

APPENDIX F

AIRCRAFT NOISE MEASUREMENT PROGRAM

Although the FAA does not consider noise sampling in the evaluation of Noise Exposure Maps, it is allowable for 14 CFR Part 150 studies to collect field measurements so that airports can compare the computer-predicted values generated to the FAA's Aviation Environmental Design Tool (AEDT 3e) modeling output. Because the Department of Airports understands the value of including the direct measurement of noise experienced by neighboring communities, the decision was made to request the inclusion of the Aircraft Noise Measurement Program in the project. This Appendix provides the results of the comparison. It is important to note that these noise measurements are not used to determine impacts as part of a 14 CFR Part 150 study.

Noise measurements were conducted near Oxnard Airport during the following periods: May 15 through May 23, 2023; June 30 through July 2, 2023; and July 26 through August 1, 2023.

It should be noted that discrepancies may exist when comparing field measurements to computer-generated noise levels. The 24-hour field measurements represent noise conditions for individual days, while the computer model represents the average annual condition for each measurement site. In other words, the AEDT model simulates the noise levels an individual monitor would have observed had it been deployed for the entire year, and then averages the values to represent a single 24-hour period. As a result, field-measured noise levels collected in a particular 24-hour period may be greater or less than the average condition represented by the model. These differences can be attributed to a number of variables, including: the number and type of aircraft operations during the sampling period; operations from other area airports; interference from non-aviation noise; and climatic conditions.

Information collected during the noise measurement program includes 24-hour measurements at 10 different sites, ranging in duration from 24 hours to 72 hours, for comparison with the computer-modeled Community Noise Equivalent Level (CNEL) for each specific location. CNEL is a measure of cumulative sound energy during a 24-hour period. As with the AEDT, all noise events occurring from 7:00 p.m. to 10:00 p.m. are assigned a 4.77 decibel (dB) penalty, and noise events occurring between 10:00 p.m. to 7:00 a.m. are assigned a 10 dB penalty to account for the potentially greater annoyance caused by evening and nighttime noise. In this context, a "penalty" can also be thought of as a multiplier: the model counts operations during evening and nighttime hours as more annoying.

In addition to the cumulative noise data, information was collected for single-event measurements. This information is used as an indicator of typical dB and sound exposure levels (SEL) within the airport area. All procedures and equipment involved in the aircraft noise measurement program were performed pursuant to guidelines set forth by Title 14, Code of Federal Regulations, Part 150 (14 CFR Part 150 or Part 150), §A150.3.

ACOUSTICAL MEASUREMENTS

Two (2) Larson Davis Model 831 sound level meters were used to collect data during the noise measurement program. Each unit was equipped with an external microphone and a weatherproof case to protect the equipment from inclement weather.

To ensure consistency between measurement locations, each unit was calibrated with a Larson Davis calibration device; a calibrator with an accuracy of 0.5 dB was used for all instruments. The monitors were recalibrated at the completion of each field measurement.

Logged noise data were retrieved from the devices during routine site visits and stored on a laptop computer. The raw data from each unit are included in the analysis discussed later in this section.

Measurement Procedures

To minimize the potential for non-aircraft noise measurements, thresholds for noise levels and duration were established. These thresholds were programmed as part of the initial setup for the noise measurement equipment. A minimum threshold of approximately five to 10 dB greater than the ambient level was established for the noise measurements. This excluded any noise event below the threshold. Additionally, a minimum event duration of five seconds was set to ensure that brief events (e.g., door slam, dog barking, etc.) were not recorded. These two thresholds effectively filtered the single noise events logged by the noise measurement devices to noise events most likely to be caused by aircraft in flight. Only events which exceeded both thresholds were noted as noise events and included as part of the raw data.

Single events that met both criteria were retained and analyzed to consider all noise present at the site, regardless of its level, and were used to provide hourly summations of equivalent noise levels (L_{eq}). Additionally, the equipment optionally provided information on SEL values for each event which exceeded the preset threshold and duration, as well as distributions of decibel levels throughout the measurement period. The Larson Davis Model 831 sound level meters are equipped to make a digital recording of an event that exceeds the programmed thresholds; this feature aids the user in identifying aviation-related events when calculating noise exposure for a location. A 15-second sound file is saved within the instrument's memory and is downloaded during routine site visits. This 15-second sound file can then be used to identify the source of the noise event.

Weather Information

Weather can influence aviation activity at an airport. For example, low overcast conditions are likely to reduce the number of operations at an airport, while unseasonably warm weather may increase the number of operations at an airport. **Table F1** summarizes the weather observed during the noise measurement program, as reported from the Oxnard Airport weather station. As indicated in the table, daily high temperatures ranged between 61 and 81 degrees Fahrenheit (F), while low temperatures ranged between 55 and 65 degrees F. In comparison to the monthly average for May, the daily high and low temperatures ranged between 66 degrees F (high) and 55 degrees F (low) and were close to the average high of 64.7 degrees F (average high for May), with five days above the average and four days below the average high for May. All nine days had low temperatures above the average low for May of 54.6 degrees. In comparison to the monthly average for July, the daily high and low temperatures ranged between 81 degrees F (high) and 61 degrees F (low), with nine days below and two days above the average high of 79 degrees F (average high). The first four days were below the average low of 60 degrees F (average low), and the remaining seven days were above the average low for July. During May, average wind speeds were the below average of 7.2 miles per hour (MPH) and ranged from 3.4 to 6.9 MPH, with maximum wind speeds of up to 25 MPH. During July, nine days had above average (5.0 MPH) wind speeds ranging from 4.6 to 7.6 MPH, with maximum wind speeds of up to 27 MPH. No precipitation was recorded on any of the noise measurement days. No severe weather events were recorded during the noise measurement program.

TABLE F1 | Noise Measurement Program Weather Conditions - Oxnard Airport

	DATE											
	May Daily Average	5/15	5/16	5/17	5/18	5/19	5/20	5/21	5/22	5/23		
Mean Temperature (°F)	59.7	62	60	58	60	61	62	61	61	60		
Maximum Temperature (°F)	64.7	65	63	61	63	65	66	65	65	63		
Minimum Temperature (°F)	54.6	58	56	55	57	57	57	56	56	56		
Precipitation (inches)	0	0	0	0	0	0	0	0	0	0		
Average Wind Speed (MPH)	7.2	6.1	6.4	5.7	3.4	5.8	6.9	4.3	5.1	4.8		
Wind Direction	W	W	WNW	W	W	WNW	W	W	W	W		
Maximum Wind Speed (MPH)	20	18	19	20	14	16	21	19	25	15		
<i>Source: Oxnard Airport Weather Reporting Station, May 2023</i> https://www.ncdc.noaa.gov/cdo-web/datasets/LCD/stations/WBAN:93110/detail												
	DATE											
	July Daily Average	6/30	7/1	7/2	7/3	7/26	7/27	7/28	7/29	7/30	7/31	8/1
Mean Temperature (°F)	70	62	63	62	61	73	68	70	70	69	73	70
Maximum Temperature (°F)	79	67	68	66	66	81	75	75	75	75	80	76
Minimum Temperature (°F)	60	57	57	57	56	64	61	64	65	63	65	64
Precipitation (inches)	0	0	0	0	0	0	0	0	0	0	0	0
Average Wind Speed (MPH)	5.0	6.6	4.6	7.6	7.5	6.8	5.6	5.2	5.7	4.8	6.3	6.2
Wind Direction	W	W	W	WNW	W	W	W	W	W	S	W	W
Maximum Wind Speed (MPH)	21	20	17	21	19	22	19	18	23	27	23	17
¹ T = indicates a trace amount of precipitation recorded on that date <i>Source: Oxnard Airport Weather Reporting Station, June, July, and August 2023</i> https://www.ncdc.noaa.gov/cdo-web/datasets/LCD/stations/WBAN:93110/detail												

Aircraft Noise Measurement Sites and Summary

Noise measurement devices were positioned in locations that did not include unusual terrain characteristics, such as berms, or other loud non-aviation noise sources which could adversely affect the quality of the measurements. Examples of non-aviation noise sources include trains, automobiles, landscaping equipment, construction activities, and air conditioner units. Prior to selecting the sites, input on potential locations for the monitors was solicited from the Planning Advisory Committee and the general public. The original program included eight sites over nine days; however, the Department of Airports arranged to have sampling repeated for another 11 days with one additional site included based on an analysis of aircraft activity during the initial sampling, for a total of nine sites over 19 days.

While multiple sites met the desired criteria for sampling, the selected sites fulfill the above criteria and provide a representative sampling of the varying noise conditions in the airport vicinity. The locations of the noise measurement sites are depicted on **Exhibit 3J** in **Chapter 3 – Aviation Noise**, and the sites are summarized below in **Table F2**. As indicated in the table, seven of the measurements were conducted at residential locations within communities near the airport. Additionally, two noise measurement devices were placed at Oxnard Airport.

Site	Location	Duration (hours)
1	Residence on Whitecap Street, Oxnard Shores neighborhood, Oxnard	48
2	Residence on Harbour Island Lane, Channel Islands neighborhood, Oxnard	96
3	Residence on Via Pacific Walk, Via Marina neighborhood, Oxnard	96
4	Residence on Aspen Circle, Cabrillo neighborhood, Oxnard	96
5	Residence in Oxnard Shores Mobile Home Park, Oxnard	144
6	Residence on G Street, Henry T. Oxnard Historic District, Oxnard	144
7	Oxnard Airport, Runway 7 west end	24
8	Oxnard Airport, Runway 25 east end	24
9	Residence on Farralon Way, Channel Islands neighborhood, Oxnard	72

A summary of the single-event noise data collected during the measurement period is presented in **Table F3**. This information includes:

- Maximum recorded noise level in dB (L_{max});
- Longest single event duration in seconds (Max Duration);
- Total number of events above 60 dB SEL;
- Number of single events within the ranges of 60-70 dB, 70-80 dB, 80-90 dB, 90-100 dB, and above 100 dB SEL; and
- Number of events identified as aircraft operations based on audio recordings of the events.

As indicated in **Table F3**, the maximum recorded sound level (L_{max}) for all measurement periods ranged between 66.3 dB at Site 2, at a residence in the Channel Islands neighborhood, and 97.2 dB at the same site. Of the 31 days on which measurements were collected, 14 had L_{max} values attributed to aircraft operations and 16 (at Sites 1, 2, 3, 4, 5, 6, and 9) had L_{max} values identified as non-aviation noise (residents, passing traffic, wildlife, and landscaping). As noted in the table, the maximum duration of events at the sites ranged between 12.8 seconds and 3,625 seconds. It is important to note that the L_{max} and maximum duration are from different events in many cases. While it is possible that overflight contributed to the extended period of elevated noise, other non-aircraft events may be accountable for extended noise events.

TABLE F3 | Noise Measurement Single Event Data Summary - Oxnard Airport

Site/Day	L _{max}	Max Duration (sec)	SOUND EXPOSURE LEVEL EVENT SUMMARY							Aircraft Events
			Below 60 dB	60-70 dB	70-80 dB	80-90 dB	90-100 dB	100+ dB		
Site 1 – Residence on Whitecap Street, Oxnard Shores neighborhood, Oxnard										
Day 1	81.4 ¹	262.4	118	149	24	5	0	0	60	
Day 2	81.0 ²	3625.3	212	177	23	2	1	0	53	
Site 2 – Residence on Harbour Island Lane, Channel Islands neighborhood, Oxnard										
Day 1	66.4 ³	12.8	0	11	1	0	0	0	6	
Day 2	97.2 ⁴	383.1	0	85	15	2	2	2	4	
Day 3	74.6 ²	207.8	205	124	19	2	0	0	63	
Day 4	73.8 ⁴	573.9	157	102	22	4	0	0	69	
Site 3 – Residence on Via Pacific Walk, Via Marina neighborhood, Oxnard										
Day 1	73.6 ³	573.9	119	111	27	1	0	0	43	
Day 2	80.4 ²	737.0	94	106	22	6	0	0	46	
Day 3	72.7 ¹	47.5	0	37	23	3	0	0	12	
Day 4	86.5 ¹	40.6	0	30	31	2	0	0	22	
Site 4 – Residence on Aspen Circle, Cabrillo neighborhood, Oxnard										
Day 1	77.6	193.7	252	262	41	2	0	0	102	
Day 2	84.0 ¹	193.7	213	236	46	2	0	0	134	
Day 3	79.4	62.7	0	95	25	3	0	0	68	
Day 4	80.1 ¹	46.3	0	83	39	6	0	0	77	
Site 5 – Residence in Oxnard Shores Mobile Home Park, Oxnard										
Day 1	81.2	140.3	169	1245	101	10	0	0	114	
Day 2	84.8	219.1	185	1206	100	12	1	0	132	
Day 3	82.7	210.4	167	1104	92	11	0	0	87	
Day 4	78.3	282.1	19	1169	97	15	0	0	159	
Day 5	91.2 ²	37.7	0	3	43	9	2	0	12	
Day 6	77.3 ²	22.5	0	5	47	9	0	0	26	
Site 6 – Residence on G Street, Henry T. Oxnard Historic District, Oxnard										
Day 1	83.6 ²	70.9	0	60	34	12	0	0	29	
Day 2	80.9	118.3	0	50	22	9	0	0	26	
Day 3	83.1	48.4	0	45	28	6	1	0	19	
Day 4	86.7	29.5	0	0	25	9	4	0	21	
Day 5	75.1	28.2	0	1	22	7	0	0	18	
Day 6	79.8	24.0	0	2	24	13	0	0	22	
Site 7 – Oxnard Airport, Runway 7 west end										
Day 1	94.9	448.5	244	273	64	32	8	0	195	
Site 8 – Oxnard Airport, Runway 25 east end										
Day 1	90.6	84.7	0	41	50	17	5	0	88	
Site 9 – Residence on Farralon Way, Channel Islands neighborhood, Oxnard										
Day 1	76.5 ⁴	1250.4	366	182	57	3	1	0	159	
Day 2	84.8 ⁴	1976.4	283	165	53	3	1	0	133	
Day 3	69.5	34.8	0	9	8	1	0	0	16	

Note: L_{max} and Maximum Duration may be from different events.

¹ Noise value generated by resident.

² Noise value generated by passing automobile traffic.

³ Noise value generated by wildlife.

⁴ Noise value generated by landscaping.

Source: Coffman Associates analysis

Table F4 includes information specific to aircraft events only.

TABLE F4 Aircraft-Only Single Event Data Summary - Oxnard Airport									
Site/Day	L _{max} (Aircraft Only)	Max Duration (sec)	SOUND EXPOSURE LEVEL EVENT SUMMARY						Aircraft Events
			Below 60 dB	60-70 dB	70-80 dB	80-90 dB	90-100 dB	100+ dB	
Site 1 – Residence on Whitecap Street, Oxnard Shores neighborhood, Oxnard									
Day 1	81.4	45.3	17	32	10	1	0	0	60
Day 2	72.0	35.2	14	33	5	1	0	0	53
Site 2 – Residence on Harbour Island Lane, Channel Islands neighborhood, Oxnard									
Day 1	59.8	16.6	0	6	0	0	0	0	6
Day 2	56.6	35.0	0	4	1	0	0	0	4
Day 3	68.9	122.7	24	32	6	1	0	0	63
Day 4	69.1	100.2	31	32	6	0	0	0	69
Site 3 – Residence on Via Pacific Walk, Via Marina neighborhood, Oxnard									
Day 1	66.9	67.3	16	23	4	0	0	0	43
Day 2	72.0	64.0	15	27	4	0	0	0	46
Day 3	66.2	30.3	0	9	3	0	0	0	12
Day 4	70.9	29.7	0	8	13	1	0	0	22
Site 4 – Residence on Aspen Circle, Cabrillo neighborhood, Oxnard									
Day 1	77.6	168.3	49	40	11	2	0	0	102
Day 2	69.5	201.0	52	66	16	0	0	0	134
Day 3	79.4	64.7	0	46	19	3	0	0	68
Day 4	74.8	46.3	0	50	23	4	0	0	77
Site 5 – Residence in Oxnard Shores Mobile Home Park, Oxnard									
Day 1	81.2	86.5	16	68	23	7	0	0	114
Day 2	84.8	160.4	24	71	28	8	1	0	132
Day 3	82.7	168.0	26	40	16	5	0	0	87
Day 4	78.3	73.6	2	118	31	8	0	0	159
Day 5	77.7	37.7	0	1	7	4	0	0	12
Day 6	74.3	66.8	0	1	19	6	0	0	26
Site 6 – Residence on G Street, Henry T. Oxnard Historic District, Oxnard									
Day 1	82.4	38.9	0	11	18	0	0	0	29
Day 2	80.9	29.2	0	11	7	8	0	0	26
Day 3	83.1	43.8	0	5	7	6	1	0	19
Day 4	86.7	29.5	0	0	11	6	4	0	21
Day 5	75.1	28.2	0	0	11	7	0	0	18
Day 6	79.8	24.0	0	0	11	11	0	0	22
Site 7 – Oxnard Airport, Runway 7 west end									
Day 1	94.9	448.5	50	79	32	27	7	0	195
Site 8 – Oxnard Airport, Runway 25 east end									
Day 1	90.6	92.9	0	31	40	14	3	0	88
Site 9 – Residence on Farralon Way, Channel Islands neighborhood, Oxnard									
Day 1	68.7	730.2	64	76	18	1	0	0	159
Day 2	68.0	215.80	48	72	13	0	0	0	133
Day 3	69.5	34.8	0	9	7	0	0	0	16

Source: Coffman Associates analysis

Note: L_{max} and Maximum Duration may be from different events.

Table F4 includes a summary of the cumulative data collected for each site, which includes the 24-hour LEQ (equivalent sound level), CNEL(24), and CNEL(24t) for each site. The LEQ metric is derived by accumulating all noise events logged during a given period and logarithmically averaging them. The LEQ metric is similar to the CNEL metric, except that no extra weight is attached to nighttime or evening noise

events. The CNEL(24) value represents the noise condition from all noise sources logged with the sound level meter. The CNEL(24t) is a reasonable approximation of the CNEL attributable to aircraft noise alone; only those events identified as aircraft noise, based on sound recordings, are included in the CNEL(24t) calculation. In some cases, CNEL(24t) may include noise from operations associated with airports other than Oxnard Airport. For sites with multiple 24-hour measurements, a logarithmic average of each individual 24-hour period is provided as an estimate of the average overall measurement for that site.

TABLE F4 | Noise Measurement Cumulative Data Summary – Oxnard Airport

Site/Day	LEQ(24)	CNEL(24)	CNEL(24t)
Site 1 – Residence on Whitecap Street, Oxnard Shores neighborhood, Oxnard			
Day 1	46.3	46.5	38.4
Day 2	46.1	46.3	36.3
Average	46.2	46.4	37.5
Site 2 – Residence on Harbour Island Lane, Channel Islands neighborhood, Oxnard			
Day 1	28.3	28.3	24.6
Day 2	63.4	63.4	25.0
Day 3	41.9	44.0	36.3
Day 4	44.9	45.7	35.2
Average	57.5	57.5	29.9
Site 3 – Residence on Via Pacific Walk, Via Marina neighborhood, Oxnard			
Day 1	41.1	44.2	32.7
Day 2	45.7	46.1	34.0
Day 3	40.9	41.4	31.7
Day 4	42.7	43.2	37.5
Average	43.1	44.0	34.6
Site 4 – Residence on Aspen Circle, Cabrillo neighborhood, Oxnard			
Day 1	44.5	46.3	40.5
Day 2	45.4	51.4	39.2
Day 3	43.6	44.5	42.9
Day 4	44.6	48.1	42.2
Average	44.6	48.4	41.5
Site 5 – Residence in Oxnard Shores Mobile Home Park, Oxnard			
Day 1	50.1	52.8	45.4
Day 2	50.6	53.9	46.5
Day 3	50.3	52.8	44.8
Day 4	50.5	53.3	45.8
Day 5	49.8	50.2	42.2
Day 6	45.1	48.4	42.2
Average	49.7	52.3	44.8
Site 6 – Residence on G Street, Henry T. Oxnard Historic District, Oxnard			
Day 1	47.9	51.8	46.1
Day 2	46.5	47.6	45.4
Day 3	46.5	49.2	45.5
Day 4	50.2	50.3	49.8
Day 5	43.4	45.2	42.3
Day 6	45.8	49.4	44.7
Average	47.2	49.4	46.2
Site 7 – Oxnard Airport, Runway 7 west end			
Day 1	57.3	57.3	56.9
Site 8 – Oxnard Airport, Runway 25 east end			
Day 1	52.6	52.8	51.2
Site 9 – Residence on Farralon Way, Channel Islands neighborhood, Oxnard			
Day 1	49.3	50.2	40.1
Day 2	49.9	50.7	38.3
Day 3	33.8	33.8	33.8
Average	47.9	48.7	38.1

Source: Coffman Associates analysis

As indicated in the table, the sites with the greatest average CNEL(24t) values are those located on airport property at Sites 7 and 8. The greatest off-airport LEQ(24) and CNEL(24) values were measured at Site 2 (Residence on Harbour Island Lane, Channel Islands neighborhood) and the greatest CNEL(24t), which is noise attributed only to aircraft events, was measured at Site 6 (Residence on G Street, Henry T. Oxnard Historic District).

COMPARATIVE MEASUREMENT ANALYSIS

The CNEL values derived from the field noise measurements have been compared to the computer-modeled noise values for the same geographic locations. It is important to note the distinction between the two values. The computer-modeled CNEL values are analogous to the climate of an area and represent the noise levels on an average day of the period under consideration; in contrast, the field measurements only reflect the noise levels on the specific days of measurement. With this understanding, it is useful to evaluate the comparative aircraft CNEL levels of the measurement sites. As previously discussed, the CNEL(24t) was used as it is a reasonable approximation of the CNEL attributable to aircraft noise alone.

CNEL Comparison

This analysis provides a direct comparison of the measured and predicted values for each noise measurement site. To facilitate such a comparison, it is necessary to ensure that the computer model inputs represent the observed reality as accurately as possible within the capabilities of the model. The differences between the modeled and measured CNEL(24t) values are depicted on **Exhibit F1** and within **Table F5**. A positive number in the difference column represents a modeled value which is greater than the measured value, while a negative number in the difference column indicates a modeled value which is less than the measured value.

TABLE F5 | Noise Measurement vs. AEDT-Predicted CNEL Values – Oxnard Airport

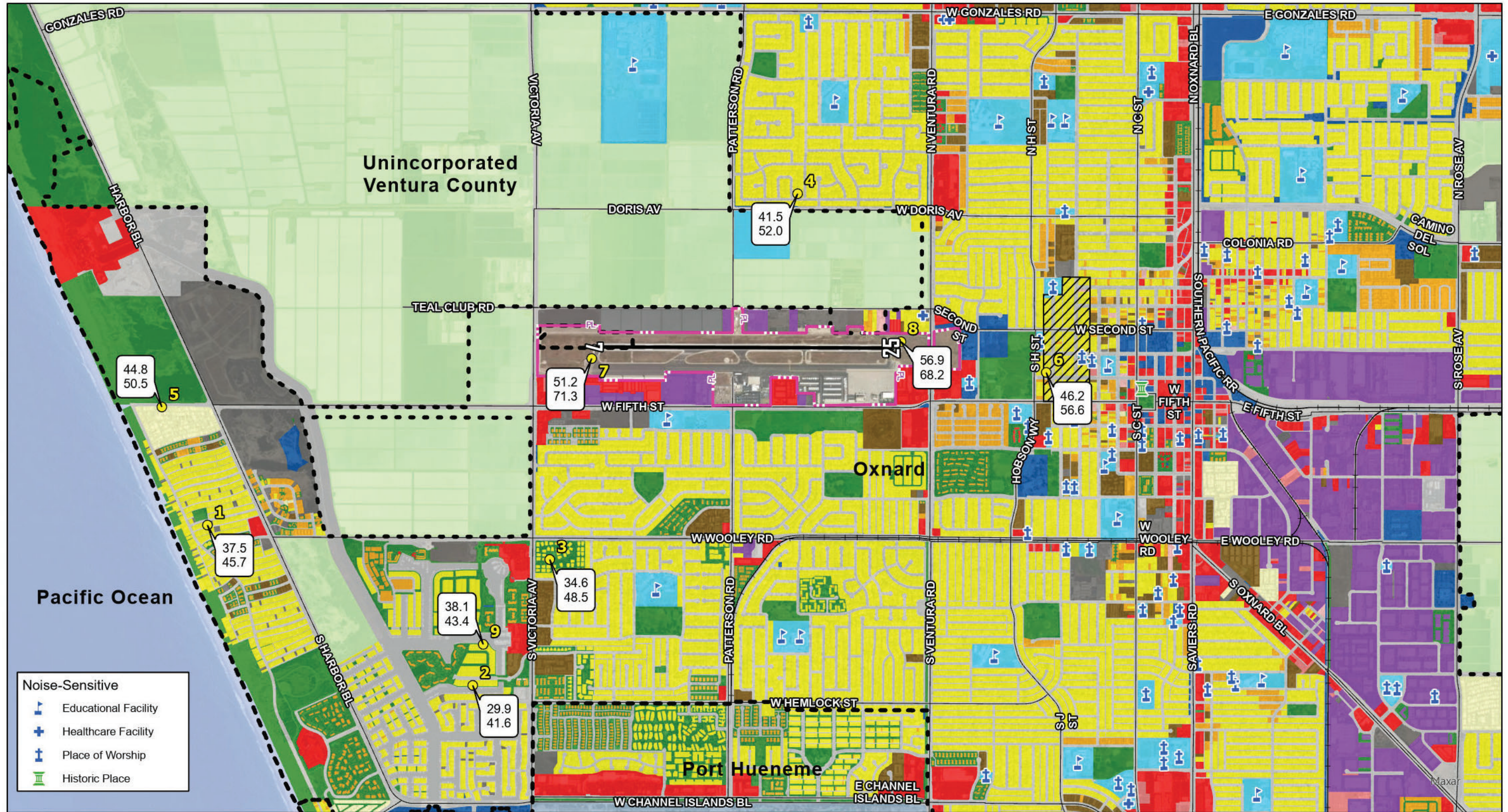
Site/Day	Measured (CNEL[24t] ¹)	AEDT-Predicted 2022 ²	Difference ³
Site 1 – Residence on Whitecap Street, Oxnard Shores neighborhood, Oxnard	37.5	45.7	8.2
Site 2 – Residence on Harbour Island Lane, Channel Islands neighborhood, Oxnard	29.9	41.6	11.7
Site 3 – Residence on Via Pacific Walk, Via Marina neighborhood, Oxnard	34.6	48.5	13.9
Site 4 – Residence on Aspen Circle, Cabrillo neighborhood, Oxnard	41.5	52.0	10.5
Site 5 – Residence in Oxnard Shores Mobile Home Park, Oxnard	44.8	50.5	5.7
Site 6 – Residence on G Street, Henry T. Oxnard Historic District, Oxnard	46.2	56.6	10.4
Site 7 – Oxnard Airport, Runway 7 west end	56.9	71.2	14.3
Site 8 – Oxnard Airport, Runway 25 east end	51.2	67.6	16.4
Site 9 – Residence on Farralon Way, Channel Islands neighborhood, Oxnard	38.1	43.4	5.3

¹ May include events from airports other than Oxnard Airport.

² 2022 noise exposure contours are based on 241 daily operations.

³ Positive numbers in the difference column represent modeled values that are greater than the measured values.

Source: Coffman Associates analysis



Noise-Sensitive

- Educational Facility
- Healthcare Facility
- Place of Worship
- Historic Place

Legend

Roads	Airport Property Line	Jurisdictional Boundaries	Henry T. Oxnard National Historic District	Noise Monitoring Locations	Existing Land Use	Agricultural	Single-Family Residential	Multi-Family Residential - Medium Density	Multi-Family Residential - High Density	Manufactured Homes	Commercial	Mixed-Use	Industrial	Public/Quasi-Public	Parks/Open Space	Noise-Sensitive	Parking	Vacant	Easement/Right of Way	Pacific Ocean
Railroad																				
Runway Centerline																				

38.1
43.4 Measured
CNEL
AEDT-
Predicted

Source:
ESRI Basemap
Imagery, 2022

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As indicated in **Table F5**, all of the AEDT-modeled values are greater than the individual 24-hour measurements and logarithmic averages for each site. These differences indicate that the model predicts more noise at each site compared to the measured noise. This may be attributed to the number of operations occurring at Oxnard Airport during the measurement period. As stated in **Table F6**, the 2022 contours are based on 87,871 annual operations, which equates to approximately 241 daily operations. In comparison, based on Vector Airport Systems Noise and Operations Management System (VNOMS) data obtained for the noise measurement period, daily operations totals presented in **Table F6** for the five-day measurement period ranged between 22 and 279, which represents 9.1 to 115.7 percent of modeled operations. The average number of daily operations for the measurement period was 86, which represents 35.7 percent of modeled operations. This may also be a result of contamination by passing traffic, construction, landscaping, or ambient neighborhood noise (e.g., dogs barking, children playing, passing friendly conversation, etc.).

TABLE F6 | Daily Operations During Noise Measurement Program – Oxnard Airport

Date	Operations Estimated from VNOMS Data
May 15, 2023	37
May 16, 2023	73
May 17, 2023	31
May 18, 2023	41
May 19, 2023	46
May 20, 2023	37
May 21, 2023	28
May 22, 2023	49
May 23, 2023	71
June 30, 2023	57
July 1, 2023	54
July 2, 2023	22
July 26, 2023	279
July 27, 2023	238
July 28, 2023	104
July 29, 2023	91
July 30, 2023	82
July 31, 2023	110
August 1, 2023	187
Average Day – Noise Measurement Period	86
Average Day – AEDT	241

Note: Operations represent counts starting at 12:00 a.m. on the stated date, which differs from the 24-hour measurement periods that varied by site. Equipment placement times at each location generally ranged from 8:00 a.m. to 1:00 p.m. on any one day; therefore, a direct comparison of the number of airport events is not possible.

Source: Vector Airport Systems Noise and Operations Management System (VNOMS); Coffman Associates analysis

CNEL Comparison of 35 Percent Operations Model

As previously discussed, the average number of operations during the measurement period was 86, which is 36 percent of the average daily operations that were used for the AEDT modeling. To better compare the measurement results, the existing condition operations count (241) was reduced to 35 percent (84) of daily operations. **Exhibit F2** and **Table F7** show the differences between the modeled 35 percent operations condition and measured CNEL(24t) values. As shown in the table, the difference between the measured and modeled results decreased, with the exception of Site 9, when compared to the results in Table F6. This is due to the previously discussed reduction in modeled operations, which resulted in an overall reduction in the AEDT-predicted values for the monitored locations.

Each of the days for which monitoring was conducted at Site 9 had daily operations (estimated from VNOMS data) that exceeded the modeled 84 daily operations. As a result, the noise associated with aircraft events monitored at this site exceeded the predicted value by 0.6 dB CNEL.

TABLE F7 | Noise Measurement vs. 35 Percent AEDT-Predicted CNEL Values - Oxnard Airport

Site/Day	Measured (CNEL[24t] ¹)	35% AEDT-Predicted 2022 ²	Difference ³
Site 1 – Residence on Whitecap Street, Oxnard Shores neighborhood, Oxnard	37.5	41.1	3.6
Site 2 – Residence on Harbour Island Lane, Channel Islands neighborhood, Oxnard	29.9	37.0	7.1
Site 3 – Residence on Via Pacific Walk, Via Marina neighborhood, Oxnard	34.6	43.9	9.3
Site 4 – Residence on Aspen Circle, Cabrillo neighborhood, Oxnard	41.5	47.4	5.9
Site 5 – Residence in Oxnard Shores Mobile Home Park, Oxnard	44.8	46.0	1.2
Site 6 – Residence on G Street, Henry T. Oxnard Historic District, Oxnard	46.2	52.0	5.8
Site 7 – Oxnard Airport, Runway 7 west end	56.9	66.7	9.8
Site 8 – Oxnard Airport, Runway 25 east end	51.2	63.6	12.4
Site 9 – Residence on Farralon Way, Channel Islands neighborhood, Oxnard	38.1	38.7	-0.6 ⁴

¹ May include events from airports other than Oxnard Airport.

² The 35% 2022 noise exposure contours are based on 35% of the annual average, or 84 daily operations.

³ A positive number in the difference column represents a modeled value that is greater than the measured value, while a negative number in the column indicates a modeled value that is less than the measured value.

⁴ Each of the days for which monitoring was conducted at this site had daily operations (estimated from VNOMS data) that exceeded the modeled 84 daily operations. As a result, the noise associated with aircraft events monitored at this site exceeded the predicted value by 0.6 dB CNEL.

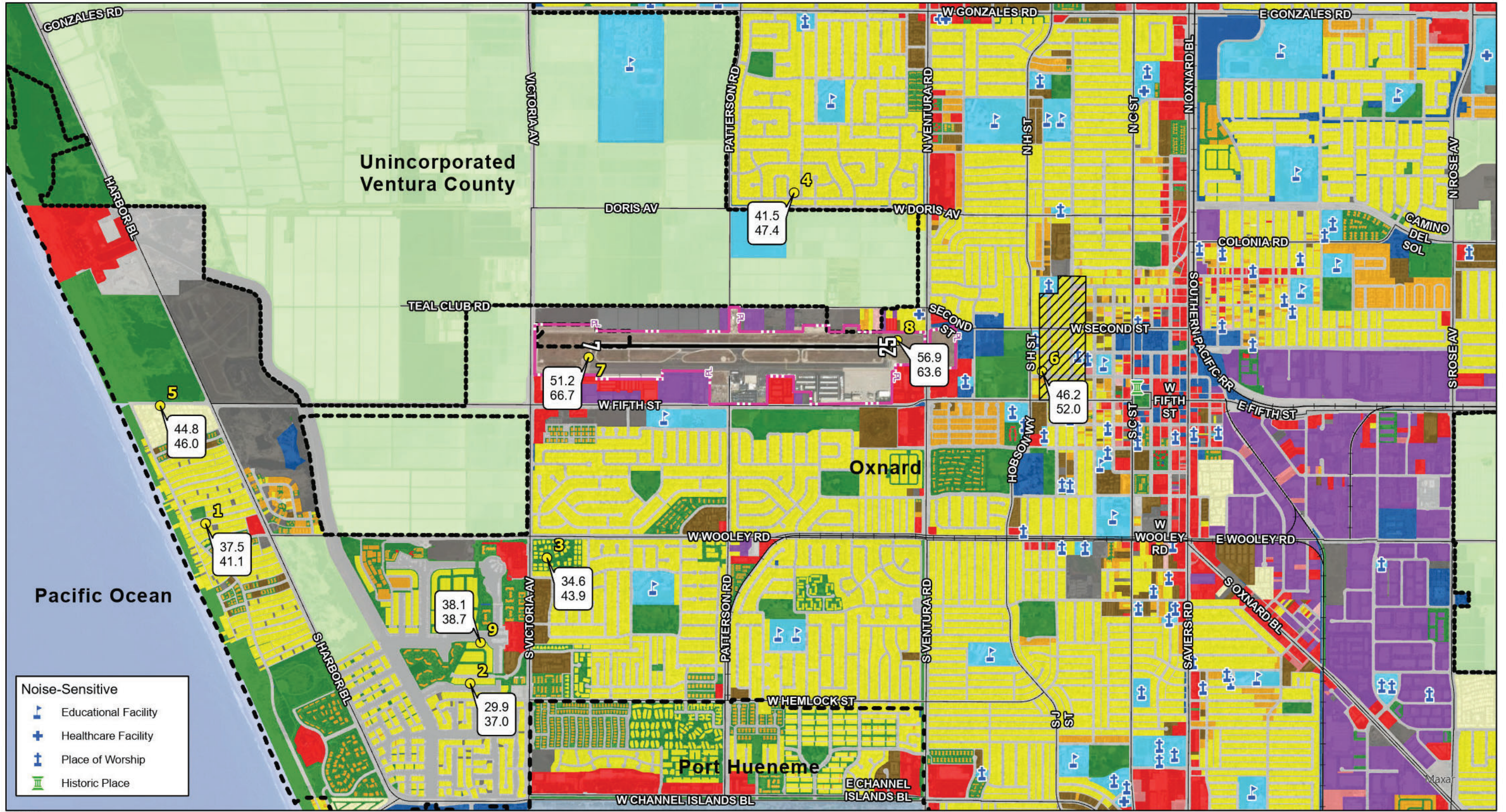
Source: Coffman Associates analysis

SUMMARY

Successful results of the noise measurement program include the following:

- Noise monitoring was conducted in areas of concern in May, June, July, and August with cooperation from residents.
- Valid data gathered included aircraft events, which were verified through listening to digital recordings. The associated noise levels were used to calculate CNEL values for comparison to the AEDT outputs.
- The CNEL values from the aircraft event data correlate with the modeled values at all locations.
- All off-airport noise measurements were below the 60 CNEL contour threshold, as predicted by the AEDT model.

The noise measurement program results were beneficial as a tool for comparison to the AEDT model and the results indicate that the model inputs are accurate for the purposes of this study.



Noise-Sensitive

- Educational Facility
- Healthcare Facility
- Place of Worship
- Historic Place

Legend

Roads	Airport Property Line	Henry T. Oxnard National Historic District	Noise Monitoring Locations	Single-Family Residential	Multi-Family Residential - High Density	Commercial	Military - Naval Base	Parks/Open Space	Vacant
Railroad	Jurisdictional Boundaries	Existing Land Use	Agricultural	Multi-Family Residential - Medium Density	Manufactured Homes	Mixed-Use	Utilities	Noise-Sensitive	Easement/Right of Way
Runway Centerline						Industrial	Public/Quasi-Public	Parking	Pacific Ocean

Measured CNEL AEDT - Predicted

38.1
43.4

Source: ESRI Basemap Imagery, 2022

Scale: 1" = 2,000'