	0%	100%
CNA525C	90%	0%	0%	0%	0%	0%	0%	0%	0%	7%	0%	0%	0%	0%	0%	0%	0%	0%	3%	0%	0%	0%	0%	100%
CNA55B	91%	0%	0%	0%	0%	0%	0%	0%	0%	8%	0%	0%	0%	0%	0%	0%	0%	0%	2%	0%	0%	0%	0%	100%
CNA560U	87%	0%	0%	0%	0%	0%	0%	0%	0%	8%	0%	0%	0%	0%	0%	0%	0%	0%	4%	0%	0%	0%	0%	100%
CNA560XL	92%	0%	0%	0%	0%	0%	0%	0%	0%	7%	0%	0%	0%	0%	0%	0%	0%	0%	1%	0%	0%	0%	0%	100%
CNA680	92%	0%	0%	0%	0%	0%	0%	0%	0%	6%	0%	0%	0%	0%	0%	0%	0%	0%	2%	0%	0%	0%	0%	100%
CNA750	89%	0%	0%	0%	0%	0%	0%	0%	0%	9%	0%	0%	0%	0%	0%	0%	0%	0%	3%	0%	0%	0%	0%	100%
COMSEP	88%	0%	0%	0%	0%	0%	0%	0%	0%	11%	0%	0%	0%	0%	0%	0%	0%	0%	1%	0%	0%	0%	0%	100%
CRJ9-ER	55%	0%	16%	0%	3%	0%	0%	0%	0%	13%	0%	0%	0%	3%	0%	0%	0%	0%	10%	0%	0%	0%	0%	100%
DC1030	47%	0%	2%	0%	0%	0%	0%	0%	0%	3%	8%	31%	0%	0%	0%	2%	0%	0%	0%	6%	0%	0%	0%	100%
DC3	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%
DC870	58%	8%	0%	0%	0%	0%	0%	0%	0%	8%	0%	0%	0%	0%	0%	8%	0%	0%	17%	0%	0%	0%	0%	100%
DHC6	90%	0%	0%	0%	0%	0%	0%	0%	0%	9%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%
DHC8	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%
DHC830	78%	0%	0%	0%	0%	0%	0%	0%	0%	21%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%
DO328	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%
ECLIPSE500	82%	8%	3%	0%	0%	0%	0%	0%	0%	5%	0%	3%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%
EMB145	63%	9%	4%	7%	0%	0%	0%	0%	0%	7%	0%	2%	4%	0%	0%	0%	0%	0%	5%	0%	0%	0%	0%	100%
EMB175	61%	8%	11%	0%	0%	0%	0%	0%	0%	10%	0%	5%	0%	0%	0%	0%	0%	0%	5%	0%	0%	0%	0%	100%

Aircraft Type	Day									Evening									Night					Total
	1	2	3	4	5	6	7	8	7+	1	2	3	4	5	6	7	8	7+	1	2	3	4	5	
EMB190	86%	0%	0%	0%	0%	0%	0%	0%	0%	11%	0%	0%	4%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%
GASEPF	93%	0%	0%	0%	0%	0%	0%	0%	0%	5%	0%	0%	0%	0%	0%	0%	0%	0%	2%	0%	0%	0%	0%	100%
GASEPV	87%	0%	0%	0%	0%	0%	0%	0%	0%	11%	0%	0%	0%	0%	0%	0%	0%	0%	2%	0%	0%	0%	0%	100%
GIIB	67%	0%	0%	0%	0%	0%	0%	0%	0%	17%	0%	0%	0%	0%	0%	0%	0%	0%	17%	0%	0%	0%	0%	100%
GIV	87%	0%	0%	0%	0%	0%	0%	0%	0%	10%	0%	0%	0%	0%	0%	0%	0%	0%	3%	0%	0%	0%	0%	100%
GV	84%	0%	0%	0%	0%	0%	0%	0%	0%	12%	0%	0%	0%	0%	0%	0%	0%	0%	3%	0%	0%	0%	0%	100%
H500D	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%
IA1125	90%	0%	0%	0%	0%	0%	0%	0%	0%	7%	0%	0%	0%	0%	0%	0%	0%	0%	3%	0%	0%	0%	0%	100%
LEAR25	71%	0%	0%	0%	0%	0%	0%	0%	0%	29%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%
LEAR35	89%	0%	0%	0%	0%	0%	0%	0%	0%	8%	0%	0%	0%	0%	0%	0%	0%	0%	3%	0%	0%	0%	0%	100%
MD11PW	42%	0%	0%	0%	0%	0%	0%	0%	0%	8%	0%	33%	0%	0%	0%	0%	0%	0%	8%	8%	0%	0%	0%	100%
MD83	50%	43%	3%	3%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%
MD9025	48%	45%	1%	0%	0%	0%	0%	0%	0%	2%	4%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%
MU3001	91%	0%	0%	0%	0%	0%	0%	0%	0%	7%	0%	0%	0%	0%	0%	0%	0%	0%	1%	0%	0%	0%	0%	100%
PA28	95%	0%	0%	0%	0%	0%	0%	0%	0%	5%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%
R44	93%	0%	0%	0%	0%	0%	0%	0%	0%	7%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%
S76	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%
SA341G	33%	0%	0%	0%	0%	0%	0%	0%	0%	67%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%
SA350D	75%	0%	0%	0%	0%	0%	0%	0%	0%	15%	0%	0%	0%	0%	0%	0%	0%	0%	10%	0%	0%	0%	0%	100%
SA355F	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%

SOURCE: HMMH Technical Report, Appendix E - Noise, 2020.

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TABLE 4.6 **STAGE LENGTH USE BY AIRCRAFT TYPE (2026)**

Aircraft Type	Day					Evening						Night				Total
	1	2	3	4	7	1	2	3	4	7	9	1	2	3	4	
CL600	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%
CNA500	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%
CNA510	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
CNA560XL	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%
CNA750	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%
DHC6	73%	0%	0%	0%	0%	9%	0%	0%	0%	0%	0%	18%	0%	0%	0%	100%
GIV	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%
GV	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%
LEAR35	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%
717200	50%	50%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%
737300	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
737700	55%	4%	3%	2%	0%	17%	1%	0%	0%	0%	0%	15%	1%	1%	1%	100%
737800	17%	16%	18%	20%	0%	6%	2%	3%	1%	0%	0%	1%	2%	4%	10%	100%
767300	10%	0%	0%	0%	0%	0%	0%	20%	0%	0%	0%	40%	0%	10%	20%	100%
777300	2%	0%	0%	0%	98%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%
7378MAX	25%	25%	25%	0%	0%	0%	0%	0%	0%	0%	0%	25%	0%	0%	0%	100%
757PW	20%	0%	0%	20%	0%	20%	0%	0%	10%	0%	0%	10%	0%	0%	20%	100%
7773ER	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%
7878R	50%	0%	0%	0%	33%	0%	0%	0%	0%	17%	0%	0%	0%	0%	0%	100%
A319-131	50%	20%	10%	0%	0%	0%	0%	0%	0%	0%	0%	20%	0%	0%	0%	100%
A320-211	33%	0%	9%	8%	0%	42%	0%	0%	8%	0%	0%	0%	0%	0%	0%	100%
A320-232	41%	12%	10%	6%	0%	13%	0%	0%	5%	0%	0%	7%	3%	3%	0%	100%
A321-232	38%	1%	15%	16%	0%	10%	0%	0%	2%	0%	0%	10%	1%	3%	4%	100%
A330-343	0%	0%	0%	50%	0%	0%	0%	0%	0%	0%	0%	50%	0%	0%	0%	100%
A340-211	50%	0%	0%	0%	50%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%
EMB175	52%	7%	13%	0%	0%	20%	0%	3%	0%	0%	0%	5%	0%	0%	0%	100%
EMB190	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
CRJ9-ER	67%	0%	33%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%
CNA208	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%
CNA172	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
T41	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
R44	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%

NOTE: The A320-211 AEDT aircraft type was used as an FAA-approved substitution to represent the 12 forecast Airbus 320 NEO aircraft for 2026; the A321-232 AEDT aircraft was used to represent the 32 forecast Airbus 321 NEO operations for 2026.

SOURCE: HMMH Technical Report, Appendix E - Noise, 2020.

4.1.4 Runway Utilization

The primary factor affecting runway use at airports is weather, in particular, the wind direction and wind speed. Additional factors that may affect runway use include the position of the facility or ramp relative to the runways or operational proficiency training for military units. There are no anticipated changes to the runway utilization expected between 2018 and 2026. Based on interviews with airport operators and FAA Airport Traffic Control Tower (ATCT) personnel, the overall runway usage for this modeling will remain the same between years, employing 98.02% of operations on Runway 27 and the remaining 1.98% on Runway 09.

4.1.5 Flight Track Geometry and Use

Model tracks were developed using a standard method, which entailed analyzing all radar data from SDIA's Airport Noise and Operations Monitoring System (ANOMS) and splitting the flight tracks into similar and manageable groups. This was first done by separating tracks by phase of flight (e.g., arrival or departure) and then by runway. Following this, the flights were separated by destination direction, like north, south, or west. Finally, at this point, radar flight tracks were analyzed and split into groups according to their degree of similar geometry.

Model tracks were developed for each geometrically similar group. For example, Runway 27 departures with a northerly destination were split into a geometrically similar group, and a 'backbone' track was developed. Each of these backbone tracks were then assigned one or two 'dispersion' sub tracks on either side of the backbone, for a total of three or five tracks (one backbone and two or four dispersion) for each geometrically similar group. The nighttime noise abatement condition that exists at SDIA was taken into consideration by modeling eastbound traffic issued a 290-degree heading and northbound traffic on the PADRZ Standard Instrument Departure (SID) as separate tracks to account for slight differences in these paths between 10:00 p.m. and 6:30 a.m.

Table 4.7 and **Table 4.8** present the utilization rates for each group of the developed model tracks for 2018 and 2026 respectively. The relative ratio of flight track usage was preserved according to those ratios in the entire ANOMS dataset.

The following tables present the flight track percentage use for arrivals, departures, and helicopter operations. The flight tracks are graphically shown on **Figures 4.1**, **4.2**, and **4.3** and represent both existing and future forecast flight tracks.

TABLE 4.7 **FLIGHT TRACK UTILIZATION (2018)**

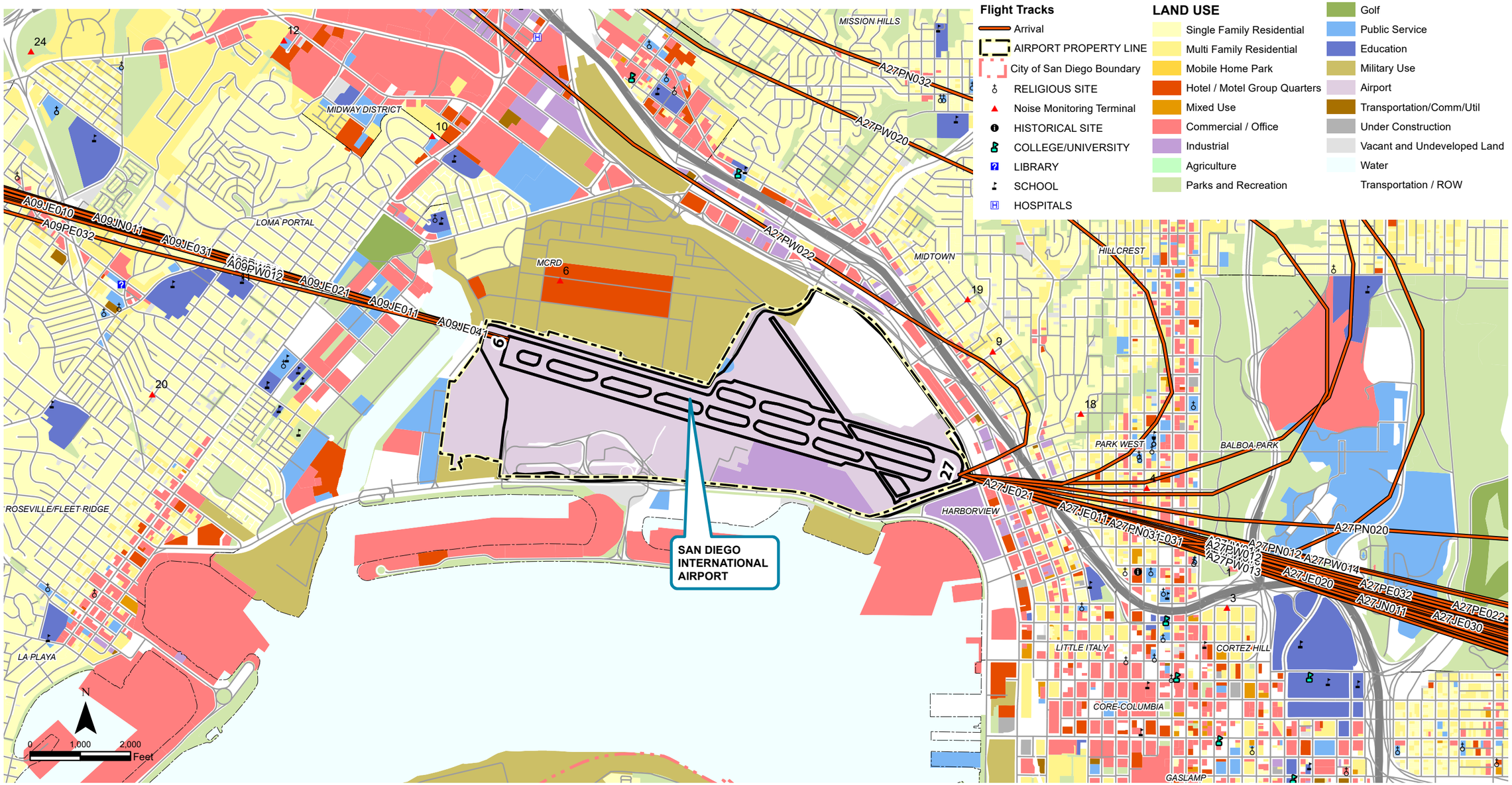
Runway	Arrivals				Departures			
	Track Bundle	Day	Evening	Night	Track Bundle	Day	Evening	Night
9	A09JE01	1.27%	2.16%	7.73%	D09JE01	16.38%	13.04%	19.64%
	A09JE02	1.27%	0.00%	3.70%	D09JE02	30.74%	25.00%	51.79%
	A09JE03	57.42%	55.26%	49.73%	D09JS01	2.61%	0.36%	0.00%
	A09JE04	1.62%	1.08%	0.67%	D09JW01	47.41%	61.59%	28.57%
	A09JN01	0.69%	0.54%	0.00%	D09PW01	2.86%	0.00%	0.00%
	A09JS01	1.39%	0.54%	0.34%				
	A09JW01	32.76%	40.43%	37.64%				
	A09PE03	3.56%	0.00%	0.00%				
	A09PW01	0.00%	0.00%	0.20%				
	TOTAL	**100.00%**	**100.00%**	**100.00%**	**TOTAL**	**100.00%**	**100.00%**	**100.00%**
27	A27JE01	28.86%	30.59%	27.74%	D27JE01	0.02%	0.34%	25.74%
	A27JE02	25.93%	25.07%	28.08%	D27JE02	2.39%	1.20%	3.95%
	A27JE03	0.54%	0.14%	0.12%	D27JE03	47.78%	38.08%	29.24%
	A27JN01	0.13%	0.02%	0.01%	D27JE04	0.11%	0.08%	0.92%
	A27JN02	0.00%	0.07%	0.01%	D27JE05	0.00%	0.01%	0.26%
	A27JN03	0.06%	0.01%	0.01%	D27JN01	0.08%	0.06%	0.09%
	A27JS01	1.58%	0.31%	0.03%	D27JS01	1.92%	0.08%	0.05%
	A27JW01	39.32%	43.03%	43.41%	D27JW01	44.06%	56.88%	38.02%
	A27JW02	0.01%	0.10%	0.28%	D27JW02	0.23%	0.10%	1.39%
	A27JW03	0.00%	0.01%	0.13%	D27JW03	0.14%	0.00%	0.10%
	A27PE01	0.34%	0.05%	0.04%	D27JW04	0.40%	0.67%	0.17%
	A27PE02	0.65%	0.12%	0.05%	D27PE01	0.05%	0.00%	0.00%
	A27PE03	0.01%	0.01%	0.00%	D27PE02	0.04%	0.00%	0.00%
	A27PN01	0.21%	0.03%	0.00%	D27PE03	0.36%	0.07%	0.01%
	A27PN02	0.05%	0.02%	0.00%	D27PE04	0.14%	0.00%	0.00%
	A27PN03	0.29%	0.02%	0.00%	D27PE05	0.04%	0.03%	0.00%
	A27PS01	0.02%	0.00%	0.00%	D27PE06	0.09%	0.00%	0.00%
	A27PW01	1.27%	0.22%	0.11%	D27PE07	0.05%	0.03%	0.00%
	A27PW02	0.73%	0.16%	0.00%	D27PN01	0.17%	0.10%	0.01%
					D27PS01	0.03%	0.00%	0.00%
					D27PW02	1.63%	2.03%	0.05%
					D27PW03	0.26%	0.23%	0.01%
	TOTAL	**100.00%**	**100.00%**	**100.00%**	**TOTAL**	**100.00%**	**100.00%**	**100.00%**
H1	AH1HL01	45.16%	81.82%	0.00%	DH1HL01	44.58%	0.00%	0.00%
	AH1HW01	37.90%	13.64%	0.00%	DH1HN01	25.30%	60.00%	0.00%
	AH1HW02	16.94%	4.55%	100.00%	DH1HW01	8.43%	40.00%	0.00%
					DH1HW02	21.69%	0.00%	0.00%
	TOTAL	**100.00%**	**100.00%**	**100.00%**	**TOTAL**	**100.00%**	**100.00%**	**0.00%**

SOURCE: HMMH Technical Report, Appendix E - Noise, 2020.

TABLE 4.8 **FLIGHT TRACK UTILIZATION (2026)**

Runway	Arrivals				Departures			
	Track Bundle	Day	Evening	Night	Track Bundle	Day	Evening	Night
9	A09JE01	1.29%	2.16%	7.61%	D09JE01	16.53%	12.77%	19.28%
	A09JE02	1.29%	0.00%	3.64%	D09JE02	31.01%	24.48%	50.83%
	A09JE03	58.27%	55.26%	48.96%	D09JS01	2.63%	0.35%	0.00%
	A09JE04	1.64%	1.08%	0.66%	D09JW01	47.84%	60.31%	28.04%
	A09JN01	0.70%	0.54%	0.00%	D09PW01	1.98%	2.08%	1.85%
	A09JS01	1.41%	0.54%	0.33%				
	A09JW01	33.25%	40.43%	37.05%				
	A09PE03	2.14%	0.00%	0.00%				
	A09PW01	0.00%	0.00%	1.75%				
	TOTAL	**100.00%**	**100.00%**	**100.00%**	**TOTAL**	**100.00%**	**100.00%**	**100.00%**
27	A27JE01	29.29%	30.79%	27.30%	D27JE01	0.02%	0.34%	25.28%
	A27JE02	26.31%	25.23%	27.64%	D27JE02	2.41%	1.20%	3.88%
	A27JE03	0.55%	0.14%	0.12%	D27JE03	48.21%	38.24%	28.72%
	A27JN01	0.13%	0.02%	0.01%	D27JE04	0.11%	0.08%	0.90%
	A27JN02	0.00%	0.08%	0.01%	D27JE05	0.00%	0.01%	0.25%
	A27JN03	0.06%	0.01%	0.01%	D27JN01	0.08%	0.06%	0.08%
	A27JS01	1.60%	0.32%	0.03%	D27JS01	1.94%	0.08%	0.05%
	A27JW01	39.90%	43.31%	42.73%	D27JW01	44.46%	57.12%	37.34%
	A27JW02	0.02%	0.10%	0.27%	D27JW02	0.23%	0.10%	1.36%
	A27JW03	0.00%	0.01%	0.13%	D27JW03	0.14%	0.00%	0.10%
	A27PE01	0.20%	0.00%	0.32%	D27JW04	0.41%	0.68%	0.17%
	A27PE02	0.39%	0.00%	0.48%	D27PE01	0.03%	0.00%	0.05%
	A27PE03	0.005%	0.00%	0.00%	D27PE02	0.03%	0.00%	0.00%
	A27PN01	0.13%	0.00%	0.00%	D27PE03	0.25%	0.06%	0.14%
	A27PN02	0.03%	0.00%	0.00%	D27PE04	0.09%	0.00%	0.00%
	A27PN03	0.17%	0.00%	0.00%	D27PE05	0.03%	0.03%	0.00%
	A27PS01	0.01%	0.00%	0.00%	D27PE06	0.06%	0.00%	0.00%
	A27PW01	0.76%	0.00%	0.96%	D27PE07	0.04%	0.03%	0.00%
	A27PW02	0.44%	0.00%	0.00%	D27PN01	0.12%	0.08%	0.19%
					D27PS01	0.02%	0.00%	0.00%
					D27PW02	1.13%	1.69%	1.25%
					D27PW03	0.18%	0.19%	0.23%
	TOTAL	**100.00%**	**100.00%**	**100.00%**	**TOTAL**	**100.00%**	**100.00%**	**100.00%**
H1	AH1HL01	45.16%	0.00%	0.00%	DH1HL01	44.58%	0.00%	0.00%
	AH1HW01	37.90%	0.00%	0.00%	DH1HN01	25.30%	0.00%	0.00%
	AH1HW02	16.94%	0.00%	0.00%	DH1HW01	8.43%	0.00%	0.00%
					DH1HW02	21.69%	0.00%	0.00%
	TOTAL	**100.00%**	**0.00%**	**0.00%**	**TOTAL**	**100.00%**	**0.00%**	**0.00%**

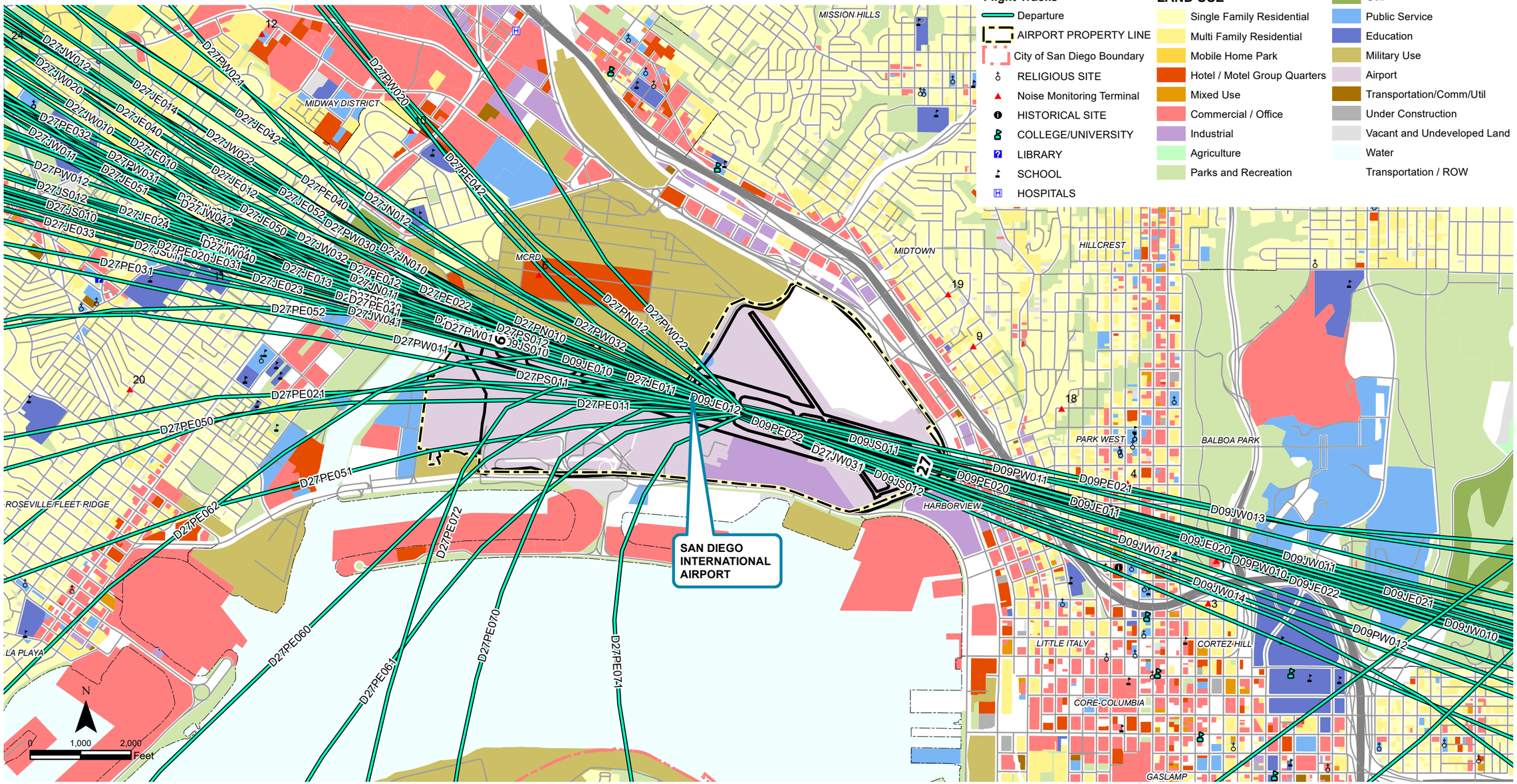
SOURCE: HMMH Technical Report, Appendix E - Noise, 2020.



SOURCE: 1. SANDAG Technical Services - GIS, SANDAG Land Layers Inventory Mapping Source: SanGIS landbase (i.e. parcels), SANDAG, County Assessor's Master Property Records file, Cleveland National Forest, Bureau of Land Management (BLM), State Parks, other public agency contacts, and local agency review. 2. SDIA ANOMS 2019 and associated appendices.

FIGURE 4.1 **EXISTING FLIGHT TRACKS TRACKS - FIXED WING ARRIVALS**

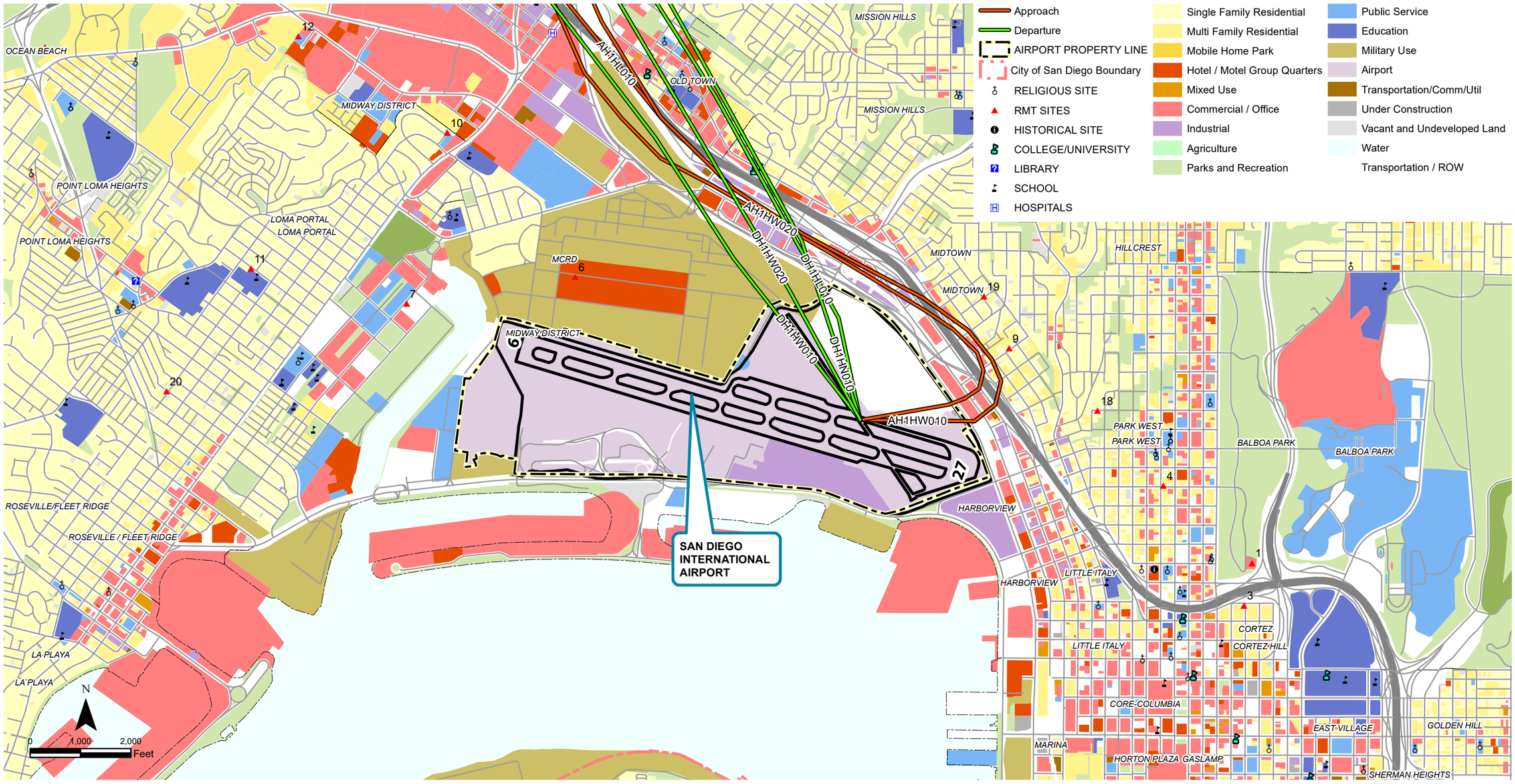
14 CFR PART 150 REQUIRED MAP



SOURCE: 1. SANDAG Technical Services - GIS, SANDAG Land Layers Inventory Mapping Source: SanGIS landbase (i.e. parcels), SANDAG, County Assessor's Master Property Records file, Cleveland National Forest, Bureau of Land Management (BLM), State Parks, other public agency contacts, and local agency review. 2. SDIA ANOMS 2019 and associated appendices.

FIGURE 4.2 **EXISTING FLIGHT TRACKS - FIXED WING DEPARTURES**

14 CFR PART 150 REQUIRED MAP



SOURCE: 1. SANDAG Technical Services - GIS, SANDAG Land Layers Inventory Mapping Source: SanGIS landbase (i.e. parcels), SANDAG, County Assessor's Master Property Records file, Cleveland National Forest, Bureau of Land Management (BLM), State Parks, other public agency contacts, and local agency review. 2. SDIA ANOMS 2019 and associated appendices.

FIGURE 4.3 **EXISTING FLIGHT TRACKS - ROTARY WING**

14 CFR PART 150 REQUIRED MAP

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4.1.6 Meteorological Conditions

AEDT has several settings that affect aircraft performance profiles and sound propagation based on meteorological data. Meteorological settings include average annual temperature, barometric pressure, and relative humidity at the airport. AEDT holds the following values for annual average weather conditions at SDIA:

- **Temperature: 64° F**
- **Pressure: 1014.349976 millibars**
- **Sea-level Pressure: 1015.75 millibars**
- **Relative Humidity: 73.1%**
- **Dew Point: 53.7200001° F**
- **Wind Speed: 5.57 Knots**

4.1.7 Terrain Data

Terrain data describes the elevation of the ground surrounding the airport and on airport property. If the AEDT user selects the use of terrain data, AEDT uses terrain data to adjust the ground level under the flight paths. The terrain data does not affect the aircraft's performance or noise levels but does affect the vertical distance between the aircraft and a "receiver" on the ground. This, in turn, affects noise propagation assumptions about how noise propagates over ground. The terrain data were obtained from the United States Geological Survey (USGS) National Map Viewer and were used with the terrain feature of the AEDT in generating the noise contours.

4.2 EXISTING AND FUTURE BASE CASE NOISE CONTOURS

While DNL is the primary metric FAA uses to determine noise impacts, CNEL may be used in lieu of DNL in California per FAA Order 1050.1F. The compiled data as described in the preceding sections are used as input to the FAA's AEDT for the calculation of noise in the airport environs. Levels of 65 CNEL and above are considered by 14 CFR Part 150 to be significant for noise sensitive land uses such as residences, churches, and schools. The noise contours do not represent the noise levels present on any specific day, but, rather, represent the daily energy-average of all 365 days of operation during the year. The noise contour extends from the airport from the runway end. This shape generally reflects the summation of the flight tracks used by all aircraft. The relative distance of the contours from the airport along each route is a function of the frequency of use of the runway for total arrivals and departures, as well as its use at evening, night, and the type of aircraft assigned to it.

The noise contours representing the existing conditions (2018) and the future base case conditions (2026) are illustrated in **Figures 4.4, 4.5, 4.6, and 4.7** on the following pages. Two versions of each base case are included, one to the scale required in a 14 CFR Part 150 Study (1 inch to 2,000 foot scale) and one that is zoomed out to show the entire contour on one map for the reader's ease. The 2018 noise contours represent the Existing Noise Exposure Map per 14 CFR Part 150 requirements. As a reminder, aircraft operational and land use alternatives will be compared against the future base case contour to determine any reduction in non-compatible land uses.

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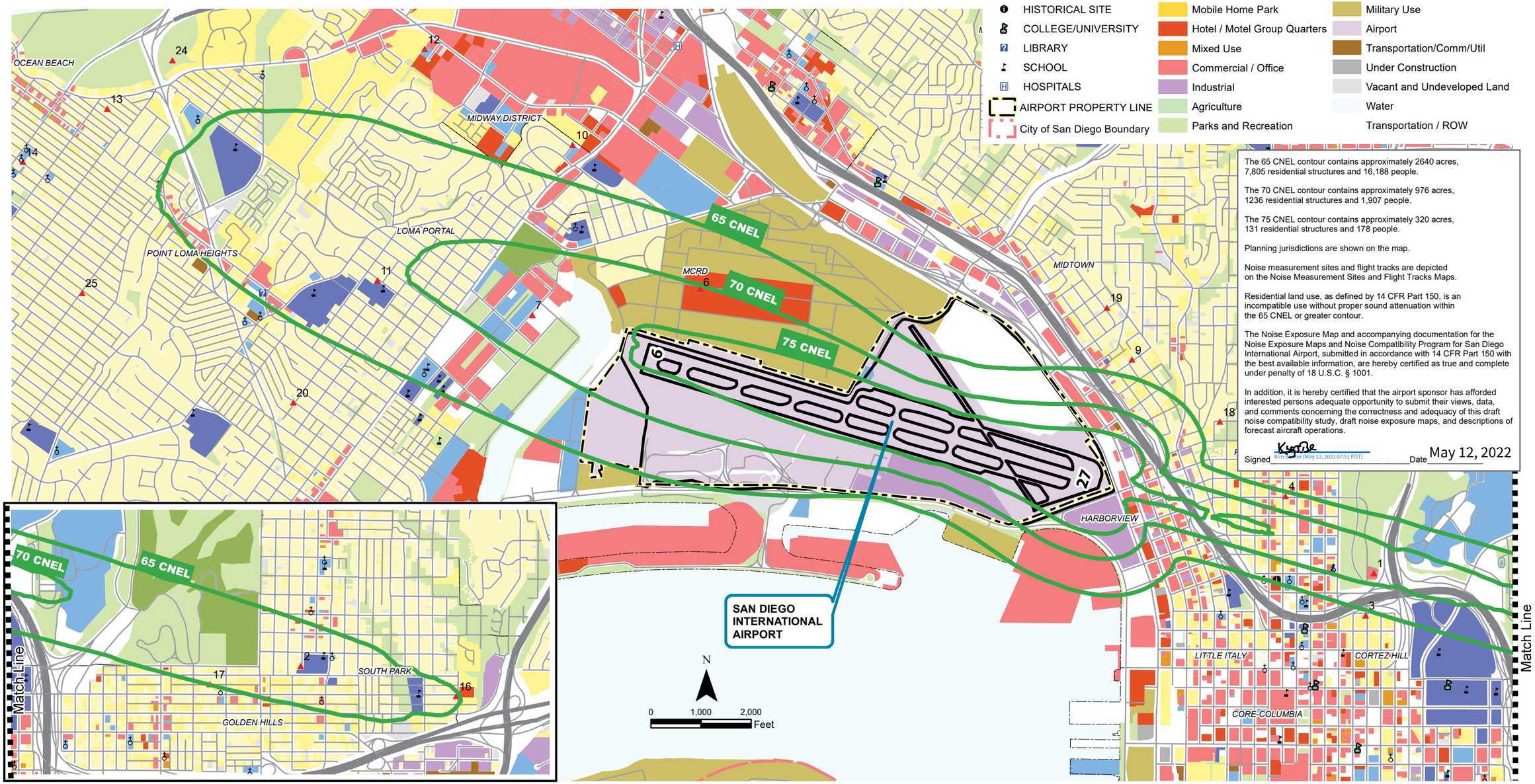


Legend

- 2018 CNEL Contours
- Noise Monitoring Terminal
- RELIGIOUS SITE
- HISTORICAL SITE
- COLLEGE/UNIVERSITY
- LIBRARY
- SCHOOL
- HOSPITALS
- AIRPORT PROPERTY LINE
- City of San Diego Boundary

LAND USE

- Single Family Residential
- Multi Family Residential
- Mobile Home Park
- Hotel / Motel Group Quarters
- Mixed Use
- Commercial / Office
- Industrial
- Agriculture
- Parks and Recreation
- Golf
- Public Service
- Education
- Military Use
- Airport
- Transportation/Comm/Util
- Under Construction
- Vacant and Undeveloped Land
- Water
- Transportation / ROW

The 65 CNEL contour contains approximately 2640 acres, 7,805 residential structures and 16,188 people.

The 70 CNEL contour contains approximately 976 acres, 1236 residential structures and 1,907 people.

The 75 CNEL contour contains approximately 320 acres, 131 residential structures and 178 people.

Planning jurisdictions are shown on the map.

Noise measurement sites and flight tracks are depicted on the Noise Measurement Sites and Flight Tracks Maps.

Residential land use, as defined by 14 CFR Part 150, is an incompatible use without proper sound attenuation within the 65 CNEL or greater contour.

The Noise Exposure Map and accompanying documentation for the Noise Exposure Maps and Noise Compatibility Program for San Diego International Airport, submitted in accordance with 14 CFR Part 150 with the best available information, are hereby certified as true and complete under penalty of 18 U.S.C. § 1001.

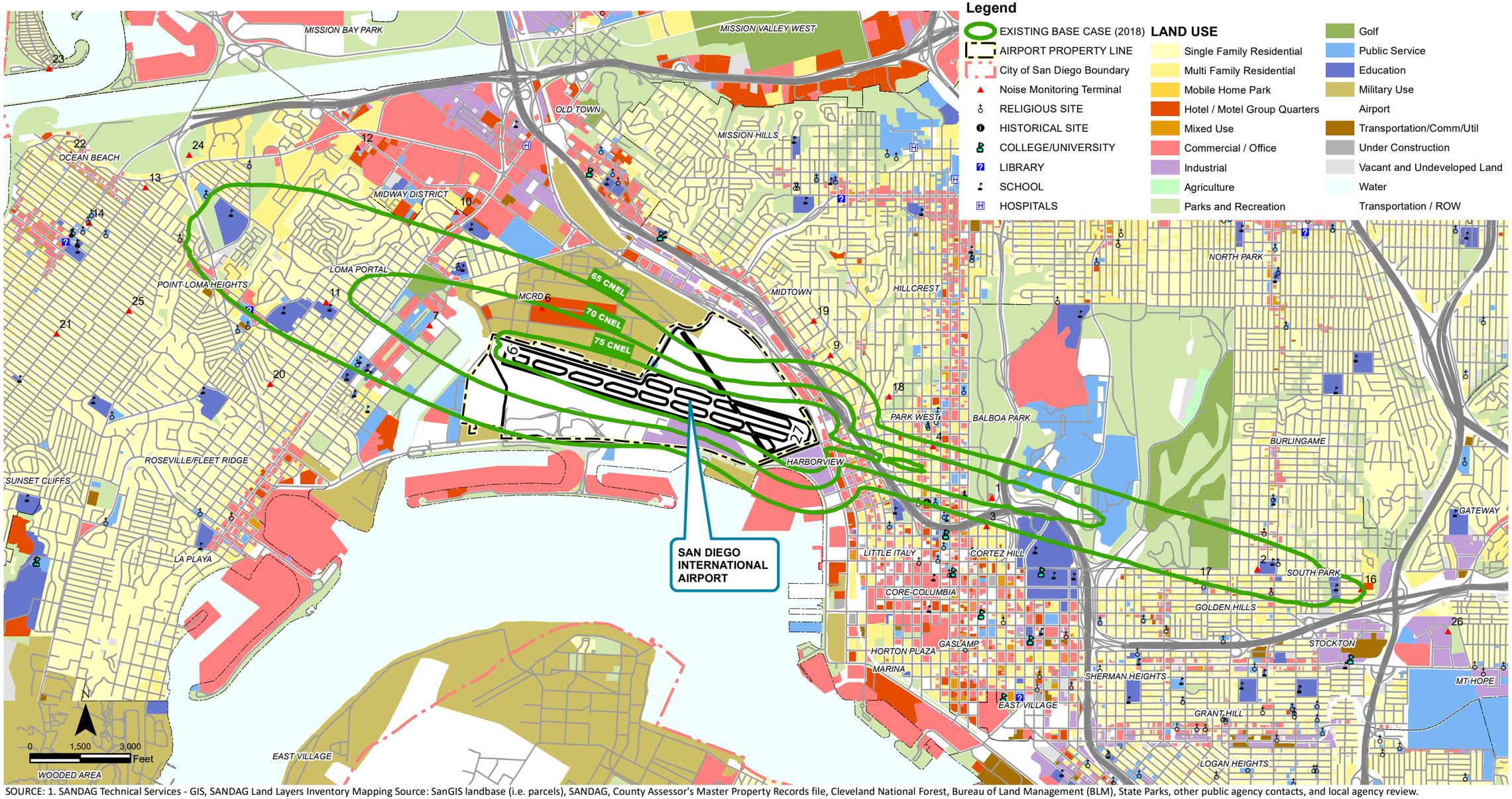
In addition, it is hereby certified that the airport sponsor has afforded interested persons adequate opportunity to submit their views, data, and comments concerning the correctness and adequacy of this draft noise compatibility study, draft noise exposure maps, and descriptions of forecast aircraft operations.

Signed Kim Carter (May 12, 2022 07:51 PDT) Date May 12, 2022

SOURCE: 1. SANDAG Technical Services - GIS, SANDAG Land Layers Inventory Mapping Source: SanGIS landbase (i.e. parcels), SANDAG, County Assessor's Master Property Records file, Cleveland National Forest, Bureau of Land Management (BLM), State Parks, other public agency contacts, and local agency review.
2. SDIA ADP EIR 2019 and associated appendices.

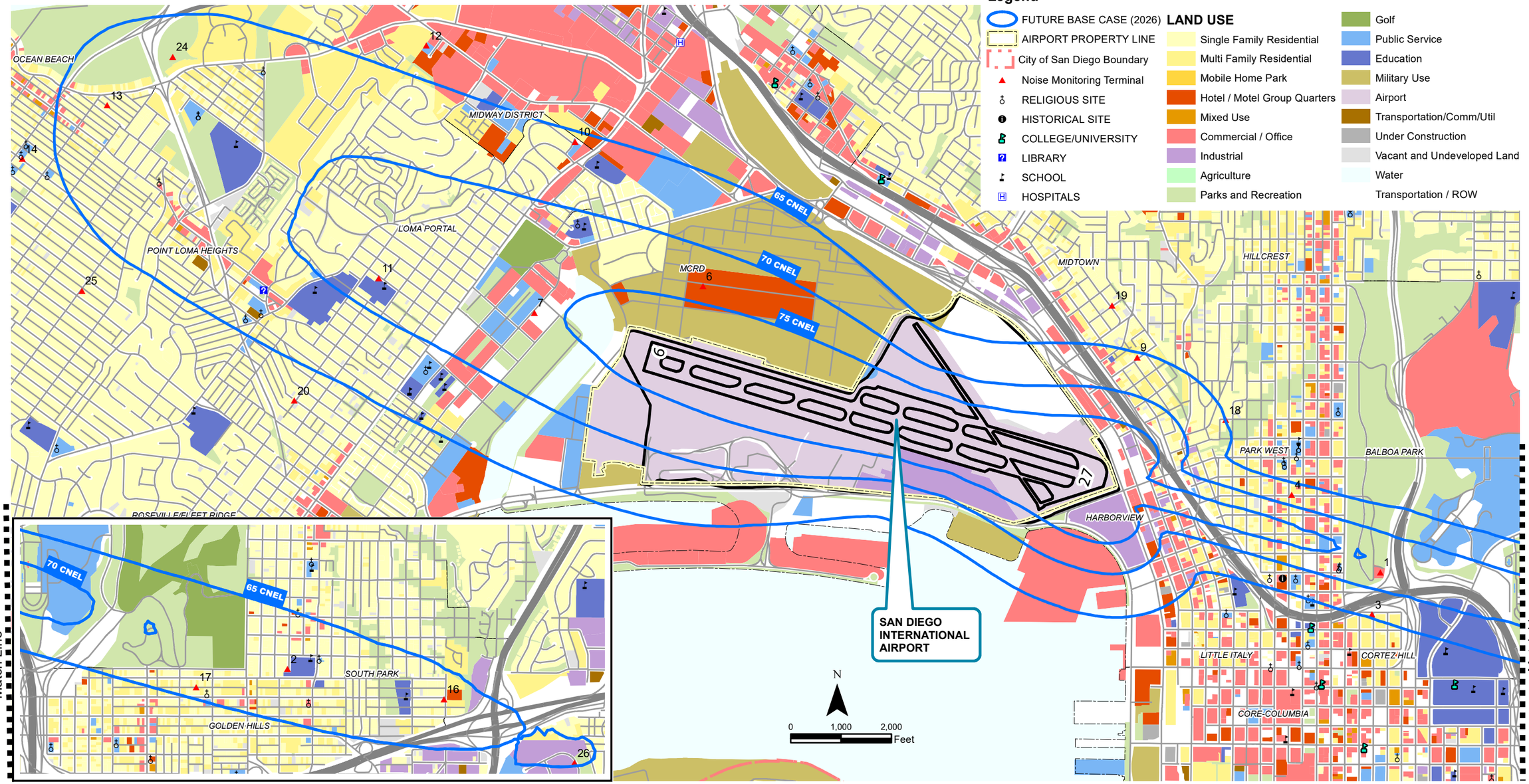
FIGURE 4.4 **EXISTING 2018 NOISE EXPOSURE MAP (NEM)** **(DUPLICATE)**

14 CFR PART 150 REQUIRED MAP



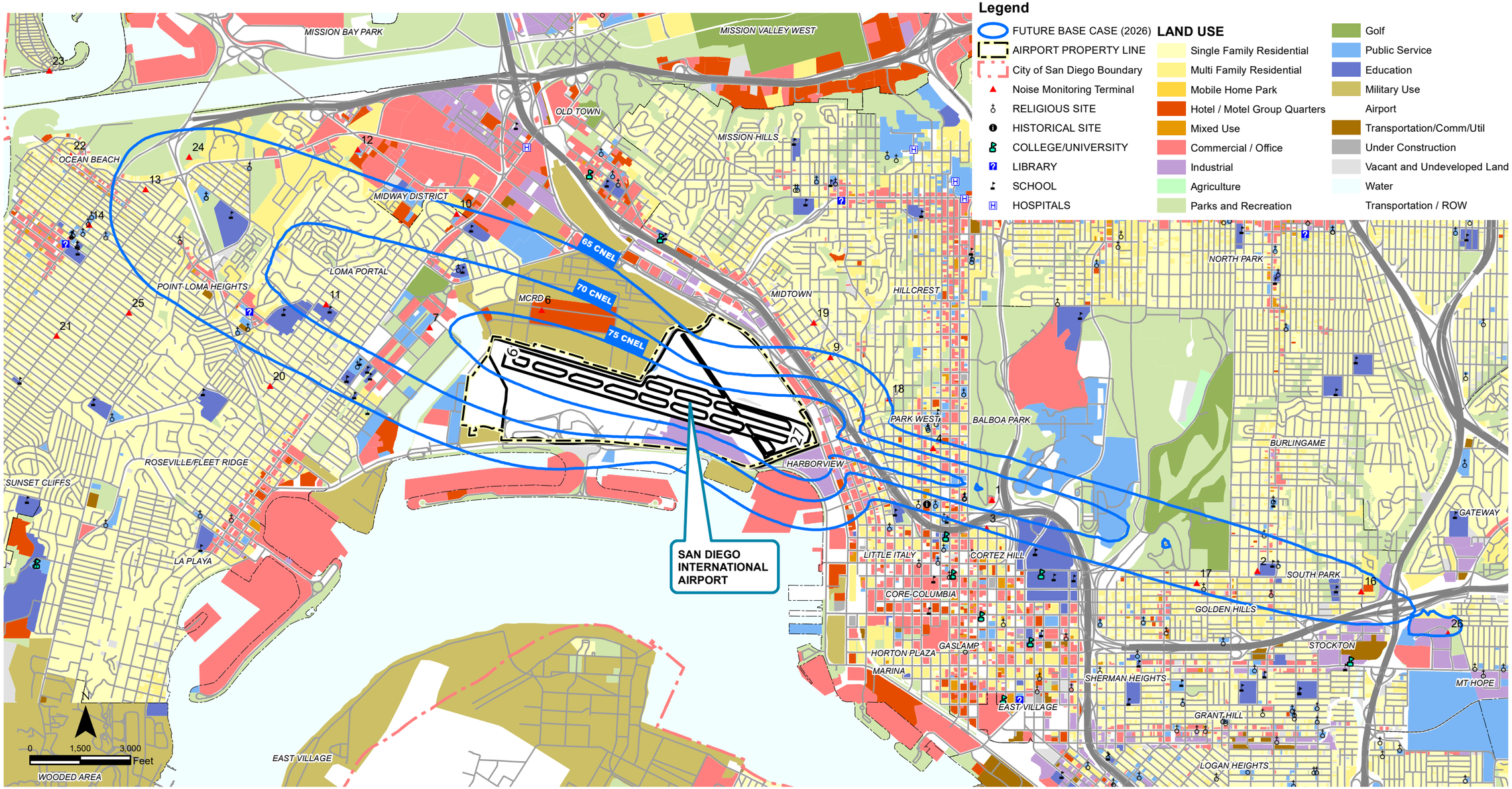
SOURCE: 1. SANDAG Technical Services - GIS, SANDAG Land Layers Inventory Mapping Source: SanGIS landbase (i.e. parcels), SANDAG, County Assessor's Master Property Records file, Cleveland National Forest, Bureau of Land Management (BLM), State Parks, other public agency contacts, and local agency review.
2. SDIA ANOMS 2019 and associated appendices. 3. HMMH, September, 2020 (Refined Base Case Contours).

FIGURE 4.5 **EXISTING CNEL NOISE CONTOURS 2018 (1:3000)**



SOURCE: 1. SANDAG Technical Services - GIS, SANDAG Land Layers Inventory Mapping Source: SanGIS landbase (i.e. parcels), SANDAG, County Assessor's Master Property Records file, Cleveland National Forest, Bureau of Land Management (BLM), State Parks, other public agency contacts, and local agency review.
2. HMMH September, 2020 (Refined Base Case Contours)

FIGURE 4.6 **FUTURE BASE CASE CNEL NOISE CONTOURS 2026 (1:2000)**



SOURCE: 1. SANDAG Technical Services - GIS, SANDAG Land Layers Inventory Mapping Source: SanGIS landbase (i.e. parcels), SANDAG, County Assessor's Master Property Records file, Cleveland National Forest, Bureau of Land Management (BLM), State Parks, other public agency contacts, and local agency review.
2. HMMH, Spetember, 2020 (Refined Base Case Contours)

FIGURE 4.7 **FUTURE BASE CASE CNEL NOISE CONTOURS 2026 (1:3000)**