



Appendix G - Supplemental Noise Modeling Report

2018 Amendments to the HUULL, IRNMN, and RYDRR Arrival Routes

Los Angeles International Airport Los Angeles, California

February 2024

Prepared by:

**United States Department of Transportation
Federal Aviation Administration**

Appendix G - Supplemental Noise Modeling Report

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Summary

Noise analysis was completed to assess potential impacts resulting from proposed air traffic actions to amend existing air traffic procedures at Los Angeles International Airport (KLAX) in Los Angeles, California, using the Terminal Area Route Generation, Evaluation, and Traffic Simulation (TARGETS) Environmental Plug-in tool and the Aviation Environmental Design Tool (AEDT).

Historical radar track data was used to create a baseline scenario of the original procedure designs, i.e. those prior to the procedure amendments (No Action Alternative). The alternative scenario was constructed using the amended procedure designs (Action Alternative) for the procedure paths and altitudes, and the radar tracks for aircraft operations prior to implementation were then reassigned to the Action Alternative procedure designs. Once the baseline and alternative scenarios were built, the TARGETS Environmental Plug-in Tool was used to generate noise outputs for both scenarios using AEDT. The scenarios were then compared to determine the potential for significant noise impacts. These thresholds are described in FAA Order 1050.1F, *Environmental Impacts: Policies and Procedures*.

The significance threshold for the identification of noise environmental impacts is as follows:
The action would increase noise by DNL 1.5 dB or more for a noise sensitive area that is exposed to noise at or above the DNL 65 dB noise exposure level, or that will be exposed at or above the DNL 65 dB level due to a DNL 1.5 dB or greater increase, when compared to the no action alternative for the same timeframe. (FAA Order 1050.1F, Exhibit 4-1)

Although the DNL 65 dB or greater noise level represents the FAA's *significant* noise threshold criteria for significant impacts, or extraordinary circumstances, under NEPA, as well as for CFR Part 150 noise and land use compatibility, the FAA recognizes that the significant noise threshold may not adequately address the impacts of noise on areas where other noise is very low, and a quiet setting is a generally recognized purpose and attribute. Therefore, the FAA's *reportable* noise threshold is taken into consideration for these noise sensitive resources. The reportable noise threshold is more conservative than the 14 CFR Part 150 land use compatibility guidelines and includes noise impacts ranging from:

- DNL 60 dB to <65 dB with an increase of up to 3 dB
- DNL 45 dB to <60 dB with an increase of up to 5 dB

In the case of the Action, there were **no reportable or significant noise impacts** resulting from the Action Alternative.

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1. Purpose

The purpose of this report is to document the analysis of potential noise impacts resulting from proposed airspace actions at Los Angeles International Airport (KLAX) in Los Angeles, California and to present the results of that analysis. **Table 1-1** shows the procedures(s) included in the proposed action. **Figure 1-1** shows the airport diagram for KLAX, which provides the runway layout and the airport's field elevation.

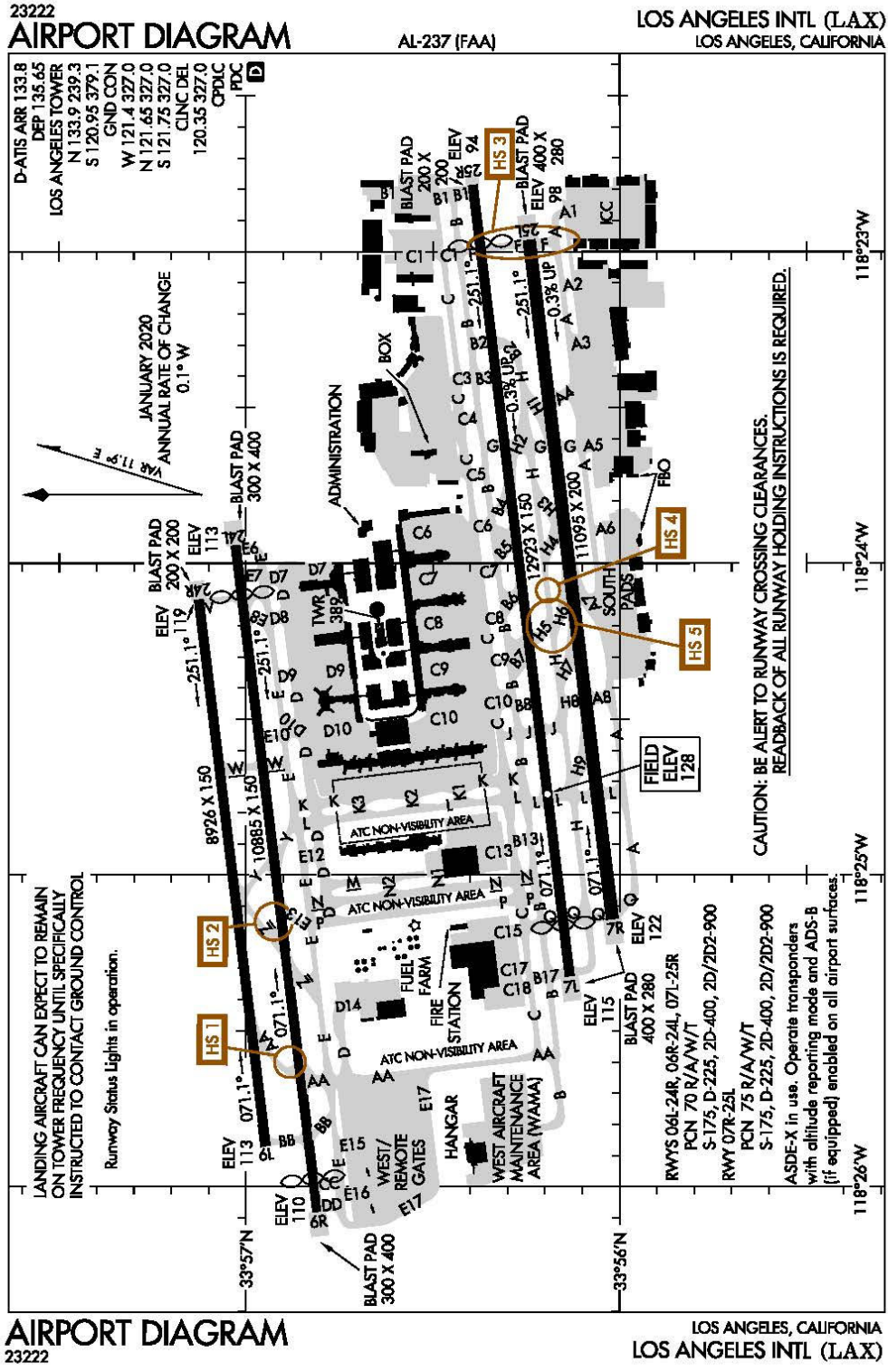
Noise Screening uses FAA-Approved tools to determine the potential for extraordinary circumstances and may be used to rule out the need for more detailed noise analysis where a Categorical Exclusion (CATEX) may apply. The results presented in this document do not provide an environmental decision but are intended to inform the responsible FAA Service Center Environmental Specialist in determining the appropriate level of environmental review.

Table 1-1. Proposed Procedures Modeled for KLAX

Procedure Name	Procedure Type
KLAX HUULL TWO (RNAV)	STAR
KLAX IRNMN TWO (RNAV)	STAR
KLAX RYDRR TWO (RNAV)	STAR

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SW-3, 07 SEP 2023 to 05 OCT 2023

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Figure 1-1. Airport Diagram of KLAX

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2. Methods

Historical radar track data for KLAX was obtained from the Performance Data Analysis and Reporting System (PDARS). Dates where runways were closed for construction projects were removed from consideration and dates were randomly selected from the remaining available dates within a recent 12-month period. The random dates are assumed to represent average typical runway usage, flight paths, and day/night traffic ratios by capturing a range of temperature and wind conditions. A list of dates selected for the analysis is provided in **Attachment A** of this document.

After the removal of overflights and incomplete track segments, 103,503 total tracks were used for the analysis. The altitude of the historical tracks was considered and a range ring was set to contain the area where most of the tracks reached above 10,000 feet above ground level (AGL). This established the study area for the analysis. In the case of KLAX, the range was set at 60 nautical miles (NM) and the study area was an area approximately 5 NM either side of the Action Alternative. This is a considerably conservative approach but was conducted to allow FAA to evaluate impacts outside the study area, and is responsive to public comments received on the Draft Environmental Review for the project. Annual operation counts and runway usage were obtained through a runway usage report from the FAA's AFS Data Analytics Runway Usage Module and were used to calculate the Average Annual Day (AAD) impacts. The analysis does not take into account terrain due to software limitations. All calculations were made in reference to the airport's field elevation.

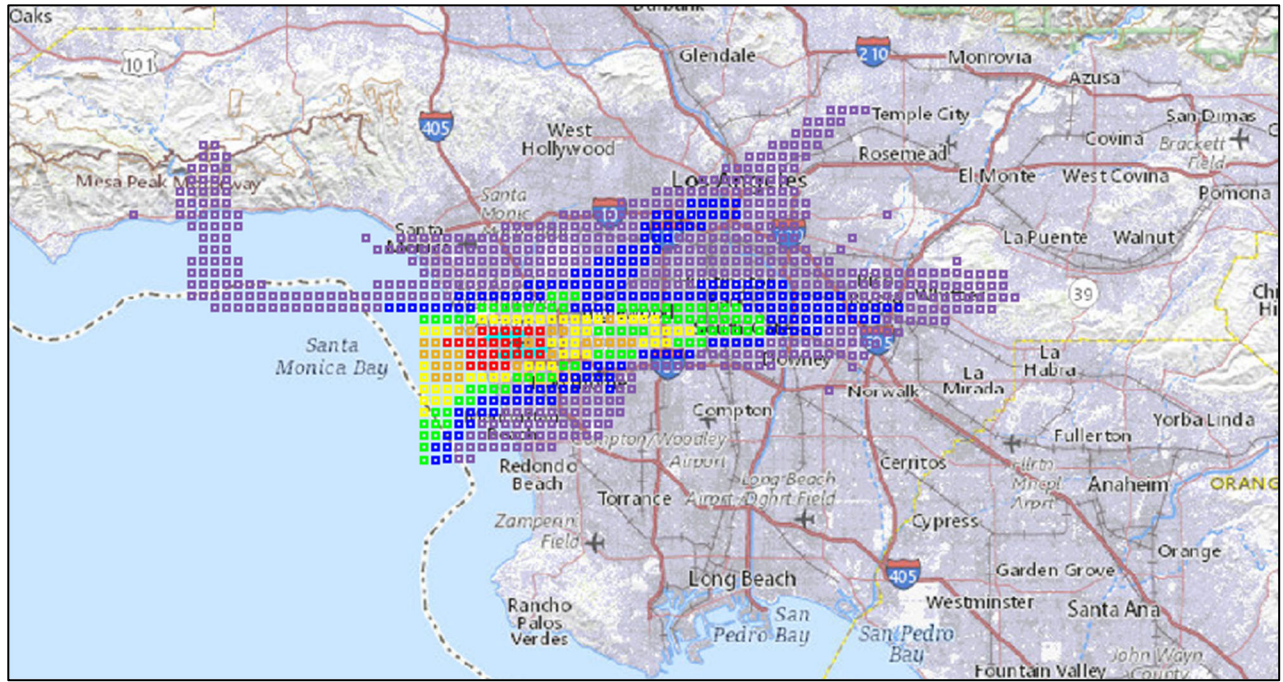
Once the baseline and alternative scenarios were built, the TARGETS Environmental Plug-in Tool was used to generate noise outputs for both scenarios. The Environmental Plug-in Tool uses the Aviation Environmental Design Tool version 3e (AEDT 3e) to calculate noise. The noise output files from AEDT 3e for both the baseline and alternative noise exposures consist of a series of equally spaced grid points, each showing a DNL value. The noise grid (receptor set) consists of grid points (receptors) spaced 0.5 nm apart. The noise impact is a comparison between the baseline (No Action Alternative) and the Action Alternative noise exposure that depicts reportable or significant noise changes at all affected receptors per the criteria indicated in FAA Order 1050.1F and Chapter 32 of FAA Order 7400.2P.

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3. Baseline Noise Exposure

The baseline, or No Action Alternative, noise exposure is shown in **Figure 3-1**, which depicts the levels and locations of the noise produced by the historical radar track data for arrivals and departures.



Geometric shape	Color	DNL value
Square	Purple	45–50 dB
Square	Blue	50–55 dB
Square	Green	55–60 dB
Square	Yellow	60–65 dB
Square	Orange	65–70 dB
Square	Red	70 dB or more

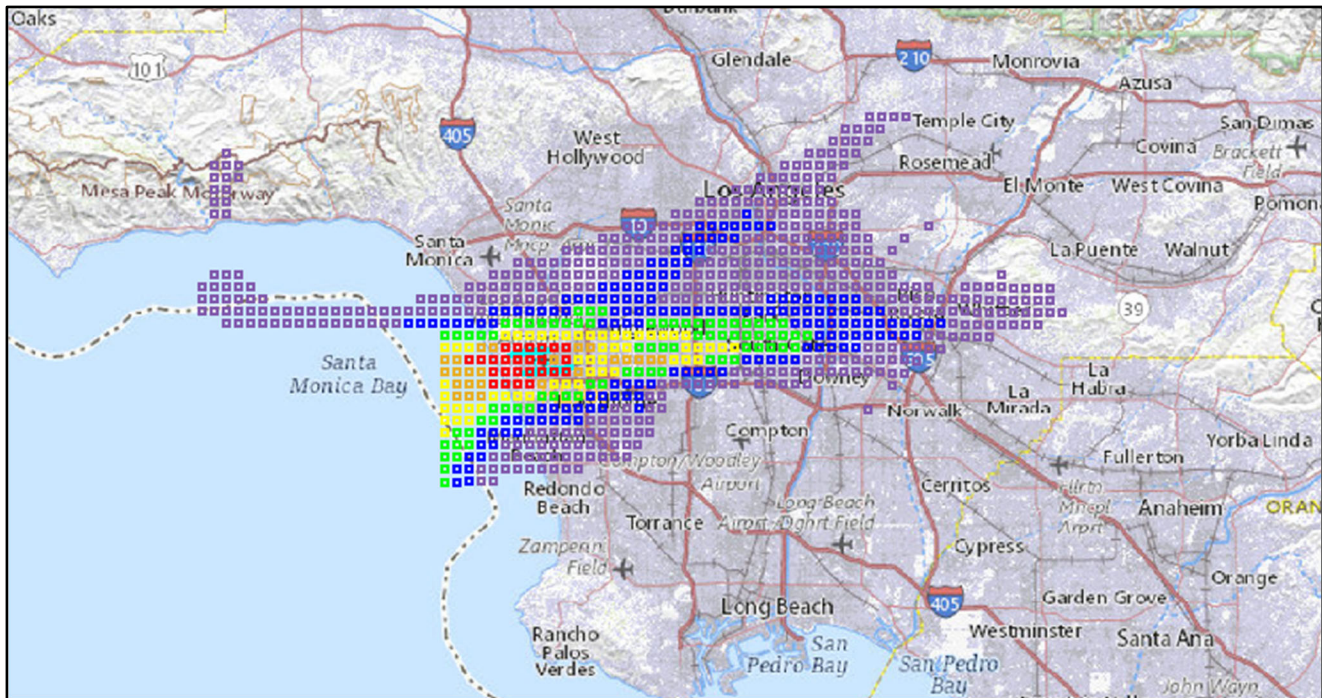
Figure 3 1. Baseline Noise Exposure in TARGETS

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4. Alternative Noise Exposure

The Action Alternative noise exposure is shown in **Figure 4-1**, which depicts the levels and locations of the noise exposure output from the model of the proposed action.



Geometric shape	Color	DNL value
Square	Purple	45–50 dB
Square	Blue	50–55 dB
Square	Green	55–60 dB
Square	Yellow	60–65 dB
Square	Orange	65–70 dB
Square	Red	70 dB or more

Figure 4 1. Alternative Noise Exposure for the Proposed Procedures in TARGETS

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5. Noise Impacts

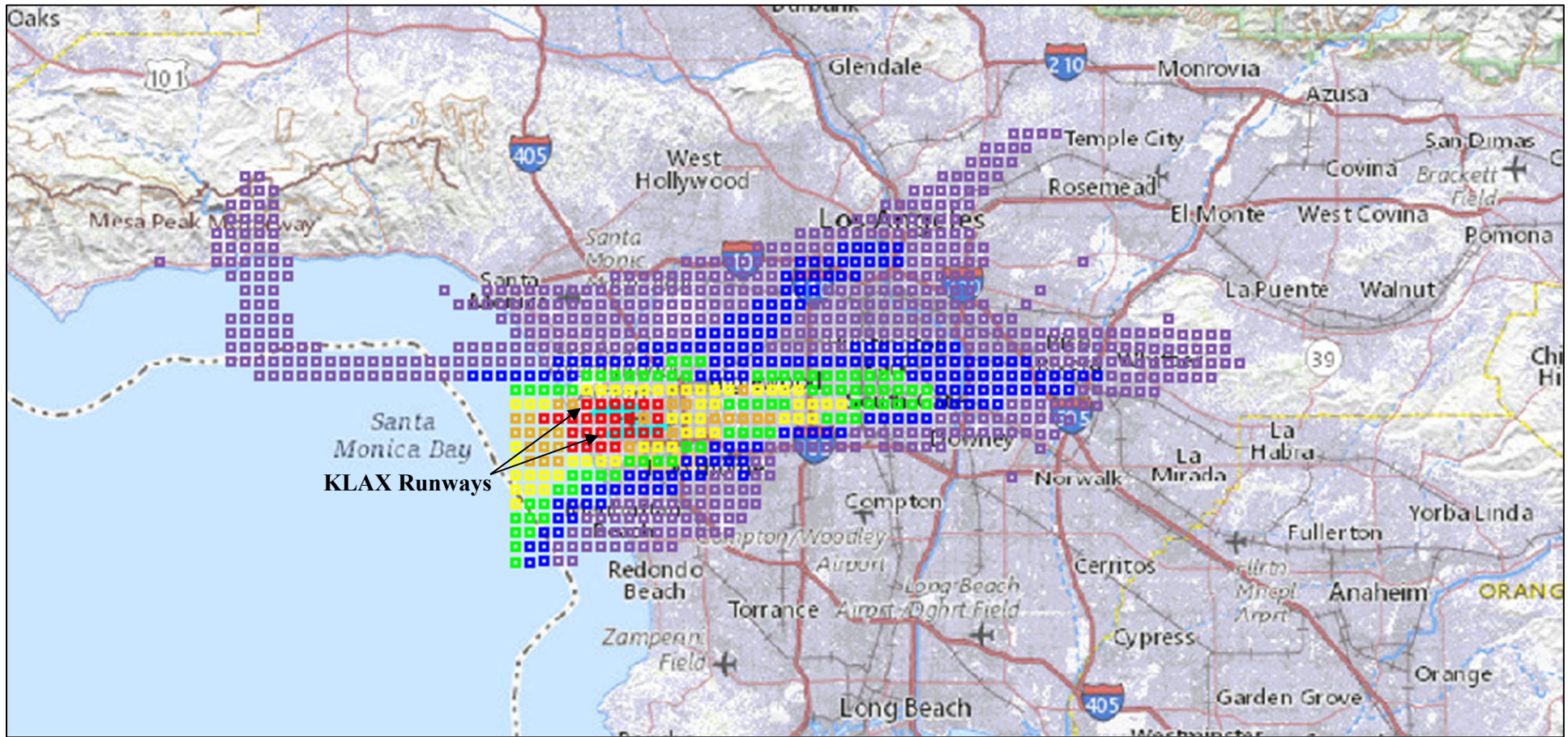
A comparison of the baseline and alternative scenarios by the TARGETS Environmental plug-in determines the noise impacts of the proposed action. Significance of noise impacts is defined by FAA Order 1050.1F¹ which establishes the threshold for significant increases in noise exposure. Where the proposed action results in a noise impact, TARGETS graphically displays a noise impact layer that indicates the relative locations of reportable or significant changes.

The No Action Alternative, or baseline, noise exposure results are illustrated in **Figure 5-1** and the Action Alternative noise exposure results are illustrated in **Figure 5-2** for reference and to provide a side-by-side comparison. In the case of the Action Alternative, there was no reportable or significant increases in noise resulting from the Action Alternative. **Figure 5-3** below shows the result of no reportable and no significant increases in noise.

¹ According to Exhibit 4-1 of FAA Order 1050.1F, *Environmental Impacts: Policies and Procedures*, a noise impact is significant if “*The action would increase noise by DNL 1.5 dB or more for a noise sensitive area that is exposed to noise at or above the DNL 65 dB noise exposure level, or that will be exposed at or above the DNL 65 dB due to a DNL 1.5 dB or greater increase, when compared to the no action alternative for the same timeframe.*”

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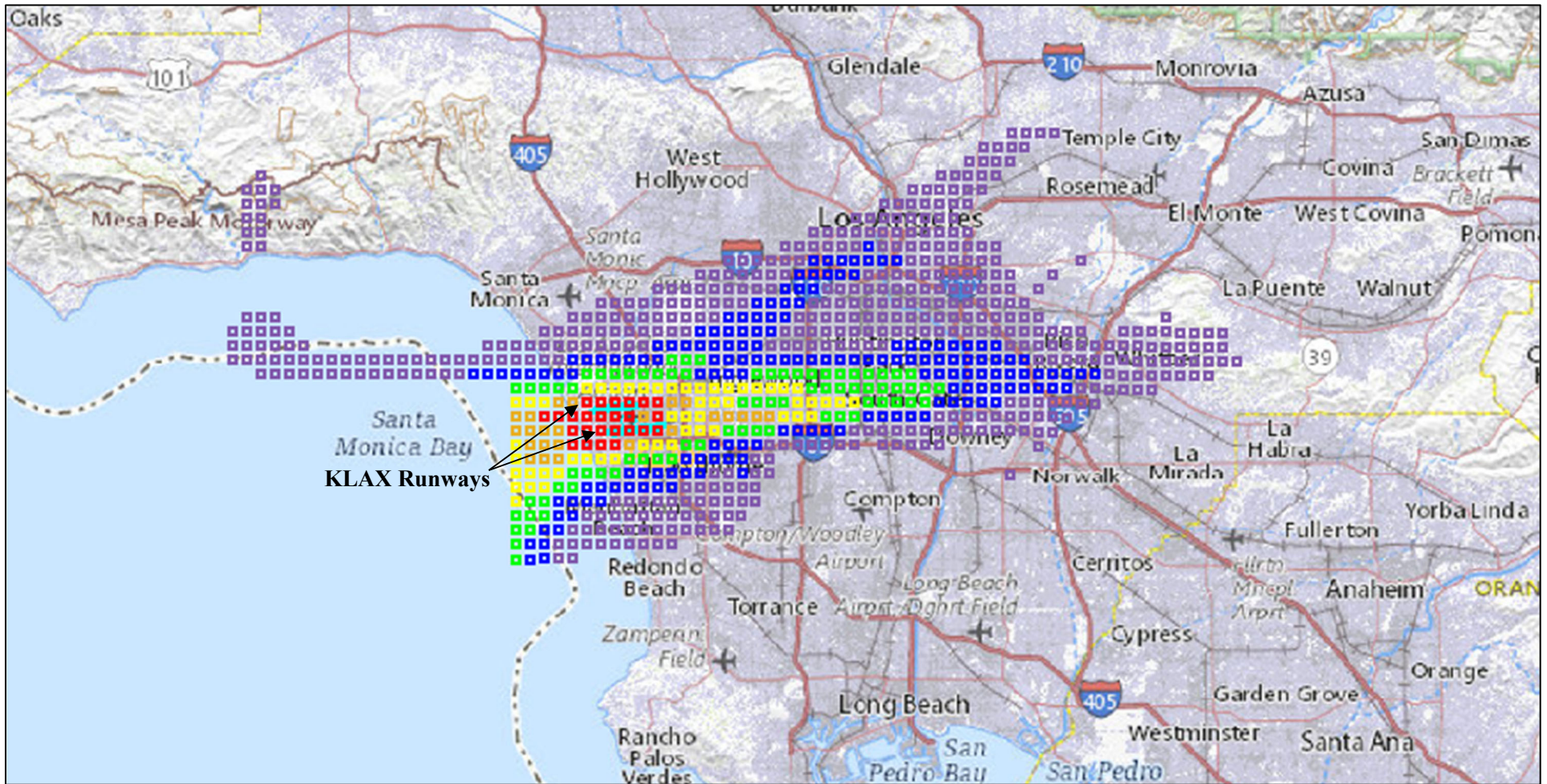


Geometric shape	Color	DNL value
Square	Purple	45-50 dB
Square	Blue	50-55 dB
Square	Green	55-60 dB
Square	Yellow	60-65 dB
Square	Orange	65-70 dB
Square	Red	70 dB or more

Figure 5-1. Baseline Noise Exposure in TARGETS

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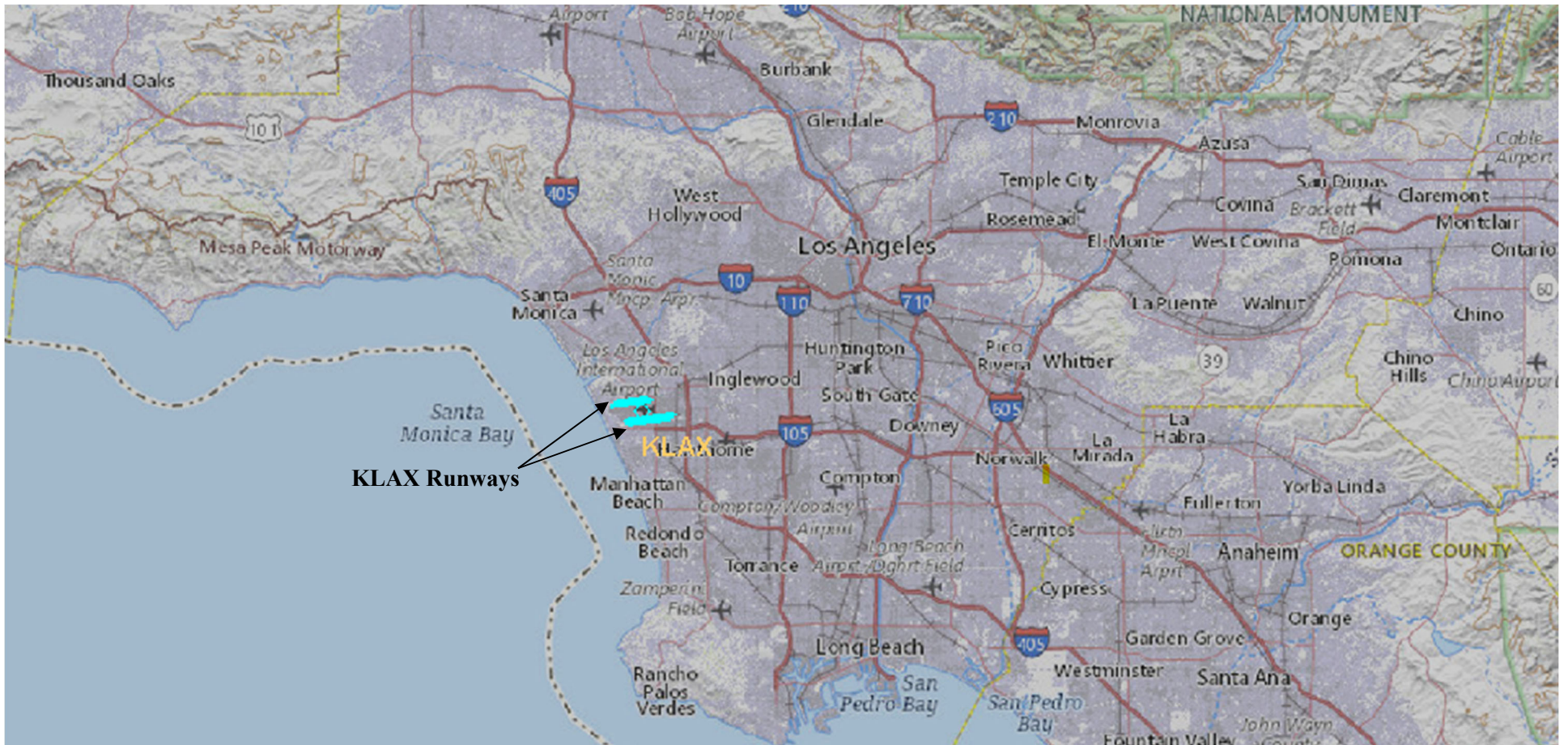
KLAX Runways

Geometric shape	Color	DNL value
Square	Purple	45–50 dB
Square	Blue	50–55 dB
Square	Green	55–60 dB
Square	Yellow	60–65 dB
Square	Orange	65–70 dB
Square	Red	70 dB or more

Figure 5-2. Alternative Noise Exposure for the Proposed Procedures in TARGETS

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Geometric shape	Color	DNL difference
Square	Purple	Decrease of ≥ 5.0 dB over DNL 45-60 dB baseline
Square	Blue	Decrease of ≥ 3.0 dB over DNL 60-65 dB baseline
Square	Green	Decrease of ≥ 1.5 dB over DNL ≥ 65 dB baseline
Oval	Red	Alternative of ≥ 65 dB with a ≥ 1.5 dB <u>Increase</u> over baseline (<i>Significant</i>)
Oval	Orange	Alternative of 60-65 dB with a ≥ 3.0 dB <u>Increase</u> over baseline (<i>Reportable</i>)
Oval	Yellow	Alternative of 45-60 dB with a ≥ 5.0 dB <u>Increase</u> over baseline (<i>Reportable</i>)

Figure 5-3. Base Noise Exposure Versus Alternate Noise Exposure

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Attachment A

ID	DATES
1	5/2/2017
2	5/13/2017
3	5/18/2017
4	5/19/2017
5	5/27/2017
6	5/29/2017
7	5/30/2017
8	6/3/2017
9	6/8/2017
10	6/10/2017
11	6/11/2017
12	6/12/2017
13	6/21/2017
14	7/8/2017
15	7/11/2017
16	7/23/2017
17	7/29/2017
18	8/7/2017
19	8/21/2017
20	8/22/2017
21	8/23/2017
22	8/26/2017
23	8/29/2017
24	8/30/2017
25	8/31/2017
26	9/7/2017
27	9/11/2017
28	9/16/2017
29	9/21/2017
30	9/22/2017

ID	DATES
31	10/3/2017
32	10/5/2017
33	10/11/2017
34	10/21/2017
35	10/24/2017
36	11/4/2017
37	11/6/2017
38	11/15/2017
39	12/1/2017
40	12/9/2017
41	12/12/2017
42	12/14/2017
43	12/16/2017
44	12/21/2017
45	12/27/2017
46	1/10/2018
47	1/15/2018
48	2/6/2018
49	2/14/2018
50	2/21/2018
51	3/9/2018
52	3/12/2018
53	3/23/2018
54	3/28/2018
55	3/30/2018
56	4/11/2018
57	4/18/2018
58	4/23/2018
59	4/25/2018
60	4/28/2018

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