

AEDT 2b Separate Analysis of Southern California Metroplex Environmental Assessment Noise Model Input

The Federal Aviation Administration (FAA) agreed to run a separate noise analysis in response to public comments to the Draft Environmental Assessment (EA), in which the commenters questioned the use of the Noise Integrated Routing System (NIRS) model instead of the Aviation Environmental Design Tool (AEDT) noise model. The FAA responded to those comments in Response to Comment 15 in the EA, in part as follows:

The FAA's use of NIRS for SoCal Metroplex EA was appropriate, and the environmental analysis using it has been completed. No further noise analysis is required to support the FAA's decision in this matter. In the interest of providing additional information to the public, FAA will run a separate analysis using AEDT 2b (the current version of the AEDT tool as of August 2016) using the input data and assumptions used for NIRS. The results of this effort will be made publicly available when completed.

FAA's support contractor, ATAC, completed the AEDT 2b Day/Night Noise Level (DNL) calculations based on the Southern California Metroplex (SoCal Metroplex) Draft EA noise model input designed for NIRS for the 2016/2021 No Action and Proposed Action scenarios.

The FAA conducted this separate analysis only as described above. This separate analysis should not be construed as being subject to nor satisfying the National Environmental Policy Act (NEPA) nor the FAA's noise analysis policies.

ATAC calculated DNL levels for the same grid point locations in the General Study Area (GSA) used for the EA analysis. The grid points include the population points, Section 4(f) points, and a 0.5 nautical mile evenly spaced grid. ATAC compared the Proposed Action scenario to the No Action scenario for the same future year. Of all of the grids, there were only three grid points within the population point database with reportable noise changes (an increase of DNL 5 dB or higher for areas exposed to DNL levels between DNL 45 dB and DNL 60 dB under the PA scenario) under the 2021 future year scenario. There were no significant or reportable changes for 2016 or any of the other grid points (Section 4(f) and 0.5 nautical mile evenly spaced grid) for 2021 future year. The reportable DNL changes under the 2021 future year scenario are in very close proximity to each other in one mobile home park. They are attributed to the John Wayne International Airport (SNA) Required Navigation Performance (RNP) approach to Runway 20R under the Right-Fix (RF) leg turn designed for aircraft coming from the north.

Methodology

The FAA wanted to determine whether DNL differences existed between the NIRS model used for the EA and AEDT model used for the separate analysis. As stated in the FAA's Response to Comment 15, the FAA developed and ran the AEDT 2b model with a focus on consistency in model settings applied to the prior NIRS noise model and AEDT 2b noise model for the SoCal Metroplex EA noise modeling effort.

Specifically, ATAC inputted the same noise model flight tracks, flight operation distribution among tracks, runway use, grid points, average annual day weather variables, and United States Geographic Geological Survey (USGS) terrain data used for the SoCal Metroplex EA under the NIRS noise model. ATAC conducted DNL calculations for all the grid points. In

addition, ATAC compared the No Action and Proposed Action scenarios for each of the two future years to identify potential significant and/or reportable changes in DNL in accordance with thresholds depicted in FAA Order 1050.1E.

Results

Despite the over 330,000 centroids involved and 18,175 square miles within the SoCal Metroplex geographic area, the AEDT 2b calculations and comparison analysis did not identify any significant or reportable changes in DNL for all grid points for the 2016 future year scenario. For 2021, the AEDT 2b analysis resulted in only three (3) grid points, all under the population point database, with a reportable increase (DNL 5 dB or higher) in DNL, and only within one mobile home community. **Table 1** depicts the AEDT 2b results and the SoCal Metroplex EA NIRS results for comparative purposes of the three population points. When comparing both the NIRS and AEDT DNL noise changes for those three points, a maximum increase of DNL 0.3 dB occurs compared to the NIRS model, which is minimal but just enough to push the AEDT DNL noise change to barely above DNL 5 dB. There were no significant or reportable changes in DNL for the Section 4(f) and 0.5 nautical mile evenly spaced grids under the 2021 future year scenario in the entire 18,175 square mile area.

Table 1

AEDT 2b Reportable DNL Change Results

Population Points Grid ID	Latitude	Longitude	NIRS NA 2021 DNL Noise (dB)	NIRS PA 2021 DNL Noise (dB)	NIRS DNL Noise Change (dB)	AEDT NA 2021 DNL Noise (dB)	AEDT PA 2021 DNL Noise (dB)	AEDT DNL Noise Change (dB)
60590758065001	33.781262	-117.833133	40.908043	45.658928	4.750885	40.426338	45.483503	5.057165
60590758065002	33.782139	-117.832564	40.660896	45.401348	4.740452	40.163098	45.176177	5.013079
60590758065004	33.781881	-117.833185	40.752487	45.52623	4.773743	40.233368	45.319609	5.086241

Source: 2010 U.S. Census population centroid data (population points); SoCal Metroplex Final EA NIRS Study, April 2016 (NIRS NA and PA DNL results); ATAC, December 2016 (AEDT 2b NA and PA results).
Prepared by: ATAC Corporation, December 2016.

Figure 1 depicts the location of the three population points. All three are located in close proximity to each other within Creekside Mobile Estates located at 1925 E La Veta Ave in Orange, California.

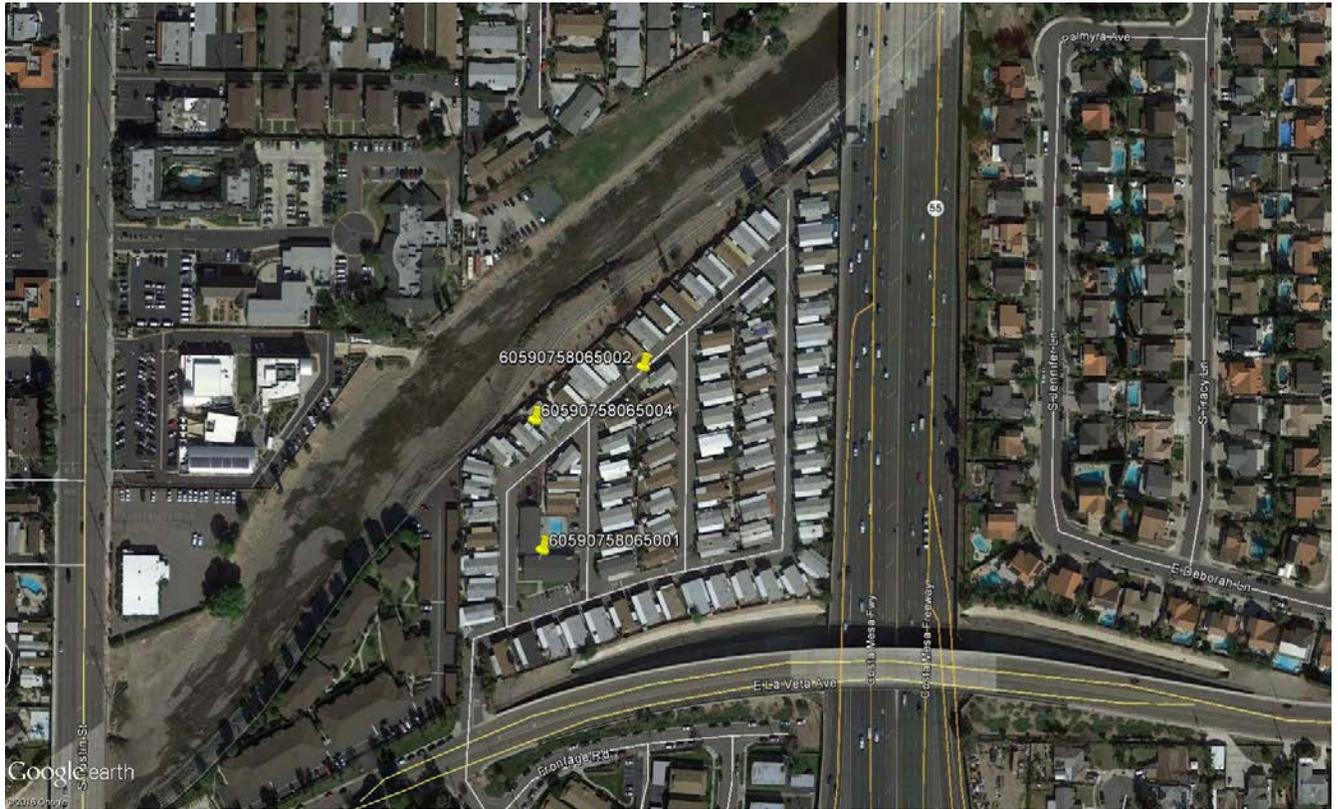
Figure 2 depicts the same three population points at a lower scale to see the location of the points in reference to SNA airport.

Based on ATAC’s investigation, the primary cause for the change in DNL for the three population points is the RNP approach for aircraft coming from the north to SNA’s Runway 20R.

Figure 3 depicts the location of the three population points with the proposed SNA Runway 20R RNP Approach corridor overlaid on the map.

Figure 1

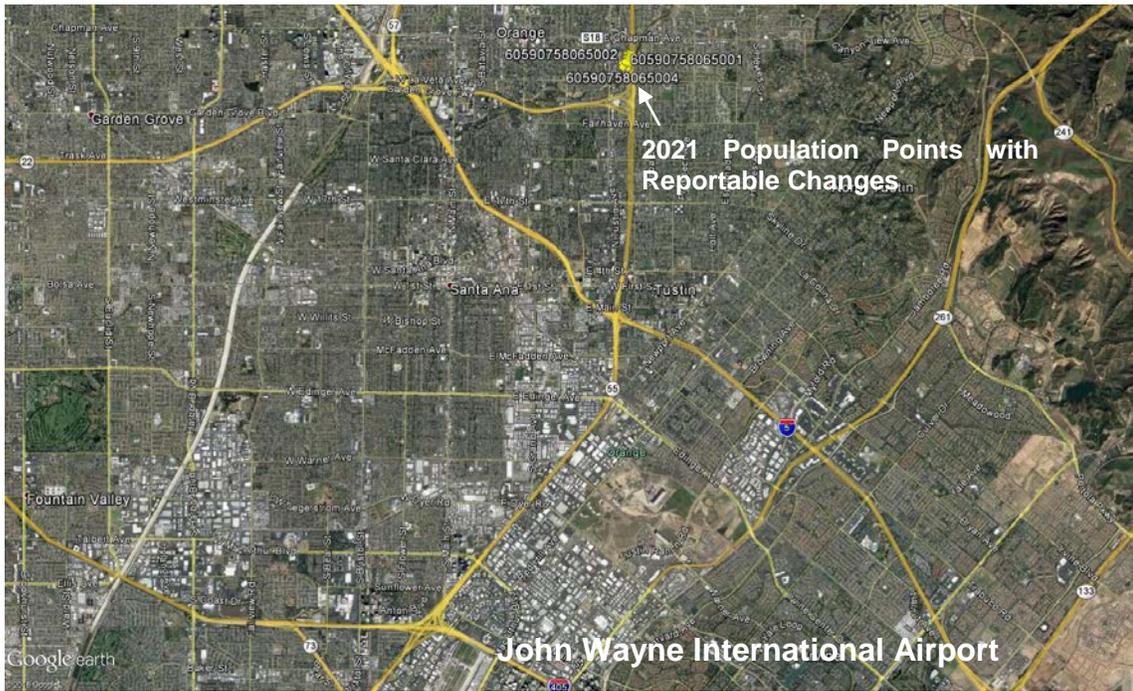
2021 Population Point with Reportable Change Location



Source: Google Earth, December 2016 (aerial photography); ATAC Corporation, December 2016 (2021 population points).
Prepared by: ATAC Corporation, December 2016.

Figure 2

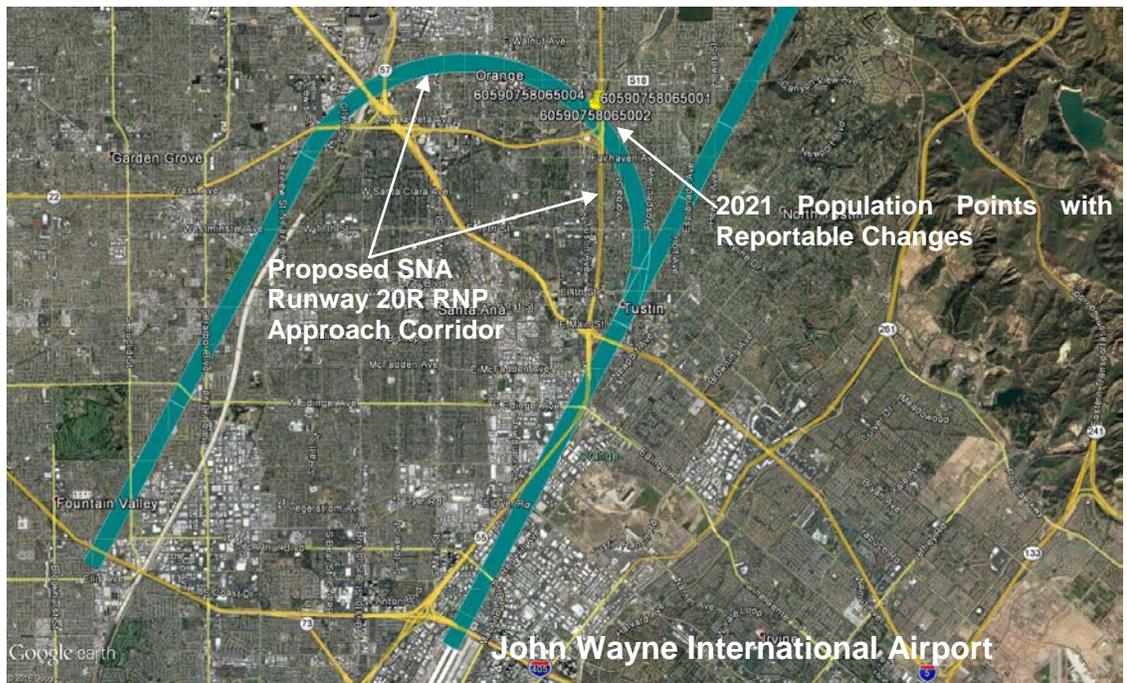
2021 Population Point with Reportable Change Location in Reference to SNA Airport



Source: Google Earth, December 2016 (aerial photography); ATAC Corporation, December 2016 (2021 population points).
Prepared by: ATAC Corporation, December 2016.

Figure 3

2021 Population Points with Reportable Change in Reference to SNA RNP Approach to Runway 20R



Source: Google Earth, December 2016 (aerial photography); Bridgenet International, November 2016 (SNA Runway 20R RNP Approach Corridor); ATAC Corporation, December 2016 (2021 population points).
Prepared by: ATAC Corporation, December 2016.