

San Diego County Regional Airport Authority (SDCRAA) Flight Procedure Evaluation Technical Advisory Committee and Citizen Advisory Committee Meeting #6

San Diego International Airport

May 23, 2019

Meeting Goals

- § Present and understand the update to the noise screening results for ANAC 14 Alternatives 1 and 4 (Nighttime Departure to the Northwest – Turn at 1.5 NM or at 0.5 NM)
- § Review flight procedure recommendations based on input received after March 28, 2019
- § Discuss and provide input on preference to ANAC 14 Alternative 1 or 4
- § Discuss consultant recommendations on ANAC 18, 19 and 20 (Early Turns and FAA Noise Dots)

Alternative Name Change

Technical Name	Simplified Name
Recommendation 14 Alternative 1 Version 2	Nighttime Jet Departures to the Northwest – Turn at 1.5 NM
Recommendation 14 Alternative 4	Nighttime Jet Departures to the Northwest – Turn at 0.5 NM
Recommendation 15 Alternative 2 Version 2	Nighttime Jet Departures to the East – Turn at 1.5 NM
Recommendation 15 Alternative 4	Nighttime Jet Departures to the East – Turn at 0.5 NM
Recommendation 15 Alternative 1	Jet Departures to the East (6:30 a.m. to 10:00 p.m.)
Recommendation 16 Alternative 1 Version 3	All Day Jet Arrivals from Northwest

Recommendation 14 Alt 1 and 4 –Nighttime Jet Departures to the Northwest

- § The Nighttime Jet Departure is intended only for jet departures between 10:00 p.m. and 6:30 a.m.
- § Previous model results included approximately 9 average daily departures to the northwest between 6:30 a.m. and 7:00 a.m.^{1/}
- § Approximately 3 jet departures to the northwest occur between 10:00 p.m. and 6:30 a.m. on an average day.^{1/, 2/}
- § Noise screening models updated to reflect correct departure levels between 10:00 p.m. and 6:30 a.m. on proposed noise model tracks

NOTES:

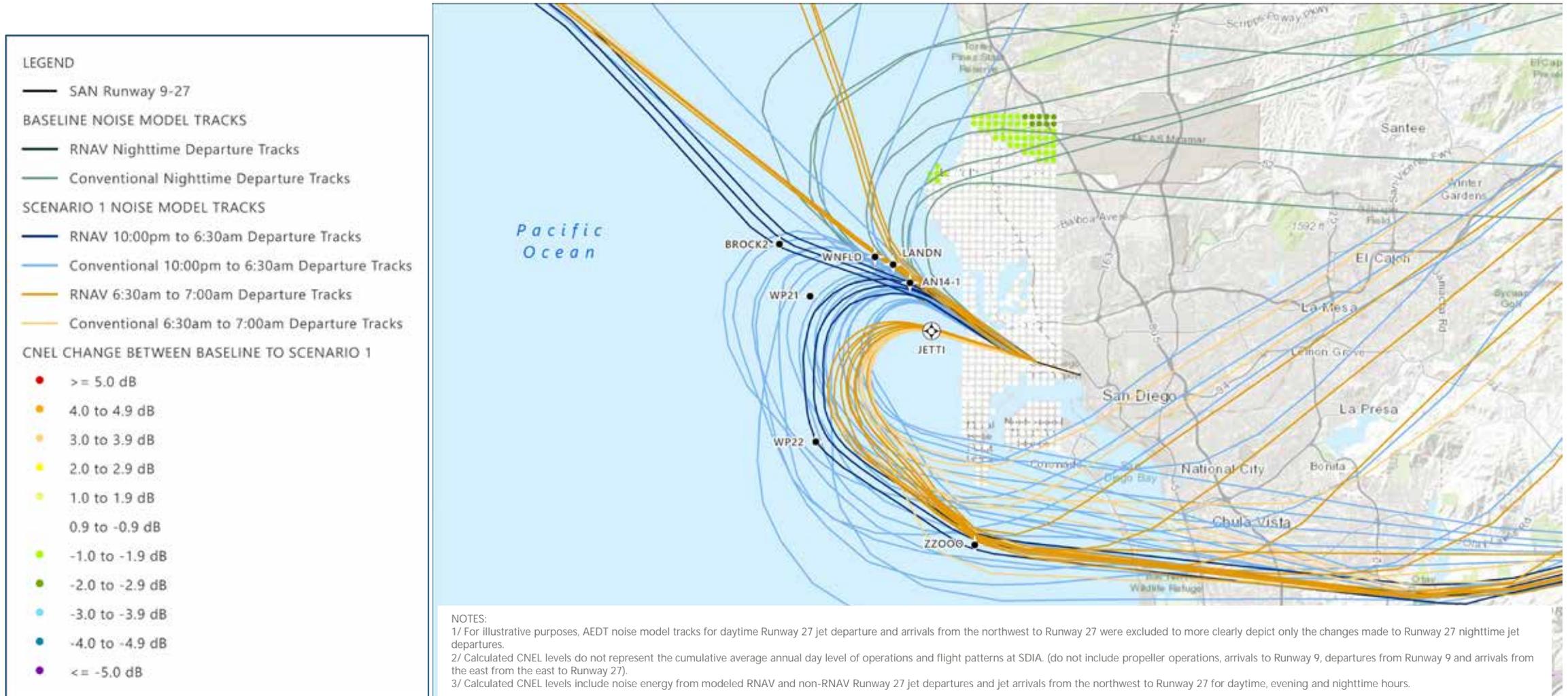
1/ Based on the Authority's Airport Noise and Operations Management System (ANOMS) flight and radar data from May 2017 to December 2017.

2/ This includes a small amount of operations that occur after the departure curfew between 11:30 p.m. and 6:30 a.m.

Scenario 1 Noise Screening Update

ANAC Recommendation 14 Alternative 1 Version 2 (Nighttime Jet Departures to the Northwest – Turn at 1.5 NM)
and Recommendation 15 Alternative 2 Version 2 (Nighttime Jet Departures to the East – Turn at 1.5 NM)

Nighttime Jet Departures to the Northwest and East – Turn at 1.5 NM - AEDT Scenario 1/Baseline Noise Model Tracks and CNEL Changes



Nighttime Jet Departures to the Northwest and East – Turn at 1.5 NM – Changes in CNEL – North - UPDATE

NOTES:

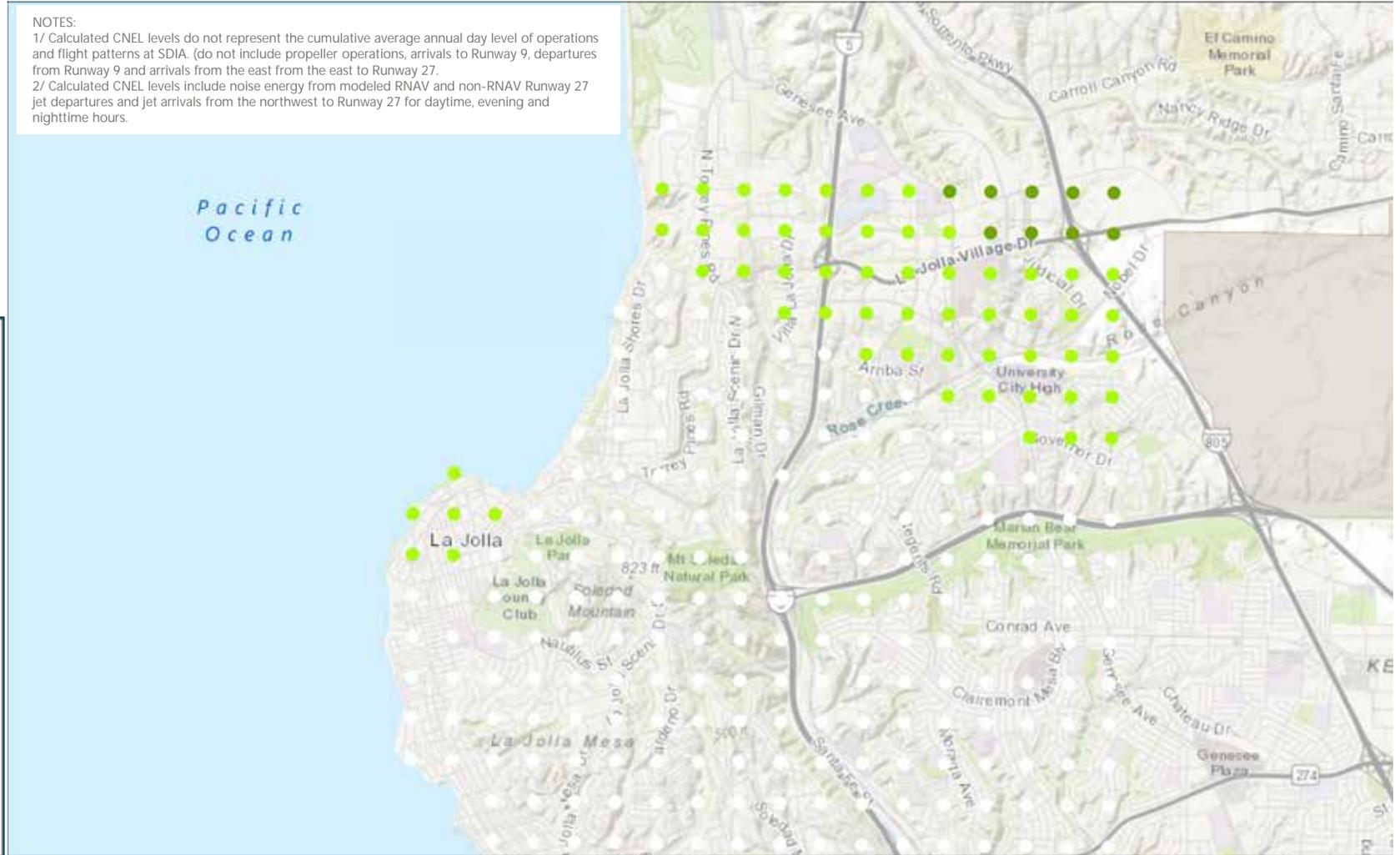
1/ Calculated CNEL levels do not represent the cumulative average annual day level of operations and flight patterns at SDIA. (do not include propeller operations, arrivals to Runway 9, departures from Runway 9 and arrivals from the east from the east to Runway 27.
2/ Calculated CNEL levels include noise energy from modeled RNAV and non-RNAV Runway 27 jet departures and jet arrivals from the northwest to Runway 27 for daytime, evening and nighttime hours.

Pacific Ocean

LEGEND

CNEL CHANGE BETWEEN BASELINE TO SCENARIO 1

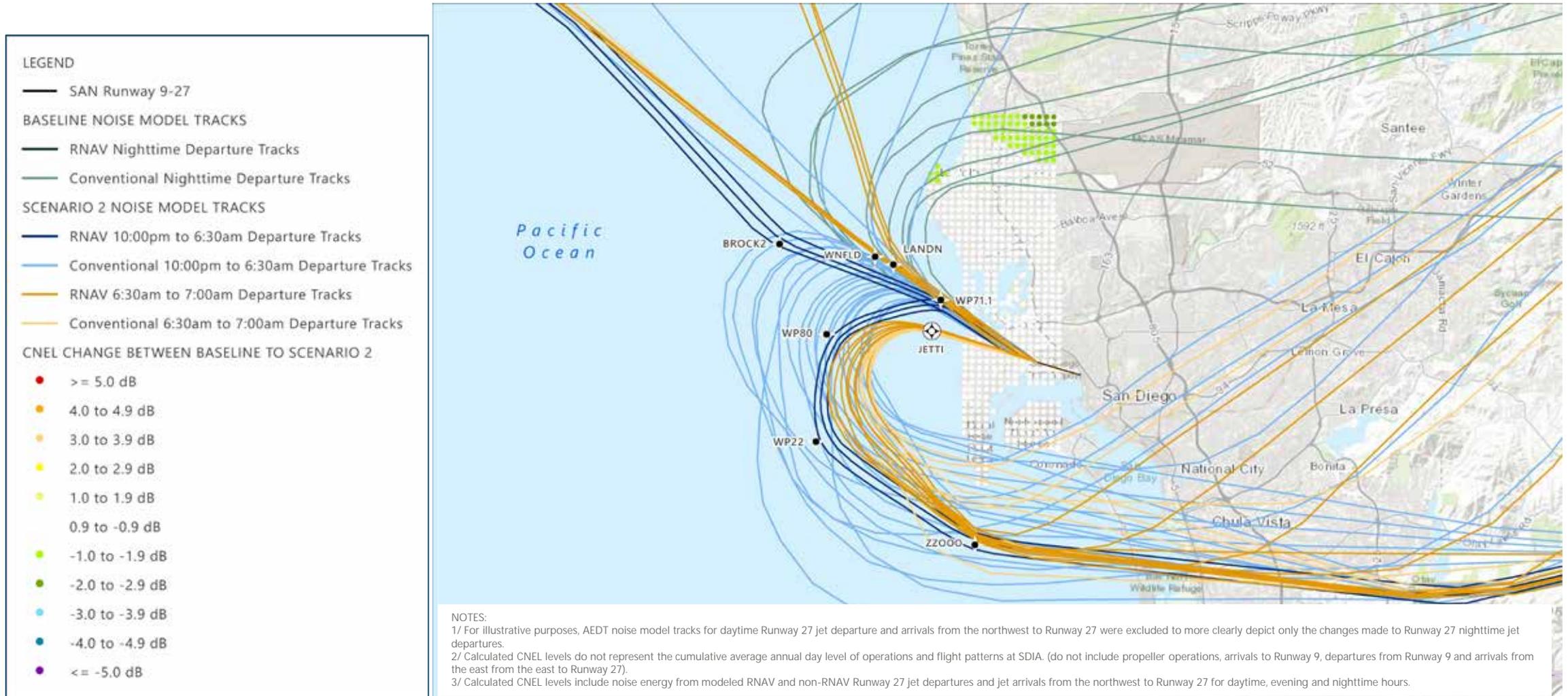
- ≥ 5.0 dB
- 4.0 to 4.9 dB
- 3.0 to 3.9 dB
- 2.0 to 2.9 dB
- 1.0 to 1.9 dB
- 0.9 to -0.9 dB
- -1.0 to -1.9 dB
- -2.0 to -2.9 dB
- -3.0 to -3.9 dB
- -4.0 to -4.9 dB
- ≤ -5.0 dB



Scenario 2 Noise Screening Update

ANAC Recommendation 14 Alternative 4 (Nighttime Jet Departures to the Northwest – Turn at 0.5 NM) and Recommendation 15 Alternative 4 (Nighttime Jet Departures to the East – Turn at 0.5 NM)

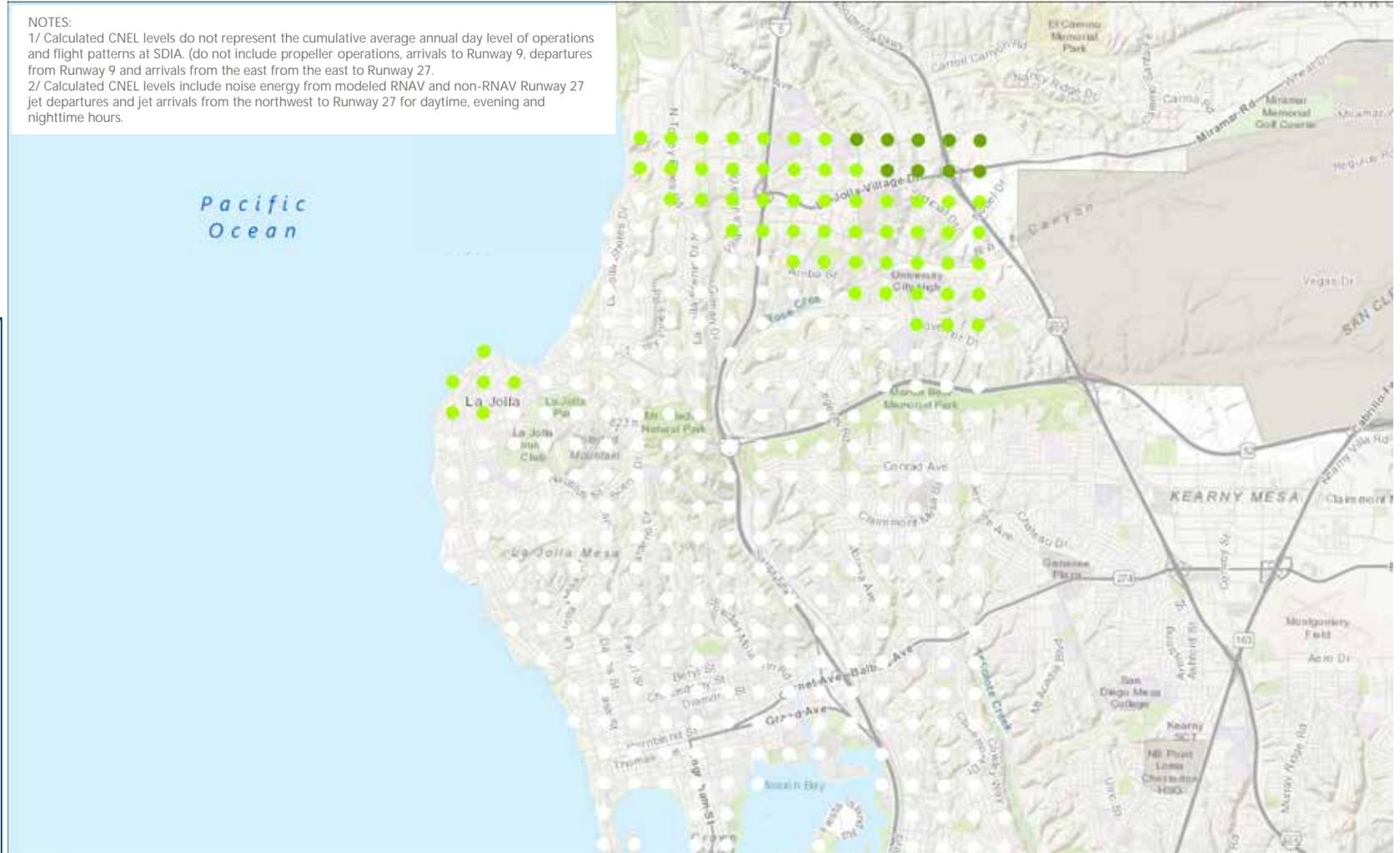
Nighttime Jet Departures to the Northwest and East – Turn at 0.5 NM – AEDT Scenario 2/Baseline Noise Model Tracks and CNEL Changes



Nighttime Jet Departures to the Northwest and East – Turn at 0.5 NM – Changes in CNEL – North - UPDATE

NOTES:

1/ Calculated CNEL levels do not represent the cumulative average annual day level of operations and flight patterns at SDIA. (do not include propeller operations, arrivals to Runway 9, departures from Runway 9 and arrivals from the east from the east to Runway 27.
2/ Calculated CNEL levels include noise energy from modeled RNAV and non-RNAV Runway 27 jet departures and jet arrivals from the northwest to Runway 27 for daytime, evening and nighttime hours.



Consultant Recommendations - UPDATE

- § **ANAC 14 Alternative 4 –Nighttime Jet Departures to the Northwest (Turn at 0.5 NM):** Hold from further consideration until ANAC Recommendation 17 and 21 analysis is completed under the Title 14 CFR Part 150 process. Adjustment to design may be required to accommodate findings for Recommendation 17 and 21.
- § **ANAC 15 Alternative 4 –Nighttime Jet Departure to the East (Turn at 0.5 NM):** Hold Hold from further consideration until ANAC Recommendation 17 and 21 analysis is completed under the Title 14 CFR Part 150 process. Adjustment to design may be required to accommodate findings for Recommendation 17 and 21.
- § **ANAC 15 Alternative 1 –Jet Departures to the East (6:30 a.m. to 10:00 p.m.):** Proceed forward for further consideration
- § **ANAC 16 Alternative 1– All Day Jet Arrivals from Northwest:** Do not proceed forward due to substantial increase in noise in areas such as University City and Kearny Mesa

TAC and CAC Input Required

- § Jet Nighttime Departure Turn at 1.5 NM – complies with Early Turn restriction
- § Jet Nighttime Departure Turn at 0.5 NM – does not comply with Early Turn restriction
- § Only one of the above can be recommended

Next Steps - UPDATE

§ Present to ANAC for consideration

§ ANAC make a recommendation to Authority Board

ANAC Recommendations 18, 19 and 20

Early Turns and Noise Dots

ANAC Recommendation 18 (Early Turns)

§ **ANAC Recommendation:** Review if the current definition of an early turn, define what an early turn means and conduct comparative analysis to actual flight paths

§ **Consultant Finding:**

- Runway 27 jet departures or missed approaches that are vectored off an initial departure heading prior to 1.5 nautical miles west of the shoreline or those aircraft routed back (south and east bound) over residential areas of Point Loma north of Fort Rosecrans National Cemetery, with the exception of aircraft vectored off course to ensure safe separation.
- The Authority’s methodology to identify early turns is appropriate based on independent definition of early turns, but should include missed approaches in the evaluation.



SOURCE: San Diego County Regional Airport Authority, February 2018 (noise dot locations); Ricondo & Associates, Inc., March 2019 (early turn violation example paths).

ANAC Recommendation 19 (Early Turns)

§ **ANAC Recommendation:** Work with FAA/ATC to modify flight procedures to increase compliance and reduce early turns, with consideration of aircraft performance.

§ **Consultant Finding:** The consultant reviewed all published departure procedures and concluded the designs comply with the early turn restriction. The early turn violations reported by the Authority to ANAC serve as evidence the existing procedures as defined increase compliance with early turn restrictions. In addition, the intent of this recommendation (to modify procedures to increase compliance) is met through the design evaluation efforts related to Recommendations 14 and 15.

Note: FAA air traffic control manages a very dynamic environment close to and several miles away from SDIA. They direct flights to address weather, safe separation, sequencing and/or operational efficiency issues present at the time an air traffic controller takes action. In many cases, management actions are related to traffic interaction several miles away from SDIA. Procedure designs cannot address every situation that requires speed or heading directions issued by a controller.

Early Turns by Year

YEAR	Early Turns	% Change
2013	829	--
2014	1,105	33
2015	1,293	17
2016	776	(40)
2017	420	(46)
2018	269	(36)
2019	125*	--

* Through March 31, 2019

☐ ZZOOO RNAV SID implemented November 2016 and PADRZ RNAV SID implemented January 2017
 SOURCE: San Diego County Regional Airport Authority, April 2019.

RNAV Use – May-December 2017

Runway 27 RNAV SIDs	Use (%)
ZZOOO RNAV	81%
PADRZ RNAV	96%

SOURCE: Ricondo & Associates, Inc., April 2019 (based on SDCRAA ANOMS radar data from May 2017 to December 2017 and maintaining RNAV path until ZZOOO or WNFLD waypoints).

ANAC Recommendation 20 (Noise Dots)

§ **ANAC Recommendation:** FAA\TRACON to incorporate Red Dot waypoint locations into current and future SID's as part of the formal SID and STAR Procedures, so that Red Dots become waypoints on departure procedures and data is collected on waypoints.

§ **Consultant Finding:** Incorporating noise dots as waypoints in existing or proposed SIDs is not feasible. The current Area Navigation (RNAV) departures comply with the early-turn restrictions. The focus should be to work with FAA on keeping aircraft on the RNAV departure procedures. An alternative concept to move Noise Dots #3 and #4 south of Point Loma was considered, but most likely will not be feasible based on preliminary feedback from FAA.



SOURCE: Esri, HERE, DeLorme, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), MapmyIndia, NGCC, OpenStreetMap Contributors, and the GIS User Community, August 2018 (basemap); San Diego County Regional Airport Authority ANOMS data, 2018 (FAA noise dots); ESRI Data, 2010 (Airports); National Flight Data Center (NFDC), October 2018 (waypoint); Ricondo & Associates, Inc., October 2018 (alternatives).