HMMH
77 South Bedford Street
Burlington, Massachusetts 01803
781.229.0707
www.hmmh.com

TECHNICAL MEMORANDUM

To:	Ms. Grace Leung City Manager City of Newport Beach, California 100 Civic Center Drive Newport Beach, CA 92660
From:	Justin W. Cook – INCE, LEED GA and Chris Nottoli
Date:	September 26, 2018
Subject:	John Wayne Airport (SNA) - Aircraft Noise Abatement Departure Procedure (NADP) Analysis - Task 1
Reference:	HMMH Project Number 309680.000

1. BACKGROUND

HMMH is assisting the City of Newport Beach in assessing community noise associated with Noise Abatement Departure Profile (NADP) procedures for various airlines and aircraft operating at John Wayne Airport (SNA). As part of Task 1, HMMH utilized the Federal Aviation Administration's (FAA) Aviation Environmental Design Tool 2d (AEDT) to model Sound Exposure Level (SEL) contours and compared measured noise levels at SNA Noise Monitoring Stations (NMS) 5s, 6s, and 7s. NMS 5s is located at 324 ½ Vista Madera, NMS 6s is located at 1912 Santiago, and NMS 7s is located at 1311 Back Bay Drive in the City of Newport Beach, California, as depicted in Figure 1.

Flight track and aircraft identification data as well as correlated noise event data was obtained from SNA for four (4) months, October 2017 through January 2018. Included in the noise event data is the aircraft Gross Takeoff Weight (GTOW). HMMH used the GTOW data to determine the average GTOW by airline and by aircraft type in this analysis. The analysis focused on the Boeing 737-700, Boeing 737-800, Boeing 737-800 MAX, Airbus A319, and Airbus A320 aircraft for Airlines A through D.

The average GTOW was incorporated into the standard NADP profile in AEDT for each aircraft type to obtain representative modeled results. These profiles included the implemented flap setting for each aircraft and procedure. AEDT does not contain flap settings utilized at SNA for the Airbus A319 and A320, which require a larger degree of flaps. A higher degree of flaps causes additional airframe noise due to disrupted airflow around the wing. Because of this, the modeled noise levels for the Airbus aircraft are slightly lower than if the actual flap settings were provided in AEDT. It is important to note that as of the date of this technical memorandum, AEDT does not include the Airbus A320neo aircraft and it was not included in this analysis.

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

- Temperature: 65° F
- Sea-level Pressure: 1015.38 Millibars
- Relative Humidity: 69.45%
- Dew Point: 52.96° F
- Wind Speed: 5.54 Knots

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 was obtained from the United States Geological survey (USGS) National Map Viewer and was used with the terrain features of AEDT on in this analysis.

Specific noise and performance data must be entered into AEDT for each aircraft type. Noise data is 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 includes 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 length.” A longer trip distance or higher stagelength is associated with a heavier aircraft due to the increase in fuel requirements for the flight. Stagelength in this analysis was determined by the GTOW as provided by SNA.

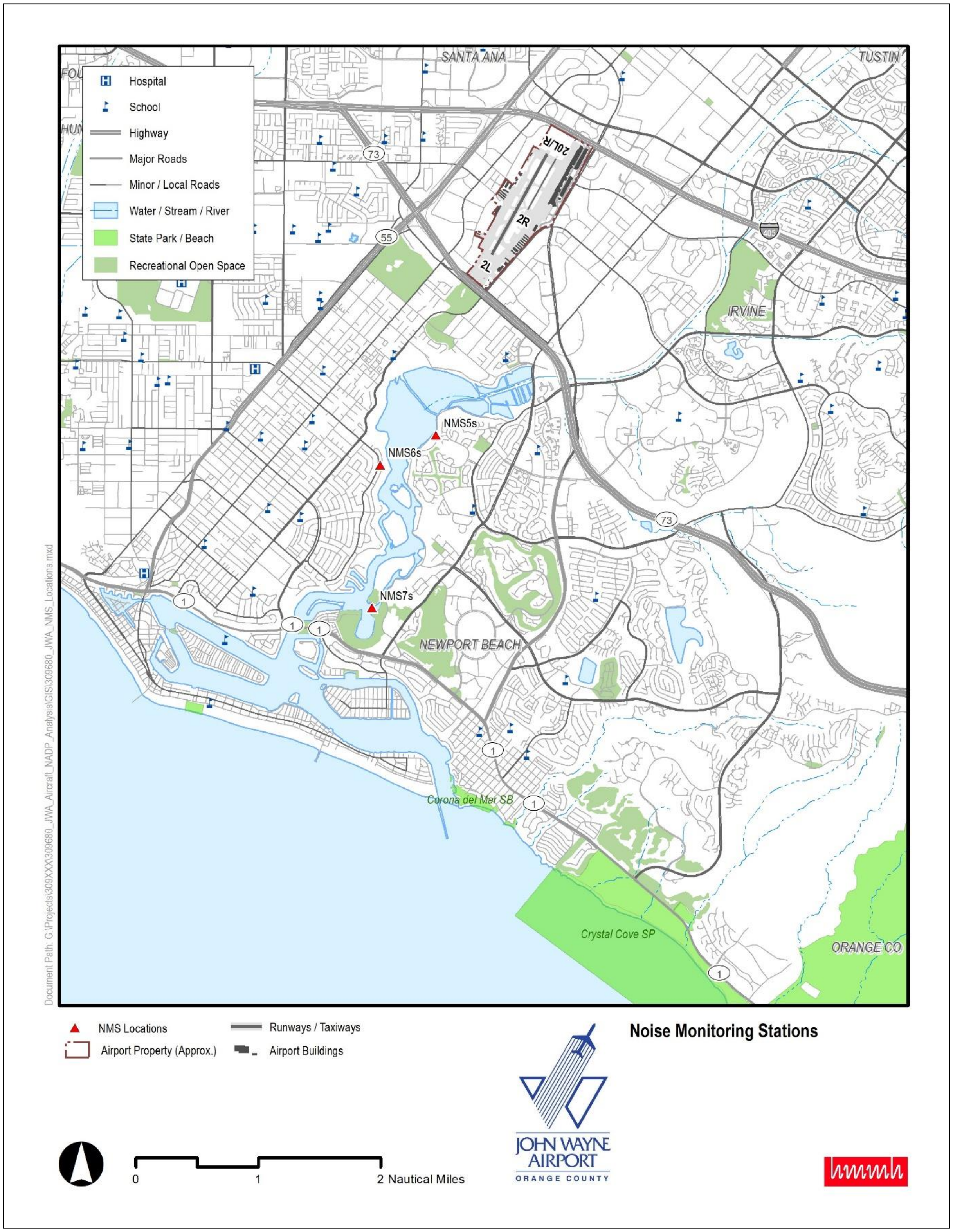

Figure 1. Noise Monitoring Stations (NMS)

2. RESULTS

The modeled results at NMS 5s are generally lower for NADP 1 and correlates to two factors of the procedure: flap settings and altitude. The NADP 2 procedure retracts flaps near 800 feet Above Ground Level (AGL), which reduces airframe noise, while the NADP 1 procedure continues to use flaps until 3,000 feet (AGL). Although NADP 1 continues to use flaps below 3,000 feet creating more airframe noise, the settings create more lift for the aircraft resulting in more altitude and lower measured and modeled SEL values. The average modeled altitude at NMS 5s between NADP 1 and NADP 2 is 2,090 ft. and 1,518 ft. (AGL), respectively, an increase of approximately 572 ft. and an average reduction of approximately 2 dB.

Similarly, at NMS 6s, the average modeled altitude between NADP 1 and NADP 2 is 2,367 ft. and 1,716 ft. (AGL), respectively, an increase of approximately 651 ft. and an average reduction of approximately 1.5 dB. Although the average modeled altitude between NADP 1 and NADP 2 of 3,248 ft. and 2,829 ft. (AGL), respectively, an increase of approximately 420 ft. at NMS 7s, there is a slight increase in modeled SEL values for NADP 1. At approximately 3,000 ft. (AGL) the NADP 1 procedure requires aircraft to accelerate to a recommended airspeed to retract flaps. The increase in airspeed and thrust that occurs for NADP 1 near NMS 7s is likely the cause for the slight increase in modeled SEL values.

The individual differences in modeled SEL values between airlines with similar aircraft is also a result in the average GTOW and stage length; a heavier aircraft with a greater distance to fly will generate more noise. Although generally the NADP 2 procedure generates more noise than the NADP 1 procedure, it reduces fuel consumption by roughly 50 lbs. for Boeing aircraft and approximately 100 lbs. for Airbus aircraft.

Table 1 through Table 3 presents the measured and modeled SEL values that occur over NMS 5s, NMS 6s, and NMS 7s, respectively, for each airline and aircraft evaluated. The tables also include the modeled NADP procedure not in use by each airline for comparative purposes only. Table 4 through Table 6 present a comparison of measured SEL at each NMS between airlines with common aircraft types and only include the primary NADP procedures[1]. The tables include the average measured SEL by airline, average SEL by aircraft, and present the airlines deviation from the overall measured mean (standard deviation). Similarly, Table 7 through Table 9 present the same comparison for all modeled SEL values.

Table 10 provides a comparison of fuel burn between airlines with common aircraft types and includes the modeled NADP procedure not in use for comparative purposes only. Table 11 and Table 12 present the population and housing counts, respectively, based on 2010 census data for the primary NADP procedures used by each airline. Table 13 and Table 14 provide the population and housing counts for the NADP procedures not in use and are for informational purposes only. Figure 1 through Figure 8 present the SEL contours for both the primary NADP procedures and the NADP procedures not in use, but overlaid for informational purposes only.

[1] Measured SEL's at each NMS location represent the current NADP procedure in use by the airlines; no comparison available with the modeled NADP's not in use.

Table 1. NMS 5s – Measured vs. Modeled SEL Comparison

Airline	Aircraft	Average GTOW[1] (lbs.)	Procedure	Average Measured SEL[1] (dB) (a)	Modeled SEL (dB) (b)	Difference (dB) (a) - (b)
A	Boeing 737-800	143,271	NADP 1	-	89.0	-
			NADP 2[2]	88.4	91.2	-2.8
B	Boeing 737-800	147,647	NADP 1	-	89.3	-
			NADP 2[2]	88.6	91.6	-3.0
C	Boeing 737-700	124,307	NADP 1[2]	84.2	88.9	-4.7
			NADP 2	-	88.2	-
	Boeing 737-800 MAX	133,493	NADP 1[2]	82.5	83.1	-0.6
			NADP 2	-	83.2	-
D	Boeing 737-700	137,465	NADP 1	-	89.6	-
			NADP 2[2]	89.5	89.5	0.0
	Boeing 737-800	141,157	NADP 1	-	88.9	-
			NADP 2[2]	89.1	91.0	-1.9
	Airbus A319	132,373	NADP 1	-	82.9	-
			NADP 2[2]	85.1	87.2	-2.1
	Airbus A320	146,465	NADP 1	-	86.6	-
			NADP 2[2]	85.7	89.2	-3.5

Notes: [1] Numerical calculation is airline and aircraft specific
[2] Primary procedure used by airline

Table 2. NMS 6s – Measured vs. Modeled SEL Comparison

Airline	Aircraft	Average GTOW[1] (lbs.)	Procedure	Average Measured SEL[1] (dB) (a)	Modeled SEL (dB) (b)	Difference (dB) (a) - (b)
A	Boeing 737-800	143,271	NADP 1	-	88.3	-
			NADP 2[2]	89.1	90.3	-1.2
B	Boeing 737-800	147,647	NADP 1	-	88.5	-
			NADP 2[2]	89.5	90.9	-1.3
C	Boeing 737-700	124,307	NADP 1[2]	85.1	88.0	-2.9
			NADP 2	-	87.2	-
	Boeing 737-800 MAX	133,493	NADP 1[2]	83.1	82.4	0.7
			NADP 2	-	82.5	-
D	Boeing 737-700	137,465	NADP 1	-	88.8	-
			NADP 2[2]	90.4	88.8	1.6
	Boeing 737-800	141,157	NADP 1	-	88.2	-
			NADP 2[2]	90.0	90.0	0.0
	Airbus A319	132,373	NADP 1	-	82.3	-
			NADP 2[2]	86.7	85.1	1.6
	Airbus A320	146,465	NADP 1	-	85.9	-
			NADP 2[2]	88.0	88.6	-0.6

Notes: [1] Numerical calculation is airline and aircraft specific
[2] Primary procedure used by airline

Table 3. NMS 7s – Measured vs. Modeled SEL Comparison

Airline	Aircraft	Average GTOW¹ (lbs.)	Procedure	Average Measured SEL¹ (dB) (a)	Modeled SEL (dB) (b)	Difference (dB) (a) - (b)
A	Boeing 737-800	143,271	NADP 1	-	86.0	-
			NADP 2²	85.5	85.4	0.1
B	Boeing 737-800	147,647	NADP 1	-	86.4	-
			NADP 2²	86.0	85.7	0.3
C	Boeing 737-700	124,307	NADP 1²	81.8	84.4	-2.6
			NADP 2	-	84.5	-
	Boeing 737-800 MAX	133,493	NADP 1²	81.5	79.9	1.6
			NADP 2	-	79.9	-
D	Boeing 737-700	137,465	NADP 1	-	86.2	-
			NADP 2²	85.7	85.9	-0.2
	Boeing 737-800	141,157	NADP 1	-	85.8	-
			NADP 2²	86.1	85.3	0.8
	Airbus A319	132,373	NADP 1	-	80.5	-
			NADP 2²	84.7	81.4	3.3
	Airbus A320	146,465	NADP 1	-	83.8	-
			NADP 2²	86.1	83.9	2.2

Notes: ¹ Numerical calculation is airline and aircraft specific
² Primary procedure used by airline

Table 4. NMS 5s – Common Aircraft Measured SEL Comparison

Aircraft	Procedure	Airline	Average Measured SEL (dB)		Standard Deviation² (dB)
Boeing 737-800	NADP 2	A	88.4	88.7	1.4
		B	88.6		
		D	89.1		
Boeing 737-700	NADP 1	C	84.2	84.7	2.3
	NADP 2	D	89.5		

Table 5. NMS 6s – Common Aircraft Measured SEL Comparison

Aircraft	Procedure	Airline	Average Measured SEL[1] (dB)	Average Aircraft SEL[2] (dB)	Standard Deviation[2] (dB)
Boeing 737-800	NADP 2	A	89.1	89.5	1.3
		B	89.5		
		D	90.0		
Boeing 737-700	NADP 1	C	85.1	85.5	2.2
	NADP 2	D	90.4		

Notes: [1] The numerical calculation is airline specific.
[2] Prior to airline grouping, the numerical calculation utilized all measured aircraft events for the selected airlines.

Table 6. NMS 7s – Common Aircraft Measured SEL Comparison

Aircraft	Procedure	Airline	Average Measured SEL[1] (dB)	Average Aircraft SEL[2] (dB)	Standard Deviation[2] (dB)
Boeing 737-800	NADP 2	A	85.5	85.8	1.6
		B	86.0		
		D	86.1		
Boeing 737-700	NADP 1	C	81.8	82.2	2.2
	NADP 2	D	85.7		

Notes: [1] The numerical calculation is airline specific.
[2] Prior to airline grouping, the numerical calculation utilized all measured aircraft events for the selected airlines.

Table 7. NMS 5s – Common Aircraft Modeled SEL Comparison by Airlines

Aircraft	Procedure	Airline	Modeled SEL (dB)	Average Modeled SEL[1] (dB)	Standard Deviation[1] (dB)
Boeing 737-800	NADP 2	A	91.2	91.3	0.3
		B	91.6		
		D	91.0		
Boeing 737-700	NADP 1	C	88.9	89.2	0.5
	NADP 2	D	89.5		

Notes: [1] The numerical calculation is airline specific.

Table 8. NMS 6s – Common Aircraft Modeled SEL Comparison by Airlines

Aircraft	Procedure	Airline	Modeled SEL (dB)	Average Modeled SEL[1] (dB)	Standard Deviation[1] (dB)
Boeing 737-800	NADP 2	A	90.3	90.4	0.5
		B	90.9		
		D	90.0		
Boeing 737-700	NADP 1	C	88.0	88.4	0.6
	NADP 2	D	88.8		

Notes: [1] The numerical calculation is airline specific.

Table 9. NMS 7s – Common Aircraft Modeled SEL Comparison by Airlines

Aircraft	Procedure	Airline	Modeled SEL (dB)	Average Modeled SEL[1] (dB)	Standard Deviation[1] (dB)
Boeing 737-800	NADP 2	A	85.4	85.5	0.2
		B	85.7		
		D	85.3		
Boeing 737-700	NADP 1	C	84.4	85.2	1.1
	NADP 2	D	85.9		

Notes: [1] The numerical calculation is airline specific.

Table 10. NMS 7s – Common Aircraft Modeled Fuel Burn by Airlines

Aircraft	Airline	NADP 1 (a)	NADP 2 (b)	Difference (lb) (a)-(b)
		Fuel Burn (lb)	Fuel Burn (lb)	
Boeing 737-800	A	1514.44	1461.75	52.69
	B	1558.59	1508.63	49.96
	D	1493.02	1440.55	52.47
Boeing 737-700	C	1360.38	1363.55	-3.17
	D	1535.74	1478.63	57.11
Boeing 737-800 MAX	C	1527.4	1430.42	96.98
Airbus A319	D	1591.74	1477.71	114.03
Airbus A320		1758.29	1667.32	90.97

Notes: [1] The numerical calculation is airline specific.

Table 11. SNA NADP Procedure Population (Primary NADP used by Airlines)

SEL Contour Interval (dB)	Population Exposed							
	Airline A Boeing 737-800 NADP 2	Airline B Boeing 737-800 NADP 2	Airline C Boeing 737-700 NADP 1	Airline C Boeing 737-800 MAX NADP 1	Airline D Boeing 737-700 NADP 2	Airline D Boeing 737-800 NADP 2	Airline D Airbus A319 NADP 2	Airline D Airbus A320 NADP 2
80-85	26,608	25,754	28,237	7,444	22,419	26,521	11,269	26,096
85-90	9,179	10,016	9,237	2,200	8,231	8,993	2,834	4,701
90-95	2,854	3,015	2,255	87	1,756	2,765	1,132	1,711
95-100	695	736	1	0	151	670	0	166
Note: There are no people or homes exposed to SEL values from these aircraft over 100 dB.								

Table 12. SNA NADP Procedure Housing (Primary NADP used by Airlines)

SEL Contour Interval (dB)	Housing Exposed							
	Airline A Boeing 737-800 NADP 2	Airline B Boeing 737-800 NADP 2	Airline C Boeing 737-700 NADP 1	Airline C Boeing 737-800 MAX NADP 1	Airline D Boeing 737-700 NADP 2	Airline D Boeing 737-800 NADP 2	Airline D Airbus A319 NADP 2	Airline D Airbus A320 NADP 2
80-85	14,894	14,353	15,400	3,420	12,602	14,837	5,879	9,714
85-90	4,171	4,685	4,159	1,014	3,928	4,088	1,335	2,124
90-95	1,337	1,418	1,039	34	807	1,293	517	792
95-100	317	335	0	0	66	305	0	73
Note: There are no people or homes exposed to SEL values from these aircraft over 100 dB.								

Table 13. SNA NADP Procedure Population *(Informational Purposes Only)*

SEL Contour Interval (dB)	Population Exposed							
	Airline A Boeing 737-800 NADP 1	Airline B Boeing 737-800 NADP 1	Airline C Boeing 737-700 NADP 2	Airline C Boeing 737-800 MAX NADP 2	Airline D Boeing 737-700 NADP 1	Airline D Boeing 737-800 NADP 1	Airline D Airbus A319 NADP 1	Airline D Airbus A320 NADP 1
80-85	25,745	27,610	24,200	5,491	25,935	28,356	7,498	20,130
85-90	9,025	12,744	6,719	2,019	12,283	11,734	2,102	3,818
90-95	2,238	2,337	1,897	135	1,748	2,382	1,142	1,709
95-100	525	724	24	0	148	658	0	152
Note: There are no people or homes exposed to SEL values from these aircraft over 100 dB.								

Table 14. SNA NADP Procedure Housing *(Informational Purposes Only)*

SEL Contour Interval (dB)	Housing Exposed							
	Airline A Boeing 737-800 NADP 1	Airline B Boeing 737-800 NADP 1	Airline C Boeing 737-700 NADP 2	Airline C Boeing 737-800 MAX NADP 2	Airline D Boeing 737-700 NADP 1	Airline D Boeing 737-800 NADP 1	Airline D Airbus A319 NADP 1	Airline D Airbus A320 NADP 1
80-85	14,322	15,156	13,494	2,484	14,216	15,676	3,599	11,295
85-90	4,295	6,392	3,044	932	5,995	5,682	952	1,767
90-95	1,029	1,082	866	56	801	1,094	525	785
95-100	239	330	8	0	64	301	0	66
Note: There are no people or homes exposed to SEL values from these aircraft over 100 dB.								

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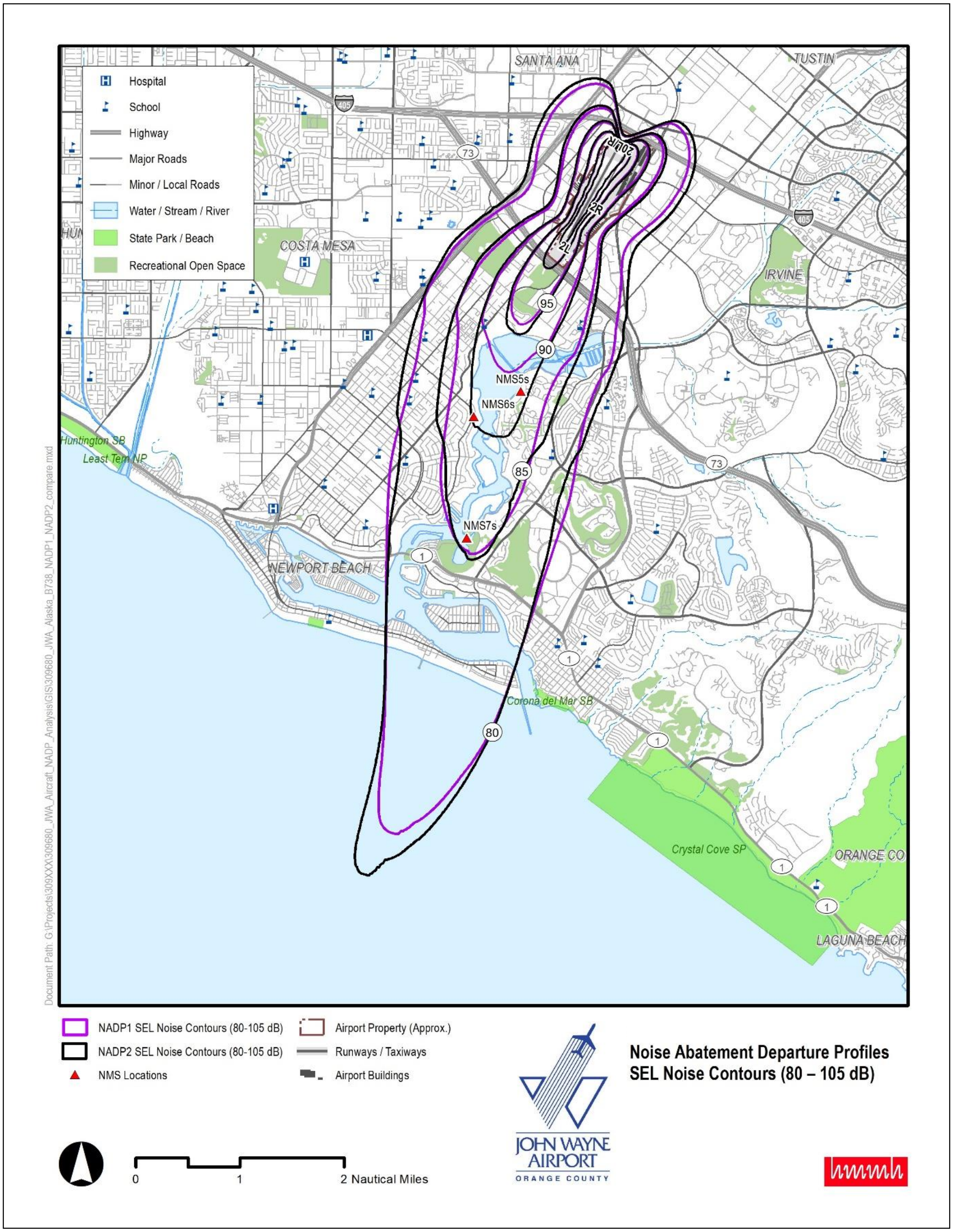

Figure 1. Airline A Boeing 737-800 NADP SEL Contours

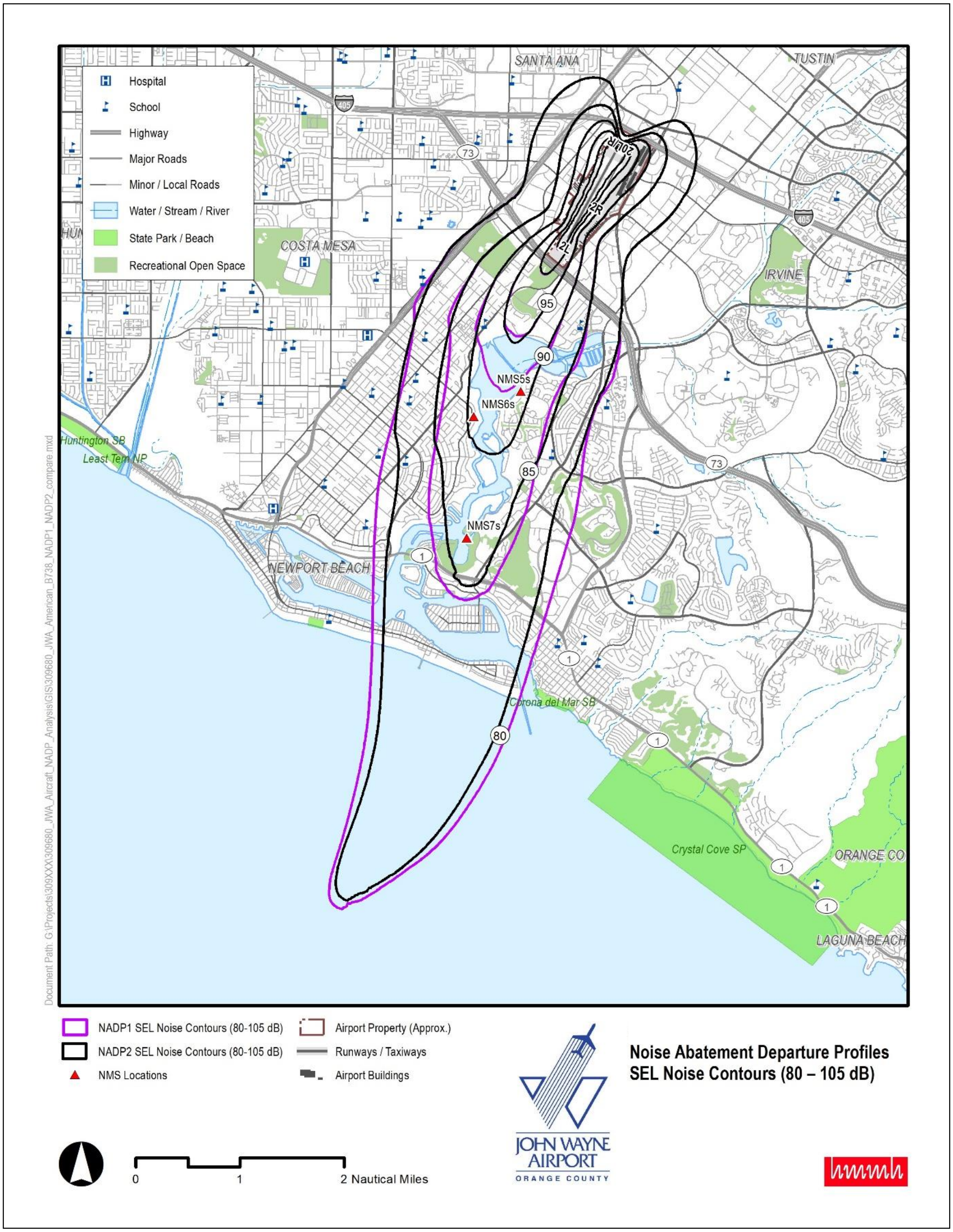

Figure 2. Airline B Boeing 737-800 NADP SEL Contours

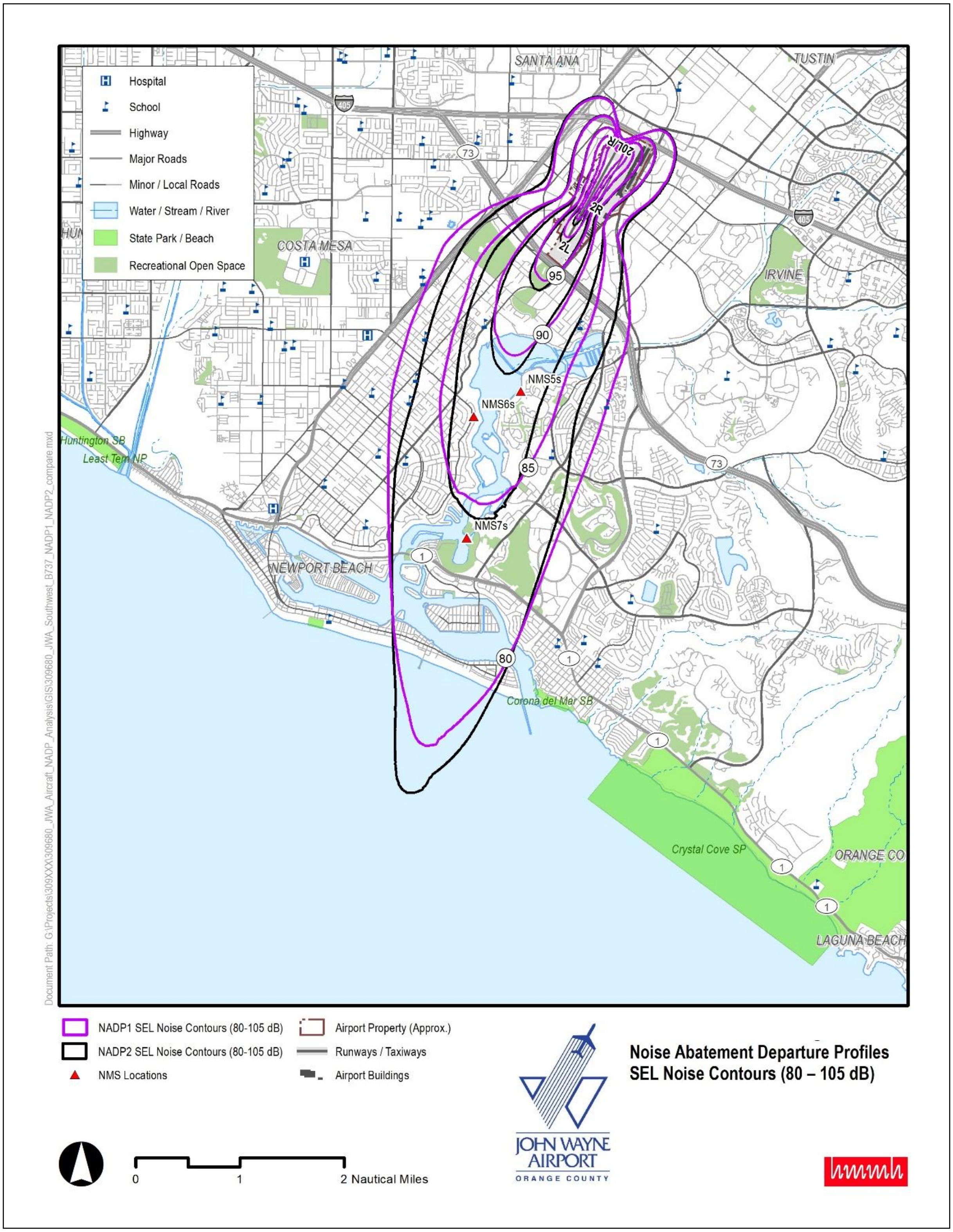

Figure 3. Airline C Boeing 737-700 NADP SEL Contours

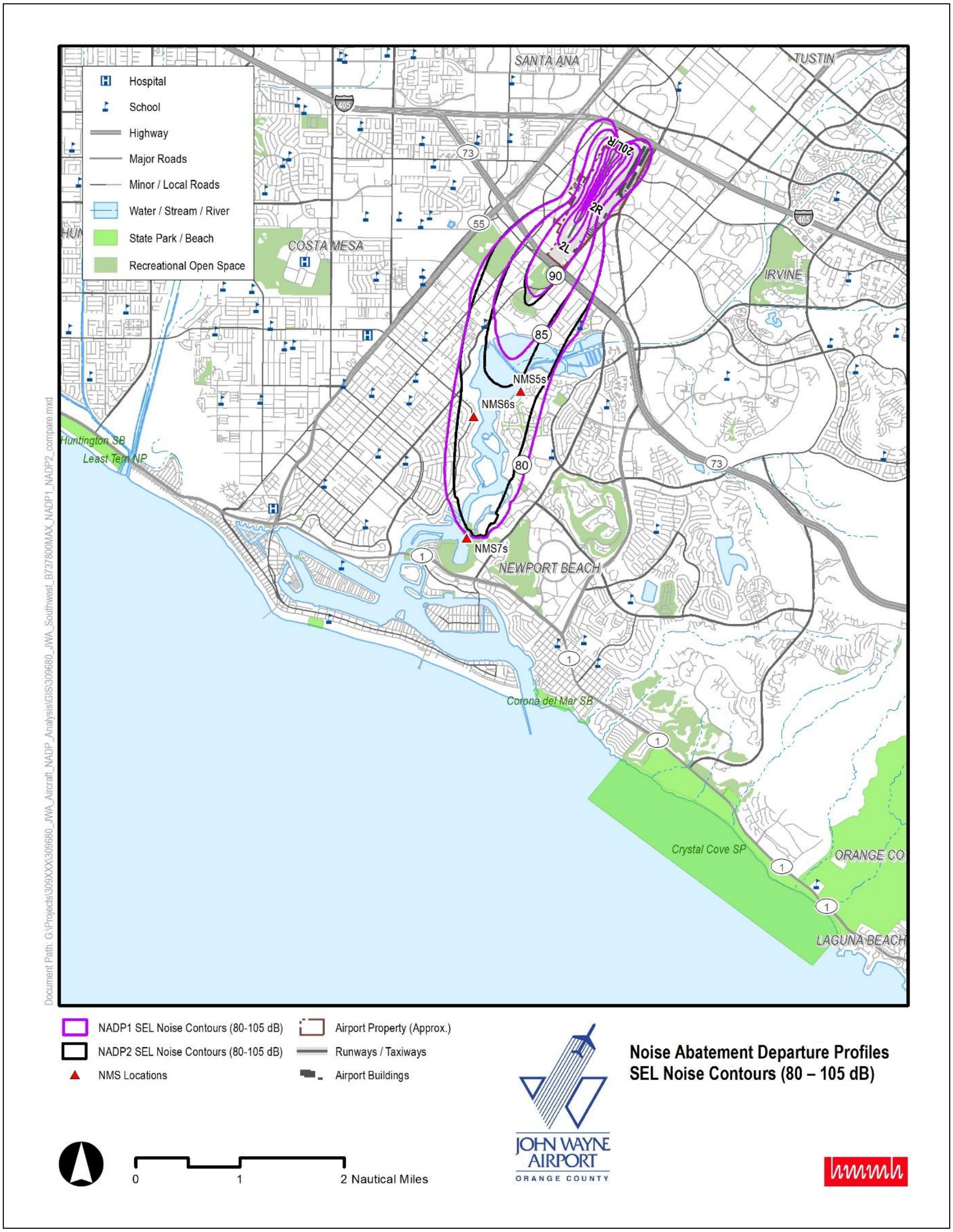

Figure 4. Airline C Boeing 737-800 MAX NADP SEL Contours

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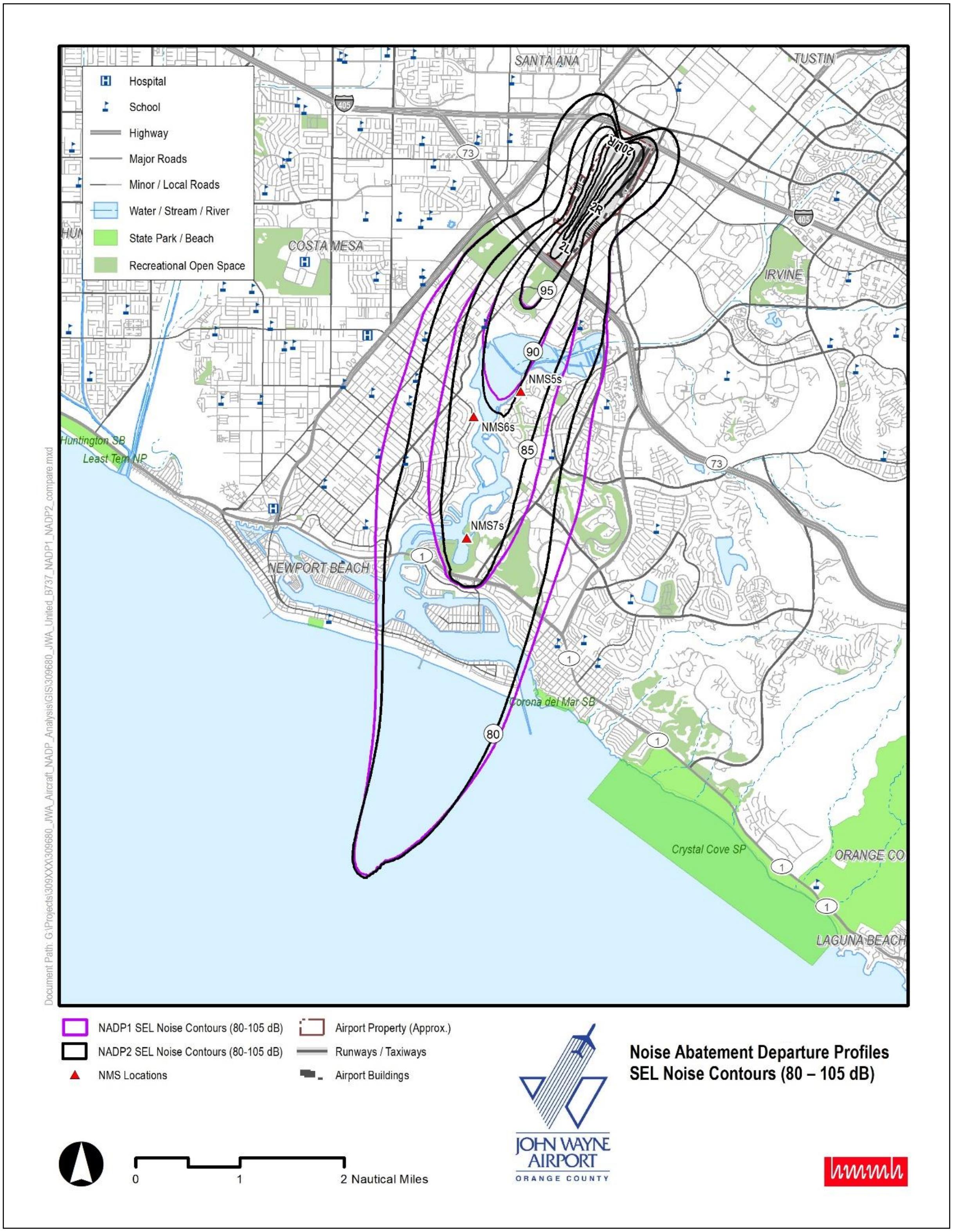

Figure 5. Airline D Boeing 737-700 NADP SEL Contours

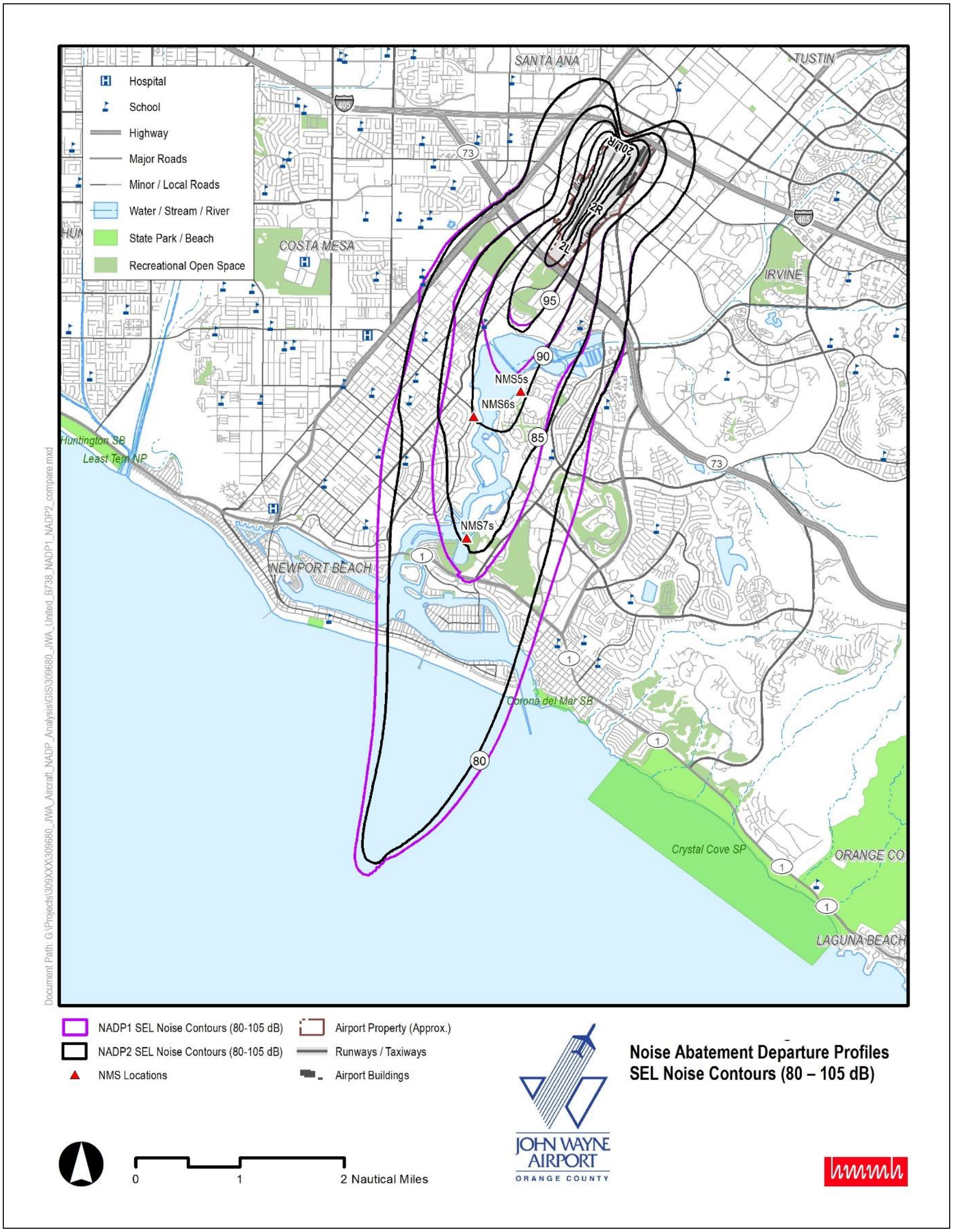

Figure 6. Airline D Boeing 737-800 NADP SEL Contours

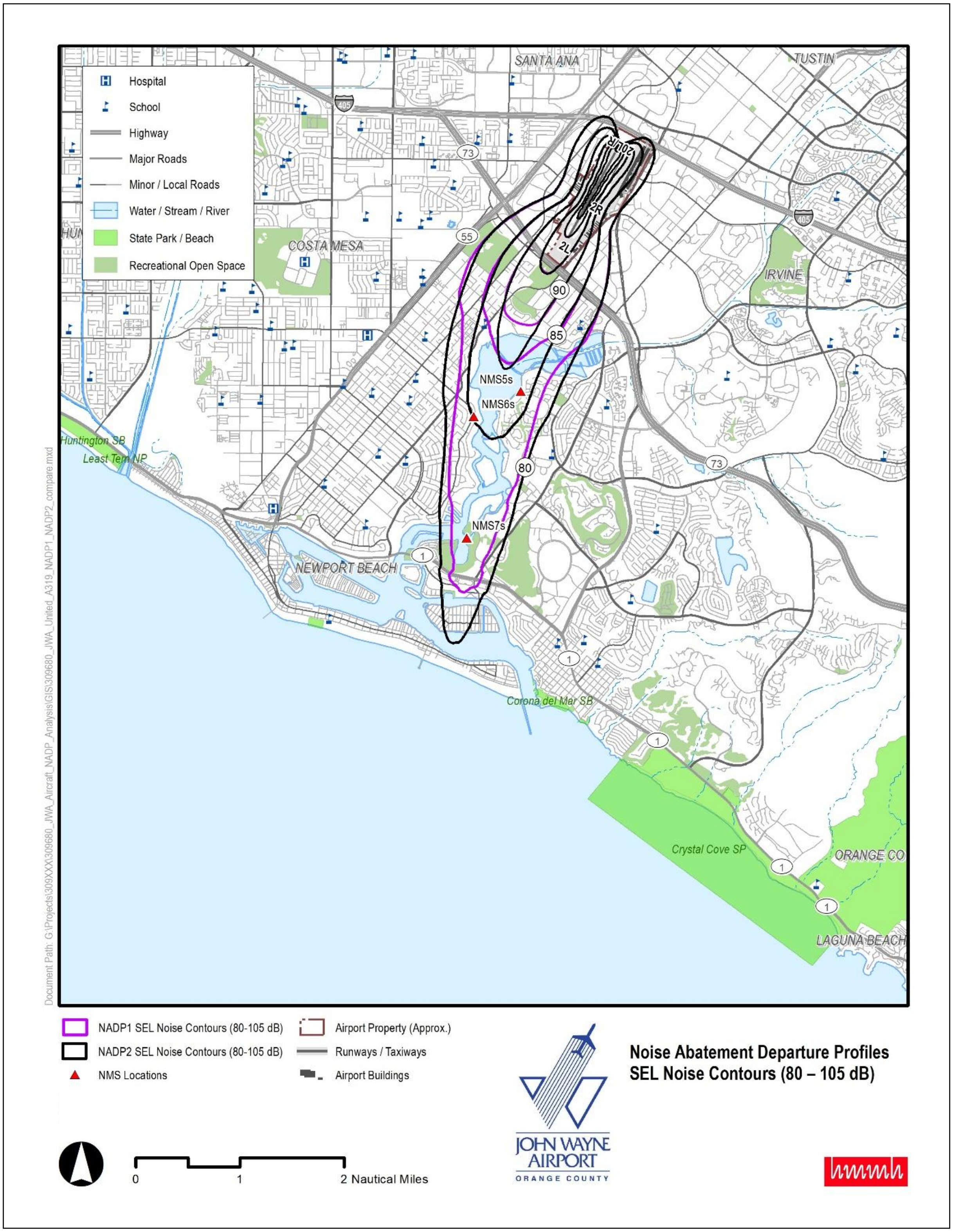

Figure 7. Airline D Airbus A319 NADP SEL Contours

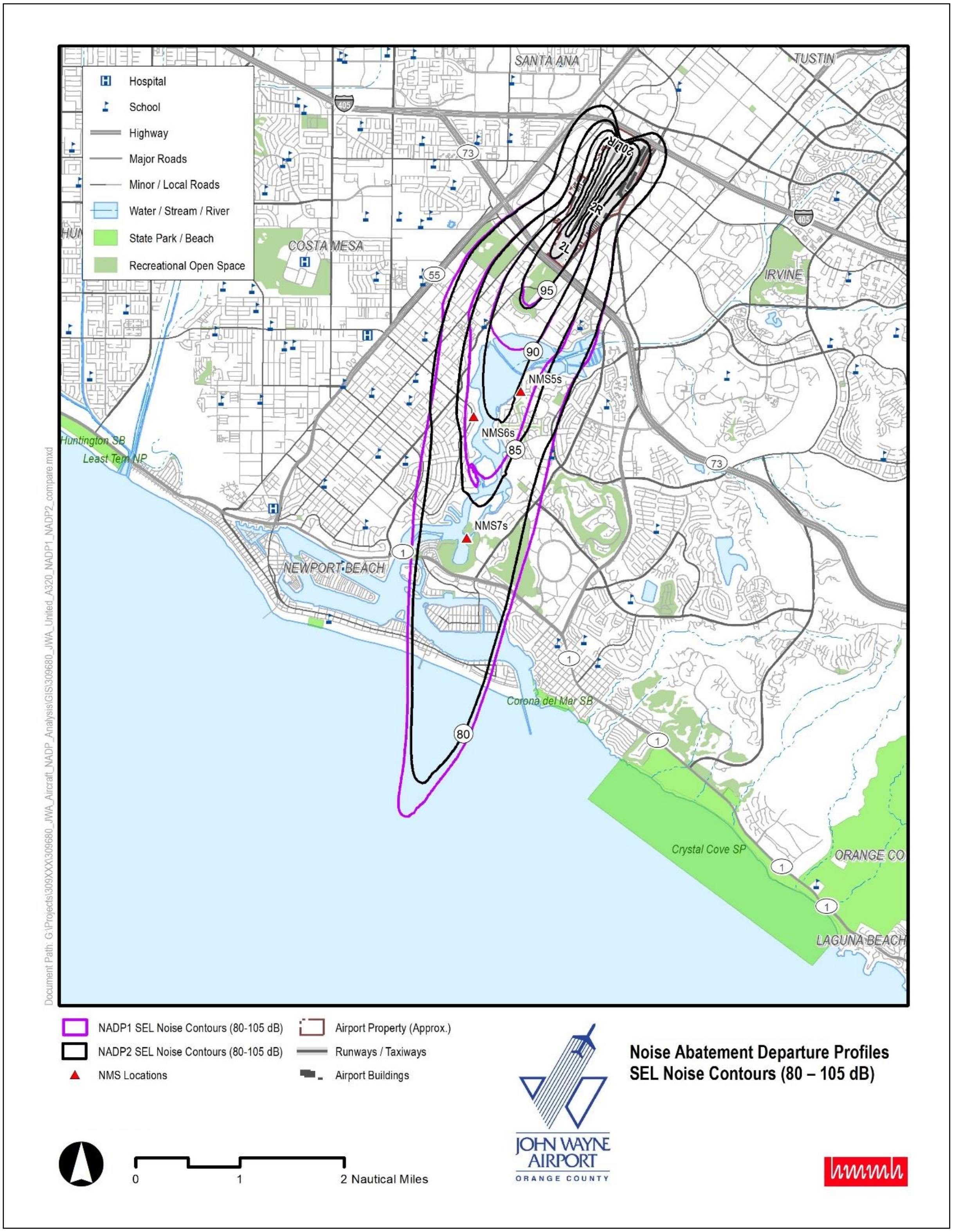

Figure 8. Airline D Airbus A320 NADP SEL Contours

3. SUPPLEMENTAL ANALYSIS

As requested, HMMH took a "deeper dive" into the data already collected and analyzed as part of Task 1 and discussed in the previous sections of this technical memorandum. As part of the supplemental analysis, HMMH looked at the same four operators and five aircraft types, and analyzed the data from 7 a.m. to 9 a.m. each day for the complete four months of data (October 2017 to January 2018).

HMMH identified 2,257 aircraft operation in the NOMS system that occurred between the hours of 7:00 AM and 9:00 AM at SNA over the four (4) month period. The flight track geometry and actual takeoff weight data provided by SNA was imported into AEDT and the appropriate aircraft type and NADP procedure was applied to the inputs. The AEDT model was then run for each of the 2,257 individual aircraft operations and presented in Table 15 through Table 17 are the average altitude over the NMS and modeled SEL values for NMS' 5s, 6s, and 7s respectively.

Table 15. NMS 5s Average Altitude and Modeled SEL Values

Airline	Aircraft	Procedure	Average Altitude (ft – AGL)	Modeled SEL[1] (dB)
Airline A	Boeing 737-800	NADP 2[2]	1,512	90.8
Airline B	Boeing 737-800	NADP 2[2]	1,369	91.0
Airline C	Boeing 737-700	NADP 1[2]	2,246	88.6
	Boeing 737-800 MAX	NADP 1[2]	1,965	82.3
Airline D	Boeing 737-700	NADP 2[2]	1,305	89.4
	Boeing 737-800	NADP 2[2]	1,490	90.9
	Airbus A319	NADP 2[2]	1,367	86.3
	Airbus A320	NADP 2[2]	1,350	87.4

Notes: [1] Numerical calculation is airline and aircraft specific
[2] Primary procedure used by airline

Comparing the Airline D Boeing 737-700 (NADP 2) to the Airline C Boeing 737-700 (NADP 1) at NMS 5s, you will see an average altitude difference of 941 ft. and a modeled SEL difference of 0.8 dB. The modeled SEL values of the Boeing 737-800's of Airline A, Airline B, and Airline D (NADP 2) were within a maximum of 0.2 dB from each other.

In comparing Table 15 modeled SEL values to the modeled SEL values in Table 1, they are all lower and more accurately reflect the average measured SEL values of Table 1. This is likely due to the fact that in the supplemental analysis, we were utilizing actual flight tracks and takeoff weights for individual operations over two hours each day for the complete four months of data instead of an average.

Table 16. NMS 6s – Average Altitude and Modeled SEL Values

Airline	Aircraft	Procedure	Average Altitude (ft – AGL)	Modeled SEL[1] (dB)
Airline A	Boeing 737-800	NADP 2[2]	1,760	90.5
Airline B	Boeing 737-800	NADP 2[2]	1,542	91.8
Airline C	Boeing 737-700	NADP 1[2]	2,631	88.5
	Boeing 737-800 MAX	NADP 1[2]	2,207	83.5
Airline D	Boeing 737-700	NADP 2[2]	1,445	90.1
	Boeing 737-800	NADP 2[2]	1,706	90.7
	Airbus A319	NADP 2[2]	1,523	86.6
	Airbus A320	NADP 2[2]	1,473	87.3
Notes: [1] Numerical calculation is airline and aircraft specific [2] Primary procedure used by airline				

Comparing the Airline D Boeing 737-700 (NADP 2) to the Airline C Boeing 737-700 (NADP 1) at NMS 6s, you will see an average altitude difference of 1,186 ft. and a modeled SEL difference of 1.6 dB. The modeled SEL values of the Boeing 737-800's of Airline A, Airline B, and Airline D (NADP 2) were within a maximum of 1.3 dB from each other.

Table 17. NMS 7s – Average Altitude and Modeled SEL Values

Airline	Aircraft	Procedure	Average Altitude (ft – AGL)	Modeled SEL[1] (dB)
Airline A	Boeing 737-800	NADP 2[2]	2,799	85.5
Airline B	Boeing 737-800	NADP 2[2]	2,502	86.2
Airline C	Boeing 737-700	NADP 1[2]	3,504	85.1
	Boeing 737-800 MAX	NADP 1[2]	3,072	80.8
Airline D	Boeing 737-700	NADP 2[2]	2,423	86.8
	Boeing 737-800	NADP 2[2]	2,747	85.6
	Airbus A319	NADP 2[2]	2,626	81.6
	Airbus A320	NADP 2[2]	2,368	81.4
Notes: [1] Numerical calculation is airline and aircraft specific [2] Primary procedure used by airline				

Comparing the Airline D Boeing 737-700 (NADP 2) to the Airline C Boeing 737-700 (NADP 1) at NMS 6s, you will see an average altitude difference of 1,081 ft. and a modeled SEL difference of 1.7 dB. The modeled SEL values of the Boeing 737-800's of Airline A, Airline B, and Airline D (NADP 2) were within a maximum of 0.7 dB from each other.

4. TASK 2

The results of Task 1, especially the modeled results of the supplemental analysis, has provided a solid foundation for the next phase of our analysis, Task 2. The goal of this task will be to determine whether improvements are possible to NADP 1 or NADP 2 to further reduce noise levels modeled at NMS 5s, 6s, and 7s.

Based on the results of Task 1, HMMH is focusing on reduced flap and thrust settings, or a combination of the two specifically below 3,000 ft. AGL to achieve the optimal noise mitigation outcome. As part of this, HMMH has prepared procedural data from the Aviation Environmental Design Tool (AEDT) to demonstrate the NADP (ICAO) procedure for each aircraft with their associated stage lengths as depicted in Table 18 through Table 21. Table 22 and Table 23 are supplemental definitions for 'Step Type' and 'Thrust Type', respectively.

Prior to proceeding with additional modeling with reduced flap and thrust settings, or a combination of the two specifically below 3,000 ft. AGL, HMMH recommends that this technical memorandum be reviewed by airline representatives.

Table 18. NADP (ICAO) Procedure for B737 Aircraft

Source: AEDT 2d

Aircraft	Mode	Procedure	StageLength	Segment	Flap Setting	Step Type	Thrust Type	Thrust	PARAM1	PARAM2	PARAM3
B737	D	ICAO_A	1	1	T_5	T	T	23534.8	0	0	0
B737	D	ICAO_A	1	2	T_5	C	T	23534.8	1500	0	0
B737	D	ICAO_A	1	3	T_5	C	C	22106.7	3000	0	0
B737	D	ICAO_A	1	4	T_ZERO	A	C	22106.7	1747.6	194.9	0
B737	D	ICAO_A	1	5	T_ZERO	A	C	22106.7	2128.3	250	0
B737	D	ICAO_A	1	6	T_ZERO	C	C	22106.7	5500	0	0
B737	D	ICAO_A	1	7	T_00H	C	C	22106.7	7500	0	0
B737	D	ICAO_A	1	8	T_00H	C	C	22106.7	10000	0	0
B737	D	ICAO_A	2	1	T_5	T	T	23534.8	0	0	0
B737	D	ICAO_A	2	2	T_5	C	T	23534.8	1500	0	0
B737	D	ICAO_A	2	3	T_5	C	C	22106.7	3000	0	0
B737	D	ICAO_A	2	4	T_ZERO	A	C	22106.7	1673.6	197.4	0
B737	D	ICAO_A	2	5	T_ZERO	A	C	22106.7	2028.3	250	0
B737	D	ICAO_A	2	6	T_ZERO	C	C	22106.7	5500	0	0
B737	D	ICAO_A	2	7	T_ZERO	C	C	22106.7	7500	0	0
B737	D	ICAO_A	2	8	T_00H	C	C	22106.7	10000	0	0
B737	D	ICAO_A	3	1	T_5	T	T	23534.8	0	0	0
B737	D	ICAO_A	3	2	T_5	C	T	23534.8	1500	0	0
B737	D	ICAO_A	3	3	T_5	C	C	22106.7	3000	0	0
B737	D	ICAO_A	3	4	T_ZERO	A	C	22106.7	1600.5	200.2	0
B737	D	ICAO_A	3	5	T_ZERO	A	C	22106.7	1931.7	250	0
B737	D	ICAO_A	3	6	T_ZERO	C	C	22106.7	5500	0	0
B737	D	ICAO_A	3	7	T_ZERO	C	C	22106.7	7500	0	0
B737	D	ICAO_A	3	8	T_00H	C	C	22106.7	10000	0	0
B737	D	ICAO_A	4	1	T_5	T	T	23534.8	0	0	0

Aircraft	Mode	Procedure	StageLength	Segment	Flap Setting	Step Type	Thrust Type	Thrust	PARAM1	PARAM2	PARAM3
B737	D	ICAO_A	4	2	T_5	C	T	23534.8	1500	0	0
B737	D	ICAO_A	4	3	T_5	C	C	22106.7	3000	0	0
B737	D	ICAO_A	4	4	T_ZERO	A	C	22106.7	1462.2	205.6	0
B737	D	ICAO_A	4	5	T_ZERO	A	C	22106.7	1753.8	250	0
B737	D	ICAO_A	4	6	T_ZERO	C	C	22106.7	5500	0	0
B737	D	ICAO_A	4	7	T_ZERO	C	C	22106.7	7500	0	0
B737	D	ICAO_A	4	8	T_00H	C	C	22106.7	10000	0	0
B737	D	ICAO_A	5	1	T_5	T	T	23534.8	0	0	0
B737	D	ICAO_A	5	2	T_5	C	T	23534.8	1500	0	0
B737	D	ICAO_A	5	3	T_5	C	C	22106.7	3000	0	0
B737	D	ICAO_A	5	4	T_ZERO	A	C	22106.7	1430	250	0
B737	D	ICAO_A	5	5	T_ZERO	C	C	22106.7	5500	0	0
B737	D	ICAO_A	5	6	T_ZERO	C	C	22106.7	7500	0	0
B737	D	ICAO_A	5	7	T_ZERO	C	C	22106.7	10000	0	0
B737	D	ICAO_A	6	1	T_5	T	T	23534.8	0	0	0
B737	D	ICAO_A	6	2	T_5	C	T	23534.8	1500	0	0
B737	D	ICAO_A	6	3	T_5	C	C	22106.7	3000	0	0
B737	D	ICAO_A	6	4	T_ZERO	A	C	22106.7	1430.1	250	0
B737	D	ICAO_A	6	5	T_ZERO	C	C	22106.7	5500	0	0
B737	D	ICAO_A	6	6	T_ZERO	C	C	22106.7	7500	0	0
B737	D	ICAO_A	6	7	T_ZERO	C	C	22106.7	10000	0	0
B737	D	ICAO_B	1	1	T_5	T	T	23534.8	0	0	0
B737	D	ICAO_B	1	2	T_5	C	T	23534.8	1000	0	0
B737	D	ICAO_B	1	3	T_01	A	T	23534.8	1888.7	195.1	0
B737	D	ICAO_B	1	4	T_ZERO	C	C	22106.7	3000	0	0
B737	D	ICAO_B	1	5	T_ZERO	A	C	22106.7	2159.3	250	0
B737	D	ICAO_B	1	6	T_00H	C	C	22106.7	5500	0	0
B737	D	ICAO_B	1	7	T_00H	C	C	22106.7	7500	0	0

Aircraft	Mode	Procedure	StageLength	Segment	Flap Setting	Step Type	Thrust Type	Thrust	PARAM1	PARAM2	PARAM3
B737	D	ICAO_B	1	8	T_ZERO	C	C	22106.7	10000	0	0
B737	D	ICAO_B	2	1	T_5	T	T	23534.8	0	0	0
B737	D	ICAO_B	2	2	T_5	C	T	23534.8	1000	0	0
B737	D	ICAO_B	2	3	T_01	A	T	23534.8	1814.3	197.7	0
B737	D	ICAO_B	2	4	T_ZERO	C	C	22106.7	3000	0	0
B737	D	ICAO_B	2	5	T_ZERO	A	C	22106.7	2058.1	250	0
B737	D	ICAO_B	2	6	T_ZERO	C	C	22106.7	5500	0	0
B737	D	ICAO_B	2	7	T_ZERO	C	C	22106.7	7500	0	0
B737	D	ICAO_B	2	8	T_00H	C	C	22106.7	10000	0	0
B737	D	ICAO_B	3	1	T_5	T	T	23534.8	0	0	0
B737	D	ICAO_B	3	2	T_5	C	T	23534.8	1000	0	0
B737	D	ICAO_B	3	3	T_5	A	T	23534.8	1619	175.6	0
B737	D	ICAO_B	3	4	T_01	A	T	23534.8	1840.6	200.4	0
B737	D	ICAO_B	3	5	T_ZERO	C	C	22106.7	3000	0	0
B737	D	ICAO_B	3	6	T_ZERO	A	C	22106.7	1958.4	250	0
B737	D	ICAO_B	3	7	T_ZERO	C	C	22106.7	5500	0	0
B737	D	ICAO_B	3	8	T_ZERO	C	C	22106.7	7500	0	0
B737	D	ICAO_B	3	9	T_ZERO	C	C	22106.7	10000	0	0
B737	D	ICAO_B	4	1	T_5	T	T	23534.8	0	0	0
B737	D	ICAO_B	4	2	T_5	C	T	23534.8	1000	0	0
B737	D	ICAO_B	4	3	T_01	A	T	23534.8	1594.1	205.8	0
B737	D	ICAO_B	4	4	T_ZERO	C	C	22106.7	3000	0	0
B737	D	ICAO_B	4	5	T_ZERO	A	C	22106.7	1774.4	250	0
B737	D	ICAO_B	4	6	T_ZERO	C	C	22106.7	5500	0	0
B737	D	ICAO_B	4	7	T_ZERO	C	C	22106.7	7500	0	0
B737	D	ICAO_B	4	8	T_ZERO	C	C	22106.7	10000	0	0
B737	D	ICAO_B	5	1	T_5	T	T	23534.8	0	0	0
B737	D	ICAO_B	5	2	T_5	C	T	23534.8	1000	0	0

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Aircraft	Mode	Procedure	StageLength	Segment	Flap Setting	Step Type	Thrust Type	Thrust	PARAM1	PARAM2	PARAM3
B737	D	ICAO_B	5	3	T_01	A	T	23534.8	1438.9	211.5	0
B737	D	ICAO_B	5	4	T_ZERO	C	C	22106.7	3000	0	0
B737	D	ICAO_B	5	5	T_ZERO	A	C	22106.7	1579.6	250	0
B737	D	ICAO_B	5	6	T_ZERO	C	C	22106.7	5500	0	0
B737	D	ICAO_B	5	7	T_ZERO	C	C	22106.7	7500	0	0
B737	D	ICAO_B	5	8	T_ZERO	C	C	22106.7	10000	0	0
B737	D	ICAO_B	6	1	T_5	T	T	23534.8	0	0	0
B737	D	ICAO_B	6	2	T_5	C	T	23534.8	1000	0	0
B737	D	ICAO_B	6	3	T_01	A	T	23534.8	1437.2	211.5	0
B737	D	ICAO_B	6	4	T_ZERO	C	C	22106.7	3000	0	0
B737	D	ICAO_B	6	5	T_ZERO	A	C	22106.7	1579.1	250	0
B737	D	ICAO_B	6	6	T_ZERO	C	C	22106.7	5500	0	0
B737	D	ICAO_B	6	7	T_ZERO	C	C	22106.7	7500	0	0
B737	D	ICAO_B	6	8	T_ZERO	C	C	22106.7	10000	0	0

Table 19. NADP (ICAO) Procedure for B738 Aircraft

Source: AEDT 2d

Aircraft	Mode	Procedure	StageLength	Segment	Flap Setting	Step Type	Thrust Type	Thrust	PARAM1	PARAM2	PARAM3
B738	D	ICAO_A	1	1	T_05	T	T	26089.1	0	0	0
B738	D	ICAO_A	1	2	T_05	C	T	26089.1	1500	0	0
B738	D	ICAO_A	1	3	T_05	C	C	22403.5	3000	0	0
B738	D	ICAO_A	1	4	T_05	A	C	22403.5	1449.4	177.2	0
B738	D	ICAO_A	1	5	T_01	A	C	22403.5	1663.3	204.6	0
B738	D	ICAO_A	1	6	T_00	C	C	22403.5	3807	0	0
B738	D	ICAO_A	1	7	T_00	A	C	22403.5	1896.8	250	0
B738	D	ICAO_A	1	8	T_00	C	C	22403.5	5500	0	0
B738	D	ICAO_A	1	9	T_00	C	C	22403.5	7500	0	0
B738	D	ICAO_A	1	10	T_00	C	C	22403.5	10000	0	0
B738	D	ICAO_A	2	1	T_05	T	T	26089.1	0	0	0
B738	D	ICAO_A	2	2	T_05	C	T	26089.1	1500	0	0
B738	D	ICAO_A	2	3	T_05	C	C	22403.5	3000	0	0
B738	D	ICAO_A	2	4	T_05	A	C	22403.5	1372.3	179.6	0
B738	D	ICAO_A	2	5	T_01	A	C	22403.5	1579.3	207.8	0
B738	D	ICAO_A	2	6	T_00	C	C	22403.5	3772	0	0
B738	D	ICAO_A	2	7	T_00	A	C	22403.5	1804.3	250	0
B738	D	ICAO_A	2	8	T_00	C	C	22403.5	5500	0	0
B738	D	ICAO_A	2	9	T_00	C	C	22403.5	7500	0	0
B738	D	ICAO_A	2	10	T_00	C	C	22403.5	10000	0	0
B738	D	ICAO_A	3	1	T_05	T	T	26089.1	0	0	0
B738	D	ICAO_A	3	2	T_05	C	T	26089.1	1500	0	0
B738	D	ICAO_A	3	3	T_05	C	C	22403.5	3000	0	0
B738	D	ICAO_A	3	4	T_05	A	C	22403.5	1297	182.1	0
B738	D	ICAO_A	3	5	T_01	A	C	22403.5	1496.9	211	0

Aircraft	Mode	Procedure	StageLength	Segment	Flap Setting	Step Type	Thrust Type	Thrust	PARAM1	PARAM2	PARAM3
B738	D	ICAO_A	3	6	T_00	C	C	22403.5	3737	0	0
B738	D	ICAO_A	3	7	T_00	A	C	22403.5	1701.8	250	0
B738	D	ICAO_A	3	8	T_00	C	C	22403.5	5500	0	0
B738	D	ICAO_A	3	9	T_00	C	C	22403.5	7500	0	0
B738	D	ICAO_A	3	10	T_00	C	C	22403.5	10000	0	0
B738	D	ICAO_A	4	1	T_05	T	T	26089.1	0	0	0
B738	D	ICAO_A	4	2	T_05	C	T	26089.1	1500	0	0
B738	D	ICAO_A	4	3	T_05	C	C	22403.5	3000	0	0
B738	D	ICAO_A	4	4	T_05	A	C	22403.5	1194.2	185.8	0
B738	D	ICAO_A	4	5	T_01	A	C	22403.5	1352.1	214.8	0
B738	D	ICAO_A	4	6	T_00	A	C	22403.5	1548.2	250	0
B738	D	ICAO_A	4	7	T_00	C	C	22403.5	5500	0	0
B738	D	ICAO_A	4	8	T_00	C	C	22403.5	7500	0	0
B738	D	ICAO_A	4	9	T_00	C	C	22403.5	10000	0	0
B738	D	ICAO_A	5	1	T_05	T	T	26089.1	0	0	0
B738	D	ICAO_A	5	2	T_05	C	T	26089.1	1500	0	0
B738	D	ICAO_A	5	3	T_05	C	C	22403.5	3000	0	0
B738	D	ICAO_A	5	4	T_05	A	C	22403.5	1078.9	189.4	0
B738	D	ICAO_A	5	5	T_01	A	C	22403.5	1233.3	217.4	0
B738	D	ICAO_A	5	6	T_00	A	C	22403.5	1403.6	250	0
B738	D	ICAO_A	5	7	T_00	C	C	22403.5	5500	0	0
B738	D	ICAO_A	5	8	T_00	C	C	22403.5	7500	0	0
B738	D	ICAO_A	5	9	T_00	C	C	22403.5	10000	0	0
B738	D	ICAO_A	6	1	T_05	T	T	26089.1	0	0	0
B738	D	ICAO_A	6	2	T_05	C	T	26089.1	1500	0	0
B738	D	ICAO_A	6	3	T_05	C	C	22403.5	3000	0	0
B738	D	ICAO_A	6	4	T_05	A	C	22403.5	1037.8	190.9	0
B738	D	ICAO_A	6	5	T_01	A	C	22403.5	1182.7	218.6	0

Aircraft	Mode	Procedure	StageLength	Segment	Flap Setting	Step Type	Thrust Type	Thrust	PARAM1	PARAM2	PARAM3
B738	D	ICAO_A	6	6	T_00	A	C	22403.5	1349.5	250	0
B738	D	ICAO_A	6	7	T_00	C	C	22403.5	5500	0	0
B738	D	ICAO_A	6	8	T_00	C	C	22403.5	7500	0	0
B738	D	ICAO_A	6	9	T_00	C	C	22403.5	10000	0	0
B738	D	ICAO_B	1	1	T_05	T	T	26089.1	0	0	0
B738	D	ICAO_B	1	2	T_05	C	T	26089.1	1000	0	0
B738	D	ICAO_B	1	3	T_05	A	T	26089.1	1885.7	181.7	0
B738	D	ICAO_B	1	4	T_01	A	T	26089.1	2112	204.8	0
B738	D	ICAO_B	1	5	T_00	C	T	26089.1	2040	0	0
B738	D	ICAO_B	1	6	T_00	C	C	22403.5	3000	0	0
B738	D	ICAO_B	1	7	T_00	A	C	22403.5	1891.3	250	0
B738	D	ICAO_B	1	8	T_00	C	C	22403.5	5500	0	0
B738	D	ICAO_B	1	9	T_00	C	C	22403.5	7500	0	0
B738	D	ICAO_B	1	10	T_00	C	C	22403.5	10000	0	0
B738	D	ICAO_B	2	1	T_05	T	T	26089.1	0	0	0
B738	D	ICAO_B	2	2	T_05	C	T	26089.1	1000	0	0
B738	D	ICAO_B	2	3	T_05	A	T	26089.1	1786.4	183.9	0
B738	D	ICAO_B	2	4	T_01	A	T	26089.1	2016.2	208	0
B738	D	ICAO_B	2	5	T_00	C	T	26089.1	2000	0	0
B738	D	ICAO_B	2	6	T_00	C	C	22403.5	3000	0	0
B738	D	ICAO_B	2	7	T_00	A	C	22403.5	1793.4	250	0
B738	D	ICAO_B	2	8	T_00	C	C	22403.5	5500	0	0
B738	D	ICAO_B	2	9	T_00	C	C	22403.5	7500	0	0
B738	D	ICAO_B	2	10	T_00	C	C	22403.5	10000	0	0
B738	D	ICAO_B	3	1	T_05	T	T	26089.1	0	0	0
B738	D	ICAO_B	3	2	T_05	C	T	26089.1	1000	0	0
B738	D	ICAO_B	3	3	T_05	A	T	26089.1	1707.7	186.2	0
B738	D	ICAO_B	3	4	T_05	A	T	26089.1	1922	211.2	0

Aircraft	Mode	Procedure	StageLength	Segment	Flap Setting	Step Type	Thrust Type	Thrust	PARAM1	PARAM2	PARAM3
B738	D	ICAO_B	3	5	T_00	C	T	26089.1	1960	0	0
B738	D	ICAO_B	3	6	T_00	C	C	22403.5	3000	0	0
B738	D	ICAO_B	3	7	T_00	A	C	22403.5	1705.3	250	0
B738	D	ICAO_B	3	8	T_00	C	C	22403.5	5500	0	0
B738	D	ICAO_B	3	9	T_00	C	C	22403.5	7500	0	0
B738	D	ICAO_B	3	10	T_00	C	C	22403.5	10000	0	0
B738	D	ICAO_B	4	1	T_05	T	T	26089.1	0	0	0
B738	D	ICAO_B	4	2	T_05	C	T	26089.1	1000	0	0
B738	D	ICAO_B	4	3	T_05	A	T	26089.1	1576.6	189.6	0
B738	D	ICAO_B	4	4	T_01	A	T	26089.1	1766.9	216.2	0
B738	D	ICAO_B	4	5	T_00	C	T	26089.1	1880	0	0
B738	D	ICAO_B	4	6	T_00	C	C	22403.5	3000	0	0
B738	D	ICAO_B	4	7	T_00	A	C	22403.5	1546.5	250	0
B738	D	ICAO_B	4	8	T_00	C	C	22403.5	5500	0	0
B738	D	ICAO_B	4	9	T_00	C	C	22403.5	7500	0	0
B738	D	ICAO_B	4	10	T_00	C	C	22403.5	10000	0	0
B738	D	ICAO_B	5	1	T_05	T	T	26089.1	0	0	0
B738	D	ICAO_B	5	2	T_05	C	T	26089.1	1000	0	0
B738	D	ICAO_B	5	3	T_05	A	T	26089.1	1444.9	192.9	0
B738	D	ICAO_B	5	4	T_01	A	T	26089.1	1628.6	220.7	0
B738	D	ICAO_B	5	5	T_00	C	T	26089.1	1811	0	0
B738	D	ICAO_B	5	6	T_00	C	C	22403.5	3000	0	0
B738	D	ICAO_B	5	7	T_00	A	C	22403.5	1412.2	250	0
B738	D	ICAO_B	5	8	T_00	C	C	22403.5	5500	0	0
B738	D	ICAO_B	5	9	T_00	C	C	22403.5	7500	0	0
B738	D	ICAO_B	5	10	T_00	C	C	22403.5	10000	0	0
B738	D	ICAO_B	6	1	T_05	T	T	26089.1	0	0	0
B738	D	ICAO_B	6	2	T_05	C	T	26089.1	1000	0	0

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Aircraft	Mode	Procedure	StageLength	Segment	Flap Setting	Step Type	Thrust Type	Thrust	PARAM1	PARAM2	PARAM3
B738	D	ICAO_B	6	3	T_05	A	T	26089.1	1400	194.4	0
B738	D	ICAO_B	6	4	T_01	A	T	26089.1	1575.4	222.7	0
B738	D	ICAO_B	6	5	T_00	C	T	26089.1	1785	0	0
B738	D	ICAO_B	6	6	T_00	C	C	22403.5	3000	0	0
B738	D	ICAO_B	6	7	T_00	A	C	22403.5	1357.5	250	0
B738	D	ICAO_B	6	8	T_00	C	C	22403.5	5500	0	0
B738	D	ICAO_B	6	9	T_00	C	C	22403.5	7500	0	0
B738	D	ICAO_B	6	10	T_00	C	C	22403.5	10000	0	0

Table 20. NADP (ICAO) Procedure for A319 Aircraft

Source: AEDT 2d

Aircraft	Mode	Procedure	StageLength	Segment	Flap Setting	Step Type	Thrust Type	Thrust	PARAM1	PARAM2	PARAM3
A319	D	ICAO_B	1	1	1+F	T	T	21435.4	0	0	0
A319	D	ICAO_B	1	2	1+F	C	T	21435.4	1000	0	0
A319	D	ICAO_B	1	3	1+F	A	T	21435.4	1042.6	181.6	0
A319	D	ICAO_B	1	4	1	A	T	21435.4	1177.5	200.7	0
A319	D	ICAO_B	1	5	ZERO	C	C	14957.2	3000	0	0
A319	D	ICAO_B	1	6	ZERO	A	C	14957.2	1320.8	250	0
A319	D	ICAO_B	1	7	ZERO	C	C	14957.2	5500	0	0
A319	D	ICAO_B	1	8	ZERO	C	C	14957.2	7500	0	0
A319	D	ICAO_B	1	9	ZERO	C	C	14957.2	10000	0	0
A319	D	ICAO_B	2	1	1+F	T	T	21435.4	0	0	0
A319	D	ICAO_B	2	2	1+F	C	T	21435.4	1000	0	0
A319	D	ICAO_B	2	3	1+F	A	T	21435.4	997.1	185.3	0
A319	D	ICAO_B	2	4	1	A	T	21435.4	1128.9	203.3	0
A319	D	ICAO_B	2	5	ZERO	C	C	14957.2	3000	0	0
A319	D	ICAO_B	2	6	ZERO	A	C	14957.2	1264	250	0
A319	D	ICAO_B	2	7	ZERO	C	C	14957.2	5500	0	0
A319	D	ICAO_B	2	8	ZERO	C	C	14957.2	7500	0	0
A319	D	ICAO_B	2	9	ZERO	C	C	14957.2	10000	0	0
A319	D	ICAO_B	3	1	1+F	T	T	21435.4	0	0	0
A319	D	ICAO_B	3	2	1+F	C	T	21435.4	1000	0	0
A319	D	ICAO_B	3	3	1+F	A	T	21435.4	952.7	189	0
A319	D	ICAO_B	3	4	1	A	T	21435.4	1081	206	0
A319	D	ICAO_B	3	5	ZERO	C	C	14957.2	3000	0	0
A319	D	ICAO_B	3	6	ZERO	A	C	14957.2	1208.7	250	0
A319	D	ICAO_B	3	7	ZERO	C	C	14957.2	5500	0	0

Aircraft	Mode	Procedure	StageLength	Segment	Flap Setting	Step Type	Thrust Type	Thrust	PARAM1	PARAM2	PARAM3
A319	D	ICAO_B	3	8	ZERO	C	C	14957.2	7500	0	0
A319	D	ICAO_B	3	9	ZERO	C	C	14957.2	10000	0	0
A319	D	ICAO_B	4	1	1+F	T	T	21435.4	0	0	0
A319	D	ICAO_B	4	2	1+F	C	T	21435.4	1000	0	0
A319	D	ICAO_B	4	3	1+F	A	T	21435.4	880.8	195.6	0
A319	D	ICAO_B	4	4	1	A	T	21435.4	1001.7	210.8	0
A319	D	ICAO_B	4	5	ZERO	C	C	14957.2	3000	0	0
A319	D	ICAO_B	4	6	ZERO	A	C	14957.2	1119.6	250	0
A319	D	ICAO_B	4	7	ZERO	C	C	14957.2	5500	0	0
A319	D	ICAO_B	4	8	ZERO	C	C	14957.2	7500	0	0
A319	D	ICAO_B	4	9	ZERO	C	C	14957.2	10000	0	0
A319	D	ICAO_B	5	1	1+F	T	T	21435.4	0	0	0
A319	D	ICAO_B	5	2	1+F	A	T	21435.4	735.2	169.7	0
A319	D	ICAO_B	5	3	1+F	C	T	21435.4	1000	0	0
A319	D	ICAO_B	5	4	1+F	A	T	21435.4	793.4	208.8	0
A319	D	ICAO_B	5	5	ZERO	A	T	21435.4	860	221.2	0
A319	D	ICAO_B	5	6	ZERO	C	C	14957.2	3000	0	0
A319	D	ICAO_B	5	7	ZERO	A	C	14957.2	964.2	250	0
A319	D	ICAO_B	5	8	ZERO	C	C	14957.2	5500	0	0
A319	D	ICAO_B	5	9	ZERO	C	C	14957.2	7500	0	0
A319	D	ICAO_B	5	10	ZERO	C	C	14957.2	10000	0	0

Table 21. NADP (ICAO) Procedure for A320 Aircraft

Source: AEDT 2d

Aircraft	Mode	Procedure	StageLength	Segment	Flap Setting	Step Type	Thrust Type	Thrust	PARAM1	PARAM2	PARAM3
A320	D	ICAO_B	1	1	1+F	T	T	24746.2	0	0	0
A320	D	ICAO_B	1	2	1+F	C	T	24746.2	1000	0	0
A320	D	ICAO_B	1	3	1+F	A	T	24746.2	1219.6	185.5	0
A320	D	ICAO_B	1	4	1	A	T	24746.2	1372.6	208.6	0
A320	D	ICAO_B	1	5	ZERO	C	C	15539.2	3000	0	0
A320	D	ICAO_B	1	6	ZERO	A	C	15539.2	1192.1	250	0
A320	D	ICAO_B	1	7	ZERO	C	C	15539.2	5500	0	0
A320	D	ICAO_B	1	8	ZERO	C	C	15539.2	7500	0	0
A320	D	ICAO_B	1	9	ZERO	C	C	15539.2	10000	0	0
A320	D	ICAO_B	2	1	1+F	T	T	24746.2	0	0	0
A320	D	ICAO_B	2	2	1+F	C	T	24746.2	1000	0	0
A320	D	ICAO_B	2	3	1+F	A	T	24746.2	1167.9	189.3	0
A320	D	ICAO_B	2	4	1	A	T	24746.2	1315.7	211	0
A320	D	ICAO_B	2	5	ZERO	C	C	15539.2	3000	0	0
A320	D	ICAO_B	2	6	ZERO	A	C	15539.2	1137.4	250	0
A320	D	ICAO_B	2	7	ZERO	C	C	15539.2	5500	0	0
A320	D	ICAO_B	2	8	ZERO	C	C	15539.2	7500	0	0
A320	D	ICAO_B	2	9	ZERO	C	C	15539.2	10000	0	0
A320	D	ICAO_B	3	1	1+F	T	T	24746.2	0	0	0
A320	D	ICAO_B	3	2	1+F	C	T	24746.2	1000	0	0
A320	D	ICAO_B	3	3	1+F	A	T	24746.2	1118.6	193.2	0
A320	D	ICAO_B	3	4	1	A	T	24746.2	1260.6	213.6	0
A320	D	ICAO_B	3	5	ZERO	C	C	15539.2	3000	0	0
A320	D	ICAO_B	3	6	ZERO	A	C	15539.2	1085.2	250	0
A320	D	ICAO_B	3	7	ZERO	C	C	15539.2	5500	0	0

Aircraft	Mode	Procedure	StageLength	Segment	Flap Setting	Step Type	Thrust Type	Thrust	PARAM1	PARAM2	PARAM3
A320	D	ICAO_B	3	8	ZERO	C	C	15539.2	7500	0	0
A320	D	ICAO_B	3	9	ZERO	C	C	15539.2	10000	0	0
A320	D	ICAO_B	4	1	1+F	T	T	24746.2	0	0	0
A320	D	ICAO_B	4	2	1+F	C	T	24746.2	1000	0	0
A320	D	ICAO_B	4	3	1+F	A	T	24746.2	1040.6	199.9	0
A320	D	ICAO_B	4	4	1	A	T	24746.2	1170.7	218.4	0
A320	D	ICAO_B	4	5	ZERO	C	C	15539.2	3000	0	0
A320	D	ICAO_B	4	6	ZERO	A	C	15539.2	1001.5	250	0
A320	D	ICAO_B	4	7	ZERO	C	C	15539.2	5500	0	0
A320	D	ICAO_B	4	8	ZERO	C	C	15539.2	7500	0	0
A320	D	ICAO_B	4	9	ZERO	C	C	15539.2	10000	0	0
A320	D	ICAO_B	5	1	1+F	T	T	24746.2	0	0	0
A320	D	ICAOB	5	2	1+F	C	T	24746.2	1000	0	0
A320	D	ICAOB	5	3	1+F	A	T	24746.2	921.9	210.9	0
A320	D	ICAOB	5	4	1	A	T	24746.2	1033.9	226.5	0
A320	D	ICAOB	5	5	ZERO	C	C	15539.2	3000	0	0
A320	D	ICAOB	5	6	ZERO	A	C	15539.2	876.3	250	0
A320	D	ICAOB	5	7	ZERO	C	C	15539.2	5500	0	0
A320	D	ICAOB	5	8	ZERO	C	C	15539.2	7500	0	0
A320	D	ICAOB	5	9	ZERO	C	C	15539.2	10000	0	0

Table 22. AEDT Step Type Definitions

Source: AEDT 2d Technical Documentation

Step Type	Full Name	Description
T	Takeoff	Start-roll to takeoff rotation, or touch-and-go power-on point to takeoff rotation
C	Climb	Departure climb to final altitude at constant calibrated airspeed
M	Cruise-Climb	Climb at constant angle to final altitude and speed
A	Accelerate	Departure climb and accelerate to final speed
P	Acceleration - Percent	Departure climb and accelerate using a constant energy split between acceleration and climbing
V	Level	Maintain altitude and speed
U	Level-Deceleration	Maintain altitude and reduce speed
W	Level-Idle	Maintain altitude over a given distance with engines at idle
S	Level-Stretch	Special step used to designate where to stretch a circuit flight profile to fit a touch-and-go track
D	Descend	Descend at constant angle to final altitude
E	Descend-Deceleration	Descend while reducing airspeed
F	Descend-Idle	Descend at a constant angle with engines at idle
L	Land	Land and roll a given distance
B	Decelerate	Used on approach after touchdown, brake with starting thrust for a given distance

Table 23. AEDT Thrust Type Definitions

Source: AEDT 2d Technical Documentation

Thrust Type	Full Name
T	Max Takeoff
C	Max Climb
N	Max Continuous
H	Reduce Takeoff
Q	Reduce Climb
S	Max Take off Hi-Temp
B	Max Climb Hi-Temp
M	Max Continuous Hi-Temp
G	Reduce Climb Hi-Temp
P	Reduce Climb Hi-Temp
I	Idle Approach
J	Idle Approach Hi-Temp
R	Minimum Thrust
K	User Cutback
U	User Value