APPENDIX

J PUBLIC COORDINATION

14 CFR PART 150 UPDATE

14 CFR PART 150 UPDATE

Public Coordination Appendix Note: This appendix includes presentations and information provided for public coordination related to the San Diego International Airport Part 150 Study. Contents include presentations to the Airport Noise Advisory Council (ANAC), Citizens Advisory Committee (CAC), Technical Advisory Committee (TAC), public workshop presentations, and responses to comments on the content of the Part 150 Study document.

The contents below are navigable both using the PDF bookmarks or the PDF page numbers on the top right of the page.

SAN DIEGO INTERNATIONAL AIRPORT

Mead & Hunt

14 CFR PART 150 UPDATE

TAC/CAC MEETING

OCT.25.2018

SAN DIEGO INTERNATIONAL AIRPORT

Agenda

- **Introduction**
  - Study Team
- **Brief Explanation of CFR Part 150 Study Update**
  - Purpose of Study
  - Part 150 Process Summary
  - Why Update Study
  - Relationship to the Procedures Study
- **Previous CFR Part 150 Studies**
- **Study Parameters**
- **Noise Metrics**
- **Accepted NEM**
- **Study Schedule**
- **Questions/Comments**

14 CFR PART 150 UPDATE

Introduction

Mead & Hunt

- **Mead & Hunt**
  TULSA, OKLAHOMA AND DENVER, COLORADO
- **Ricondo Associates**
  CARLSBAD, CALIFORNIA
- **Synergy Consultants**
  SEATTLE, WASHINGTON
- **BridgeNet International**
  NEWPORT BEACH, CALIFORNIA
- **HG Consulting**
  SAN DIEGO, CALIFORNIA

14 CFR PART 150 UPDATE

Purpose of Study

Mead &Hunt

- An update to the 2011 FAR Part 150 Study.
- The Noise Exposure Maps (NEMs) were recertified in November 2016
- This Part 150 Study is in response to ANAC recommendations which may change the 65 CNEL
- Determine if we need to make adjustments

14 CFR PART 150 UPDATE

Purpose of Study (CONTINUED)

Mead & Hunt

- **The Study identifies and evaluates two components:** ***Aircraft noise and land use, both existing and future.***
- **The Study consists of two distinct, but complementary portions:** ***Noise Exposure Maps and a Noise Compatibility Program.***
- **The Study generally has a five-year planning horizon.**

14 CFR PART 150 UPDATE

Purpose of Study (CONTINUED)

Mead & Hunt

- The *Noise Exposure Maps (NEMs)* are accepted by the Federal Aviation Administration.
- The *Noise Compatibility Program (NCP)* measures are either approved or disapproved by the FAA. Approved measures contained in the Noise Compatibility Program are eligible for Federal funding.

14 CFR PART 150 UPDATE

150 Study Process

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1. *Inventory of Existing Conditions*
2. *Generate Existing & Future Base Case Noise Contours*
3. *Noise/Land Use Effects—Develop Feasible Alternatives*
4. *Evaluate Feasible Alternatives*
5. *Combine and Refine Feasible Alternatives*
6. *Recommend Alternatives for Implementation*
7. *Prioritize Recommendations*
8. *Develop Noise Exposure Maps*
9. *Develop Noise Compatibility Program*
10. *Public Hearing and Adoption*
11. *Submit Program to Federal Aviation Administration (FAA)*
12. *FAA Accepts Noise Exposure Maps*
13. *FAA Approves Noise Compatibility Program*

14 CFR PART 150 UPDATE

SAN DIEGO INTERNATIONAL AIRPORT

Why Update Study?

- **Respond to ANAC Recommendations, specifically those that may impact the 65 CNEL contour**
- **Changes Over Time**
  - Change in Aircraft Fleet Mix
  - Aircraft Noise Levels Reduced
  - Change in Aircraft Activity Levels
  - Updated Noise Model

14 CFR PART 150 UPDATE

Relationship to Procedures Study

- **The Citizens Advisory Committee (CAC) and the Technical Advisory Committee (TAC) were formed to as part of the Flight Procedures Evaluation Study to address alternatives beyond the 65 CNEL.**
- **Are expected to continue to act as a major resource for the Airport Staff and Consultants in developing alternatives within the 65 CNEL for the Part 150 and ultimately recommendations for action.**

14 CFR PART 150 UPDATE

Relationship to Procedures Study (CONTINUED)

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- **Several alternatives identified in the Procedures Study will be carried forward in the Part 150.**
- **It is expected that additional alternatives may be identified for evaluation.**
- **CFR Part 150 identifies several alternatives that must be evaluated.**

14 CFR PART 150 UPDATE

Relationship to Procedures Study (CONTINUED)

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- **Comments from the committee members will be considered throughout the process and will be included as an appendix. However, only those comments received as a result of the official review process will be responded to.**
- **Members of the general public are welcome to attend the Committee meetings. However, only committee member comments will be recognized.**

14 CFR PART 150 UPDATE

Study Parameters

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- Do Not Shift Noise to new non-compatible areas
- Do Not impact safety
- Do Not impact capacity
- Do Not Modify or Change Existing Curfew
- Do Not Evaluate Alternatives that Would Trigger Part 161
- Try to Reduce the Number of People Affected by Noise

14 CFR PART 150 UPDATE

Noise Metrics

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- CNEL – Community Noise Equivalent Level
  - Existing Noise Contour—2018
  - Short-Term Contour—2025
- CNEL – Annual Average Cumulative Noise Contour
  - Evening penalty—7pm to 10pm
  - Night penalty—10pm to 7am
- The 65 CNEL is the threshold contour for compatibility

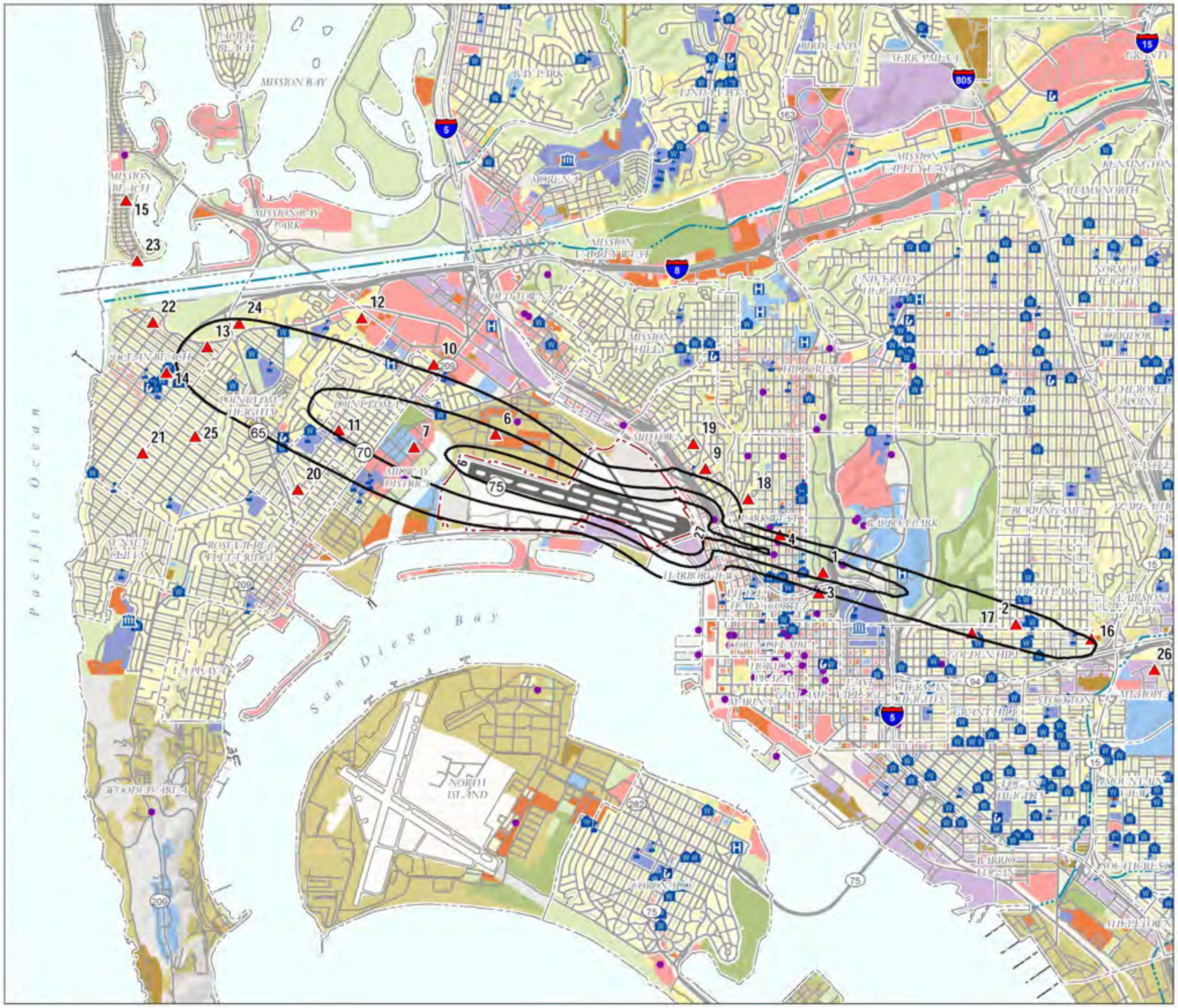
14 CFR PART 150 UPDATE

SAN DIEGO INTERNATIONAL AIRPORT

14 CFR Part 150 Update

Forecast Condition (2014) Noise Exposure Map

Figure 3



CNEL Contours

RMT Site Location

Airport Property

Roads

Single Family Residential

Multi-Family Residential

Mobile Home Parks

Hotel/Motel, Group Quarters

Commercial

Industrial

Agriculture

Parks

SAN Airport Runways

River / Stream

Golf Courses

Public Service

Schools

Military Use

Transportation/Communication/Utilities

Land Under Construction

Vacant and Undeveloped Land

Water

Hospital

Schools

Place of Worship

National Register of Historic Places

Library

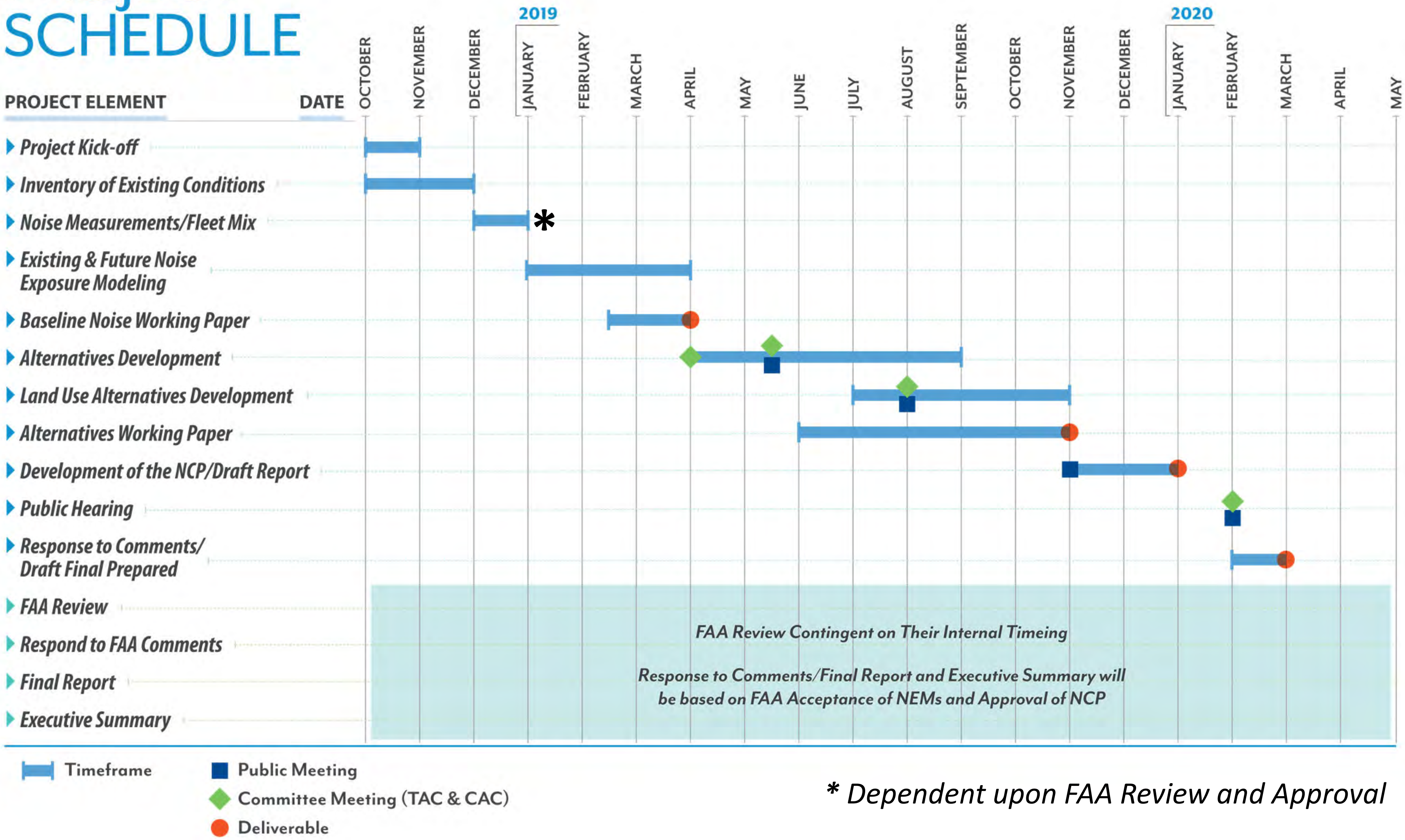
College / University

Data Sources: San Diego International Airport; San Diego Association of Governments (SANDAG); City of San Diego and County of San Diego (SanGIS); Environmental Systems Research Institute, Inc. (ESRI).

0 4,000 8,000 Feet

HARRIS MILLER MILLER & HANSON INC.

PROJECT SCHEDULE



Dependent upon FAA Review and Approval

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Questions & Comments

14 CFR PART 150 UPDATE

SAN DIEGO INTERNATIONAL AIRPORT

Contact

COMMENTS & ADDITIONAL INFORMATION

Mead & Hunt

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SAN

14 CFR PART 150 UPDATE

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14 CFR PART 150 UPDATE TAC/CAC MEETING

OCT.25.2018

Thank you!

SAN DIEGO INTERNATIONAL AIRPORT

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SAN NOISE STUDY ANAC MEETING

AUG.21.2019

SAN DIEGO INTERNATIONAL AIRPORT

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Agenda

- Purpose of Study
- Forecasts
- Existing and Future Noise: Draft Contours/Land Use
- Questions/Comments

SAN NOISE STUDY

Purpose of Study

Mead &Hunt

- **Original Part 150 Study by Port of San Diego was accepted by FAA in 1991.**
- **An update to the 2011 FAR Part 150 Study was completed.**
- **The Noise Exposure Maps (NEMs) were recertified in November 2016.**
- **This Part 150 Study is in response to ANAC recommendations which may change the 65 Community Noise Equivalent Level (CNEL).**

SAN NOISE STUDY

Purpose of Study (CONTINUED)

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- **The Part 150 Study addresses aircraft noise issues within the 65 CNEL noise contour only.**
- **To address concerns from residents outside the 65 CNEL contour, the Airport Authority conducted the Flight Procedures Study in March 2018.**
- **As a result and in response to community concerns about flight path changes and increases in airport operations, staff initiated the Part 150 Update one year earlier than scheduled.**

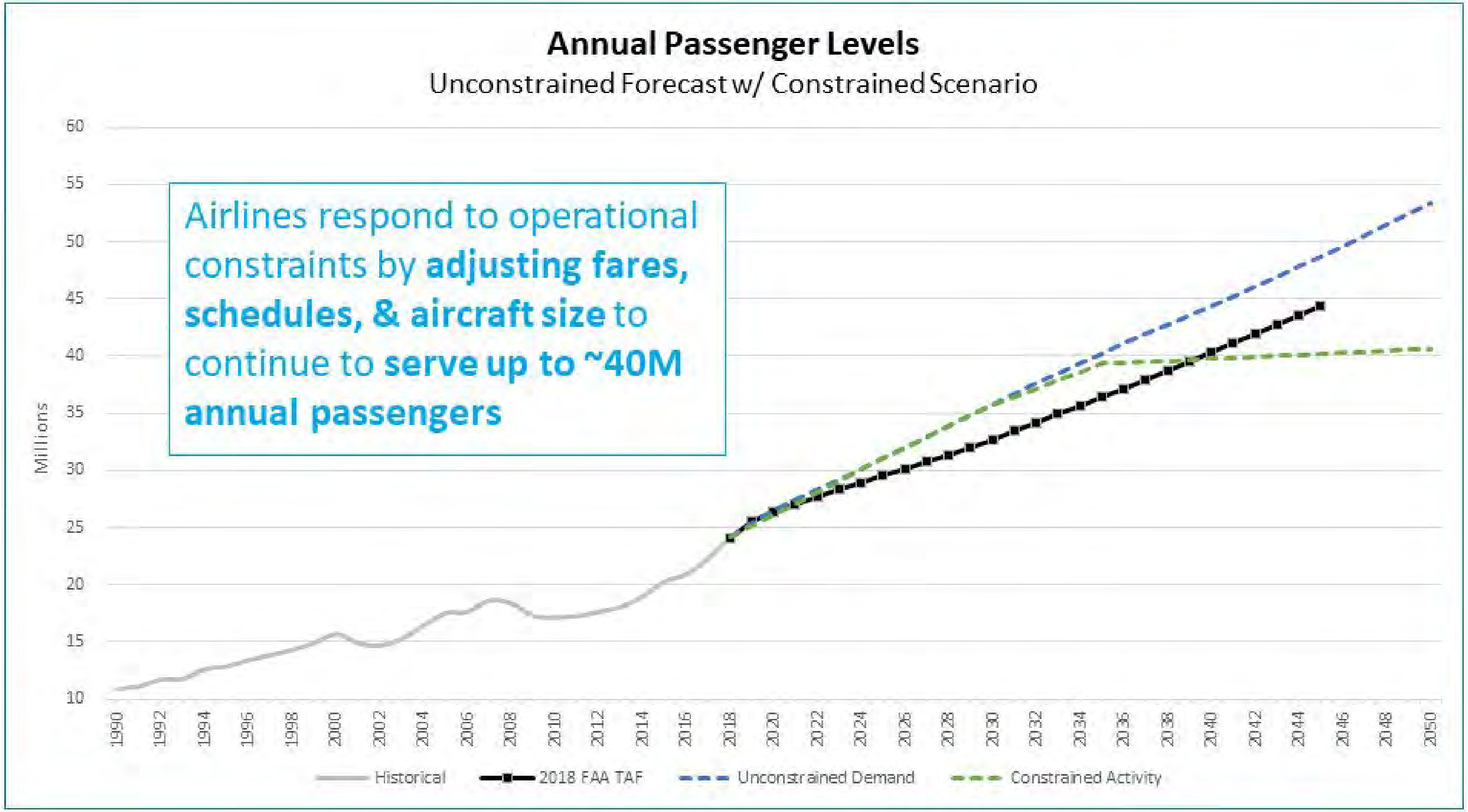
SAN NOISE STUDY

Forecasts

Mead & Hunt

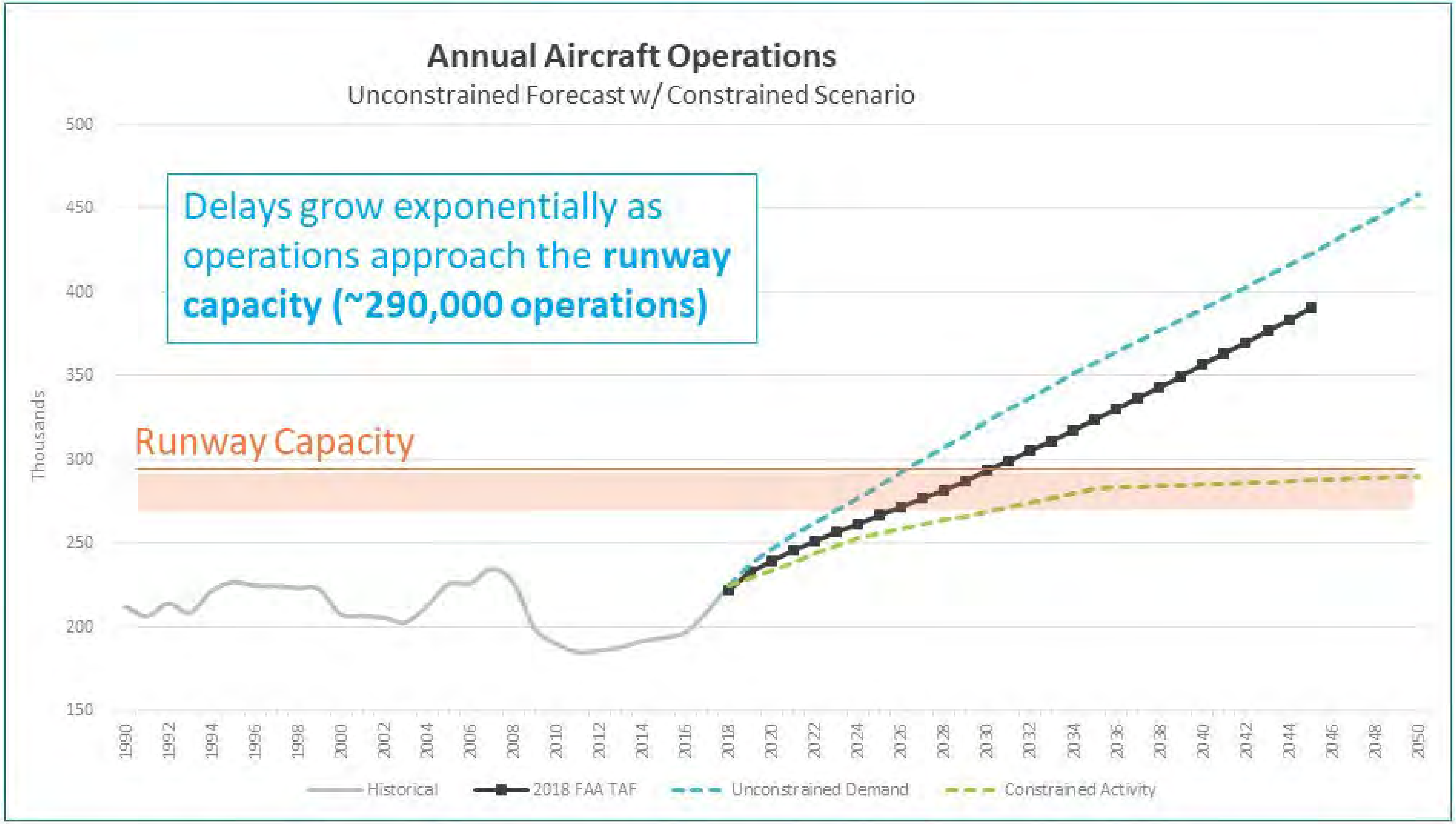
- **Use the Aviation Forecasts Developed by Leigh Fisher as part of the Airport Development Plan (ADP).**
- **Accounts for constrained airfield at San Diego International Airport (single runway and curfew).**
- **Ensures consistency between Part 150 Study and ADP Environmental Analyses.**

Updated Aviation Activity Forecast



*Formal FAA approval received on June 19, 2019

Updated Aviation Activity Forecast



*Formal FAA approval received on June 19, 2019

Existing and Future Operations

Aircraft Category	2018 Existing Operations*	2026 Forecast Operations**
Commercial/Cargo	212,430	247,105
Air Taxi/Charter	365	730
General Aviation	11,680	9,855
Military	730	730
Helicopter	365	365
Total	**225,570**	**258,785**

**Source: Airport ANOM Data, 2018, Leigh Fisher and HMMH Analysis*

***Source: 2018 Aviation Activity Forecast Update, LeighFisher June 2019*

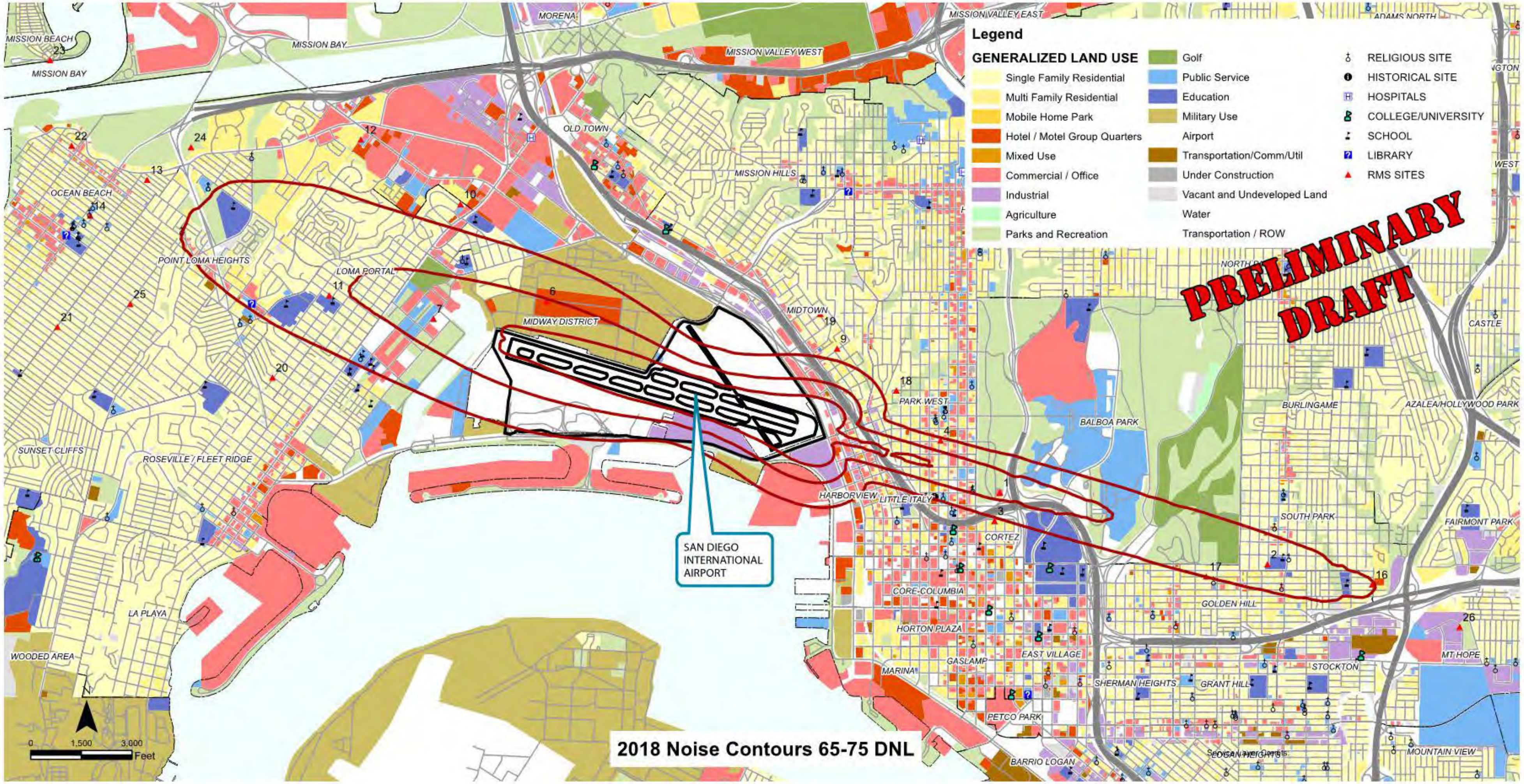
Noise Metrics

Mead & Hunt

- **CNEL – Community Noise Equivalent Level**
  - Existing Noise Contour—2018
  - Short-Term Contour—2026
- **CNEL – Annual Average Cumulative Noise Contour**
  - Evening penalty—7pm to 10pm, 5 dB penalty
  - Night penalty—10pm to 7am, 10 dB penalty
- **The 65 CNEL is the threshold contour for compatibility**

SAN NOISE STUDY

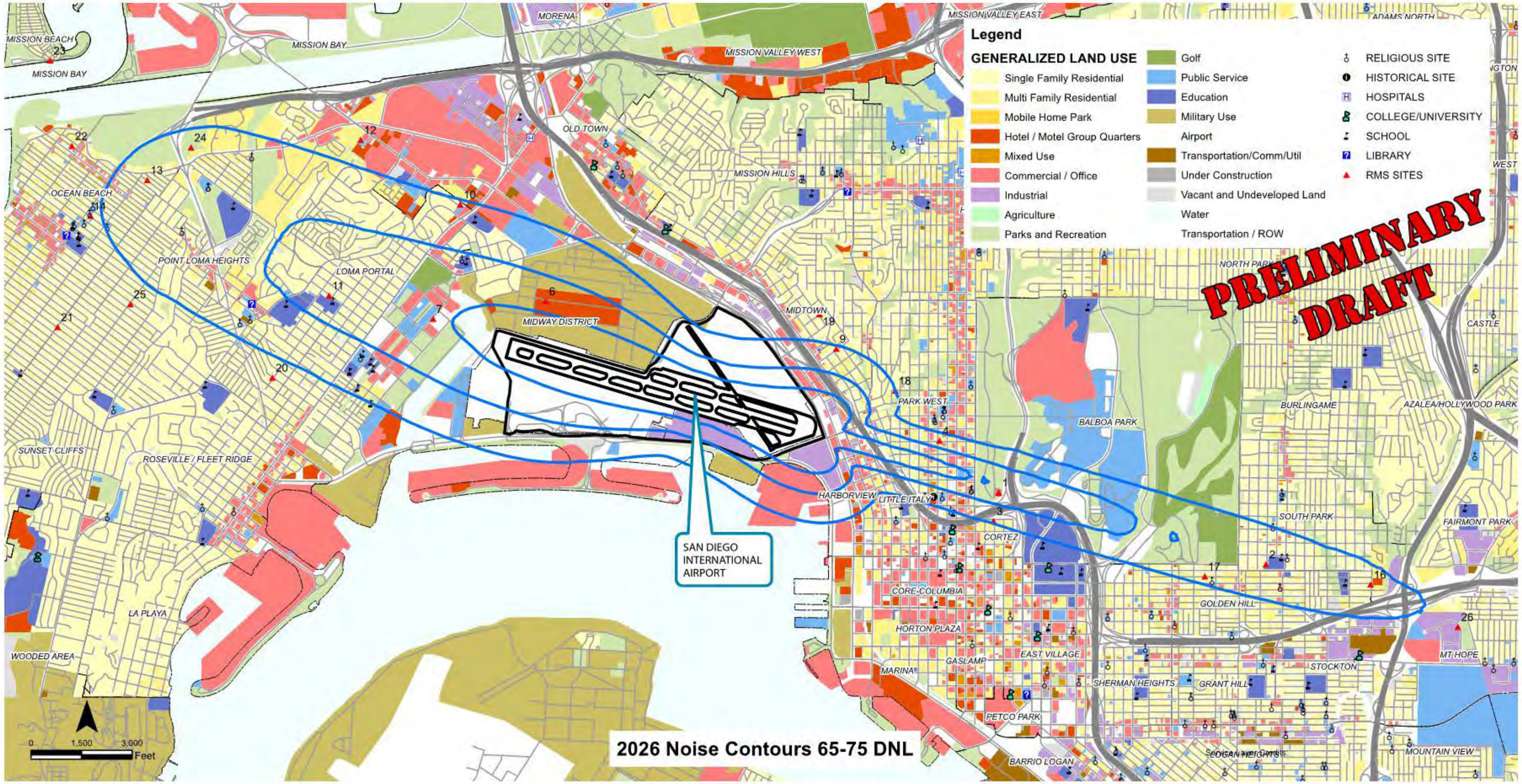
Mead & Hunt



Draft Existing 2018 Noise Contours

SAN NOISE STUDY

Mead & Hunt



Draft Future 2026 Noise Contours

SAN NOISE STUDY

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Land Use Analysis 2018 and 2026

2018	Population	Housing Units
65-70 CNEL	16,198	6,527
70-75 CNEL	2,960	1,107
>75 CNEL	181	132
TOTAL	**19,339**	**7,766**

2026	Population	Housing Units
65-70 CNEL	26,310	12,447
70-75 CNEL	7,172	2,109
>75 CNEL	794	515
TOTAL	**34,276**	**15,071**

Source: US Census 2010, HMMH Analysis
Note These include homes that have been sound attenuated or were build after October 1, 1998 and therefore not eligible for sound attenuation

SAN NOISE STUDY

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NEXT STEPS

- Document Existing Conditions and Existing/Future Noise
- TAC/CAC Meeting to Discuss/Brainstorm Range of Alternatives in November
  - ANAC Recommended Alternatives
  - TAC/CAC Recommended Alternatives
  - Part 150 Required Alternatives
  - Others
- Public Workshop to Present Existing Conditions, Draft Contours and Broad Range of Possible Alternatives, also in early November
- Prioritize and Model Alternatives to address Noise

SAN NOISE STUDY

Mead & Hunt

Questions & Comments

✈ https://sannoisestudy.com/

SAN NOISE STUDY

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SAN NOISE STUDY ANAC MEETING

Thank you!

SAN DIEGO INTERNATIONAL AIRPORT

Sign·In

CFR PART 150 STUDY | CITIZENS ADVISORY COMMITTEE (CAC) NOVEMBER 20, 2019

SAN DIEGO INTERNATIONAL AIRPORT

NAME	ADDRESS	TELEPHONE NUMBER	EMAIL ADDRESS
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Gerhut Iroyf	MB		
Jan Stiefel			
Robin Taylor	Pt Loma		
Marc Adelman	Liberty Station		
Gary Wonacott	Mission Beach		
Bob Herrin	Loma Portal		
Nancy Palmtag	Loma Portal		
Alan Harris	Pacific Beach		
Kathy Vandewal	Golden Hill		
Brendan Reed	SDCRAA		
Kujawa	OB		

Before including your address, phone number, e-mail address, or other personal identifying information, be advised that your information may be made publicly available at any time. While you can ask us to withhold from public review your personal identifying information, we cannot guarantee that we will be able to do so.

Thank You!

Sign·In

CFR PART 150 STUDY | TECHNICAL ADVISORY COMMITTEE (TAC) NOVEMBER 20, 2019

SAN DIEGO INTERNATIONAL AIRPORT

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Quentical Watkins			

Before including your address, phone number, e-mail address, or other personal identifying information, be advised that your information may be made publicly available at any time. While you can ask us to withhold from public review your personal identifying information, we cannot guarantee that we will be able to do so.

Thank You!

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SAN NOISE STUDY TAC/CAC MEETING

NOV.20.2019

SAN DIEGO INTERNATIONAL AIRPORT

Agenda

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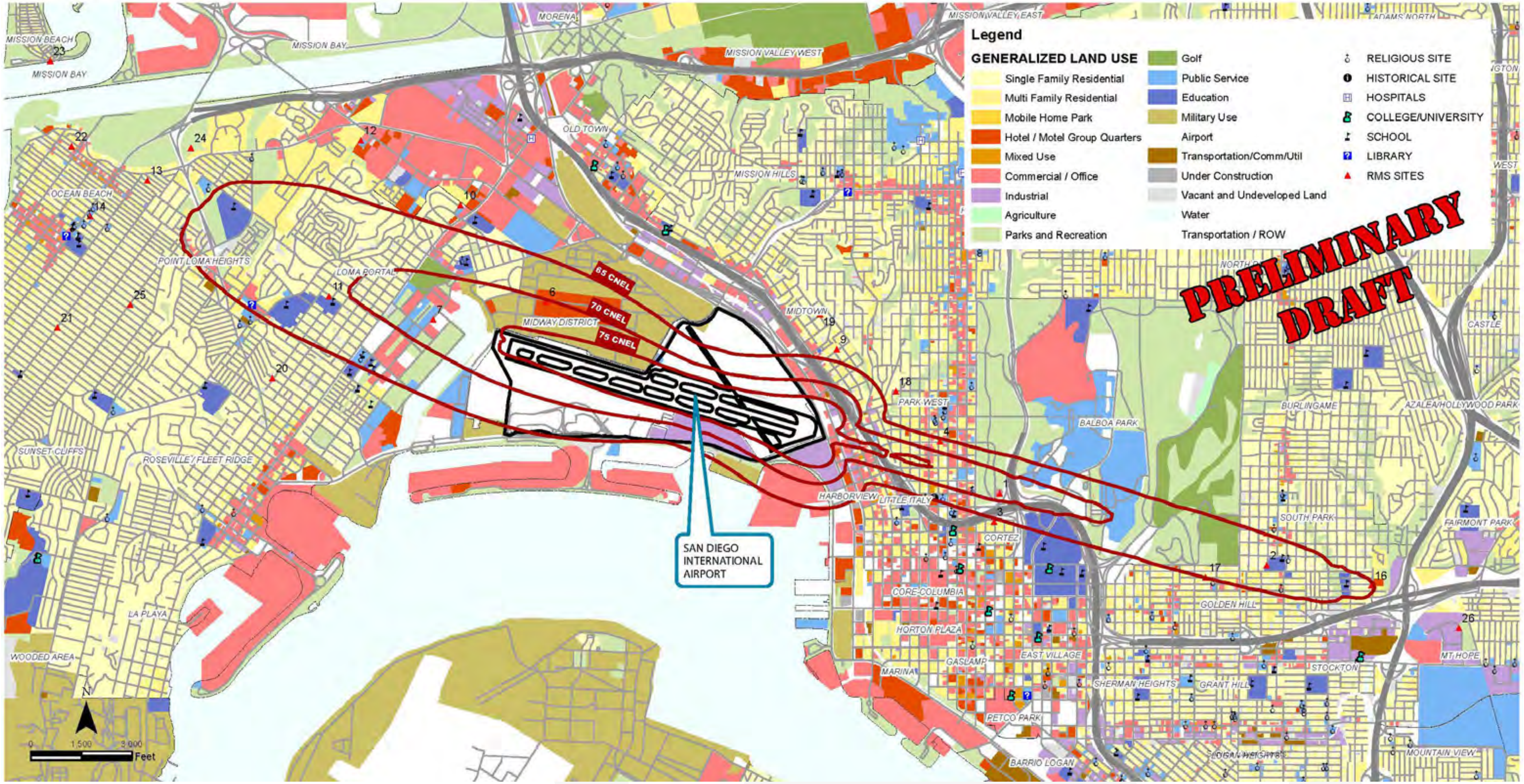
- Introduction
  - Study Team
- Purpose of Meeting
- Review Draft Contours
- Alternatives Background
- Preliminary Alternatives
  - ANAC & TAC/CAC Alternatives
  - Part 150 Required Alternatives
- Questions/Comments

SAN NOISE STUDY

Noise Metrics

- **CNEL – Community Noise Equivalent Level**
  - Evening penalty—7pm to 10pm, 5 dB penalty
  - Night penalty—10pm to 7am, 10 dB penalty
- **CNEL – Annual Average Cumulative Noise Contour**
  - Existing Noise Contour—2018
  - Short-Term Contour—2026
- **The 65 db CNEL is the threshold contour for compatibility**

Draft Existing 2018 Noise Contours (65 – 75 db CNEL)



Note that contours are draft and may change in size.
All final contours must be accepted by FAA.

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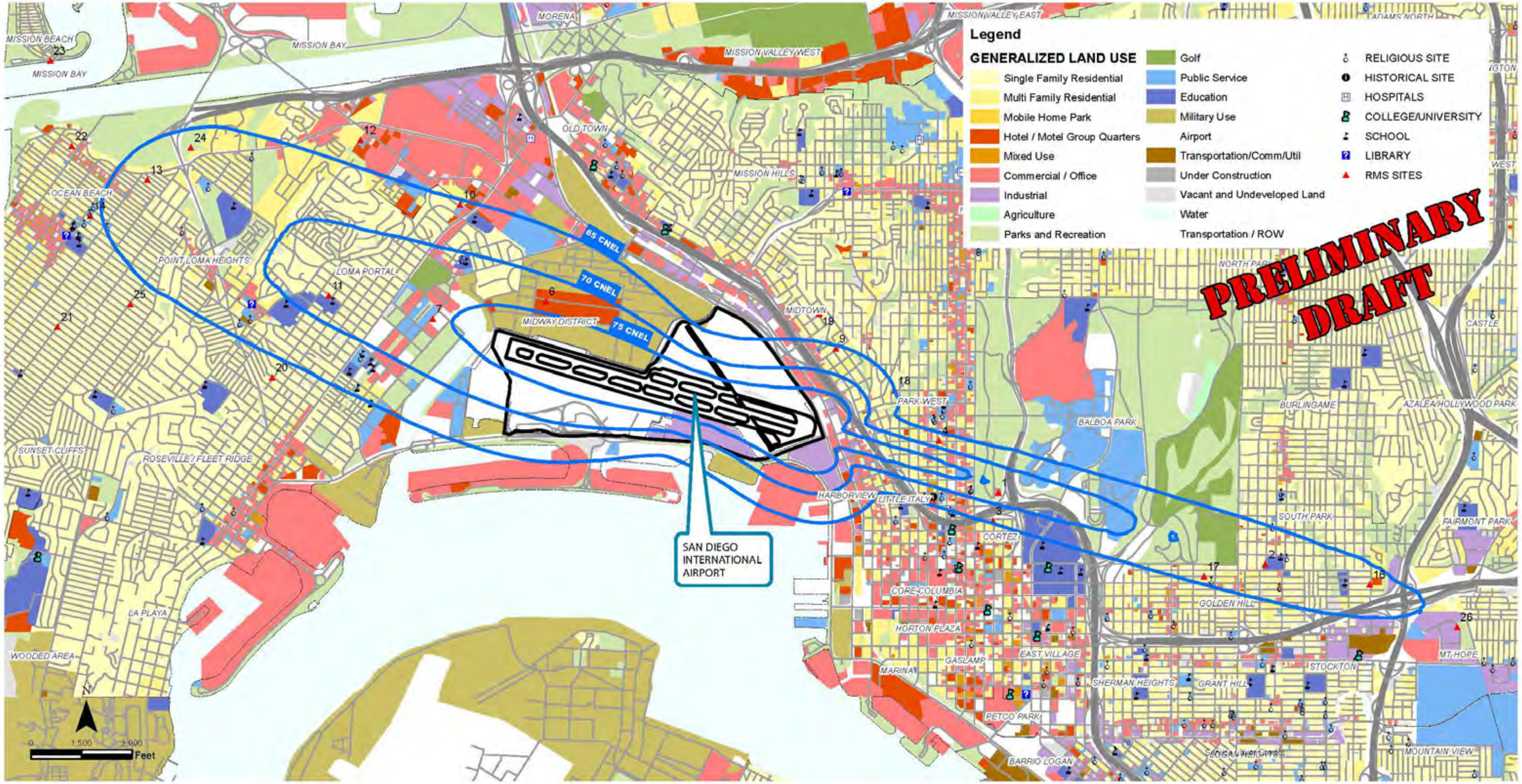
SAN NOISE STUDY

Draft Future 2026 Noise Contours (65 – 75 db CNEL)

Mead & Hunt



Note that contours are draft and may change in size.
All final contours must be accepted by FAA.

SAN NOISE STUDY

Population/Housing Units 2018 and 2026

Mead & Hunt

2018	Population	Housing Units
65 db CNEL and greater	19,339	7,766
70 db CNEL and greater	3,141	1,239
75 db CNEL and greater	181	132

2026	Population	Housing Units
65 db CNEL and greater	34,276	15,071
70 db CNEL and greater	7,966	2,624
75 db CNEL and greater	794	515

These numbers include homes that have been sound attenuated or were built after October 1, 1998 and therefore considered compatible (Approx. 4,000 homes have been sound attenuated)

Data is organized by cumulative contours (as opposed to contour bands) per CFR Part 150 regulations.

Source: US Census 2010, HMMH Analysis

Note: Contours are draft and may change in size. All final contours must be accepted by FAA.

SAN NOISE STUDY

Schools within 65 db CNEL Contour (2018)

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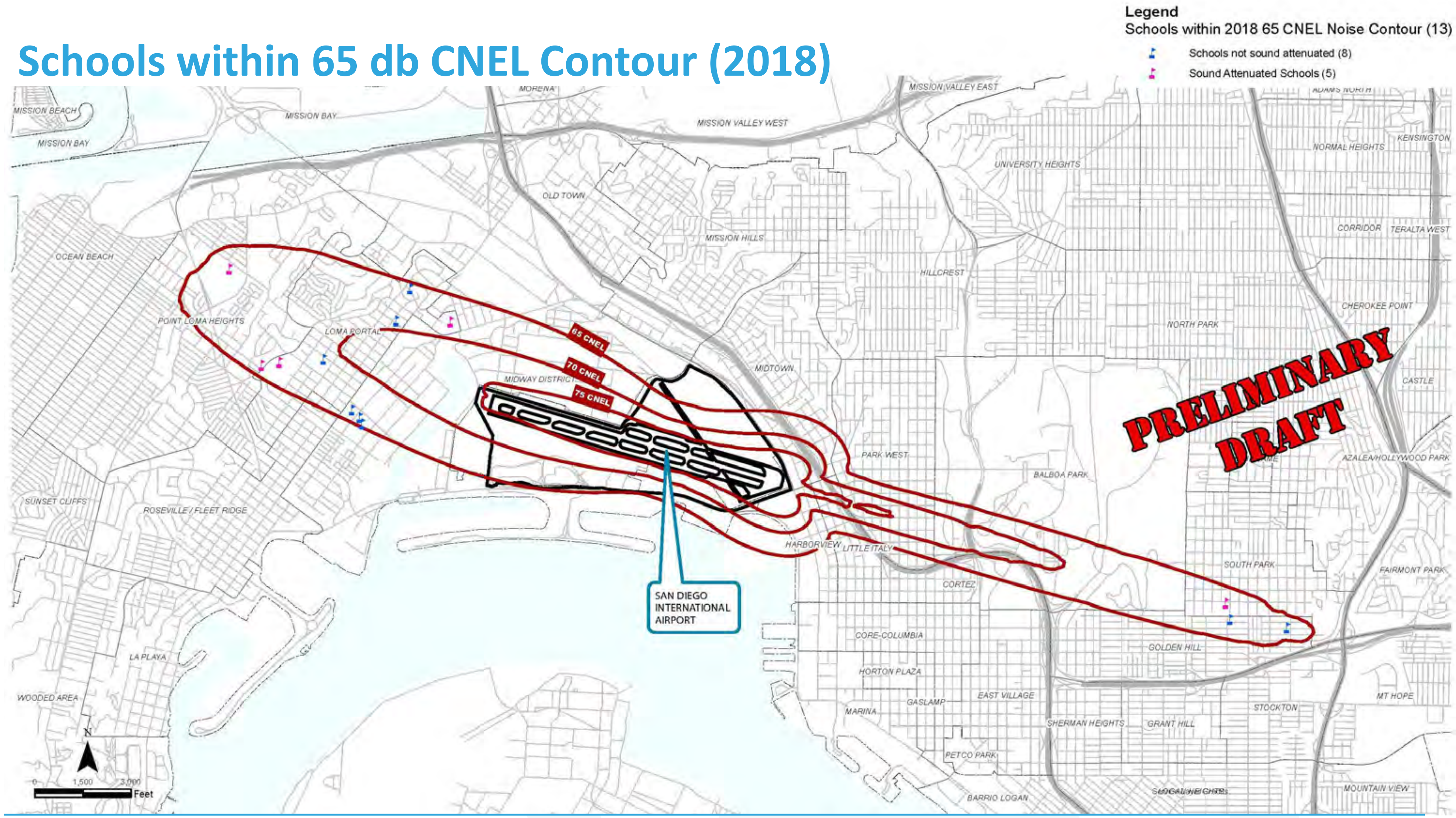
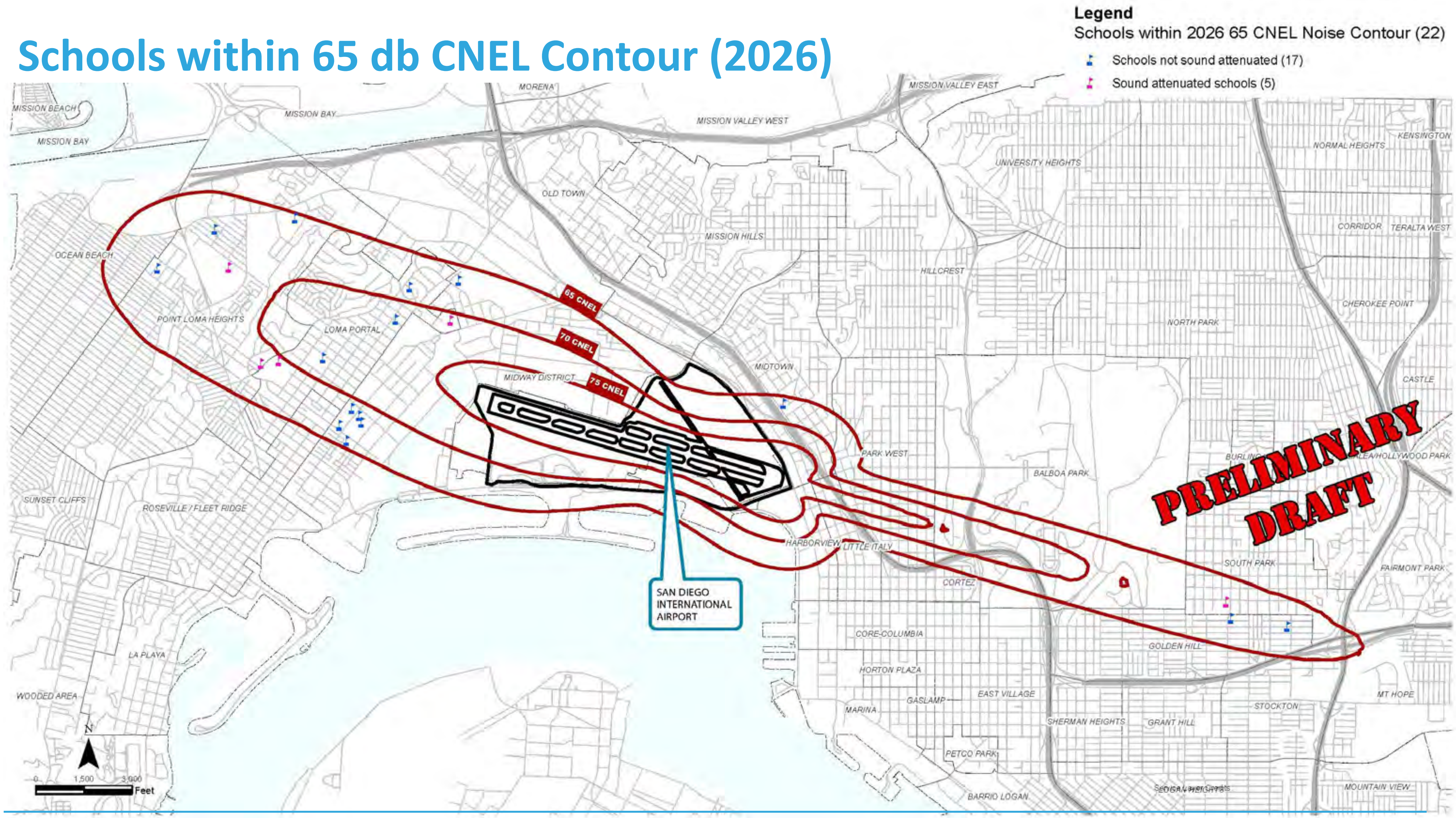


Note that contours are draft and may change in size.
All final contours must be accepted by FAA.

SAN NOISE STUDY

8

Schools within 65 db CNEL Contour (2026)



Note that contours are draft and may change in size.
All final contours must be accepted by FAA.

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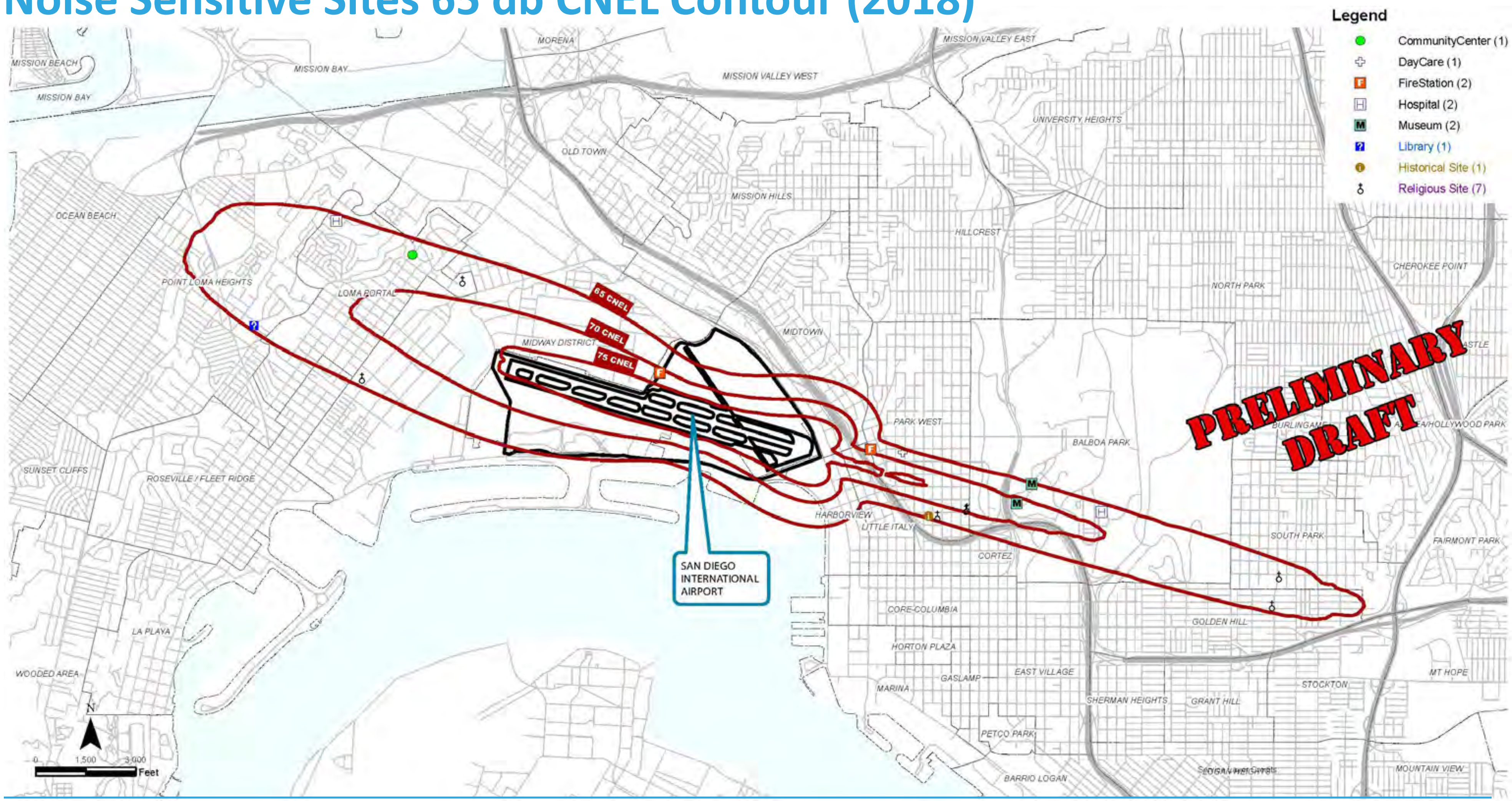
SAN NOISE STUDY

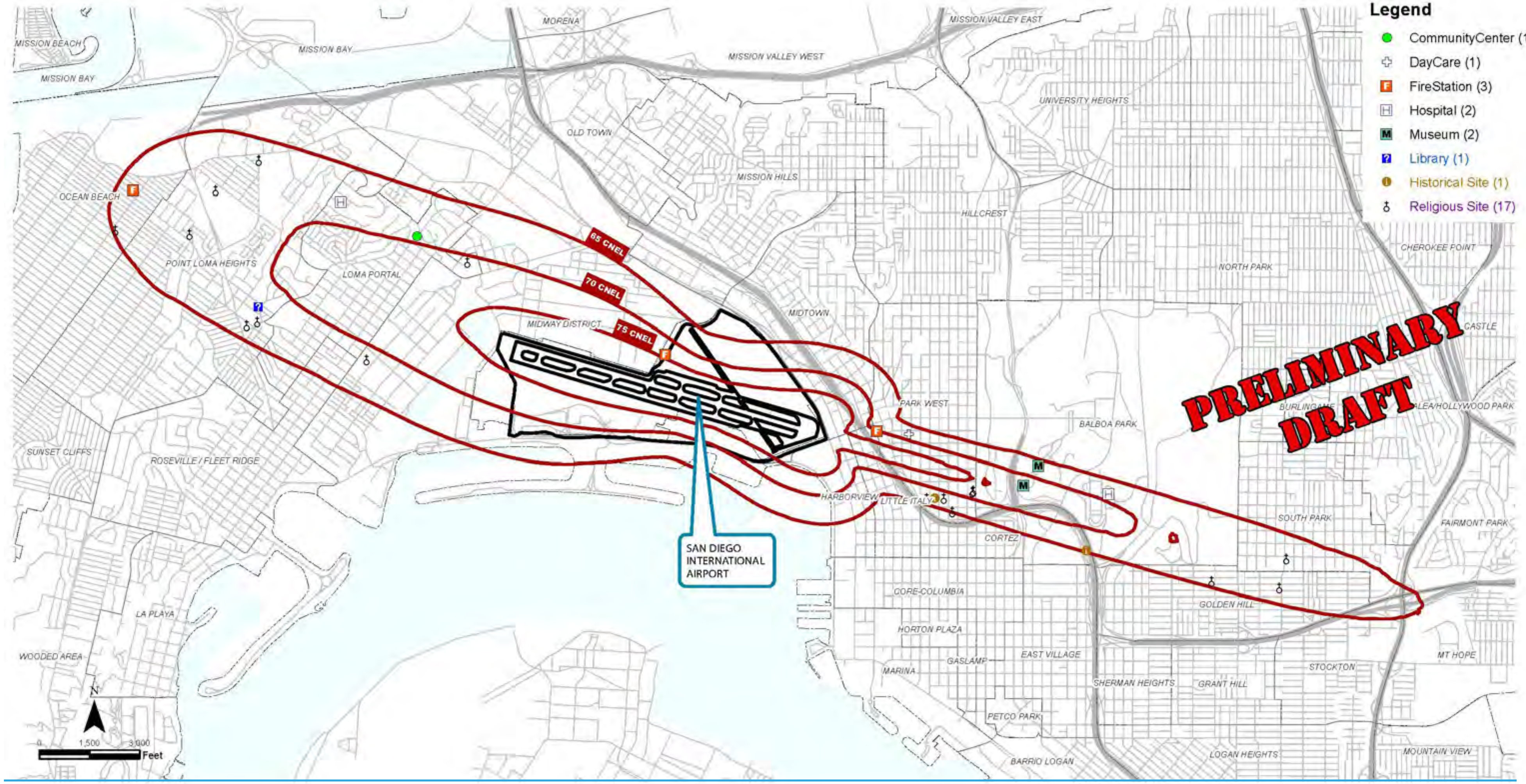
Noise Sensitive Sites 65 db CNEL Contour (2018)



Note that contours are draft and may change in size.
All final contours must be accepted by FAA.

SAN NOISE STUDY

Noise Sensitive Sites 65 db CNEL Contour (2026)



Note that contours are draft and may change in size.
All final contours must be accepted by FAA.

Existing and Future Noise Sensitive Public Facilities

Noise Sensitive Use	2018 Existing Operations	2026 Forecast Operations
Schools	13	22
Religious Facilities	7	17
Historic Sties	5	5
Libraries	1	1
Total	**26**	**45**

Source: Recirculated Draft Airport Development Plan Environmental Impact Report, September 2019

Note: Contours are draft and may change in size. All final contours must be accepted by FAA.

Note that some of these facilities have been sound attenuated.

SAN NOISE STUDY

CFR Part 150 Alternative Guidelines

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- **Have the potential of solving a noise problem**
- **Be implementable within acceptable economic, environmental and social costs**
- **Not derogate safety**
- **Be legally implementable within existing Federal, State, and local legislation, regulations and ordinances**

Roles and Responsibilities of the Parties

- **Federal Government** controls aircraft in flight, sets noise levels at the source, preempts some noise restrictions
- **State and local Governments** are responsible for land use planning and controls
- **Airport Proprietor** is responsible for actions that reduce noise, within their authority to enact
- **Carriers** are responsible for meeting noise standards, aircraft operation procedures and complying with local restrictions

SAN NOISE STUDY

Categories of Alternatives

- **Operational Alternatives—Federal Government**
  - Flight track changes
  - Noise restrictions
- **Land Use Alternatives—Local and State Government**
  - Preventative
  - Remedial
- **Administrative Alternatives—Airport Proprietor**
  - Noise Monitoring/Flight Track Monitoring
  - Fly Quiet Program
  - Part 150 Updates

SAN NOISE STUDY

Part 161/Access Restrictions Based on Aircraft Noise

- **Defines requirements for implementing new restrictions at airports**
  - Must use CNEL metric
  - 65 db CNEL as threshold contour to determine noncompatible land uses
  - Must complete a cost/benefit analysis, approved by FAA
  - Must exhaust all non-regulatory methods first
- **Proposed restriction must be approved by FAA**

CFR Part 150 Required Alternatives

- **CFR Part 150 Requires the evaluation of the following measures**
  - Acquisition of land and Interests therein
  - Barriers and acoustical shielding/sound attenuation
  - Preferential runway system
  - Complete or partial curfew
  - Flight procedures (modifications to flight tracks)
  - Use Restrictions - *Dueling Regulations—Part 161*
  - Other reasonable actions from FAA

SAN NOISE STUDY

ANAC & TAC/CAC Alternatives

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Recommendation Number	Summary of Recommendation to Review
10	**Conduct portable noise monitoring**
11	**Review feasibility and benefits of additional noise barriers at the airport to reduce aircraft noise impacts in the surrounding communities**
14	**Revise PADRZ procedure to reduce noise in La Jolla, Mission Beach and Pacific Beach. Specifically:** ▪ Move the WNFLD and LANDN waypoints due south so as to align with the relocated Noise Dot #1 at 290° (15° separation from JETTI at 275°) and designate as "Flyover" waypoints in their respective SID's, consistent with JETTI ▪ Nighttime Jet Departures on PADRZ (Northwest) Turn at 1.5 NM
15	**Revise the ZZOOO procedure to reduce noise in Point Loma and Ocean Beach. Specifically:** ▪ Move the JETTI waypoint out two miles. Submitted to FAA on 8/19/19 ▪ Nighttime Jet Departures on ZZOOO (East) Turn at 1.5 NM
17	**Review the Nighttime Noise Abatement Procedure to improve the noise impacts for affected communities. Specifically:** ▪ Ensure ATC is turning aircraft off this procedure only for safety reasons ▪ Ensure that the procedure is monitored for adherence ▪ Determine if the current nighttime procedures are still appropriate and if different procedures would reduce impacts on residential communities
21	**Conduct analysis on a modified Noise Abatement Departure Procedure to determine if there are potential improvements that could reduce the noise impacted area surrounding the airport**. ▪ Review feasibility of ELSO at SAN
Other	▪ Review feasibility of 10-degree divergent heading to the right at SAN ▪ Limit all aircraft on headings between 275º and 290º ▪ Direct cargo and international flights to right turn procedure

SAN NOISE STUDY

Applicability of Measures

Measures For Consideration		Implementation Authority: Airport	Implementation Authority: Local Jurisdictions	Implementation Authority: FAA	Measure Carried Forward	Summary
Airport & Airspace Use Restrictions	Limit Airport Access if Aircraft Do Not Meet Certain Noise Standards	◆			No	A CFR Part 161 Study can be performed, however due to the difficulty of conducting a Part 161 process, this will not be brought forward.
	Restrictions Based on Cumulative Impact using aircraft noise levels, aircraft type, or number of operations	◆			No	A CFR Part 161 Study can be performed, however due to the difficulty of conducting a Part 161 process, this will not be brought forward.
	Restrictions Based on Part 36 Certified Single-Event Noise Levels	◆			No	Restricting aircraft operations based on compliance with published noise certification data generally does not meet Part 150 program standards and would put the airport in noncompliance with their grant assurances. A CFR Part 161 Study can be performed, however due to the difficulty of conducting a Part 161 process, this will not be brought forward.
	Landing Fees Based on Noise	◆			No	The implementation of this measure, which would be to charge a landing fee based on the noise emitted by an individual aircraft, would require a Part 161 Study. It is extremely difficult to have a Part 161 application approved by the FAA. This measure will not be brought forward.
	Implementation of a Complete or Partial Curfew	◆			No	SAN has a mandatory nighttime curfew for non-emergency operations that is followed a large majority of the time. There are no scheduled commercial operations during the voluntary curfew hours; implementing any changes to this mandatory curfew would require a Part 161 Study. This measure will not be brought forward.

Applicability of Measures *(continued)*

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Measures For Consideration		Implementation Authority: Airport	Implementation Authority: Local Jurisdictions	Implementation Authority: FAA	Measure Carried Forward	Summary
Airport Infrastructure or Airport Facilities	Ban All Jet Aircraft	◆			No	This measure has been documented by case law that it is not legally possible, putting undue burden on interstate ecommerce and is a discriminatory regulation that violates the tenets of the U.S. Constitution. This measure will not be brought forward.
	Restrict Touch and Go Operations	◆			No	Aircraft that operate landings and takeoffs in a series in the airport environment. This measure may not be legal as it can limit access or be considered a capacity restriction. A CFR Part 161 Study can be performed, however due to the difficulty of conducting a Part 161 process, this measure will not be brought forward.
	Noise Barriers	◆			Yes, Chapter 8	This is a derivative of an ANAC recommendation. This measure will be brought forward.
	Construct a New Runway in a Different Orientation	◆			No	Runway orientation is based on many factors, primary among this is orientation to the prevailing winds, which is the case at SAN. Based on limited available area and substantial existing development, a new runway is not feasible. This measure will not be brought forward.
	Runway Extension	◆			No	Based on the limited available area at SAN, a runway extension is not feasible; therefore, this alternative is not considered further in this Study.
	High-Speed Taxiway Exits	◆			No	A high-speed taxiway is angled, providing the ability to exit the runway more quickly and reduce use of reverse thrust, therefore reducing noise. While this can be useful, based on the single runway configuration and the existing high-speed taxiways that are presently used; this alternative is not considered further in this Study.

Applicability of Measures *(continued)*

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Measures For Consideration		Implementation Authority: Airport	Implementation Authority: Local Jurisdictions	Implementation Authority: FAA	Measure Carried Forward	Summary
Land Use Measures	Acquisition of Land or Interest Therein	◆			Yes, Chapter 8	Land use measures related to aircraft noise at airports can include purchasing noise-impacted properties, purchasing an easement from the property owner effectively purchasing the right to create noise, or sound attenuating a home within the 65 CNEL and higher noise contours. The Airport has an on-going residential sound attenuation program. As such, these alternatives will be carried forward.
	Noise Monitoring Program	◆			Yes, Chapter 9	SAN has a permanent noise monitoring system in place as part of the ANOMS system. Potential updates to the noise monitoring system may be included in Chapter 9.
	Land Use Controls		◆		Yes, Chapter 8	Most airport operators, including SAN, do not have land use control over the land use development around airport, as the lands are owned by other jurisdictions. However, there are many measures local jurisdictions can use to improve the compatibility of land uses around an airport including: zoning, easements, transfer of development rights, building code modifications, Capital Improvement Plan, subdivision regulations, and comprehensive planning. These alternatives are examined further in Chapter 8.

Applicability of Measures *(continued)*

Measures For Consideration		Implementation Authority: Airport	Implementation Authority: Local Jurisdictions	Implementation Authority: FAA	Measure Carried Forward	Summary
Operational Measures	Departure Thrust Cutback			◆	Yes, Chapter 7	Aircraft that perform a departure thrust cutback use the application of thrust cutbacks at various stages of the take-off; use of this procedure is dependent on the type of land uses around the airport. The FAA defines two types of noise abatement departure profiles, one that reduces noise close in to the airport, and one that reduces noise further from the airport. Departure thrust cutback procedures are considered in the operational alternatives chapter along with potential satellite-based procedures. This was a TAC/CAC recommendation
	Designated Noise Abatement Take-Off/Approach Paths			◆	Yes, Chapter 7	This measure would result in the designation of arrival and/or departure paths that minimize overflights of noise-sensitive land uses. SAN has recently completed an approach/departure study to evaluate changes to existing procedures. Based on recommendations from the TAC/CAC these measures for noise abatement flight tracks are considered in the operational alternatives chapter.
	NextGen: Performance Based Navigation (PBN) Required Navigation Performance (RNP)			◆	Yes, Chapter 7	These types of procedure changes are recommended by the TAC/CAC through the approach/departure study. Procedures that use RNP technology are considered in the Chapter 7.
	Preferential Runway Use System			◆	No	SAN has a unique prevailing wind situation that not only dictates runway orientation but runway use patterns. Over 90% of the operations are to the west, both arrivals and departures based on wind coverage. Aircraft land and depart into the wind, with a maximum of approximately a 5 knot allowable tailwind component. Because the winds dictate the aircraft flow direction, this alternative is not considered further.
	Power and Flap Settings/CDA procedure			◆	Yes, Chapter 7	Aircraft on approach generate noise from the landing gear and flaps being extended and these surfaces coming into contact with the air. In addition, a continuous descent approach (CDA) may be viable due to changes in technology. This alternative will be evaluated in the Chapter 7.

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Questions & Comments

✈ https://sannoisestudy.com/

SAN NOISE STUDY

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SAN NOISE STUDY TAC/CAC MEETING

NOV.20.2019

Thank you!

SAN DIEGO INTERNATIONAL AIRPORT

Sign·In

CFR PART 150 STUDY | PUBLIC WORKSHOP NOVEMBER 21, 2019

SAN DIEGO INTERNATIONAL AIRPORT

NAME	ADDRESS	TELEPHONE NUMBER	EMAIL ADDRESS
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7. LINDA BUNN	3019 VENICE St. 92107		
8. DEBRA O'LEARY	4396 SARATOGA AVE 92107		debdeary1@icloud.com
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14. GERNOT TRAUE	869½ EL CARMEL PL.	92109	
15. Jerry Phillips	4340 Point Loma Ave	92107	JPhilly74@hotmail.com
16. CASEY SCHNOOR			
17.			
18.			
19.			
20.			
21.			
22.			
23.			
24.			
25.			

Before including your address, phone number, e-mail address, or other personal identifying information, be advised that your information may be made publicly available at any time. While you can ask us to withhold from public review your personal identifying information, we cannot guarantee that we will be able to do so.

Thank You!

Sign·In

CFR PART 150 STUDY | PUBLIC WORKSHOP NOVEMBER 21, 2019

SAN DIEGO INTERNATIONAL AIRPORT

NAME	ADDRESS	TELEPHONE NUMBER	EMAIL ADDRESS
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4. GARY WONACOTT	731 AVALON CT	8586K0181	
5. AlAN Harris	1616 Monmouth Dr	858-273-3462	
6. PAUL GRIMES	936 MORNA DR	619-578-4983	
7. Neil Eskoly	3635 Oispart St 92106	~~[illegible]~~ 619 823 8034	
8.			
9. Anthony Ciulla	4830 Muir Ave	623-201-9086	~~[illegible]~~ tonyobpb@gmail.com (OB Planning Board)
10.			
11.			
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Thank You!

Mead & Hunt

SAN NOISE STUDY PUBLIC WORKSHOP

NOV.21.2019

SAN DIEGO INTERNATIONAL AIRPORT

SAN Part 150 Noise Study - History

Mead & Hunt

1988 First SAN Part 150 Study. Accepted by FAA in 1991.

1995 Allowed for school sound attenuation at five schools within the 65 CNEL contours.

1997 Implemented the Quieter Home Program for residential homes within the 65 CNEL contours.

2008 Updated NEM and NCP. Accepted by FAA in 2011.

2016 The FAA recertified the NEMs because there was limited change in the contours.

2019 Response to community concerns and ANAC recommend-ations.

SAN NOISE STUDY

Part 150 Noise Study Components

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NEM

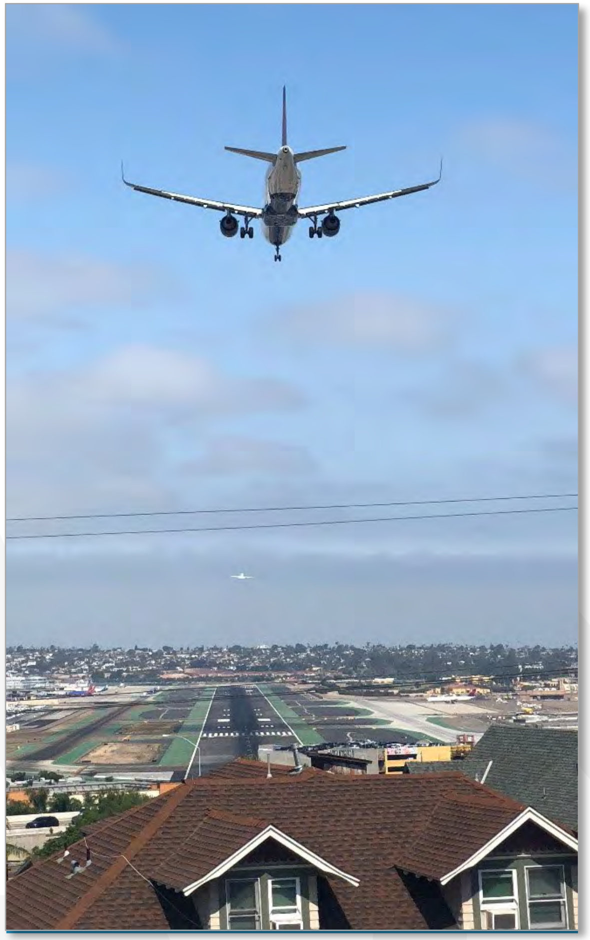
Noise Exposure Map (NEM)

- Detailed Information on Noise Impacts
- Existing and 5-Year Contours

NCP

Noise Compatibility Program (NCP)

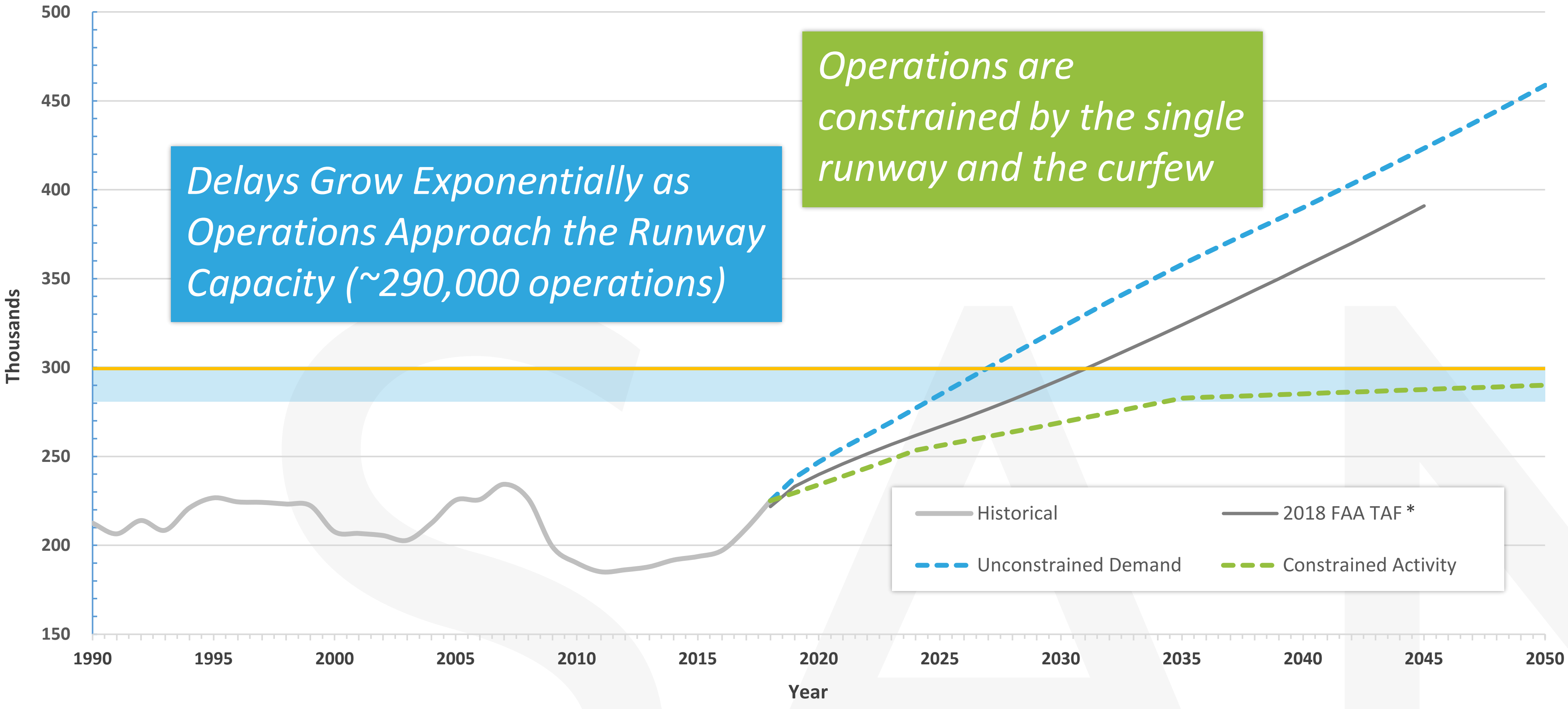
- Noise Abatement (Reduce noise at source)
- Noise Mitigation (Reduce effect of noise)



SAN NOISE STUDY

Updated Aviation Activity Forecast

ANNUAL AIRCRAFT OPERATIONS UNCONSTRAINED FORECASTS WITH CONSTRAINED SCENARIO



Formal FAA Approval Received on June 19, 2019
* TAF: Terminal Area Forecast

SAN NOISE STUDY

Existing and Future Operations

Mead & Hunt

Aircraft Category	2018 Existing Operations*	2026 Forecast Operations**
Commercial/Cargo	212,430	247,105
Air Taxi/Charter	365	730
General Aviation	11,680	9,855
Military	730	730
Helicopter	365	365
Total	**225,570**	**258,785**

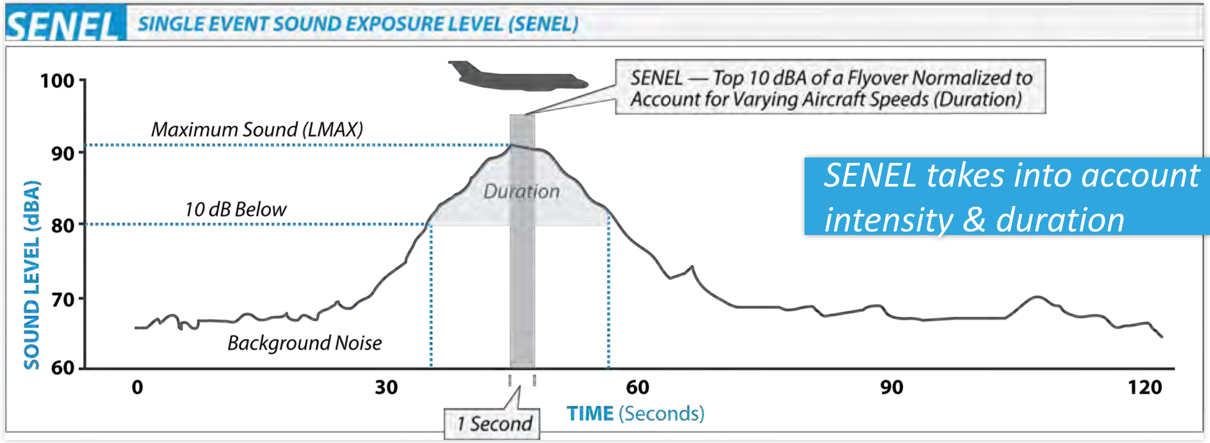
Private Aircraft

As congestion and delays increase, GA operations will relocate to less congested airports

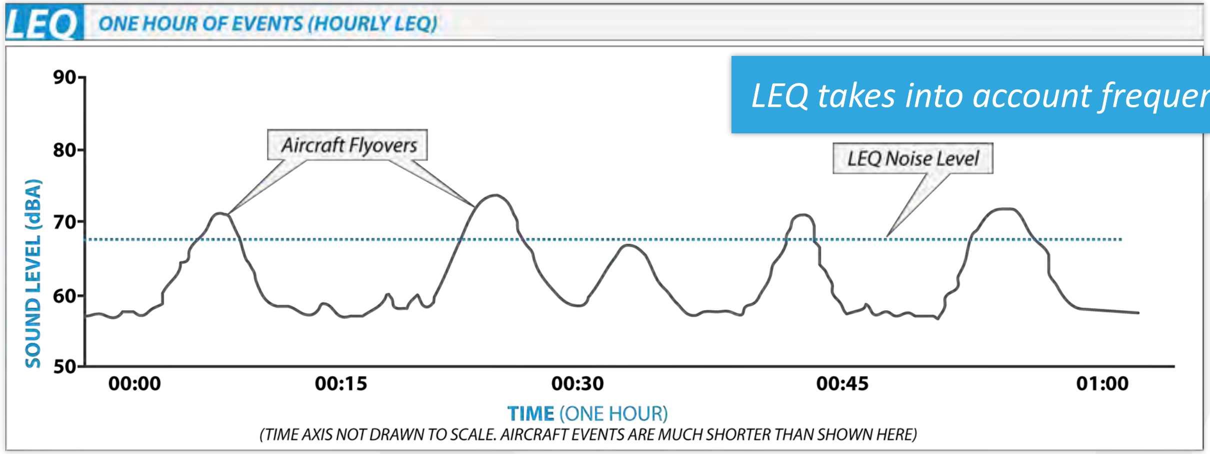
***Source:** Airport ANOM Data, 2018, Leigh Fisher and HMMH Analysis
****Source:** 2018 Aviation Activity Forecast Update, LeighFisher June 2019

SAN NOISE STUDY

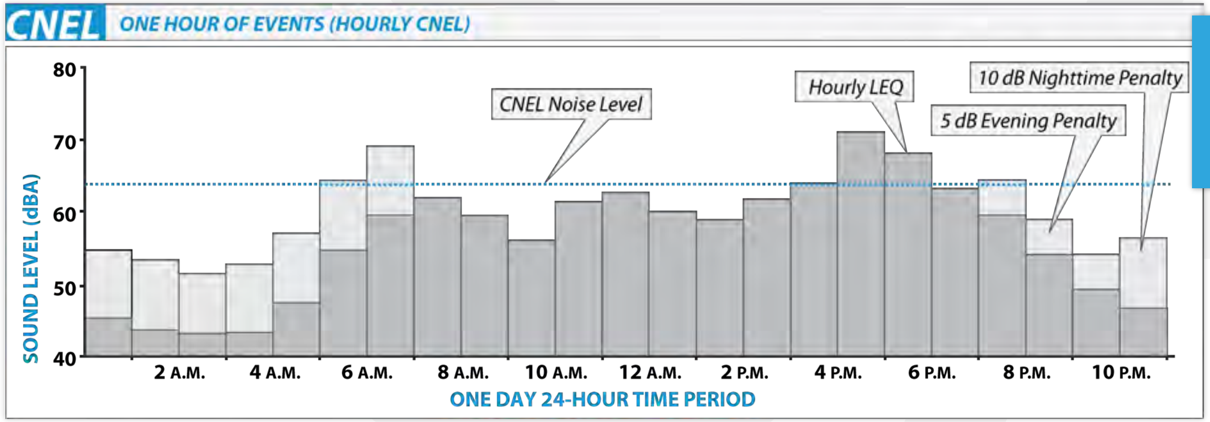
Examples of **Lmax**, **SENEL**, **LEQ**, and **CNEL** Noise Levels



SENEL takes into account intensity & duration

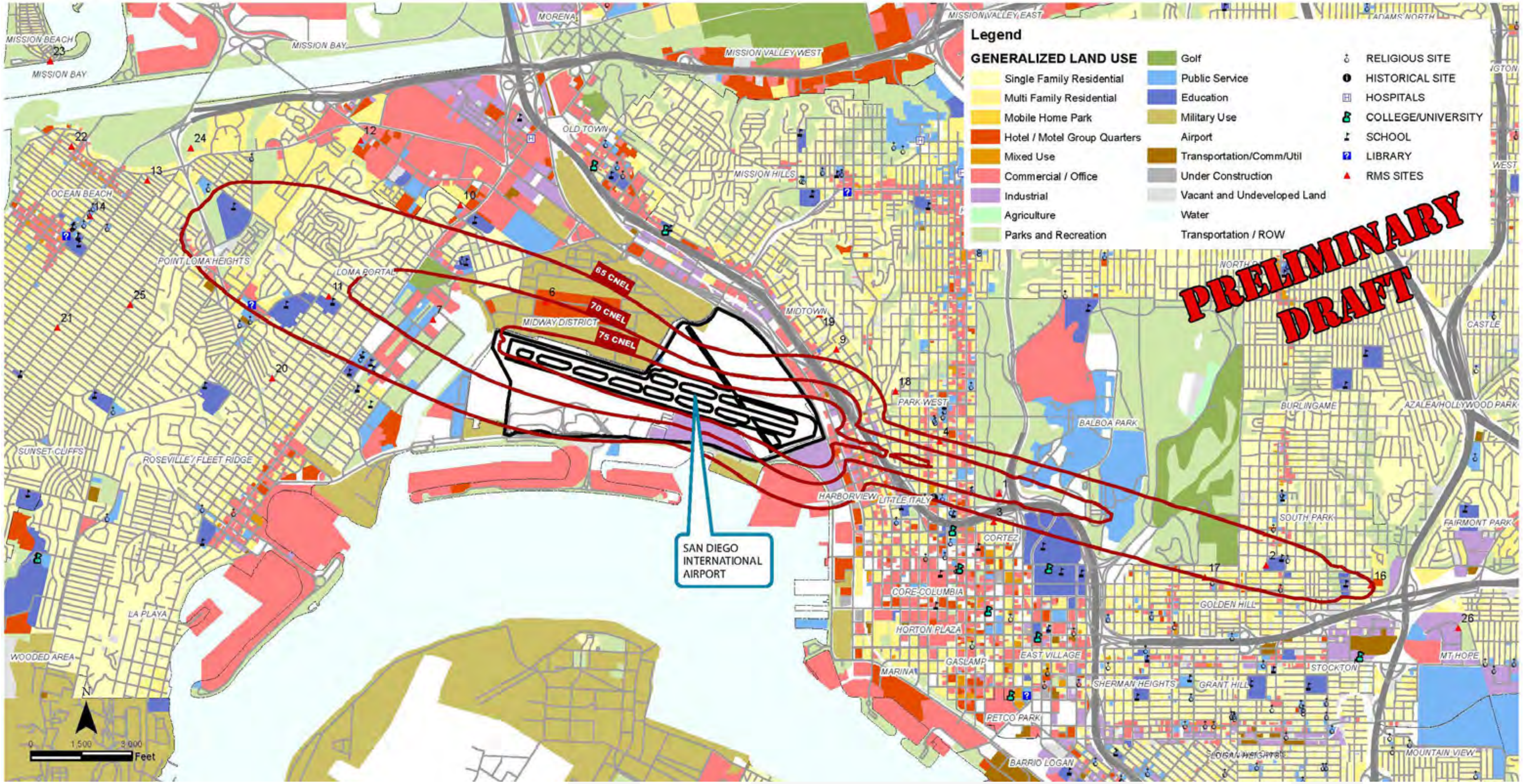


LEQ takes into account frequency



CNEL is the threshold used to measure noncompatible land use in a Part 150 Study

Draft Existing 2018 Noise Contours (65 – 75 dB CNEL)



Note that contours are draft and may change in size.
All final contours must be accepted by FAA.

SAN NOISE STUDY

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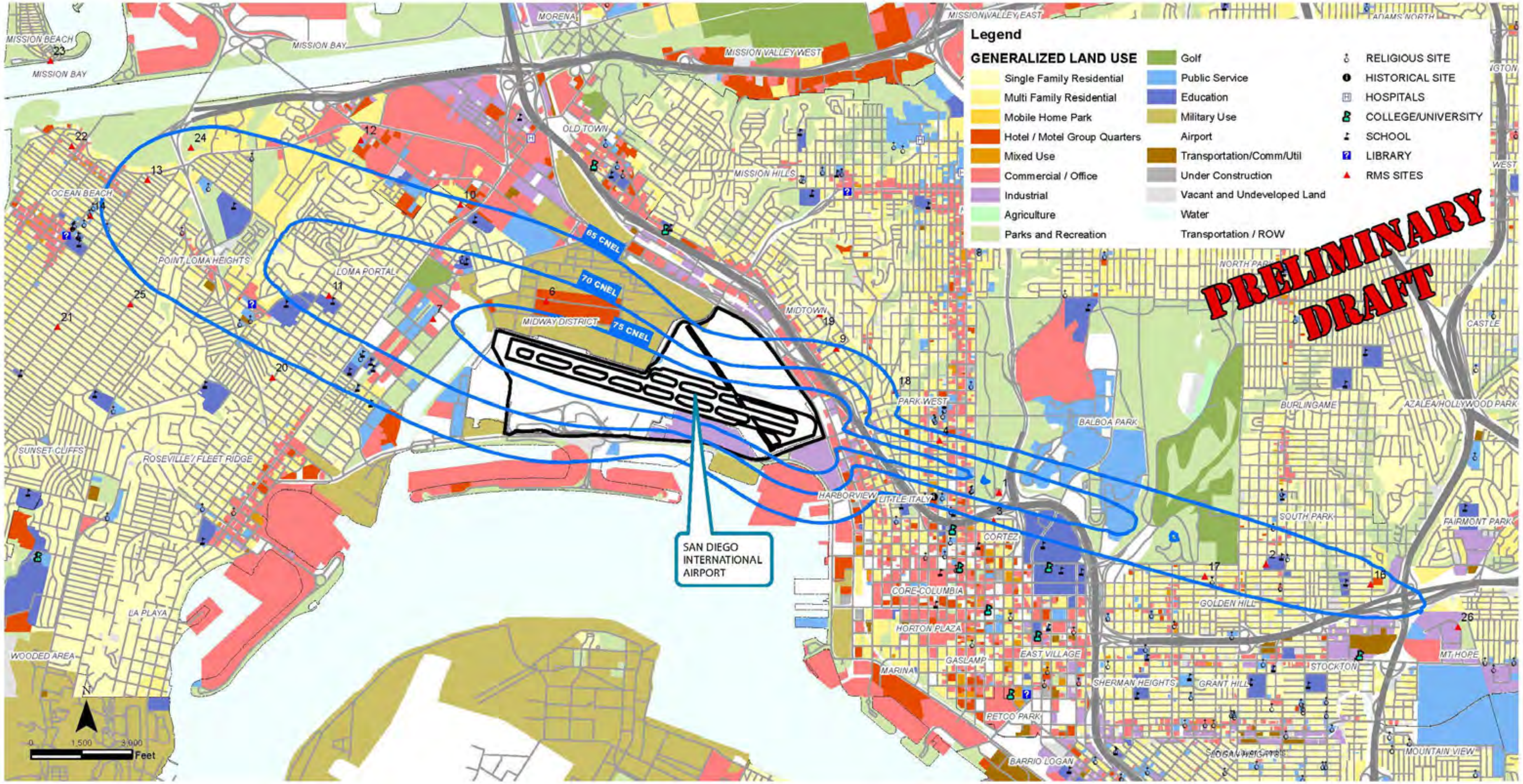
Draft Future 2026 Noise Contours (65 – 75 dB CNEL)



Note that contours are draft and may change in size.
All final contours must be accepted by FAA.

SAN NOISE STUDY

Population/Housing Units 2018 and 2026

2018	Population	Housing Units
65 dB CNEL and greater	19,339	7,766
70 dB CNEL and greater	3,141	1,239
75 dB CNEL and greater	181	132

2026	Population	Housing Units
65 dB CNEL and greater	34,276	15,071
70 dB CNEL and greater	7,966	2,624
75 dB CNEL and greater	794	515

Data is organized by cumulative contours (as opposed to contour bands) per CFR Part 150 regulations.

Source: US Census 2010, HMMH Analysis.

Note: Contours are draft and may change in size. All final contours must be accepted by FAA.

*These numbers include homes that have been sound attenuated or were built after October 1, 1998 and therefore considered compatible. Approximately **4,000 homes** have been sound attenuated.*

Existing and Future Noise Sensitive Public Facilities

Noise Sensitive Use	2018 Existing Operations	2026 Forecast Operations
Schools	13	22
Religious Facilities	7	17
Historic Sties	5	5
Libraries	1	1
Total	**26**	**45**

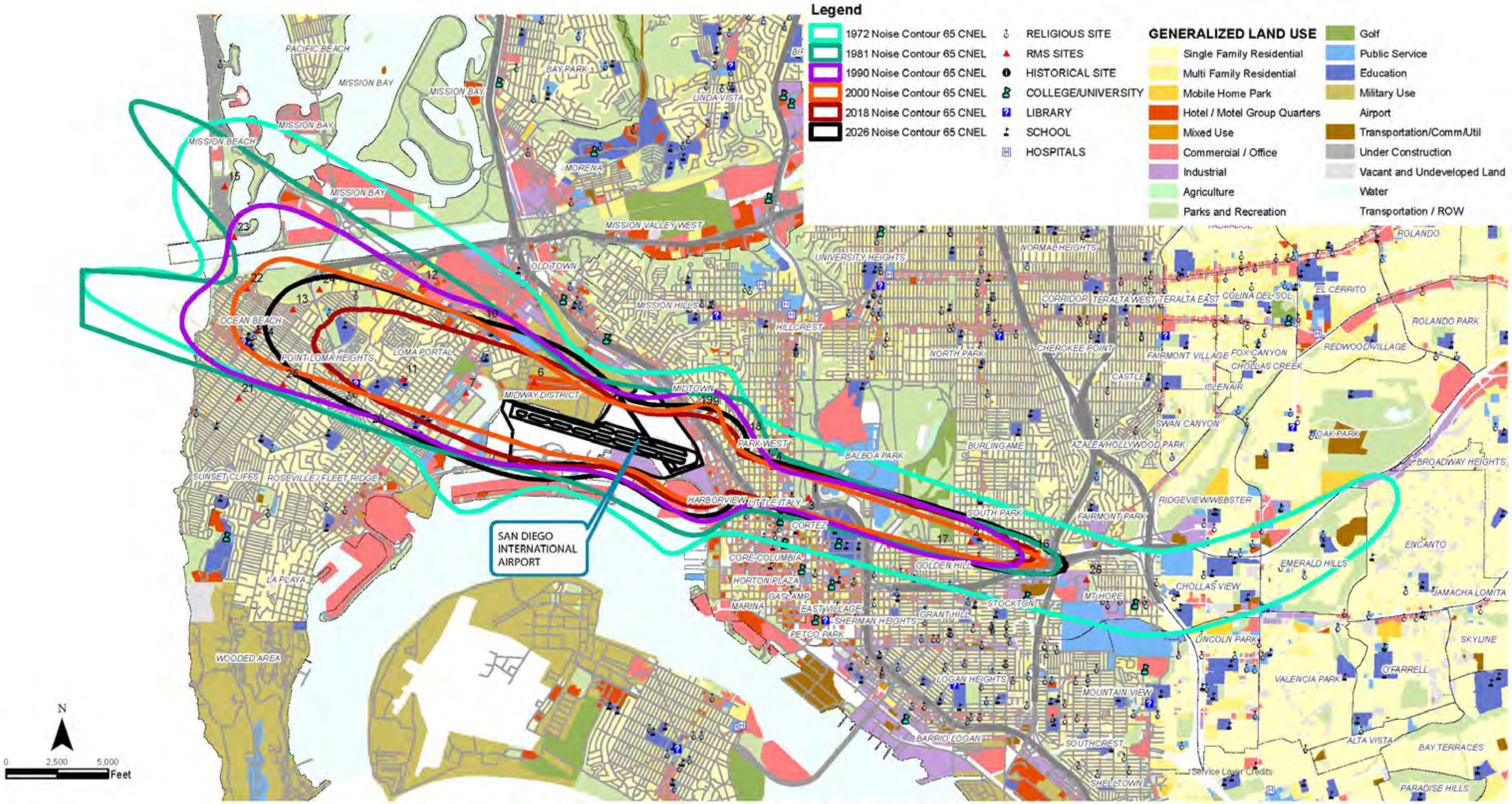
Note that some of these facilities have been sound attenuated.

Source: Recirculated Draft Airport Development Plan Environmental Impact Report, September 2019.

Note: Contours are draft and may change in size. All final contours must be accepted by FAA.

SAN NOISE STUDY

65 dB CNEL Over Time



Note that contours are draft and may change in size.
All final contours must be accepted by FAA.

SAN NOISE STUDY

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ANAC & TAC/CAC Alternatives

Recommendation Number	Summary of Recommendation to Review
10	**Conduct portable noise monitoring**
11	**Review feasibility and benefits of additional noise barriers at the airport to reduce aircraft noise impacts in the surrounding communities**
14	**Revise PADRZ procedure to reduce noise in La Jolla, Mission Beach and Pacific Beach. Specifically:** ▪ Move the WNFLD and LANDN waypoints due south so as to align with the relocated Noise Dot #1 at 290° (15° separation from JETTI at 275°) and designate as "Flyover" waypoints in their respective SID's, consistent with JETTI ▪ Nighttime Jet Departures on PADRZ (Northwest) Turn at 1.5 NM
15	**Revise the ZZOOO procedure to reduce noise in Point Loma and Ocean Beach. Specifically:** ▪ Move the JETTI waypoint out two miles. Submitted to FAA on 8/19/19 ▪ Nighttime Jet Departures on ZZOOO (East) Turn at 1.5 NM
17	**Review the Nighttime Noise Abatement Procedure to improve the noise impacts for affected communities. Specifically:** ▪ Ensure ATC is turning aircraft off this procedure only for safety reasons ▪ Ensure that the procedure is monitored for adherence ▪ Determine if the current nighttime procedures are still appropriate and if different procedures would reduce impacts on residential communities
21	**Conduct analysis on a modified Noise Abatement Departure Procedure to determine if there are potential improvements that could reduce the noise impacted area surrounding the airport**. ▪ Review feasibility of ELSO at SAN
Other	▪ Review feasibility of 10-degree divergent heading to the right at SAN ▪ Limit all aircraft on headings between 275º and 290º ▪ Direct cargo and international flights to right turn procedure

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SAN NOISE STUDY

CFR Part 150
Required Alternatives

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- **CFR Part 150 Requires the evaluation of the following measures**
  - Acquisition of land and interests therein
  - Barriers and acoustical shielding/sound attenuation
  - Preferential runway system
  - Complete or partial curfew
  - Flight procedures (modifications to flight tracks)
  - Use restrictions—*Dueling Regulations—Part 161*
  - Other reasonable actions from FAA

SAN NOISE STUDY

CFR Part 150
Alternative Guidelines

- Have the potential of solving a noise problem
- Be implementable within acceptable economic, environmental and social costs
- Not derogate safety
- Be legally implementable within existing Federal, State, and local legislation, regulations and ordinances

Categories of Alternatives

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- **Operational Alternatives—Federal Government**
  - Flight track changes
  - Noise restrictions
- **Land Use Alternatives—Local and State Government**
  - Preventative
  - Remedial
- **Administrative Alternatives—Airport Proprietor**
  - Noise Monitoring/Flight Track Monitoring
  - Fly Quiet Program
  - Part 150 Updates

SAN NOISE STUDY

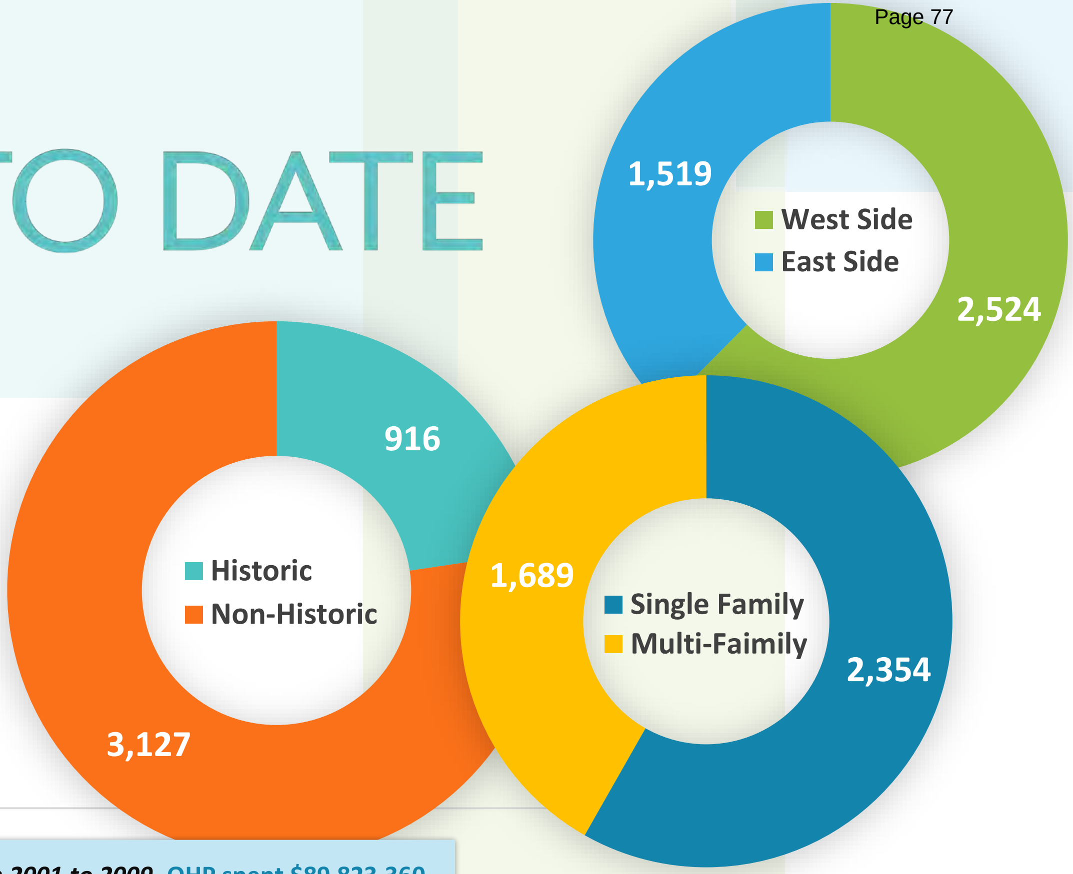
Part 161/Access Restrictions Based on Aircraft Noise

- **Defines requirements for implementing new restrictions at airports**
  - Must use CNEL metric
  - 65 dB CNEL as threshold contour to determine noncompatible land uses
  - Must complete a cost/benefit analysis, approved by FAA
  - Must exhaust all non-regulatory methods first
- **Proposed restriction must be approved by FAA**

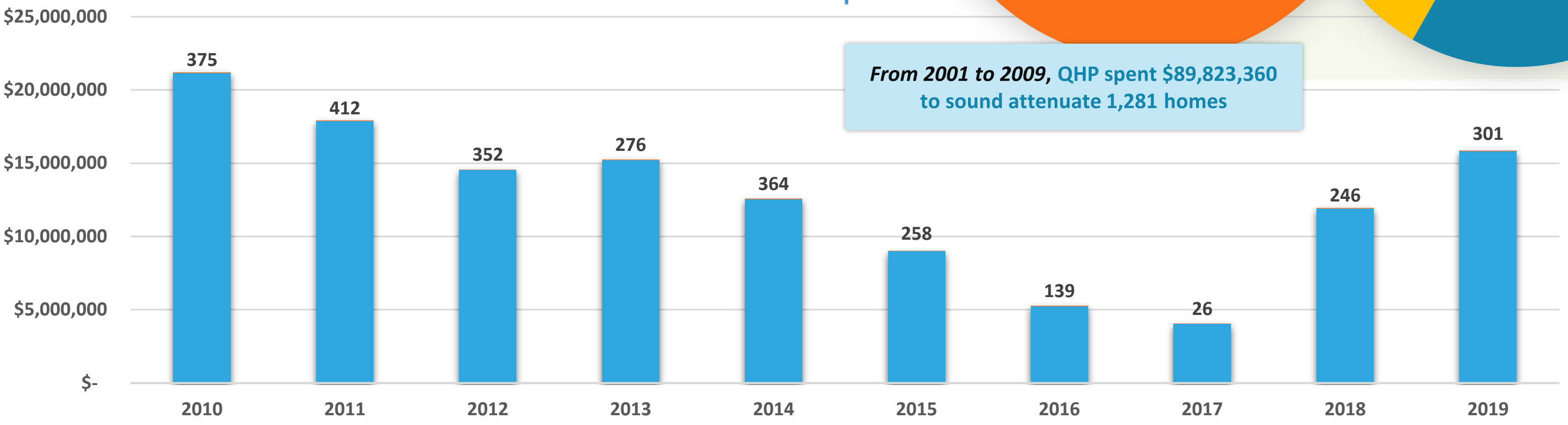
QUIETER HOME PROGRAM TO DATE

4,000+ UNITS COMPLETED

$217 MILLION SPENT

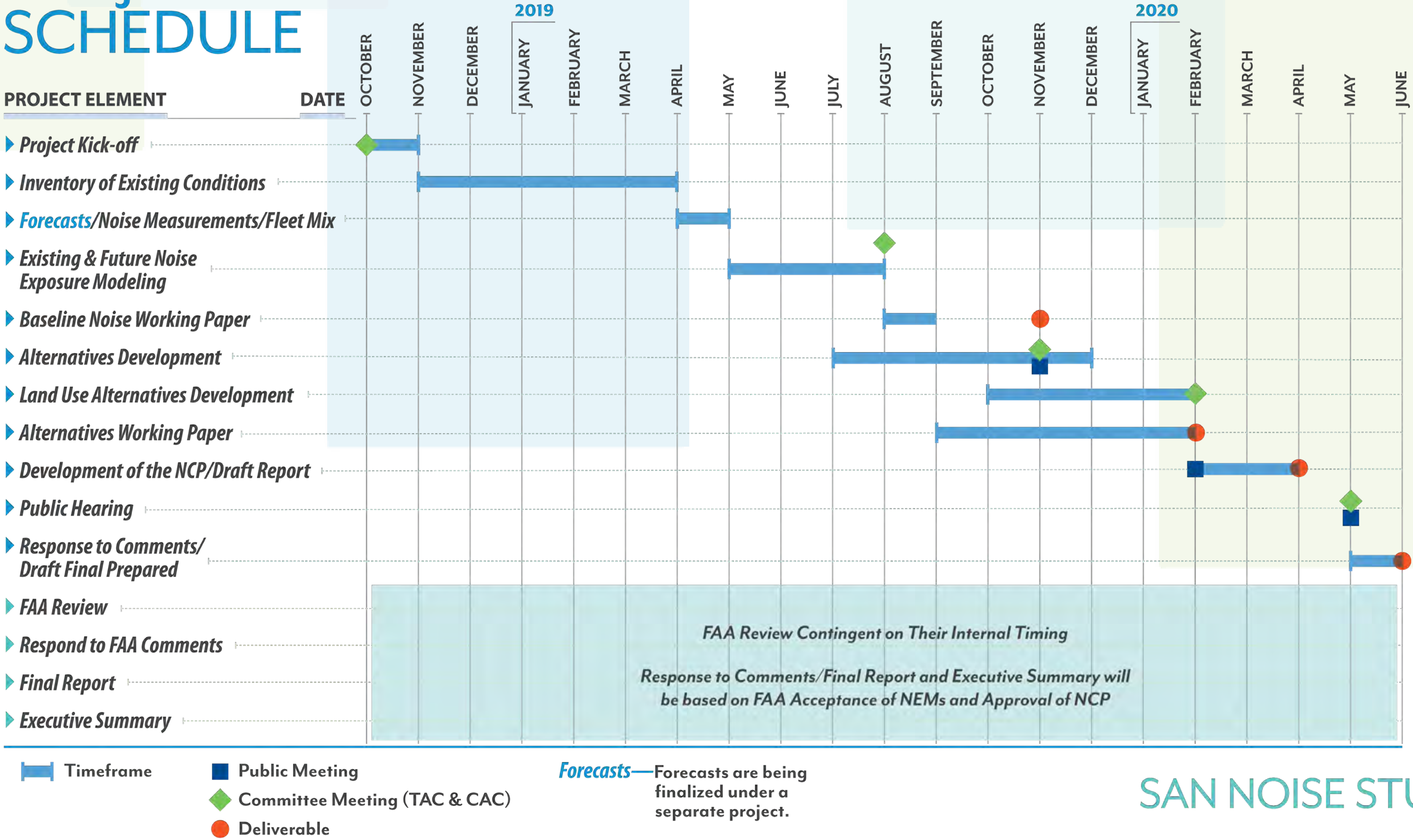


Number of Homes Sound Attenuated vs. Dollars Spent



From 2001 to 2009, QHP spent $89,823,360 to sound attenuate 1,281 homes

PROJECT SCHEDULE



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Note that this **DRAFT** schedule is based on FAA concurrence throughout the Part 150 process.

SAN NOISE STUDY

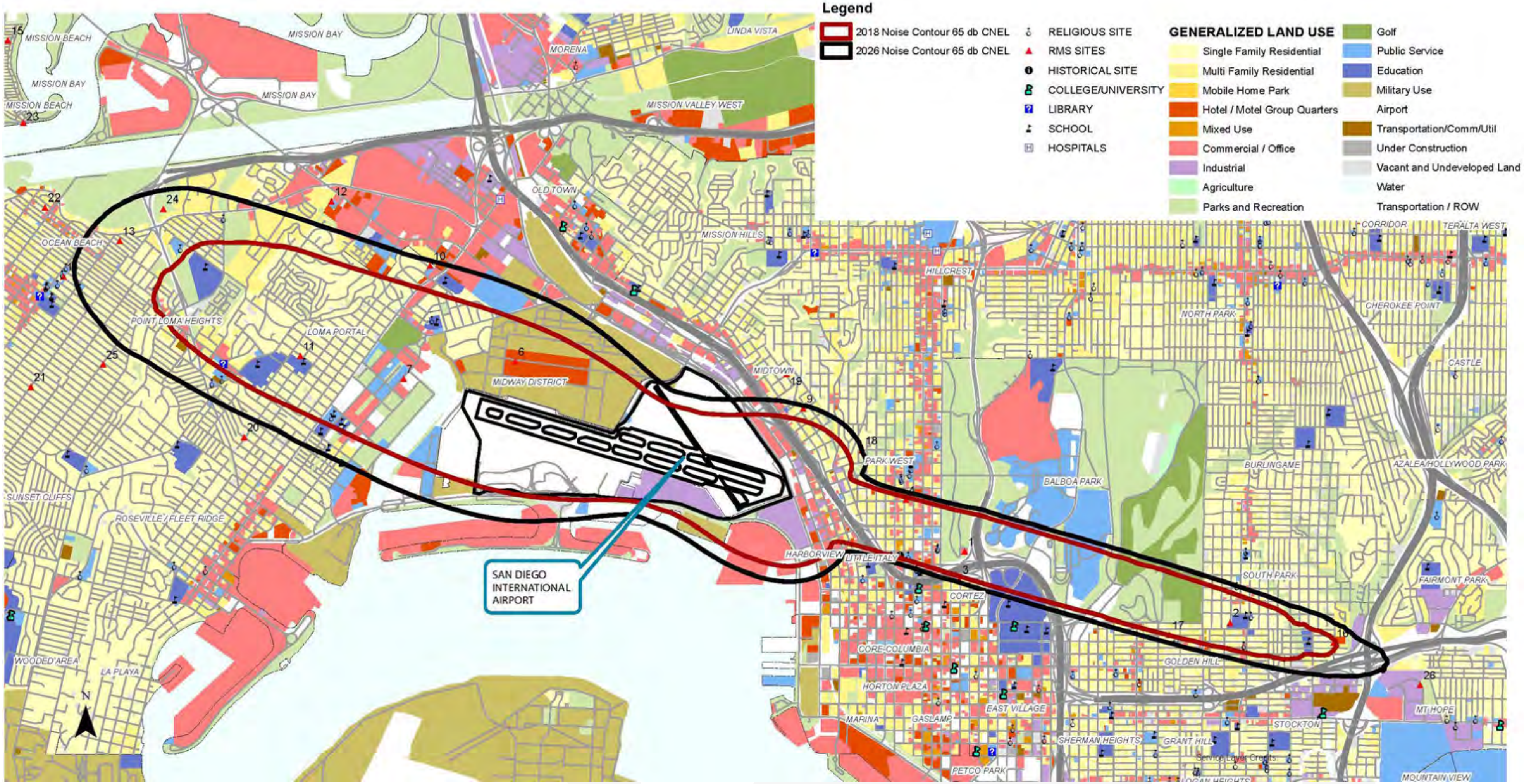
Mead & Hunt

Questions & Comments

✈ https://sannoisestudy.com

SAN NOISE STUDY

Draft 2018 and 2026 Noise Contours (65 dB CNEL)



Note that contours are draft and may change in size.
All final contours must be accepted by FAA.

SAN NOISE STUDY

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PART 150 MEASURES FOR CONSIDERATION	IMPLEMENTING AUTHORITY	CARRY MEASURE FORWARD?	SUMMARY
Airport Use and Airspace Use Restrictions			
Limit Airport Access If Aircraft Do Not Meet Certain Noise Standards	Airport	No	*CFR Part 161 Study
Restrictions Based on Cumulative Impact using aircraft noise levels, aircraft type, or number of operations	Airport	No	*CFR Part 161 Study
Restrictions Based on Part 36 Certified Single-Event Noise Levels	Airport	No	*CFR Part 161 Study
Landing Fees Based on Noise	Airport	No	*CFR Part 161 Study
Implementation of a Complete or Partial Curfew	Airport	No	*CFR Part 161 Study
Airport Infrastructure or Airport Facilities			
Ban All Jet Aircraft	Airport	No	*CFR Part 161 Study
Restrict Touch and Go Operations	Airport	No	*CFR Part 161 Study
Noise Barriers	Airport	Yes	This is a derivative of an ANAC recommendation. This measure will be brought forward.
Construct a New Runway in a Different Orientation	Airport	No	*CFR Part 161 Study
Runway Extension	Airport	No	*CFR Part 161 Study
High-Speed Taxiway Exits	Airport	No	*CFR Part 161 Study
Land Use Measures			
Acquisition of Land or Interest Therein	Airport	Yes	The Airport has an on-going residential sound attenuation program. As such, these alternatives will be carried forward.
Noise Monitoring Program	Airport	Yes	SAN has a permanent noise monitoring system in place as part of the ANOMS system. Potential updates to the noise monitoring system may be included in Chapter 9.
Land Use Controls	Local Jurisdiction	Yes	There are many measures local jurisdictions can use to improve the compatibility of land uses around an airport.
Operational Measures			
Departure Thrust Cutback	FAA	Yes	Departure thrust cutback procedures are considered in the operational alternatives chapter along with potential satellite-based procedures. This was a TAC/CAC recommendation
Designated Noise Abatement Take-Off/Approach Paths	FAA	Yes	Based on recommendations from the TAC/CAC these measures for noise abatement flight tracks are considered in the operational alternatives chapter.
NextGen: Performance Based Navigation (PBN) Required Navigation Performance (RNP)	FAA	Yes	These types of procedure changes are recommended by the TAC/CAC through the approach/departure study. Procedures that use RNP technology are considered in the Chapter 7.
Preferential Runway Use System	FAA	No	Aircraft land and depart into the wind, with a maximum of approximately a 5 knot allowable tailwind component. Because the winds dictate the aircraft flow direction, this alternative is not considered further.
Power and Flap Settings/CDA procedure	FAA	Yes,	Aircraft on approach generate noise from the landing gear and flaps being extended and these surfaces coming into contact with the air. In addition, a continuous descent approach (CDA) may be viable due to changes in technology. This alternative will be evaluated in the Chapter 7.

* A CFR Part 161 Study can be performed, however due to the difficulty of conducting a Part 161 process, this will not be brought forward.

TAC & CAC Advisory Meeting Attendee List – May 2020

Part 150 Team - Lauren Rasmussen (Me)
Part 150 Team - Kate Andrus (Host)
Part 150 Team - Jen Wol... (Co-host)
Part 150 Team - Stephen Smith (Co-host)
Airport - Sjohnna Knack (Co-host)
Part 150 Team - Anita Cobb (Co-host)
Part 150 Team - Paul Dunholter (Co-host)
Part 150 Team-Heidi Gantwerk (Co-host)
Part 150 Team-Mary Vigilante (Co-host)
Ryk Dunkelberg (Co-host)
Airport - Jim Payne
Airport - Roman Lanyak
Airport-McKinna Dartez
Ashley Martinez
Brendan Reed
CAC Len Gross
CAC Tony Stiegler
Part 150 Team - Cindy Gibbs
Sabrina LoPiccolo
TAC - ALEX FROST

TAC - Chris McCann
TAC - David Ryan
TAC - Deborah Watkins
TAC - Jorge E. Rubio
TAC - Melissa Danzo
TAC - Mike Tarlton
TAC - Ralph Redman
TAC Ed Snow

P1 Part 150 Team - Lauren Rasmussen (Me)

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Part 150 Team-Heidi Gantwerk (Co-host)

Airport - Sjohnna Knack (Co-host)

P1 Part 150 Team - Anita Cobb (Co-host)

P1 Part 150 Team - Ryk Dunkelberg (Co-host)

Part 150 Team - Stephen Smith (Co-host)

A- Airport - Roman Lanyak

Airport-Mckinna Dartez

AM Ashley Martinez

BR Brendan Reed

C- CAC - Bob Herrin

C- CAC - Chris McCann

C- CAC - Gernot Trolf

C- CAC - Kathy Vandenheuvel

C- CAC - Len Gross

CAC - Marc Adelman

C- CAC - Mike Tarlton

C- CAC - Nancy Palmtag

C CAC - R. Casey Schnoor

CAC - Tony Stiegler

CK CAC-Dave Kujawa-OB

CT CAC-Robin Taylor

GW Gary Wonacott

Jim Payne - Airport Authority

Part 150 Team - Paul Dunholter

Part 150 Team Mary Vigilante

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SAN NOISE STUDY TAC/CAC MEETING

MAY.28.2020

Mead & Hunt

SAN DIEGO INTERNATIONAL AIRPORT

Agenda

- Introduction
- Purpose of Meeting
- Review Where We Are
- Alternatives Background
- Operational Alternatives
- Next Steps
- Questions/Comments

Purpose of 150 Study

- **Reduce non-compatible land uses**
- **Develop a "balanced and cost-effective program" to reduce noise impacts**
- **Airport Sponsor must provide access to all airport users and cannot discriminate against any user**
- **Alternatives should not adversely affect operational efficiency**

Purpose of Meeting

- **Present Preliminary Alternative Modeling Results**
  - **Operational Alternatives:** options on how and where aircraft fly
  - Proposed flight path changes
  - Resulting Community Noise Equivalent Level (CNEL) contour change, if any
  - Compare Future Base Case Population and Housing Units to each evaluated alternative

To Date

- Discussed Purpose of the Part 150 Study (Oct 2018)
- Discussed Forecasts of Aviation Activity (May 2019)
- Generated Existing and Future Base Case noise contours (Aug 2019)
- Presented Existing and Future Base Case land use, population and housing units within 65 CNEL (Nov 2019)
- Identified preliminary reasonable alternatives for evaluation (Nov 2019)

8

Where we are in the Process

October 2018
Project starts and first meetings with Citizen Advisory Committee and Technical Advisory Committee.

December 2018
Consultants will be developing future forecasts of aviation activity for use in the modeling of future conditions.

May 2019
ANAC, CAC, and TAC committee meetings to discuss aviation forecasts

Aug 2019
ANAC, CAC and TAC committee meetings to discuss inventory and baseline noise contours.

November 2019
CAC and TAC committee meetings to discuss alternatives development

November 2019
Public Workshop

Fall 2019
Alternatives refinement

February 2020
FAA Approval of Modeling Inputs

Spring 2020
Evaluation and Modeling of Alternatives

Summer 2020
Public Outreach on Alternatives

October 2020
Submittal of Preliminary Draft document to FAA

November 2020
Public hearing and response to comments

Winter 2020
Submit Noise Exposure Maps and Noise Compatibility Plan to the FAA for review and acceptance of the NEMs and approval of the NCP.

SAN NOISE STUDY

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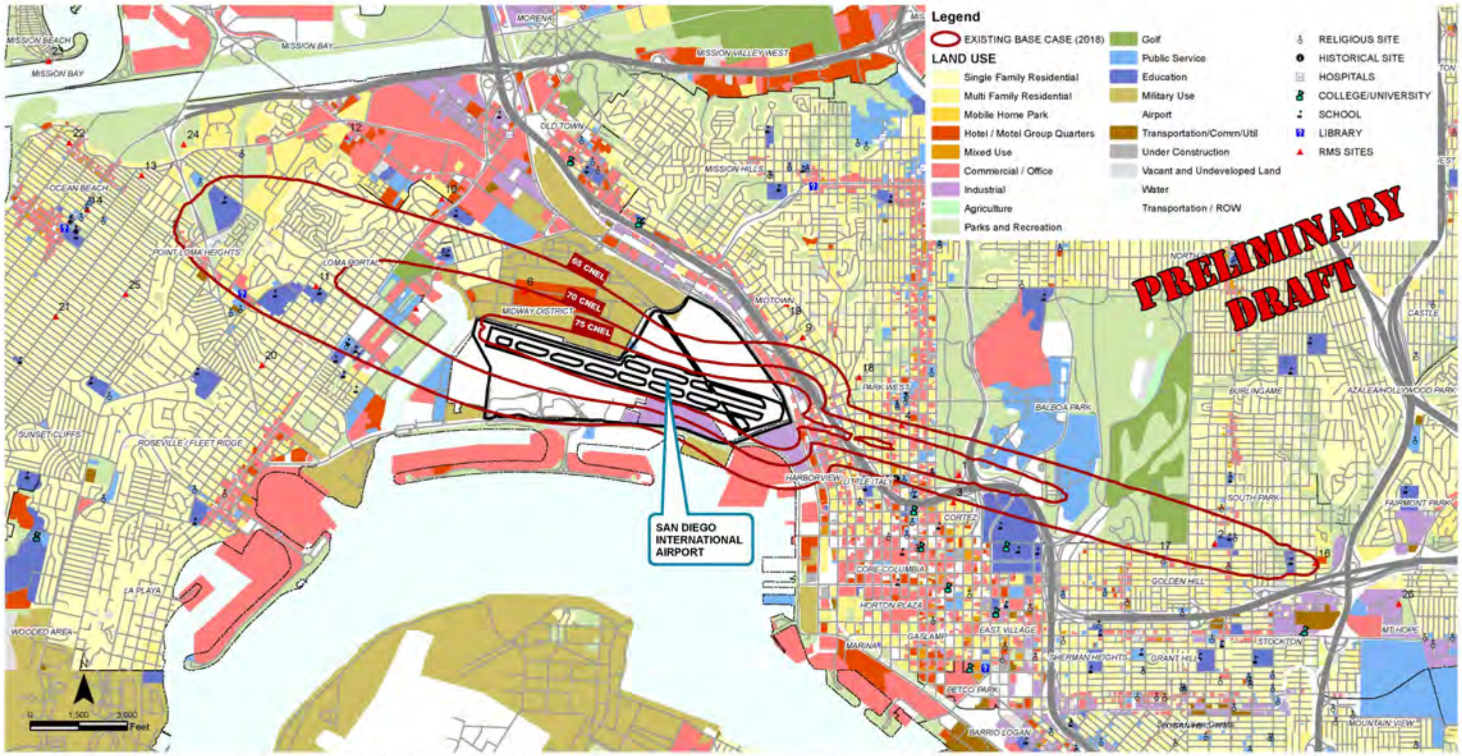
Draft Existing 2018 Noise Contours (65 – 75 dB CNEL)



SOURCE: 1. SANDAG Technical Services - GIS, SANDAG Land Layers Inventory Mapping Source: SanGIS landbase (i.e. parcels), SANDAG, County Assessor's Master Property Records file, Cleveland National Forest, Bureau of Land Management (BLM), State Parks, other public agency contacts, and local agency review. 2. SDIA ADP EIR 2019 and associated appendices.

Part 150 requires Base Case contours for existing conditions (last full year of data prior to the initiation of the modeling) and future conditions (5 years from expected date of submission to the FAA).

SAN NOISE STUDY

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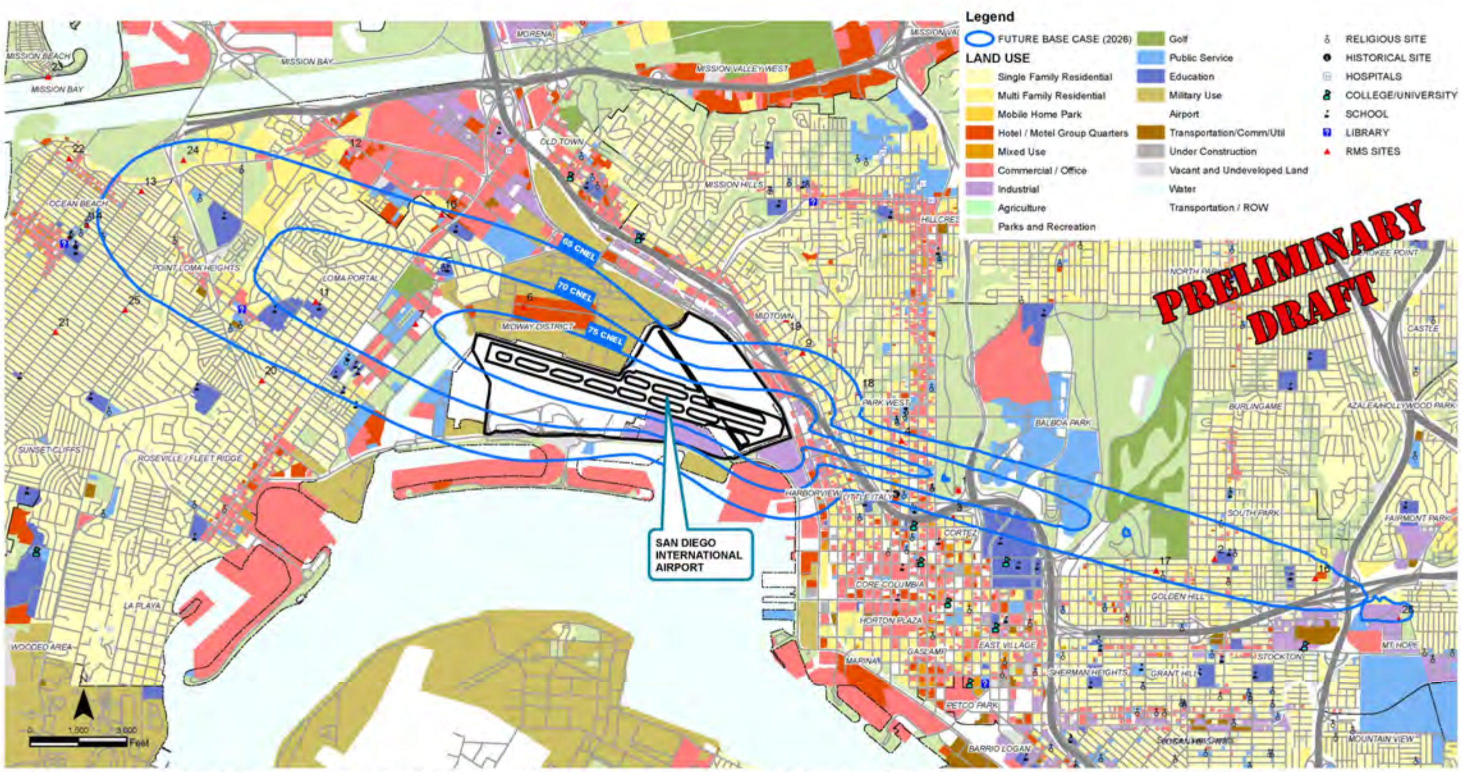
Draft Future 2026 Noise Contours (65 – 75 dB CNEL)

10



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2. SDIA ADP EIR 2019 and associated appendices.

Part 150 requires Base Case contours for existing conditions (last full year of data prior to the initiation of the modeling) and future conditions (5 years from expected date of submission to the FAA).

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SAN NOISE STUDY

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Population and Housing Units Base Case: 2018 and 2026

2018	Population	Housing Units
65 dB CNEL and greater	19,339	7,766
70 dB CNEL and greater	3,141	1,239
75 dB CNEL and greater	181	132

2026	Population	Housing Units
65 dB CNEL and greater	34,276	15,071
70 dB CNEL and greater	7,966	2,624
75 dB CNEL and greater	794	515

Source: US Census 2010, HMMH Analysis

Note: These numbers include homes that have been sound attenuated or were built after October 1, 1998 and therefore considered compatible (Approx. **4,300** homes have been sound attenuated through 5/28/20)

Contours are cumulative (i.e. 65 dB CNEL includes all homes within the 65, 70 and 75 contours)

Categories of Alternatives

- **Operational Alternatives—Federal Control**
  - Operational changes: flight track, climb profiles
  - Noise restrictions/Curfew
- **Land Use Alternatives—Local and State Control**
  - Preventative: Land Use Restrictions
  - Remedial: Sound Attenuation (Quieter Home Program)
- **Administrative Alternatives—Airport Proprietor**
  - Noise Monitoring/Flight Track Monitoring
  - Fly Quiet Program
  - Part 150 Updates

ANAC and TAC/CAC Alternatives

Recommendation Number	Summary of Recommendation to Review	Alternative in Part 150 Study
10	Conduct portable noise monitoring	Will be included in Land Use and Administrative Alternatives Meeting
11	Review feasibility and benefits of additional noise barriers at the airport to reduce aircraft noise impacts in the surrounding communities	Facilitated discussion in meeting today to identify potential locations
14	**Revise PADRZ procedure to reduce noise in La Jolla, Mission Beach and Pacific Beach.** ▪ Proposed nighttime procedure designs to move traffic further south is on hold, pending ANAC 17 ▪ Potential concept procedure design to move traffic further south (all day), pending analysis of 10-degree divergent heading	▪ Alternative 1A Departures over Mission Bay Channel with Dispersion (ANAC 14 and 17) ▪ Alternative 1B Departures over Mission Bay Channel with Concentration (ANAC 14 and 17) ▪ Alternative 1C Departures over Mission Bay Channel with Fly-over Waypoint (ANAC 14 and 17) ▪ Alternative 2A Equivalent Lateral Spacing Operations (ELSO) for Departures with Dispersion (ANAC 14 and Other) ▪ Alternative 2B Equivalent Lateral Spacing Operations (ELSO) for Departures with Concentration (ANAC 14 and Other)
15	**Revise the ZZOOO procedure to reduce noise in Point Loma and Ocean Beach.** ▪ Move the JETTI waypoint out two miles. Proposed revised design submitted to FAA on 8/19/19 ▪ No recommendations to change initial departure heading on ZZOOO	▪ Included in Flight Procedure Analysis, submitted to FAA in 2019

Mead & Hunt

SAN NOISE STUDY

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ANAC and TAC/CAC Alternatives

14

Recommendation Number	Summary of Recommendation to Review	Alternative in Part 150 Study
17	**Review the Nighttime Noise Abatement Procedure to improve the noise impacts for affected communities. Specifically:** ▪ Ensure ATC is turning aircraft off this procedure only for safety reasons ▪ Ensure that the procedure is monitored for adherence ▪ Determine if the current nighttime procedures still are appropriate and if different procedures would reduce impacts on residential communities	▪ **Alternative 1A Departures over Mission Bay Channel with Dispersion (ANAC 14 and 17)** ▪ **Alternative 1B Departures over Mission Bay Channel with Concentration (ANAC 14 and 17)** ▪ **Alternative 1C Departures over Mission Bay Channel with Fly-over Waypoint (ANAC 14 and 17)** ▪ **Alternative 4 Nighttime (10:00 pm to 6:30 am) Eastbound Departures on ZZOOO RNAV SID (ANAC 17)**
21	**Conduct analysis on a modified Noise Abatement Departure Procedure {Profile} (NADP) to determine if there are potential improvements that could reduce the noise impacted area surrounding the airport**	▪ **Alternative 6 Modified Noise Abatement Departure Procedure (NADP) (ANAC 21)**
Other	▪ Review feasibility of 10-degree divergent heading to the right at SAN (ELSO) ▪ Limit all aircraft on headings between 275 and 290 ▪ Direct cargo and international flights to right turn procedure	▪ **Alternative 2A Equivalent Lateral Spacing Operations (ELSO) for Departures with Dispersion (ANAC 14 and Other)** ▪ **Alternative 2B Equivalent Lateral Spacing Operations (ELSO) for Departures with Concentration (ANAC 14 and Other)** ▪ **Alternative 3 All Departures Between 275 and 290 degree Heading (Other)** ▪ **Alternative 5 All Cargo and International Heavy Jet Flights on PADRZ RNAV SID Initial Departure Heading (Other)**

SAN NOISE STUDY

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ALTERNATIVE 1A – Departures Over Mission Bay Channel with Dispersion

15

Alternative 1A Initial Coding
VA to 520 feet MSL
DF to A1 INT Waypoint

Route Description
Aircraft would depart runway heading and climb to 520 feet MSL at a climb gradient of 500 feet per nautical mile, then proceed direct to A1 INT waypoint

Intent
Provide a path over the inlet while maintaining some dispersion for right turn departures to reduce noise levels for areas such as Mission Beach

SAN NOISE STUDY

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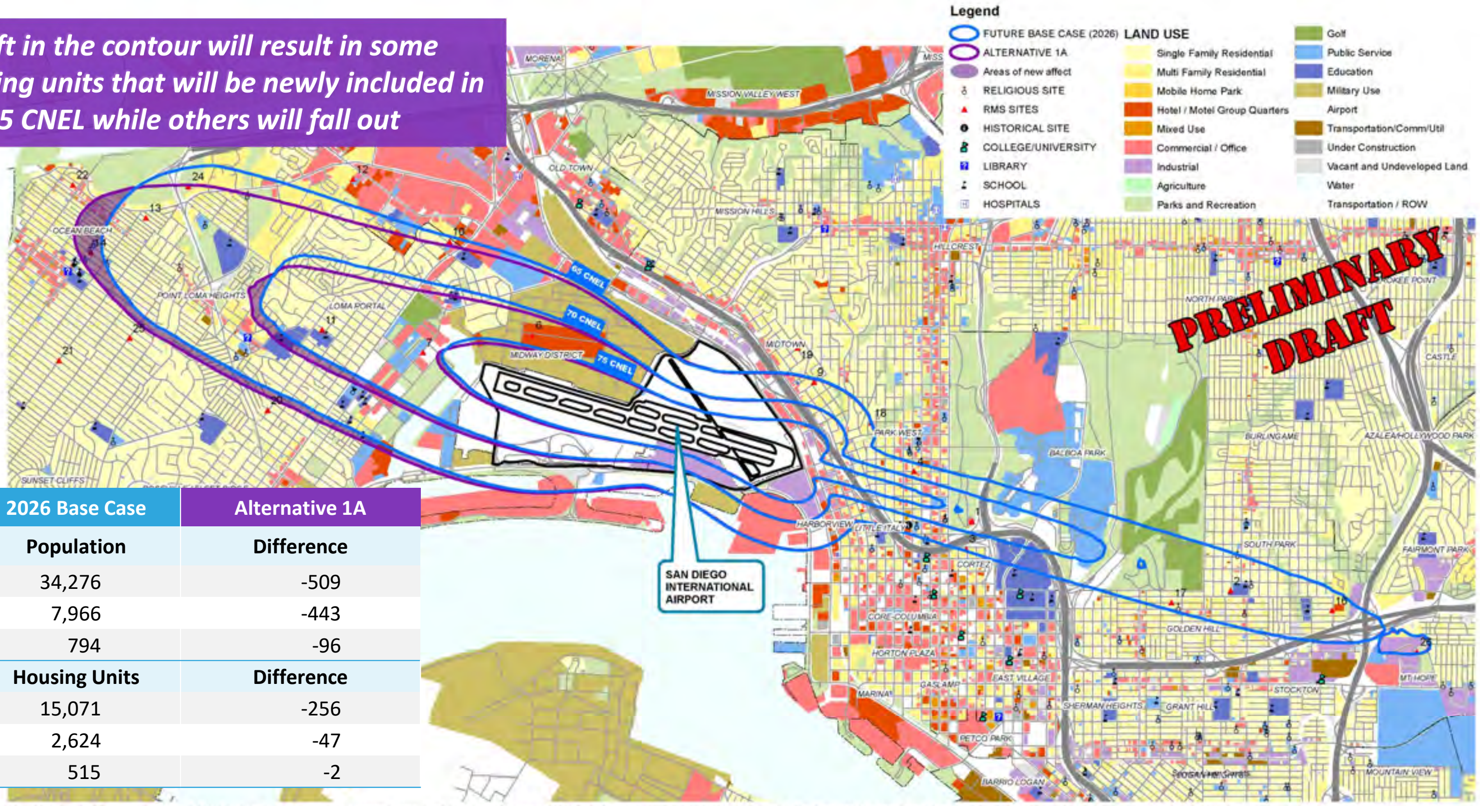
ALTERNATIVE 1A - Departures Over Mission Bay Channel with Dispersion

16

A shift in the contour will result in some housing units that will be newly included in the 65 CNEL while others will fall out



	2026 Base Case	Alternative 1A
	Population	Difference
> 65 CNEL	34,276	-509
> 70 CNEL	7,966	-443
> 75 CNEL	794	-96
	Housing Units	Difference
> 65 CNEL	15,071	-256
> 70 CNEL	2,624	-47
> 75 CNEL	515	-2

SOURCE: 1. SANDAG Technical Services - GIS, SANDAG Land Layers Inventory Mapping Source: SanGIS landbase (i.e. parcels), SANDAG, County Assessor's Master Property Records file, Cleveland National Forest, Bureau of Land Management (BLM), State Parks, other public agency contacts, and local agency review.
2. SDIA ADP EIR 2019 and associated appendices.

Note *that contours are draft and may change in size. All final contours must be accepted by FAA*

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ALTERNATIVE 1B – Departures Over Mission Bay Channel with Concentration

Alternative 1B Initial Coding
VI to 520 feet MSL
CF to A1 INT Waypoint

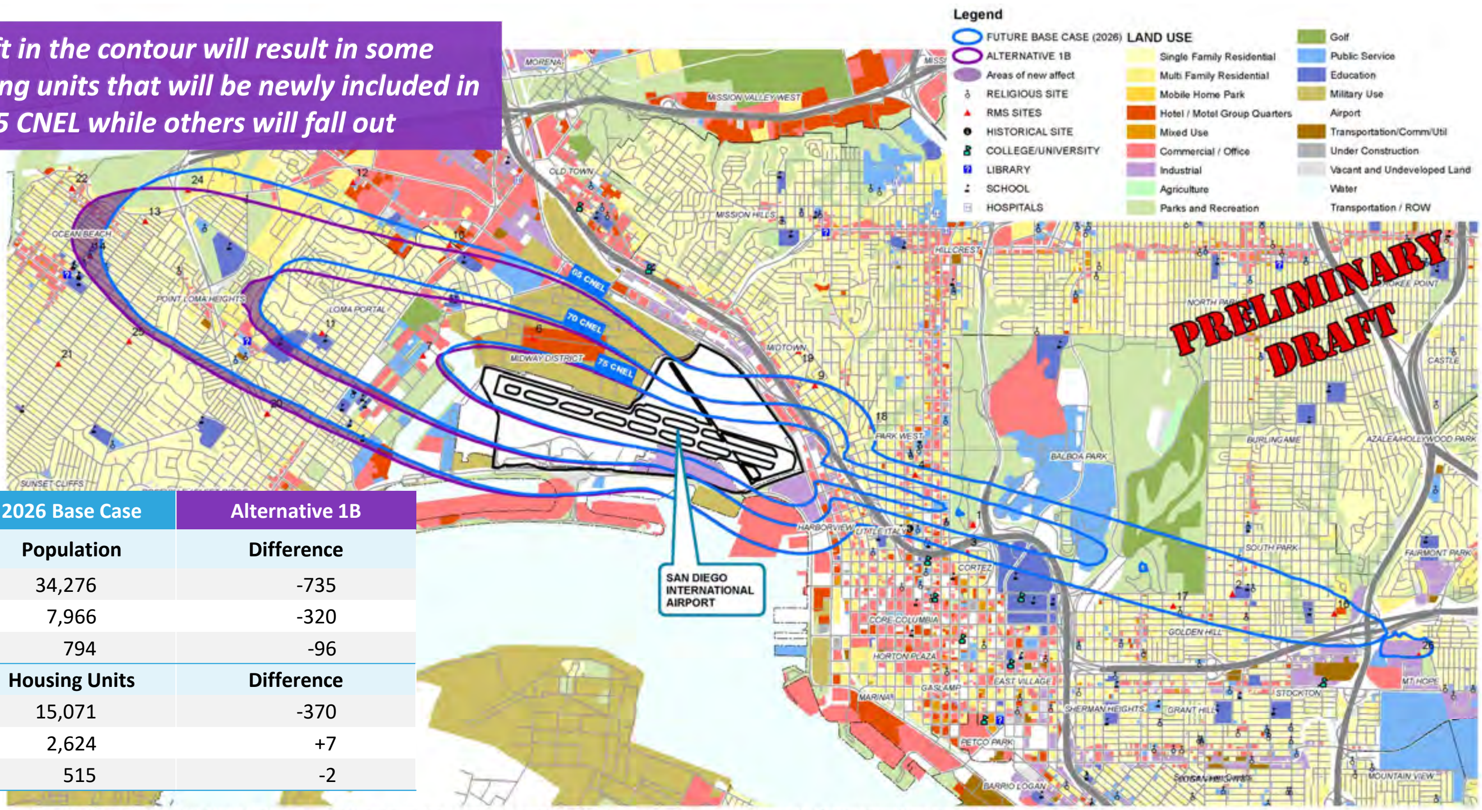
Route Description
Aircraft would depart runway heading and climb to 520 feet MSL at a climb gradient of 500 feet per nautical mile to an intercept point located .98 NM from the departure end of Runway 27, then proceed on a 293-degree course to A1 INT waypoint

Intent
Provide a predictable path over the inlet for right turn departures to reduce noise levels for areas such as Mission Beach

ALTERNATIVE 1B – Departures Over Mission Bay Channel with Concentration

18

A shift in the contour will result in some housing units that will be newly included in the 65 CNEL while others will fall out



	2026 Base Case	Alternative 1B
	Population	Difference
> 65 CNEL	34,276	-735
> 70 CNEL	7,966	-320
> 75 CNEL	794	-96
	Housing Units	Difference
> 65 CNEL	15,071	-370
> 70 CNEL	2,624	+7
> 75 CNEL	515	-2

SOURCE: 1. SANDAG Technical Services - GIS, SANDAG Land Layers Inventory Mapping Source: SanGIS landbase (i.e. parcels), SANDAG, County Assessor's Master Property Records file, Cleveland National Forest, Bureau of Land Management (BLM), State Parks, other public agency contacts, and local agency review.
2. SDIA ADP EIR 2019 and associated appendices.

Note: *that contours are draft and may change in size All final contours must be accepted by FAA*

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ALTERNATIVE 1C – Departures Over Mission Bay Channel with a Fly-Over Waypoint

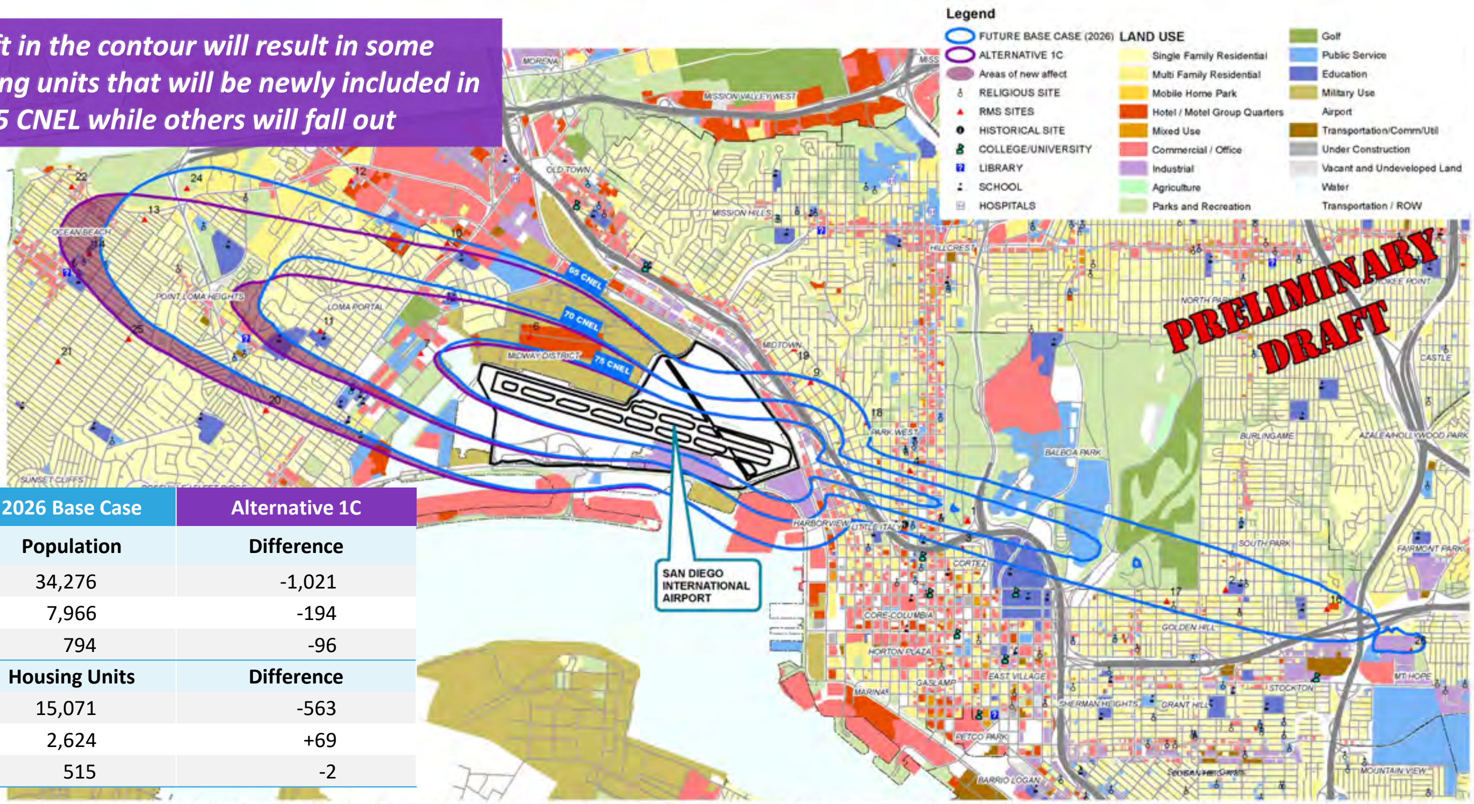
Alternative 1C Initial Coding
DF to A1C FO Waypoint
DF to A1C Waypoint

Route Description
Aircraft would depart runway heading and at a climb gradient of 500 feet per nautical mile direct to A1C FO waypoint, then proceed direct to A1C INT waypoint

Intent
Provide a predictable path over the inlet for right turn departures to reduce noise levels for areas such as Mission Beach

ALTERNATIVE 1C – Departures Over Mission Bay Channel with a Fly-Over Waypoint

A shift in the contour will result in some housing units that will be newly included in the 65 CNEL while others will fall out



2026 Base Case		Alternative 1C
	Population	**Difference**
> 65 CNEL	34,276	-1,021
> 70 CNEL	7,966	-194
> 75 CNEL	794	-96
	Housing Units	**Difference**
> 65 CNEL	15,071	-563
> 70 CNEL	2,624	+69
> 75 CNEL	515	-2

SOURCE: 1. SANDAG Technical Services - GIS, SANDAG Land Layers Inventory Mapping Source: SanGIS landbase (i.e. parcels), SANDAG, County Assessor's Master Property Records file, Cleveland National Forest, Bureau of Land Management (BLM), State Parks, other public agency contacts, and local agency review.
2. SDIA ADP EIR 2019 and associated appendices.

***Note:** that contours are draft and may change in size All final contours must be accepted by FAA*

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ALTERNATIVE 2A – EQUIVALENT LATERAL SPACING OPERATIONS (ELSO) for Departures with Dispersion

Alternative 2A Initial Coding
VA to 520 feet MSL
DF to A2 INT Waypoint

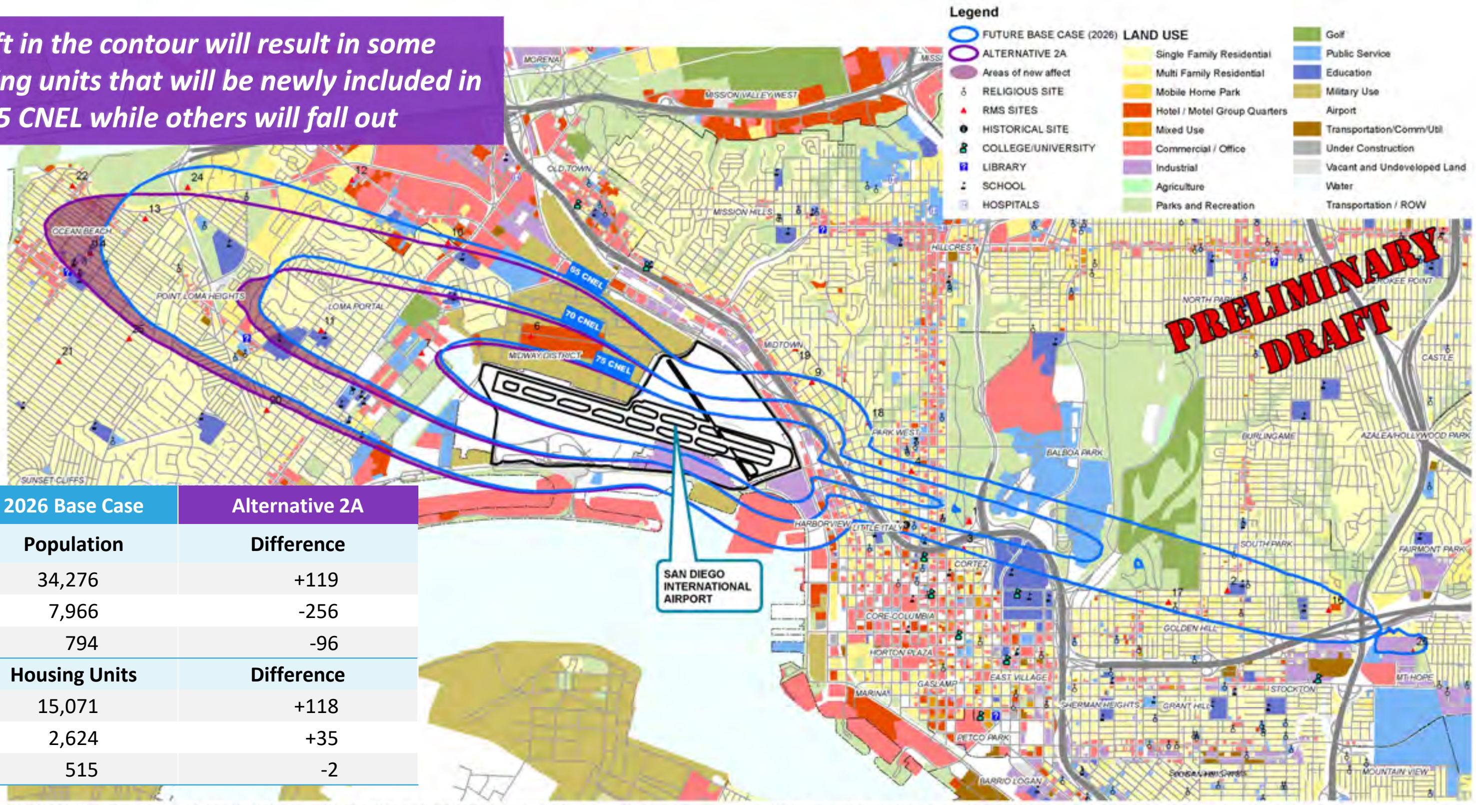
Route Description
Aircraft would depart runway heading and climb to 520 feet MSL at a climb gradient of 500 feet per nautical mile, then proceed direct to A2 INT waypoint

Intent
Reduce noise levels for Pacific Beach and La Jolla area by moving northbound departures further south

ALTERNATIVE 2A – EQUIVALENT LATERAL SPACING OPERATIONS (ELSO) for Departures with Dispersion

22

A shift in the contour will result in some housing units that will be newly included in the 65 CNEL while others will fall out



	2026 Base Case	Alternative 2A
	Population	**Difference**
> 65 CNEL	34,276	+119
> 70 CNEL	7,966	-256
> 75 CNEL	794	-96
	Housing Units	**Difference**
> 65 CNEL	15,071	+118
> 70 CNEL	2,624	+35
> 75 CNEL	515	-2

SOURCE: 1. SANDAG Technical Services - GIS, SANDAG Land Layers Inventory Mapping Source: SanGIS landbase (i.e. parcels), SANDAG, County Assessor's Master Property Records file, Cleveland National Forest, Bureau of Land Management (BLM), State Parks, other public agency contacts, and local agency review.

Note: *that contours are draft and may change in size All final contours must be accepted by FAA*

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ALTERNATIVE 2B – EQUIVALENT LATERAL SPACING OPERATIONS (ELSO) for Departures with Concentration

Alternative 2B Initial Coding
VI to 520 feet MSL
CF to A2 INT Waypoint

Route Description
Aircraft would depart runway heading and climb to 520 feet MSL at a climb gradient of 500 feet per nautical mile to an intercept point located .98 NM from the departure end of Runway 27, then proceed on a 285-degree course to A1 INT waypoint.

Intent
Reduce noise levels for Pacific Beach and La Jolla area by moving northbound departures further south

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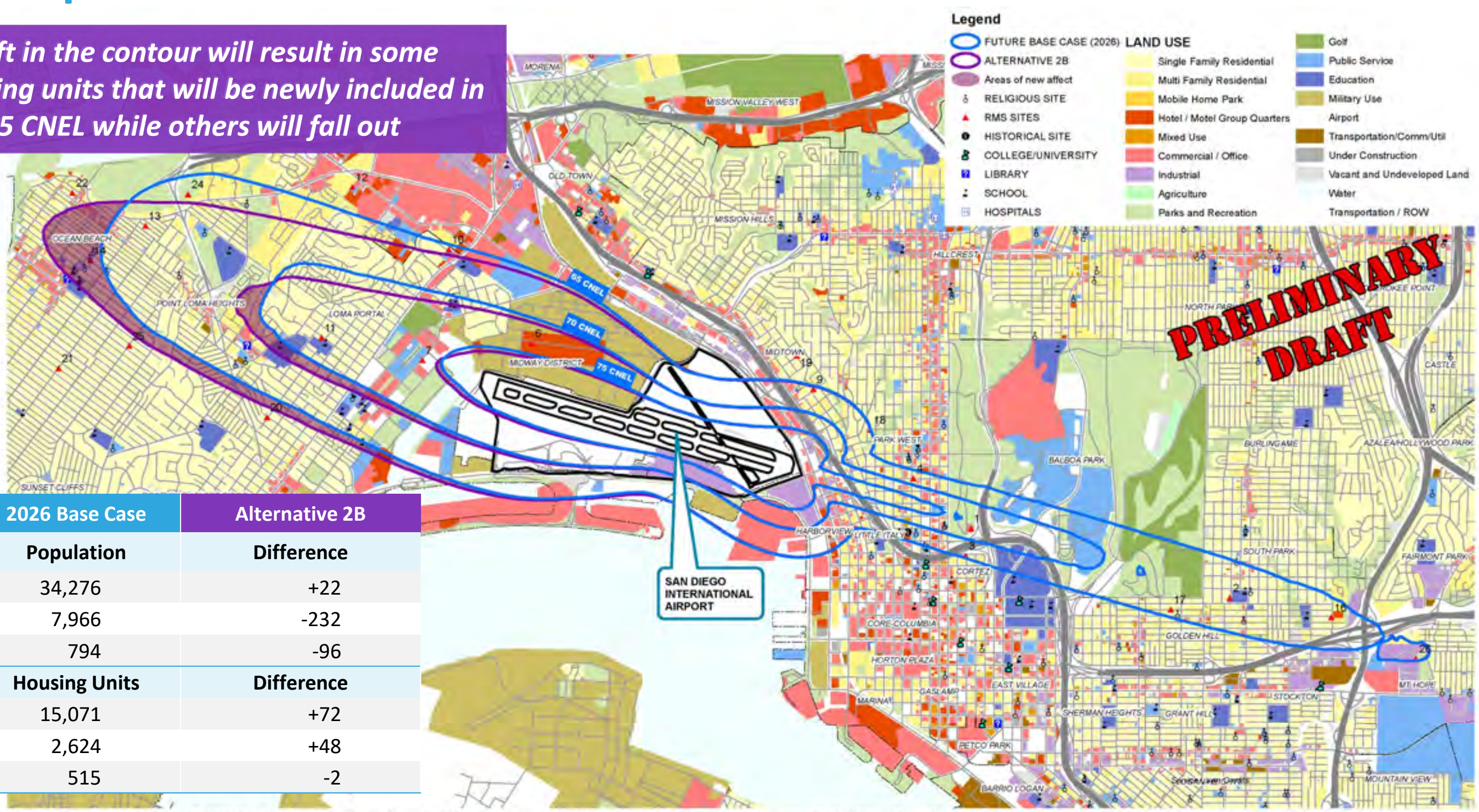
ALTERNATIVE 2B – EQUIVALENT LATERAL SPACING OPERATIONS (ELSO) for Departures with Concentration

24

A shift in the contour will result in some housing units that will be newly included in the 65 CNEL while others will fall out



	2026 Base Case	Alternative 2B
	Population	**Difference**
> 65 CNEL	34,276	+22
> 70 CNEL	7,966	-232
> 75 CNEL	794	-96
	Housing Units	**Difference**
> 65 CNEL	15,071	+72
> 70 CNEL	2,624	+48
> 75 CNEL	515	-2

SOURCE: 1. SANDAG Technical Services - GIS, SANDAG Land Layers Inventory Mapping Source: SanGIS landbase (i.e. parcels), SANDAG, County Assessor's Master Property Records file, Cleveland National Forest, Bureau of Land Management (BLM), State Parks, other public agency contacts, and local agency review.
2. SDIA ADP EIR 2019 and associated appendices.

Note: *that contours are draft and may change in size All final contours must be accepted by FAA*

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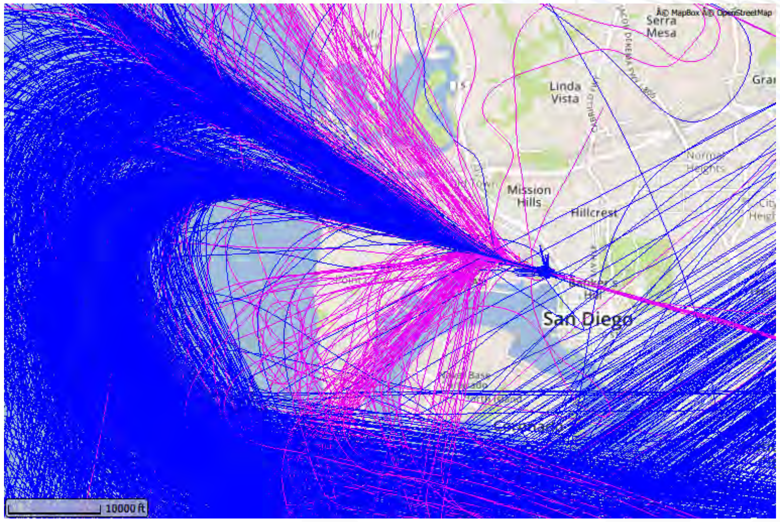
ALTERNATIVE 3 – All Departures Between 275 and 290 Degree Heading

Not brought forward for noise analysis due to potential impact on airport efficiency and throughput. It was eliminated from further consideration.

Jet and Propeller Departures – July 2018



Turbine and Piston Propeller Aircraft
Jet Aircraft

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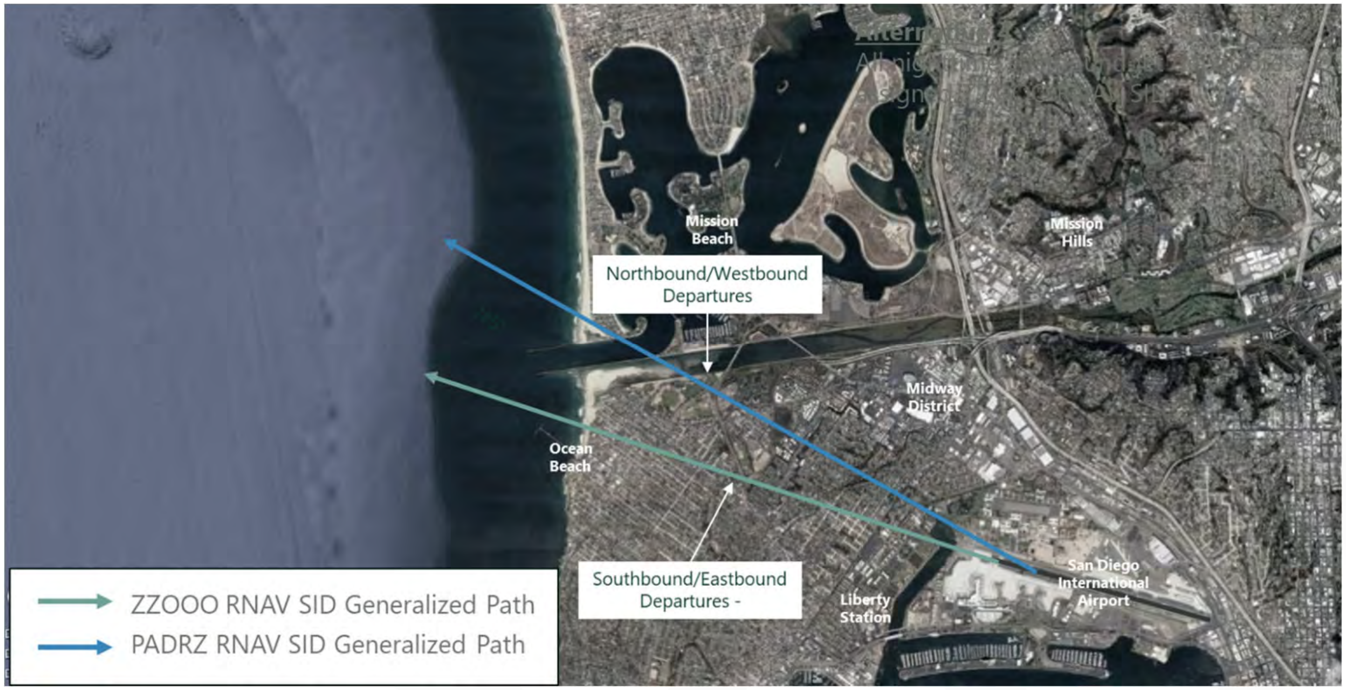
Source: San Diego County Regional Airport Authority, Airport Noise and Operations Management System. May 2020.

ALTERNATIVE 4 – Nighttime (10:00 pm to 6:30 am) Eastbound Departures on ZZOOO RNAV SID



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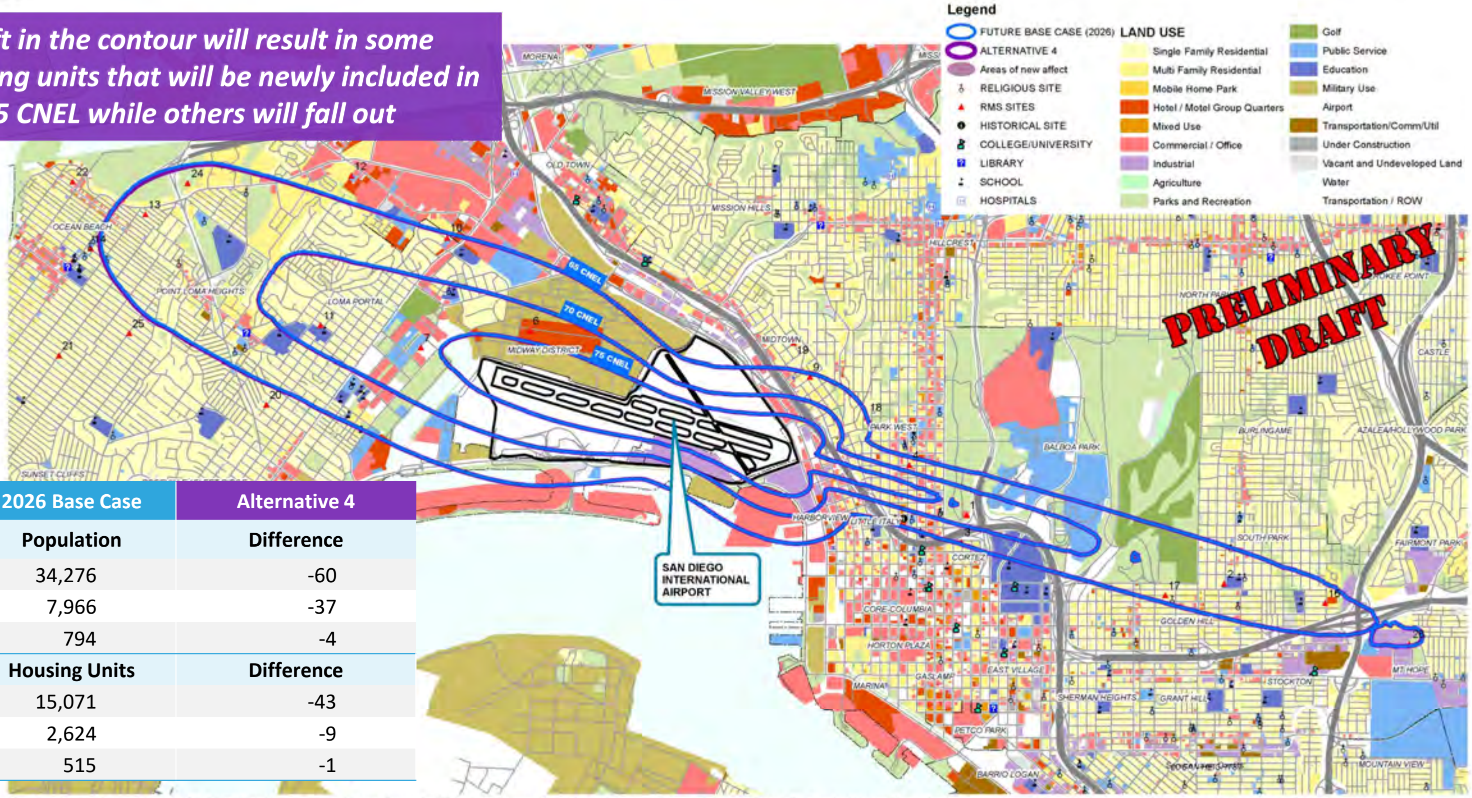
ALTERNATIVE 4 – Nighttime (10:00 pm to 6:30 am) Eastbound Departures on ZZOOO RNAV SID

27

A shift in the contour will result in some housing units that will be newly included in the 65 CNEL while others will fall out



	2026 Base Case	Alternative 4
	Population	**Difference**
> 65 CNEL	34,276	-60
> 70 CNEL	7,966	-37
> 75 CNEL	794	-4
	Housing Units	**Difference**
> 65 CNEL	15,071	-43
> 70 CNEL	2,624	-9
> 75 CNEL	515	-1

SOURCE: 1. SANDAG Technical Services - GIS, SANDAG Land Layers Inventory Mapping Source: SanGIS landbase (i.e. parcels), SANDAG, County Assessor's Master Property Records file, Cleveland National Forest, Bureau of Land Management (BLM), State Parks, other public agency contacts, and local agency review.
2. SDIA ADP EIR 2019 and associated appendices.

Note: *that contours are draft and may change in size All final contours must be accepted by FAA*

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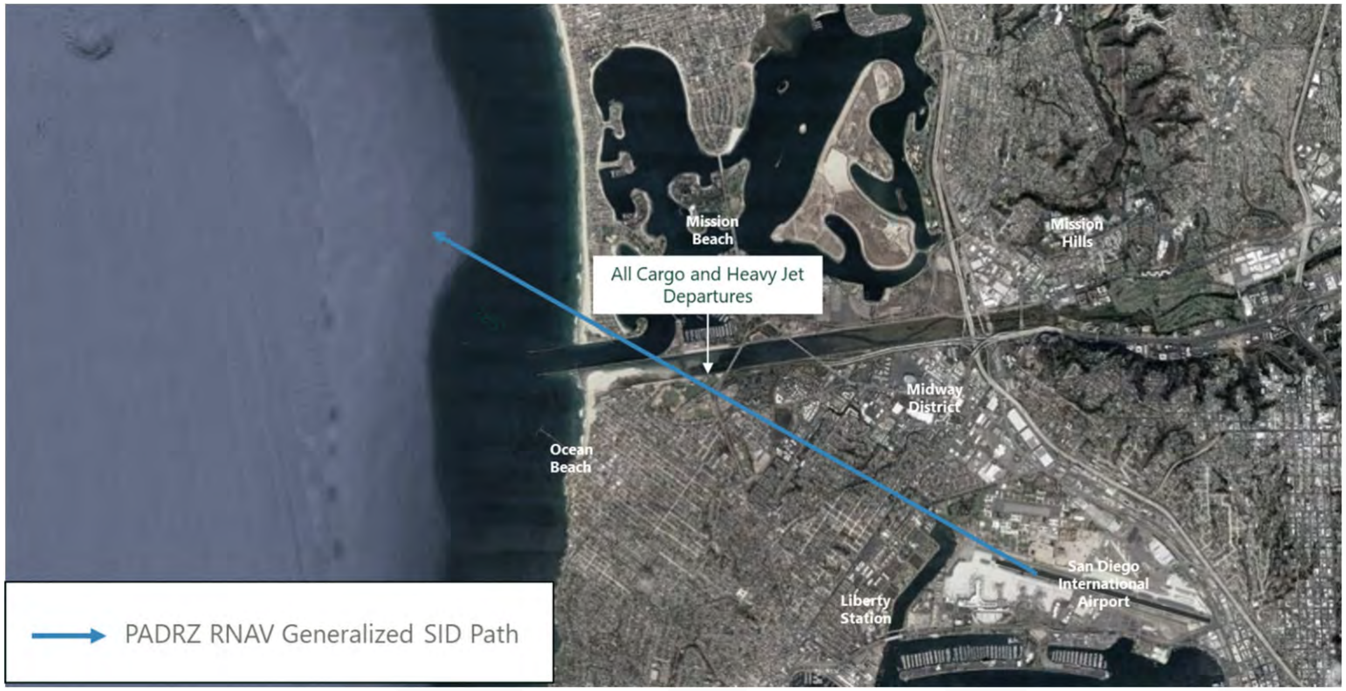
ALTERNATIVE 5 – All Cargo and International Heavy Jet Flights on PADRZ RNAV SID Initial Departure Heading

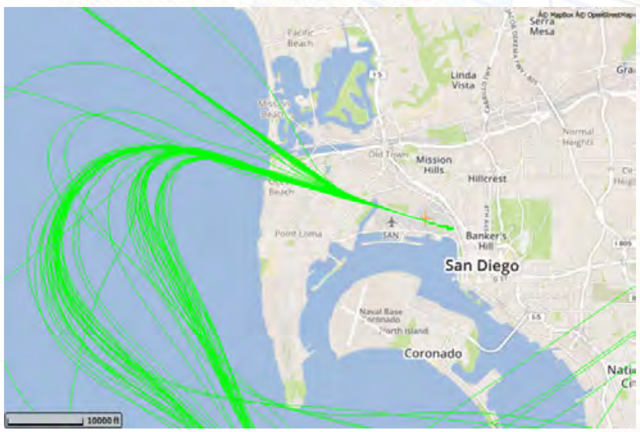


ALTERNATIVE 5 – All Cargo and Heavy International Departures on PADRZ RNAV SID Initial Departure Heading

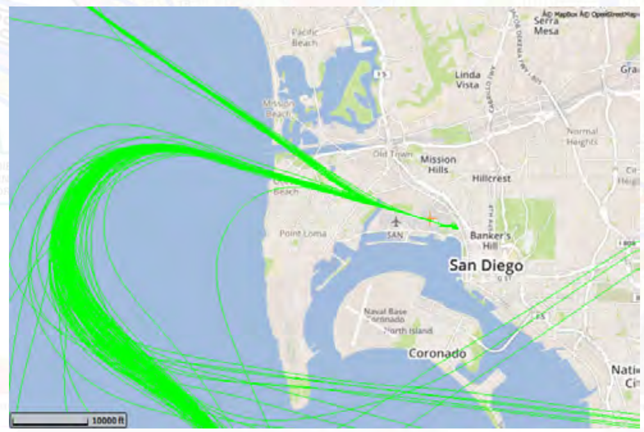
29

Not brought forward for noise analysis due to potential impact on airport efficiency, throughput and additional complexity. It was eliminated from further consideration.

International Departures – July 2018



Cargo Jet Departures – July 2018



Source: San Diego County Regional Airport Authority, Airport Noise and Operations Management System. May 2020.

ALTERNATIVE 6 – Modification to Noise Abatement Departure Procedure (NADP)

- **Modeled as part of previous 150 Study**
  - Showed 1-2 dB reduction in some areas
  - Level of reduction not generally "perceived" from human ear
- **Not brought forward as a recommendation due to issues impacting:**
  - Safety, Airfield Capacity, and Air Traffic Workload
  - Compliance with AC 91-53A "Noise Abatement Departure Profiles"
    - AC 91-53A limits the number of NADPs for a particular aircraft type to two. Many already have two, implementing a third NADP, which is different than the one used at SNA, violates the AC
  - Ability of airlines to fly a custom procedure
  - Increased emissions and increased costs
- **No perceivable noise reduction on the most "extreme" NADP to offset the costs/issues**

Population and Housing Units Alternatives Comparison

Population

	Base Case 2026	Alt 1A	Alt 1B	Alt 1C	Alt 2A	Alt 2B	Alt 4
> 65 CNEL	**34,276**	-509	-735	-1,021	+119	+22	-60
> 70 CNEL	**7,966**	-443	-320	-194	-256	-232	-37
> 75 CNEL	**794**	-96	-96	-96	-96	-96	-4

Housing Units

	Base Case 2026	Alt 1A	Alt 1B	Alt 1C	Alt 2A	Alt 2B	Alt 4
> 65 CNEL	**15,071**	-256	-370	-563	+118	+72	-43
> 70 CNEL	**2,624**	-47	+7	+69	+35	+48	-9
> 75 CNEL	**515**	-2	-2	-2	-2	-2	-1

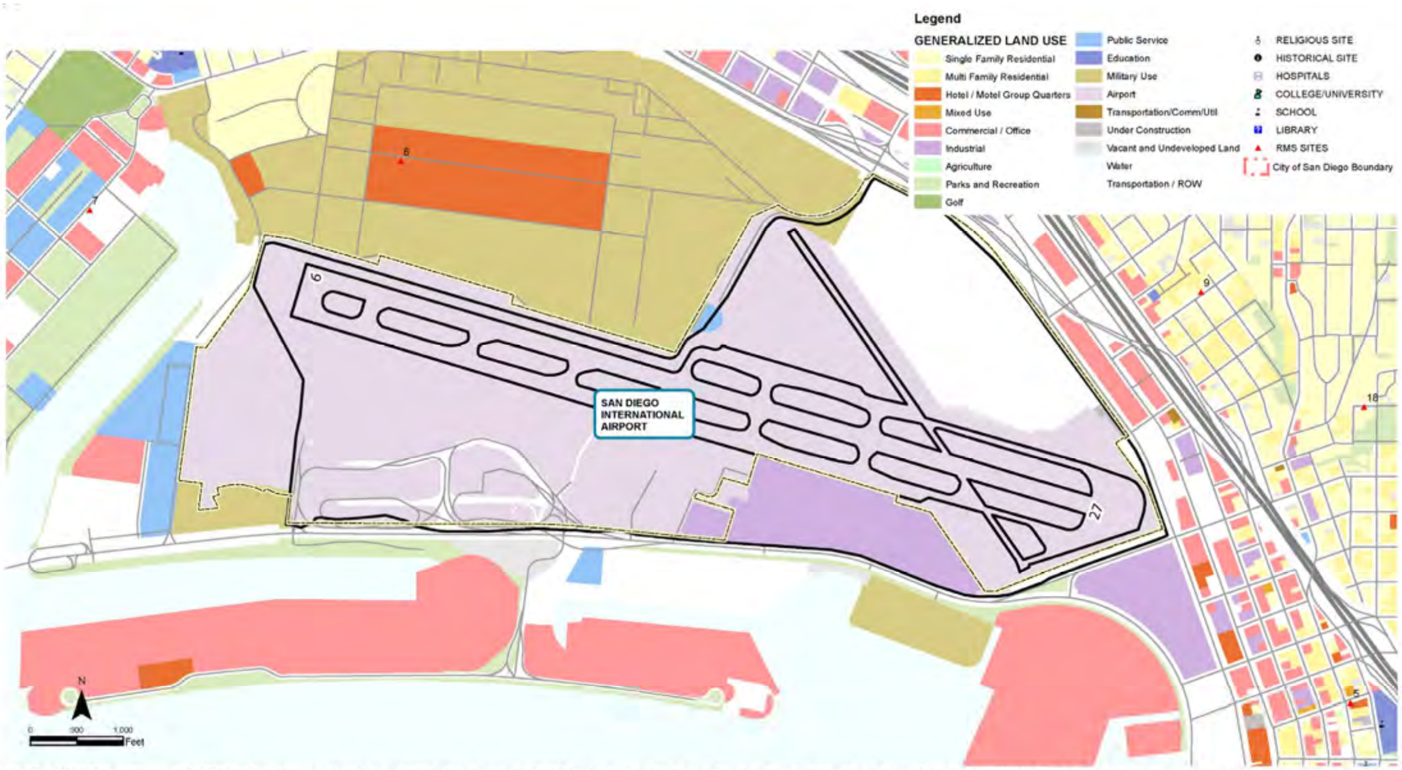
Housing: New In-Out of Contours

	Housing Units						
		Alt 1A		Alt 1B		Alt 1C	
	Base Case 2026	New in	New out	New in	New out	New in	New out
> 65 CNEL	**15,071**	+860	-1120	+950	-1320	+1460	-2020
> 70 CNEL	**2,624**	+190	-240	+270	-260	+390	-320
> 75 CNEL	**515**	0	0	0	0	0	0

	Housing Units						
		Alt 2A		Alt 2B		Alt 4	
	Base Case 2026	New in	New out	New in	New out	New in	New out
> 65 CNEL	**15,071**	+1700	-1580	+1770	-1700	+40	-80
> 70 CNEL	**2,624**	+300	-260	+320	-270	+10	-20
> 75 CNEL	**515**	0	0	0	0	0	0

Note: Numbers are approximate, rounded to the nearest 10 units

Noise Barriers: Facilitated discussion to identify potential locations for modeling using committee input on map



SOURCE: 1. SANDAG Technical Services - GIS, SANDAG Land Layers Inventory Mapping Source: SanGIS landbase (i.e. parcels), SANDAG, County Assessor's Master Property Records file, Cleveland National Forest, Bureau of Land Management (BLM), State Parks, other public agency contacts, and local agency review.
2. SDIA ADP EIR 2019 and associated appendices.

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Next Steps

- **Evaluate any additional operational alternatives**
- **Evaluate noise barrier alternatives**
- **Present land use/administrative alternatives**

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Questions & Comments

https://sannoisestudy.com/

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SAN NOISE STUDY TAC/CAC MEETING

MAY.28.2020

Thank you!

Mead & Hunt

SAN DIEGO INTERNATIONAL AIRPORT

Existing and Future Noise Sensitive Public Facilities

Noise Sensitive Use	2018 Existing Operations*	2026 Forecast Operations**
Schools	13	22
Religious Facilities	7	17
Historic Sites	5	5
Libraries	1	1
Total	**26**	**45**

***Source:** Airport ANOM Data, 2018, Leigh Fisher and HMMH Analysis.
****Source:** 2018 Aviation Activity Forecast Update, LeighFisher June 2019.

CAC Meeting Attendees (33):

- Part 150 Study - Kate Andrus (Host)
- Airport - Sjohnna Knack (Co-host)
- Part 150 Team - Ryk Dunkelb... (Co-host)
- Airport - Mckinna Dartez (Co-host)
- Facilitator - Heidi Gantwerk (Co-host)
- Part 150 Study - Stephen Smith (Co-host)
- Part 150 Team - Jen Wolchans... (Co-host)
- Airport - Ashley Martinez
- Airport - Brendan Reed
- Airport - Jim Payne
- Airport - Roman Lanyak
- ANAC - Kallie Glover
- ANAC Erika Espinosa Araiza
- CAC - Chris McCann
- CAC - Gernot Trolf
- CAC - Kathy Vandenheuvel
- CAC Len Gross
- CAC - Marc Adelman
- CAC - Mike Tarlton
- CAC - Nancy Palmtag
- CAC - R. Casey Schnoor
- CAC - Tony Stiegler
- CAC- Alan Harris
- CAC Bob Herrin
- CAC-Dave Kujawa-OB
- CAC-Robin Taylor
- Gary Wonacott
- Maria Bojorquez-Gomez w/ Rep. Susan ...
- Matt H
- Part 150 team Mary Vigilante
- Sabrina LoPiccolo
- TAC - Deborah Watkins

SAN NOISE STUDY CAC MEETING

JUNE.25.2020

Mead & Hunt

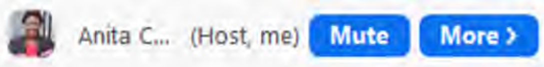
SAN DIEGO INTERNATIONAL AIRPORT

Welcome: Zoom Protocols

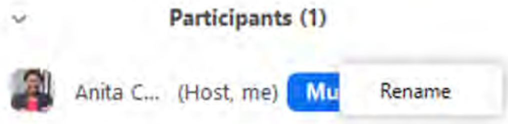
- **Update your Name**
  - TAC/CAC – NAME
  - E.g.: TAC – John Smith
- **Discussion/comments limited to Committee Members**
- **Names will be used to identify Committee Members**

1. At the bottom of the screen in the Zoom room, click on the "Participants" icon.

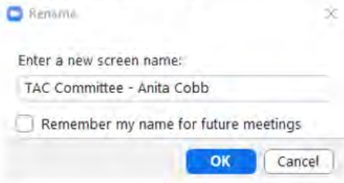
2. A list of participants will appear on the right-hand side of the Zoom room. Hover over your name and click the "More" button.



3. Click the "Rename" option.

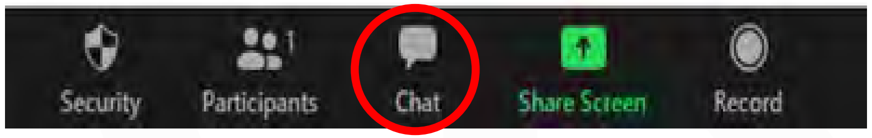


4. Enter your name, beginning with your committee affiliation, in the "Enter a new screen name" field. Make sure to uncheck "Remember my name for future meetings" if you wish not to carry the change forward.



Zoom Protocols: Commenting

- **All participants are muted to avoid over-talking**
- **Heidi will call on *Committee Members* in the following order:**
  1. Video: Raise hand physically (if on video)
  2. Raise hand virtually (hand feature)
  3. Chat comment to host, Kate Andrus (chat feature)
  4. Email Anita.Cobb@meadhunt.com if none of these features work and you are a committee member with a question or comment



Agenda

- Introduction
- Purpose of Meeting
- Part 150 Chapters and Review
- Update on ANAC Alternatives
- Comment Opportunities
- Responses to CAC comments
- Additional Operational Alternatives for Modeling
- Open Discussion/June 15th Letter
- Questions/Comments

SAN NOISE STUDY

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Purpose of 150 Study

- Reduce non-compatible land uses within the 65 CNEL
- Develop a program to reduce noise impacts
- Airport Sponsor must provide access to all airport users and cannot discriminate against any user
- Alternatives should not adversely affect operational efficiency

Purpose of Meeting

- **Part 150 process context – opportunities for comment**
- **Clarifications on comments/questions from May 28th meeting and website**
  - How were alternatives developed?
  - How are the ANAC recommendations connected to the Part 150?
  - Land use data and comparisons
- **Discuss proposed additional alternatives for modeling by 150 Team based on comments**
- **Open discussion**

Part 150 Chapters & Review

Chapter 1 — Inventory: Summary of existing conditions at SDIA

Chapter 2 — Forecasts: Evaluation of current and FAA-approved forecast operations

Chapter 3 — Background on Noise: Overview of proliferation of noise, methods of assessment, and the regulations for noise/land use compatibility

Chapter 4 — Existing & Future Noise Exposure Summary of inputs used for modeling the noise exposure contours for 2018 and 2026.

Winter 2020
Draft chapters 1-5 submitted to FAA – March 2020

Summer 2020
TAC/CAC to review draft chapters 1-5 after FAA review

Chapter 5 — Land Use Analysis: Compatibility of various land uses and population with the existing and future

Chapter 6 — Potential Noise Abatement Measures: Description of alternatives considered and carried forward

Chapter 7 — Operational Alternatives: Operational feasibility assessment results

Chapter 8 — Facility, Land Use, and Program Management Measures: Discussion of all measures considered

Chapter 9: Final Recommendations

Summer 2020
Submit draft chapters 6-8 to FAA
CAC/TAC Review after FAA review

Fall 2020
Submit draft chapter 9 to FAA
CAC/TAC Review after FAA review

SAN NOISE STUDY

How were Alternatives Developed?

- **Professional judgement on 150 Study Alternatives and SAN conditions**
  - Over 40 years of experience and over 50 Part 150/NEM/noise Studies
- **ANAC Recommendations**
- **Comments during prior CAC/TAC Meetings**
- **Comments by public during prior Part 150 public meeting**

ANAC Recommendations Update

- **Airport Authority Update on all ANAC Recommendations and Status**

Land Use Data Clarifications

- **Importance is the *COMPARISON* of Future Baseline to Alternatives**
  - Does the alternative show a relative increase, reduction or shift?
- **A shift is a shift**
  - Study can not discriminate between single family and multi family structures
  - Multi-family Definition: *Residential buildings containing units built one on top of another and those built side-by-side which do not have a ground-to-roof wall and/or have common facilities (i.e., attic, basement, heating plant, plumbing, etc.)* [1]
- **2010 Census data is industry standard data**

1https://www.census.gov/glossary/#term_MultifamilyHousing

Other Data Sources

American Community Survey (ACS)

- Decennial Census is industry standard for population and housing statistics; ACS is only used for population **characteristics**
  - Specifically, "*The ACS was designed to provide estimates of the characteristics of the population, not to provide counts of the population...*"[1]
- ACS methodology is based on large scale estimates and a much smaller sample size than 2010 Census

Part 150 Team created new population density and Quieter Home Program (QHP) graphics for context

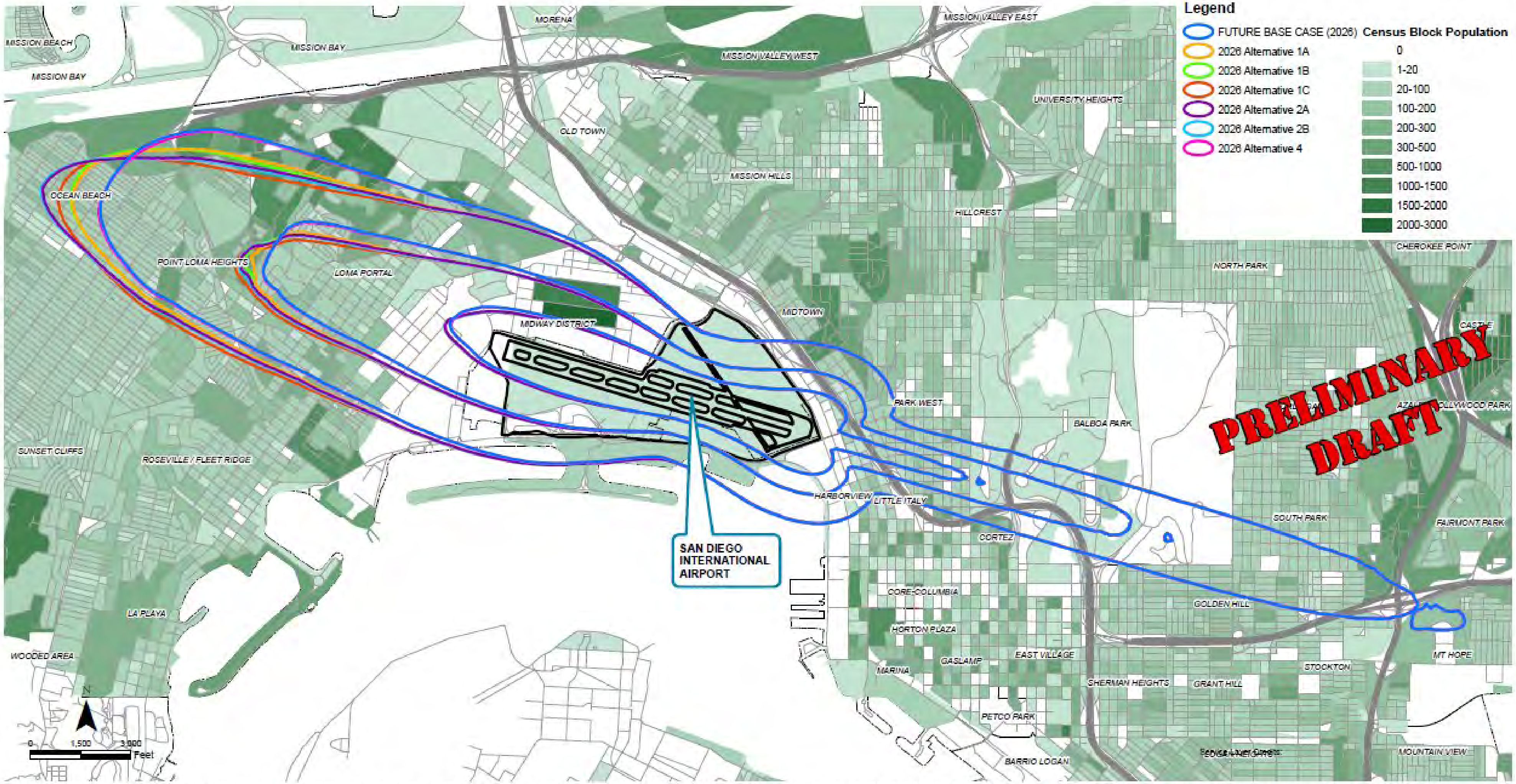
- QHP will conduct a windshield survey to confirm exact units

[1]https://www.census.gov/content/dam/Census/library/publications/2018/acs/acs_general_handbook_2018.pdf

Land Use Data Clarifications

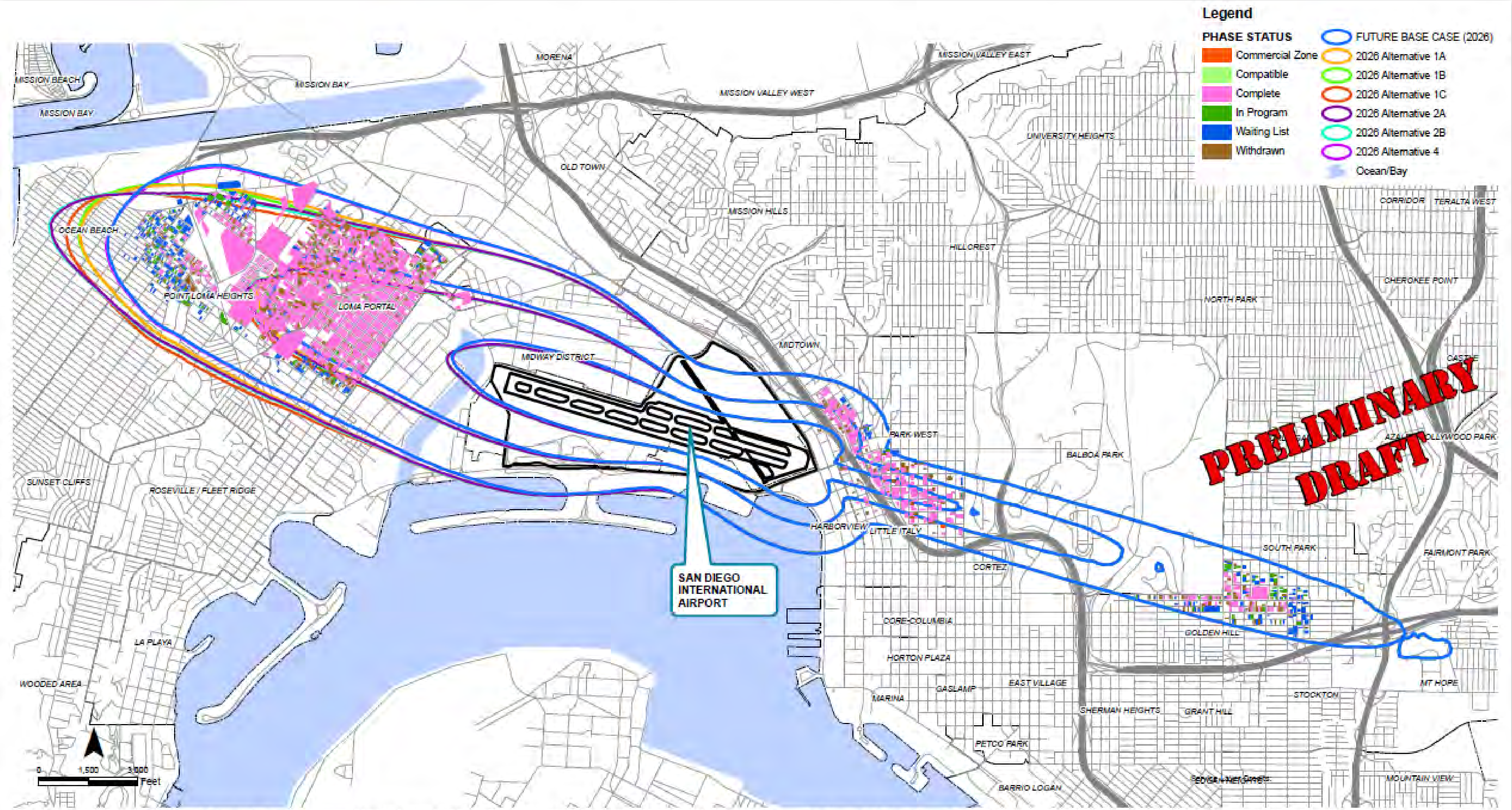
	US Census American Community Survey (ACS) (2018)	Decennial Census (2010)
Sample Size	~3.5M housing units	~134M people
	Mailed to ADDRESS	Mailed to PERSON
Main Use	Population characteristics	Population counts
Residency	Residency based on "current residence" (stay must be ≥ 2 months) – accounts for seasonal changes	Residency based on "usual residence"
Estimates	1-year estimate for places ≥ 65,000 pop 3-year estimate for places ≥ 20,000 pop 5-year estimate for places < 20,000 pop	
Geography	Block Group: 600 - 3,000 people	Block: ~100 people

ALTERNATIVES WITH POPULATION DENSITY – 2010 Census



SOURCE: 1. SANDAG Technical Services - GIS, SANDAG Land Layers Inventory Mapping Source: SanGIS landbase (i.e. parcels), SANDAG, County Assessor's Master Property Records file, Cleveland National Forest, Bureau of Land Management (BLM), State Parks, other public agency contacts, and local agency review.
2. SDIA ADP EIR 2019 and associated appendices. 3. 2010 US Census Block summary file.

ALTERNATIVES COMPARED WITH QUIETER HOME PROGAM PHASES



SOURCE: 1. SANDAG Technical Services - GIS, SANDAG Land Layers Inventory Mapping Source: SanGIS landbase (i.e. parcels), SANDAG, County Assessor's Master Property Records file, Cleveland National Forest, Bureau of Land Management (BLM), State Parks, other public agency contacts, and local agency review.
2. SDIA ADP EIR 2019 and associated appendices.

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Recommended Additional Modeling ELSO Alternative Discussion

ALTERNATIVE 2A – ELSO WITH DISPERSION

ALTERNATIVE 2B – ELSO WITH CONCENTRATION

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Recommended Additional Modeling ELSO Alternative

- **Existing ELSO Alternatives 2A and 2B**
- **Refined Proposed ELSO Alternatives: Alternatives 2C and 2D**
  - Moves the ELSO heading from 10 degrees to 12 degrees (about halfway between 10 and 15 degree)
  - Alternative 2C is a dispersion design
  - Alternative 2D is a concentration design

Recommended Additional Modeling Noise Abatement Departure Procedure (NADP)

- **Team to complete additional review of previous work**
- **Representative aircraft single event level**
- **Team to have additional discussion with airlines**

Recommended Additional Modeling Noise Barrier Analysis

- **Analysis of Part 77 Surfaces, TERPS, and safety area setbacks**
- **Additional review of previous modeling**
- **Single event level modeling**
- **Barrier height and location analysis to determine effectiveness**

Summary of Alternatives

Alternative Number	Title	Description
1A (1A – 1C are various alternatives to respond to ANAC recommendation 14 and 17)	Departures over Mission Bay Channel with Dispersion (to decrease noise in Mission Beach, Pacific Beach and La Jolla)	Create a path with **dispersion** over the Mission Beach inlet. Modify existing PADRZ RNAV to climb to 520’ at 500’ per NM proceed offshore aligned with Noise Dot #1
1B	Departures over Mission Bay Channel with Concentration (to decrease noise in Mission Beach, Pacific Beach and La Jolla)	Create a **concentrated** path over the Mission Beach inlet. Modify existing PADRZ RNAV to climb to 520’ at 500’ per NM to a point .98 NM from runway end then proceed on 293-degree heading
1C	Departures over Mission Bay Channel with a Fly-Over waypoint (to decrease noise in Mission Beach, Pacific Beach and La Jolla)	Provide a more predictable and repeatable initial jet departure path with very little to no dispersion along the path from Runway 27 that direct jet aircraft towards a fixed point on runway heading then a turn to the northwest to direct jet aircraft over the Mission Bay Channel

Green denotes analyzed already; Yellow denotes analysis underway

Summary of Alternatives

Alternative Number	Title	Description
2A (2A – 2D are various alternatives response to ANAC recommendation #14)	Equivalent Lateral Spacing Operations (ELSO) for Departures with Dispersion	Provide a predictable and repeatable initial jet departure path with some dispersion along the path from Runway 27 that direct jet aircraft along a heading that diverges from the ZZOOO RNAV SID heading by at least 10-degrees
2B	Equivalent Lateral Spacing Operations (ELSO) for Departures with Concentration	Provide a predictable and repeatable initial jet departure path along the path from Runway 27 that direct jet aircraft along a heading that diverges from the existing heading by at least 10-degrees. Provides greater predictability and repeatability compared to Alternative 2A due to less dispersion
2C and D	Modified Equivalent Lateral Spacing Operations (ELSO) for Departures with Dispersion and Concentration	Refined Proposed ELSO Alternatives to move the ELSO heading from 10 degrees to 12 degrees (about halfway between 10 and 15 degree) based on committee discussion. Alternative 2C is a dispersion design; Alternative 2D is a concentration design
3 (ANAC recommendation #15)	Require all Departures to Fly Between 275 and 290 degree heading	Intended to reduce the total departure dispersion from approximately 250- and 310-degrees from Runway 27 to between 275 and 290-degrees. This would reduce the number of overflights heading south of 275 over areas in Point Loma and aircraft heading north of approximately 293-degrees
4 (4 is response to ANAC recommendation #17)	Nighttime (10 PM to 630 AM) Eastbound Departures on ZZOOO RNAV	Remove nighttime departure amendment (aircraft filing the ZZOOO fly 290-degree heading) and have aircraft fly as they do during the day either PADRZ or ZZOOO

Green denotes analyzed already; Yellow denotes analysis underway

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Summary of Alternatives

Alternative Number	Title	Description
5 (Responding to CAC recommendation from November 2019 meeting)	All Cargo and international flights follow PADRZ SID	Analyze exposure levels by re-locating heavy jet departures conducted by cargo and international carriers on the right turn initial departure heading associated with the PADRZ RNAV SID
6 (Response to ANAC recommendation #21)	Modification to Noise Abatement Departure Procedure (NADP)	Review modifications to the FAA published (AC 91-53A) to see if there are any noise reduction benefits. Analyze recommended aircraft single event level to see if there would be benefits
7 (Response to ANAC recommendation #11)	Noise Barrier	Additional single event modeling to determine feasibility of noise barriers

Green denotes analyzed already; Yellow denotes additional modeling underway

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Questions & Comments

- June 15th Letter for discussion
- Open discussion

SAN NOISE STUDY

Next Steps

- Model additional operational alternatives noted
- Present land use/administrative alternatives
- Narrow list of alternatives to start developing recommendations

SAN NOISE STUDY CAC MEETING

JUNE.25.2020

Thank you!

Mead & Hunt

SAN DIEGO INTERNATIONAL AIRPORT

Attendees (30):

LR Lauren Rasmussen - Part 15... (Co-host, me)
KA Kate Andrus (Host)
JW Jen Wolchansky - Part 150 T... (Co-host)
Heidi Gantwerk - Part 150 Team (Co-host)
SK Sjohnna Knack - Airport (Co-host)
Paul Dunholter - Part 150 Team
AC Anita Cobb - Mead & Hunt
BH Bob Herrin - Loma Portal/Liberty Station
BR Brendan Reed (SAN)
CS Casey Schnoor - Sunset Cliffs
Cynthia Gibbs
DK Dave Kujawa - Ocean Beach
Dave Ryan - NBAA
Deborah Watkins - Mission Beach
Ed Snow - FAA
GT Gernot Trolf - Mission Beach
Jim Payne - Airport Authority
LG Len Gross - Bird Rock/La Jolla
LC Lynae Craig - Alaska Airlines

MA Marc Alderman - Liberty Station/Loma Port...
MV Mary Vigilante - Part 150 Team
MH Matt H - Airport
MB Michelle Brega - Airport
MT Mike Tarlton - Ocean Beach
NP Nancy Palmtag - Loma Portal
PD Planning Department City of San Diego
RT Robin Taylor - Ocean Beach/Sunset Cliffs
RL Roman Lanyak - Airport
Stephen Smith - Part 150 Team
Tony Stiegler - La Jolla

SAN NOISE STUDY TAC/CAC MEETING

OCT.15.2020

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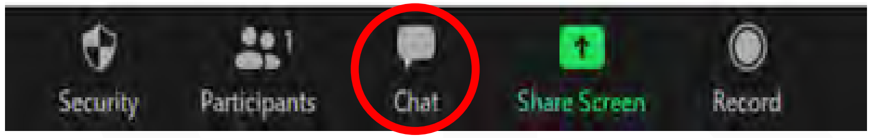
SAN DIEGO INTERNATIONAL AIRPORT

Zoom Protocols: Commenting

- **All participants are muted to avoid over-talking – you can now unmute yourself**
- **Heidi will call on *Committee Members* in the following order:**
  1. Video: Raise hand physically (if on video)
  2. Raise hand virtually (hand feature)
  3. Email Anita.Cobb@meadhunt.com if none of these features work and you are a committee member with a question or comment



Agenda

- Introduction
- Purpose of Meeting
- Base Case Contour Refinements
- Updated and New Alternatives
- Next Steps
- Questions/Comments

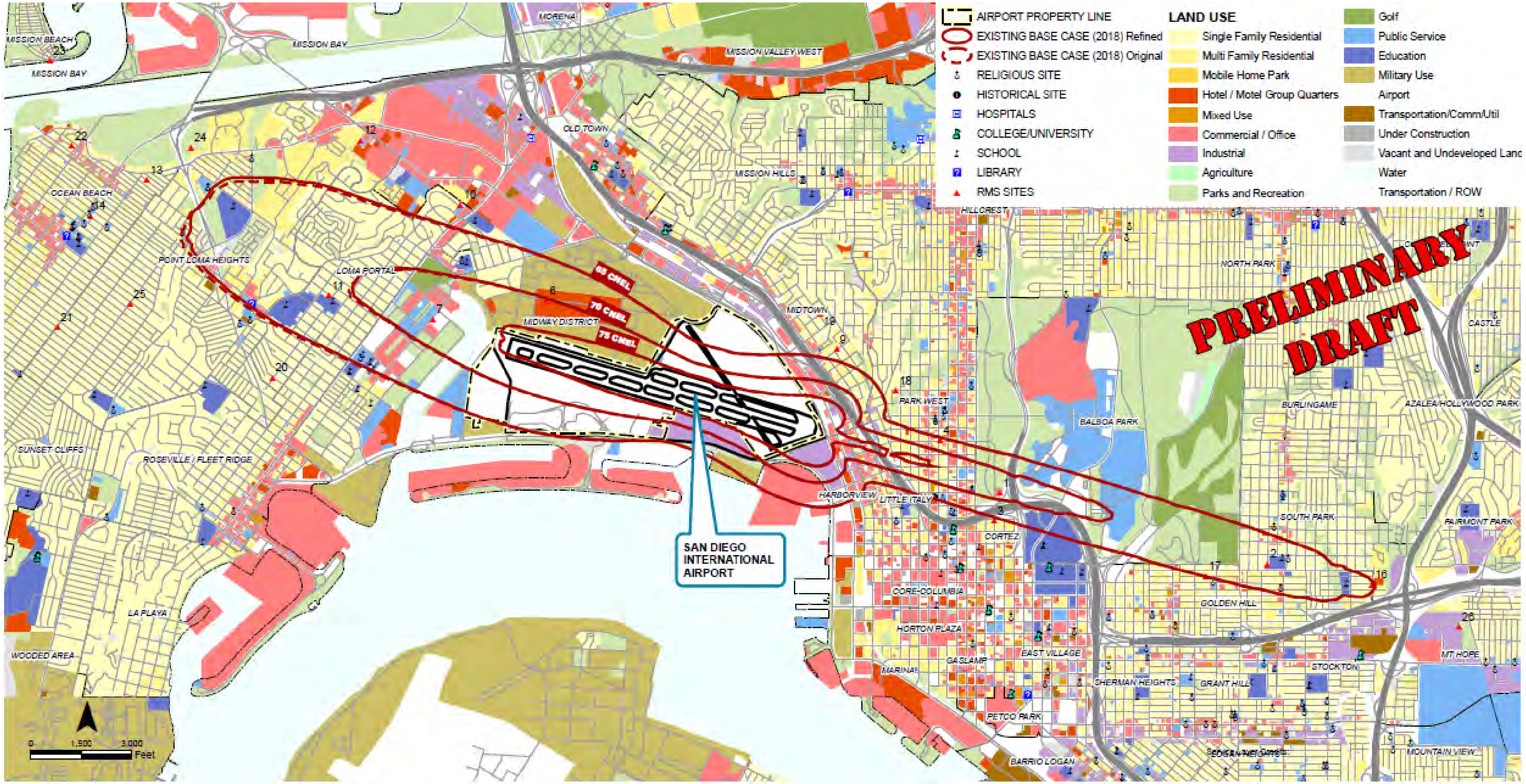
Purpose of Meeting

- Present Base Case Contour Refinements
- Present Supplemental Modeling
- Present CNEL Modeling
- Present Land Use Alternative

Contour Refinement

- **Reasons for Refinement of Contours**
  - TAC and CAC Input - comments focus on nighttime noise concerns
  - Identified Refinements to Enhance Assessment - operations assignment to tracks based on time of day total instead of 24-hour total to capture additional details related to nighttime noise
  - Resulted in updated base case contours (2018 and 2026)
  - Alternative results update - previous alternatives re-calculated based on refined 2026 base case contour input

Original vs. Refined 2018 Base Case Noise Contours (65 – 75 dB CNEL)



Part 150 requires Base Case contours for existing conditions (last full year of data prior to the initiation of the modeling) and future conditions (5 years from expected date of submission to the FAA).

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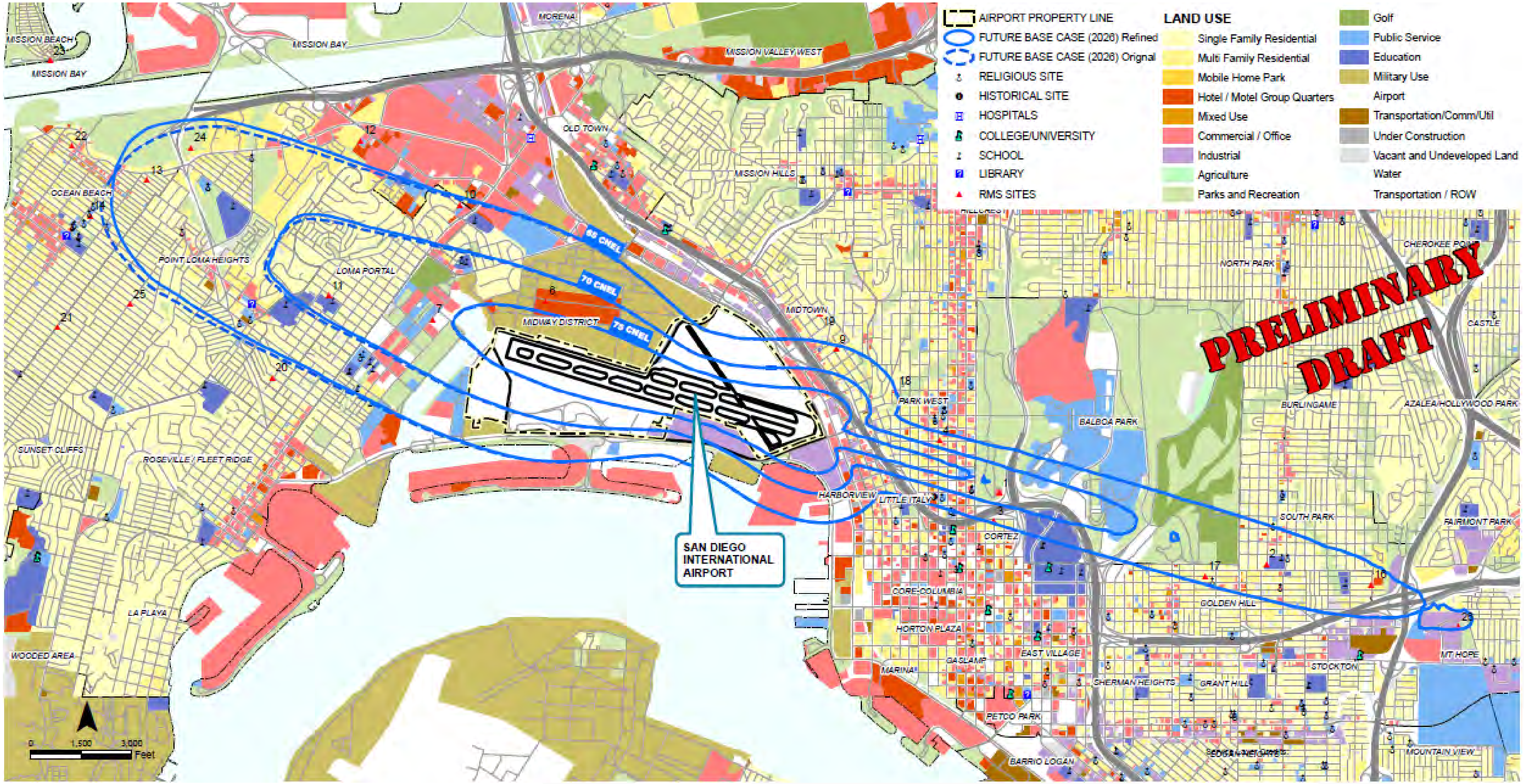
7

Original vs. Refined Draft Future 2026 Base Case Contours (65 – 75 dB CNEL)



Part 150 requires all alternatives to be compared to the future Base Case contours (2026)

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Population and Housing Units Base Case: 2018 and 2026

2018	Population	Housing Units
65 dB CNEL and greater	16,188	7,805
70 dB CNEL and greater	1,907	1,236
75 dB CNEL and greater	178	131

2026	Population	Housing Units
65 dB CNEL and greater	30,976	15,149
70 dB CNEL and greater	5,173	2,642
75 dB CNEL and greater	699	515

Source: US Census 2010, Mead & Hunt Land Use Analysis, 2020; HMMH Contours, 2020.

Note: These numbers include homes that have been sound attenuated or were built after October 1, 1998 and therefore considered compatible (Approx. **4,300** homes have been sound attenuated through 5/28/20)

Contours are cumulative (i.e. 65 dB CNEL includes all homes within the 65, 70 and 75 contours)

Categories of Alternatives

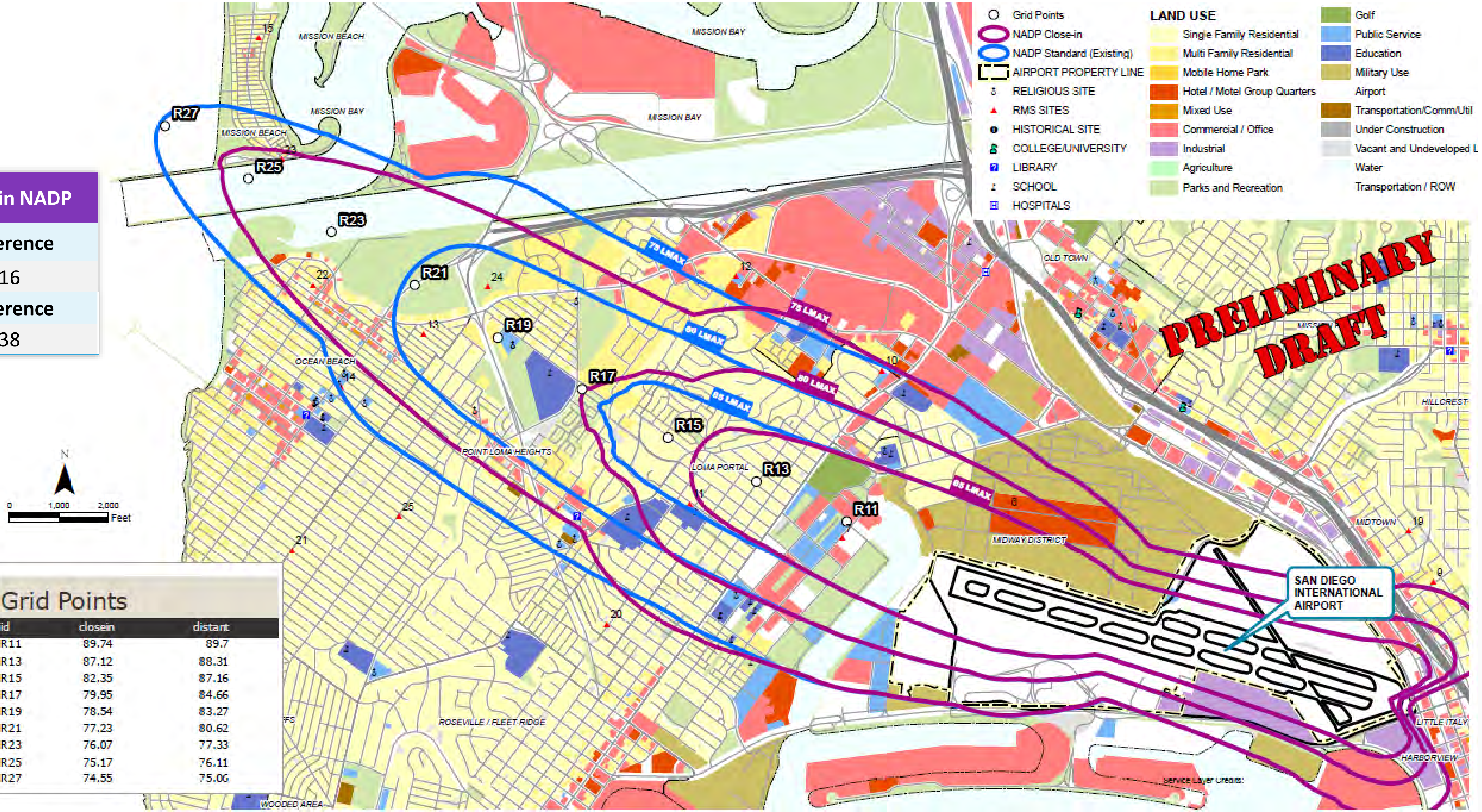
- **Supplemental Analysis (Lmax considerations)**
  - Operational changes: Climb Profile (Single Event Analysis)
  - Facility Modifications
    - Noise Barrier
    - Ground Based Augmentation System (GBAS)
- **Operational Alternatives—Federal Control (CNEL analysis)**
  - Operational changes: flight tracks (CNEL)
- **Land Use Alternatives—Local and State Control**
  - Preventative: Land Use Restrictions
  - Remedial: Sound Attenuation (Quieter Home Program)
- **Administrative Alternatives—Airport Proprietor**
  - Noise Monitoring/Flight Track Monitoring
  - Fly Quiet Program
  - Part 150 Updates

Climb Profile - Modification to Noise Abatement Departure Procedure (NADP)

- **Includes two NADP profiles (per AC 91-53)**
  - NADP Close-in with 1,500-foot AFE cut back
    - Use full thrust for departure; reduce thrust to 85% for climb; and accelerate once past the shoreline
  - NADP Distant (Existing/Standard) with 1,000-foot AFE cut back
    - Similar to Close-in, main difference that flaps & slats are retracted
  - Evaluated via Lmax, not CNEL
- **NADP recommendation:**
  - Close-in NADP could further enhance noise abatement flight tracks for departing aircraft on Runway 27
  - Implementing voluntary NADPs can yield positive results with air carriers; these procedures can be included in Fly Quiet programs
  - **Potential for slight reduction single event overflight noise within the 65 CNEL, less than 5 dBA**

Climb Profile - Modification to Noise Abatement Departure Procedure (NADP): LMAX Analysis

	Distant NADP (Existing)	Close-in NADP
	Population	Difference
> 85 Lmax	2,048	-1,016
	Housing Units	Difference
> 85 Lmax	877	-438



Grid Points

id	closein	distant
R11	89.74	89.7
R13	87.12	88.31
R15	82.35	87.16
R17	79.95	84.66
R19	78.54	83.27
R21	77.23	80.62
R23	76.07	77.33
R25	75.17	76.11
R27	74.55	75.06

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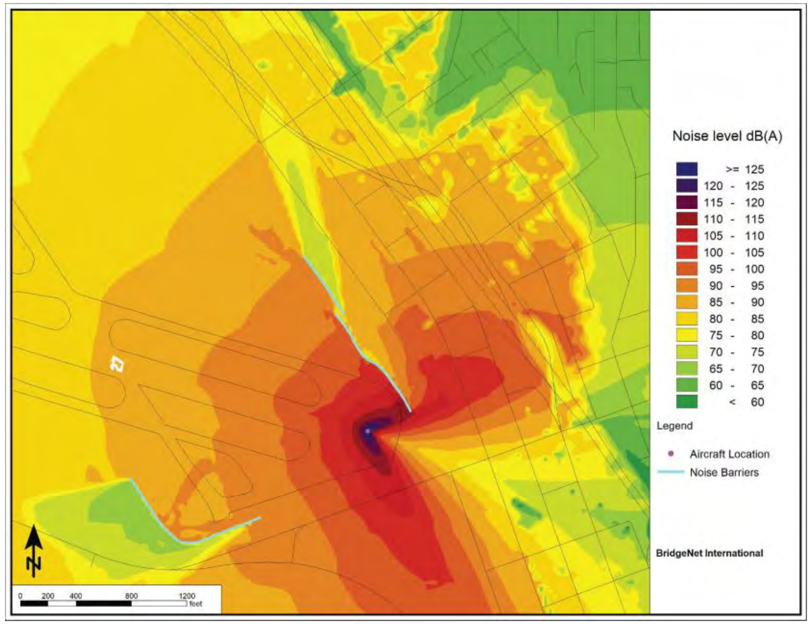
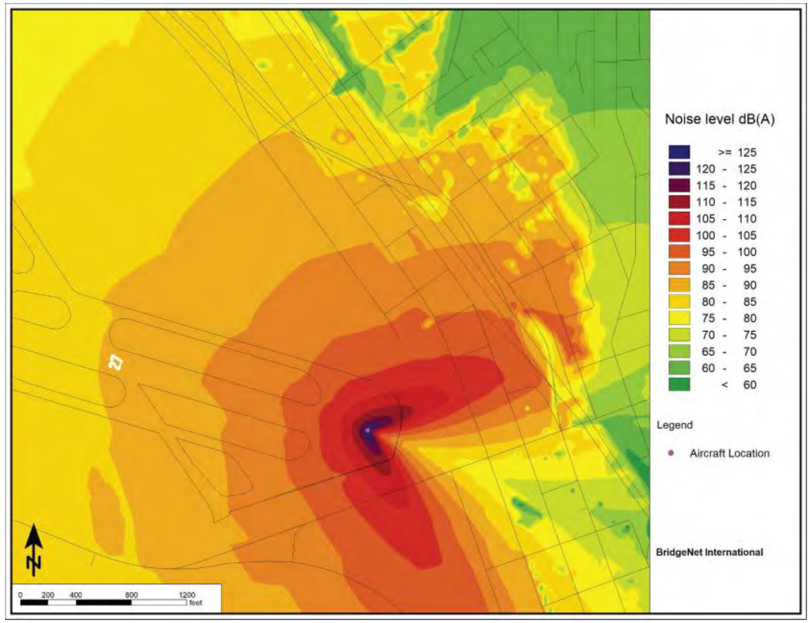
FACILITY ALTERNATIVE – Noise Barriers

With noise barriers



Without noise barriers



- Locations evaluated for FAR Part 77 surfaces
- Three noise barriers evaluated Runway 27 End
  - Two North, One South
- Analyzed using Lmax for 737-700/800
- Lmax reduction of less than 5 dBA over residential area
  - ***Benefits only over compatible land uses***
  - *South wall also is in Least Tern nesting habitat*

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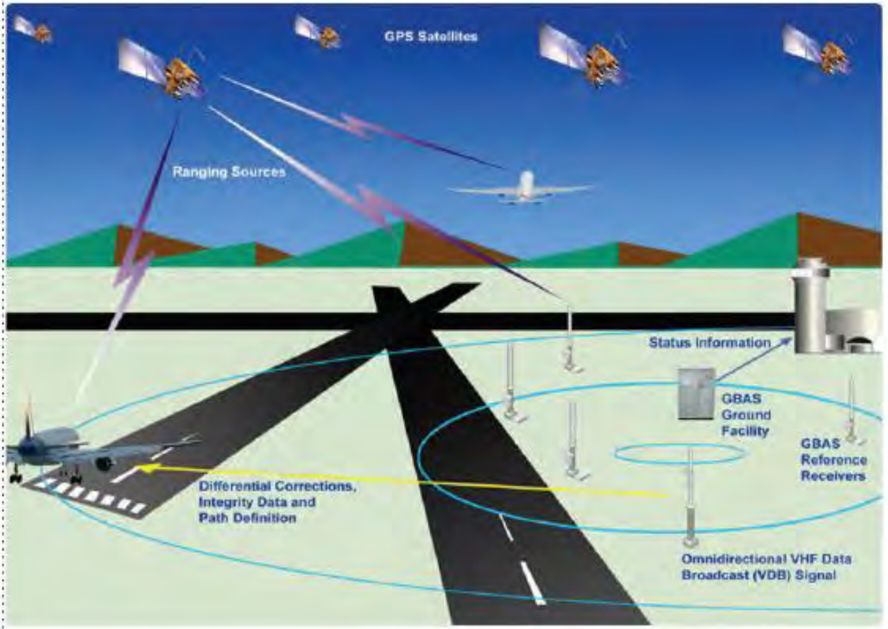
FACILITY ALTERNATIVE – Ground Based Augmentation System (GBAS)



- **GBAS can provide precision lateral and vertical guidance for multiple runway ends**
- **Allows for more repeatable and precise paths and consistency with 3.5-degree glidepath**
- **Reduction/elimination of level segments during the descent, requiring less engine thrust**
- **Could provide reductions of 1-2 dBA on east side approach**
  - Less than 5 dBA is typically not “perceived” by the human ear
  - However, cumulative changes and consistency could result in long term benefits

Operational Alternatives Development Screening

Rationales for modeling

- Consistency with 14 CFR Part 150
  - Focus on addressing noise within the 65 CNEL and greater contour
  - Alternatives that affect efficiency, capacity, or safety and do not conflict with FAA's mission to provide a safe and efficient National Airspace System are not considered for modeling
- Address the representative range of comments received
- Meet the general intent of a procedure (concentration, dispersion, nighttime ops, etc.)
- Identify “bookend” alternatives that represent the range of traffic designs to achieve an overall goal
- Shifting noise from one community to another is not considered to meet 14 CFR Part 150’s purpose
- Alts 1A, 1B, 1C, 2A and 2B were presented previously and included in alternatives screening memo – focus on new alternatives

CONCENTRATION ALTERNATIVE 1D – Departures Over Mission Bay Channel with Concentration (Nighttime Only Operations)

Alternative 1D Initial Coding
VI to Intercept Point
CF to A1 INT Waypoint

Route Description
Aircraft would depart runway heading and climb at 500 feet per NM to an intercept point located .98 NM from the departure end of Runway 27, then proceed on a 293-degree course to A1 INT waypoint

Intent
Provide a predictable path over the inlet for right turn departures to reduce noise levels for areas such as Mission Beach

NOTE: Mean Sea Level (MSL) – height above sea level; Above Ground Level (AGL) – height above the ground
SOURCE: Google, January 2020 (aerial photo); Ricondo & Associates, January 2020 (proposed paths and dispersion area)

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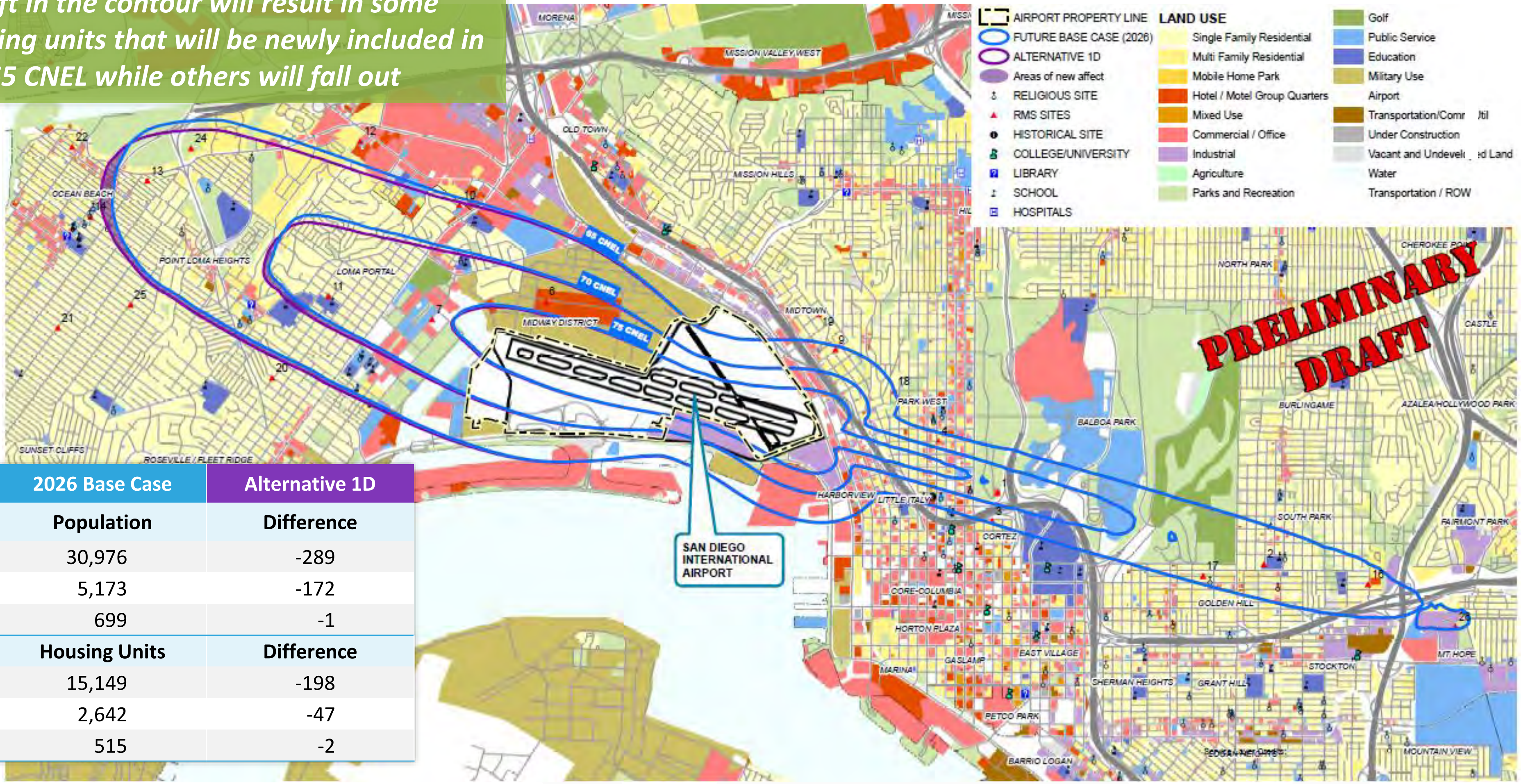
CONCENTRATION ALTERNATIVE: 1D – Departures Over Mission Bay Channel with Concentration (Alternative 1B with Nighttime Only Operations)

A shift in the contour will result in some housing units that will be newly included in the 65 CNEL while others will fall out



	2026 Base Case	Alternative 1D
	Population	Difference
> 65 CNEL	30,976	-289
> 70 CNEL	5,173	-172
> 75 CNEL	699	-1
	Housing Units	Difference
> 65 CNEL	15,149	-198
> 70 CNEL	2,642	-47
> 75 CNEL	515	-2

Note: *that contours are draft and may change in size All final contours must be accepted by FAA*

CONCENTRATION ALTERNATIVE: 2C – EQUIVALENT LATERAL SPACING OPERATIONS (ELSO) for Departures with Concentration

Alternative 2C Initial Coding
VA to 520 feet MSL
DF to VA500 2C Waypoint

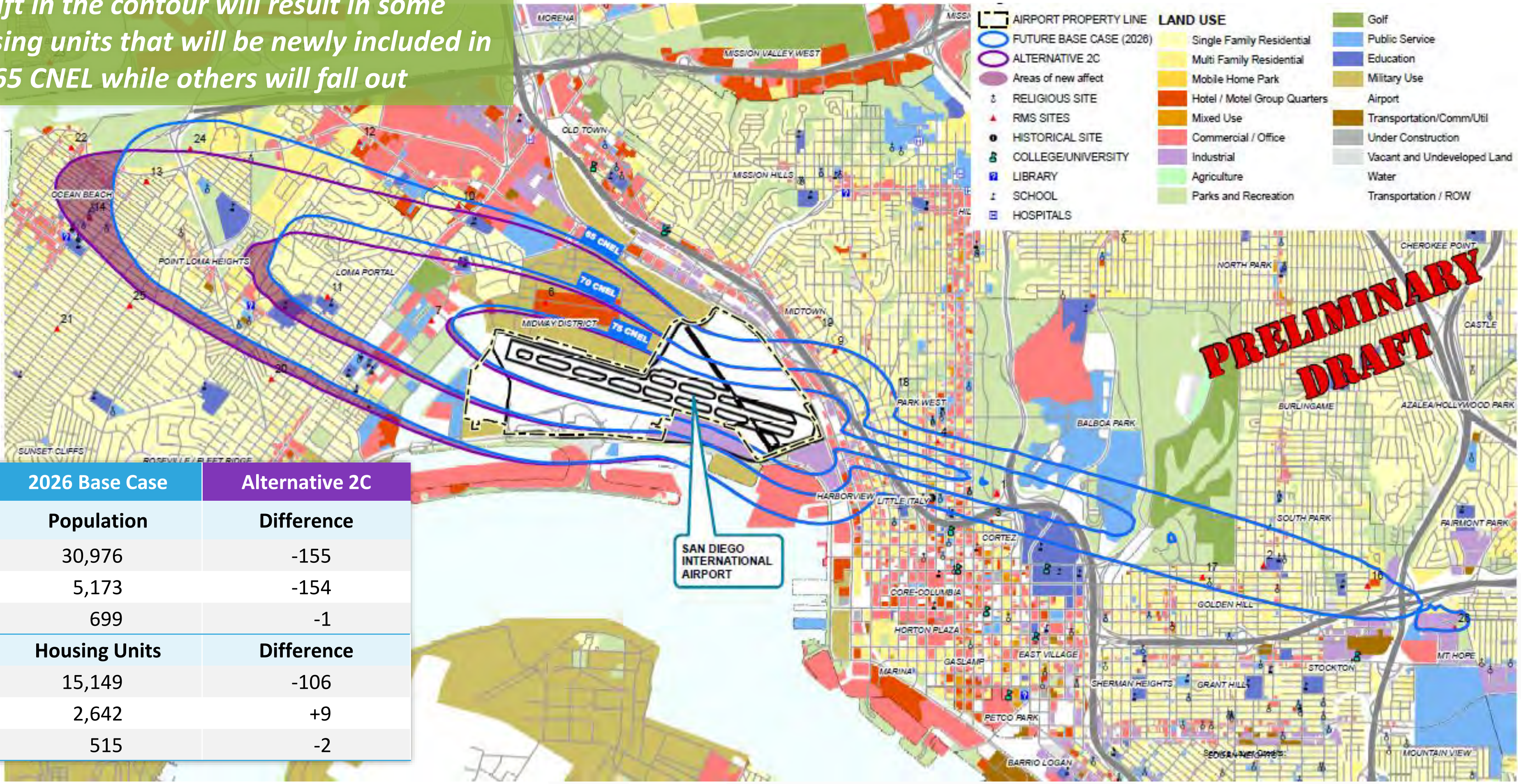
Route Description
Aircraft will depart runway heading and climb to 520 feet MSL at a climb gradient of 500 feet per NM, then proceed direct to proposed VA500 2C waypoint

Intent
Reduce noise levels for residential areas exposed to levels at or higher than CNEL 65 and for Pacific Beach and La Jolla area by moving northbound departures further south

NOTE: Mean Sea Level (MSL) – height above sea level; Above Ground Level (AGL) – height above the ground
SOURCE: Google, January 2020 (aerial photo); Riccondo & Associates, September 2020 (proposed paths and dispersion area)

CONCENTRATION ALTERNATIVE: 2C – EQUIVALENT LATERAL SPACING OPERATIONS (ELSO) for Departures with Concentration

A shift in the contour will result in some housing units that will be newly included in the 65 CNEL while others will fall out



	2026 Base Case	Alternative 2C
	Population	**Difference**
> 65 CNEL	30,976	-155
> 70 CNEL	5,173	-154
> 75 CNEL	699	-1
	Housing Units	**Difference**
> 65 CNEL	15,149	-106
> 70 CNEL	2,642	+9
> 75 CNEL	515	-2

Note: *that contours are draft and may change in size All final contours must be accepted by FAA*

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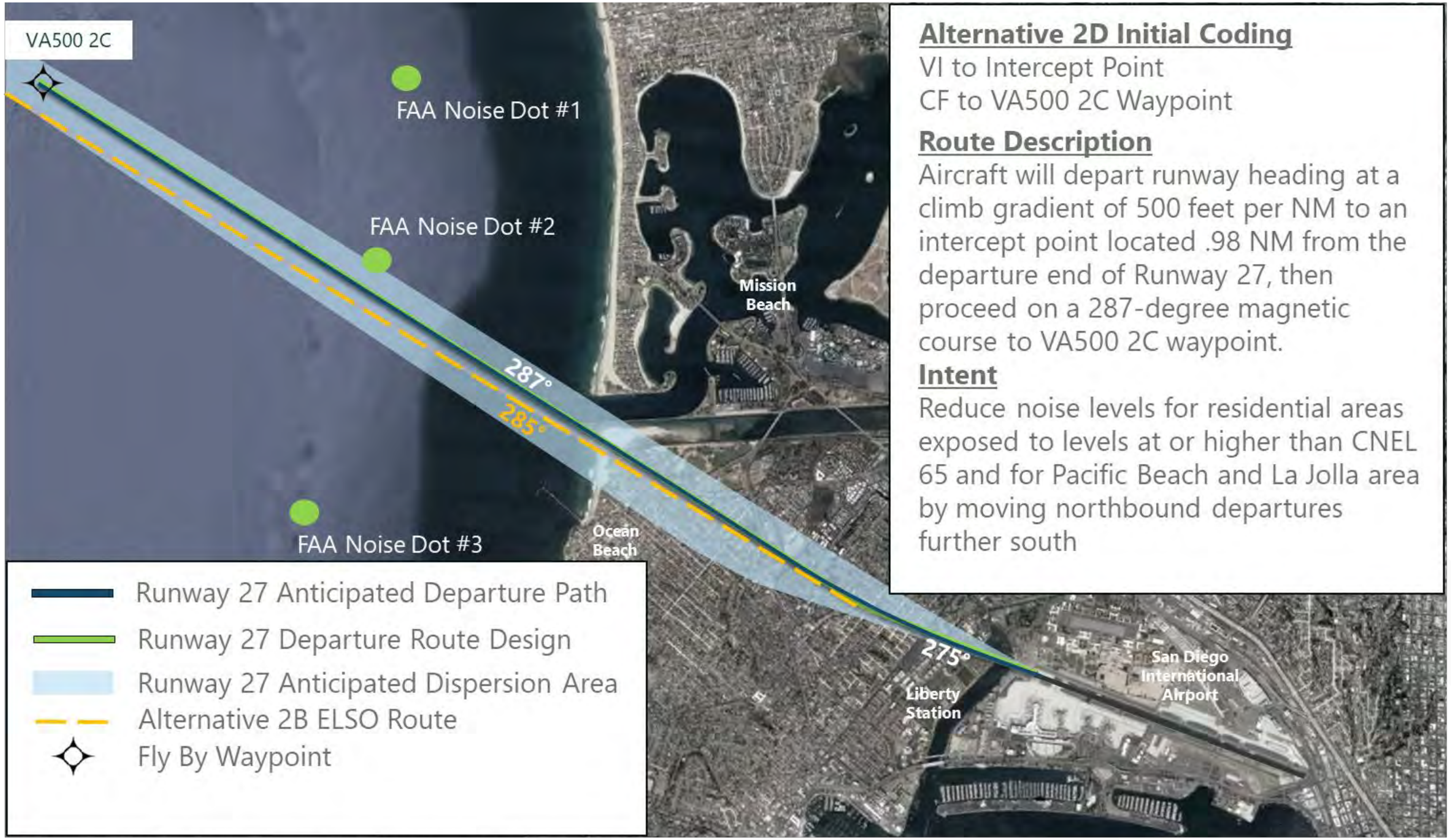
CONCENTRATION ALTERNATIVE: 2D – EQUIVALENT LATERAL SPACING OPERATIONS (ELSO) for Departures with Concentration



Alternative 2D Initial Coding
VI to Intercept Point
CF to VA500 2C Waypoint

Route Description
Aircraft will depart runway heading at a climb gradient of 500 feet per NM to an intercept point located .98 NM from the departure end of Runway 27, then proceed on a 287-degree magnetic course to VA500 2C waypoint.

Intent
Reduce noise levels for residential areas exposed to levels at or higher than CNEL 65 and for Pacific Beach and La Jolla area by moving northbound departures further south

NOTE: Mean Sea Level (MSL) – height above sea level; Above Ground Level (AGL) – height above the ground
SOURCE: Google, January 2020 (aerial photo); Ricondo & Associates, September 2020 (proposed paths and dispersion area)

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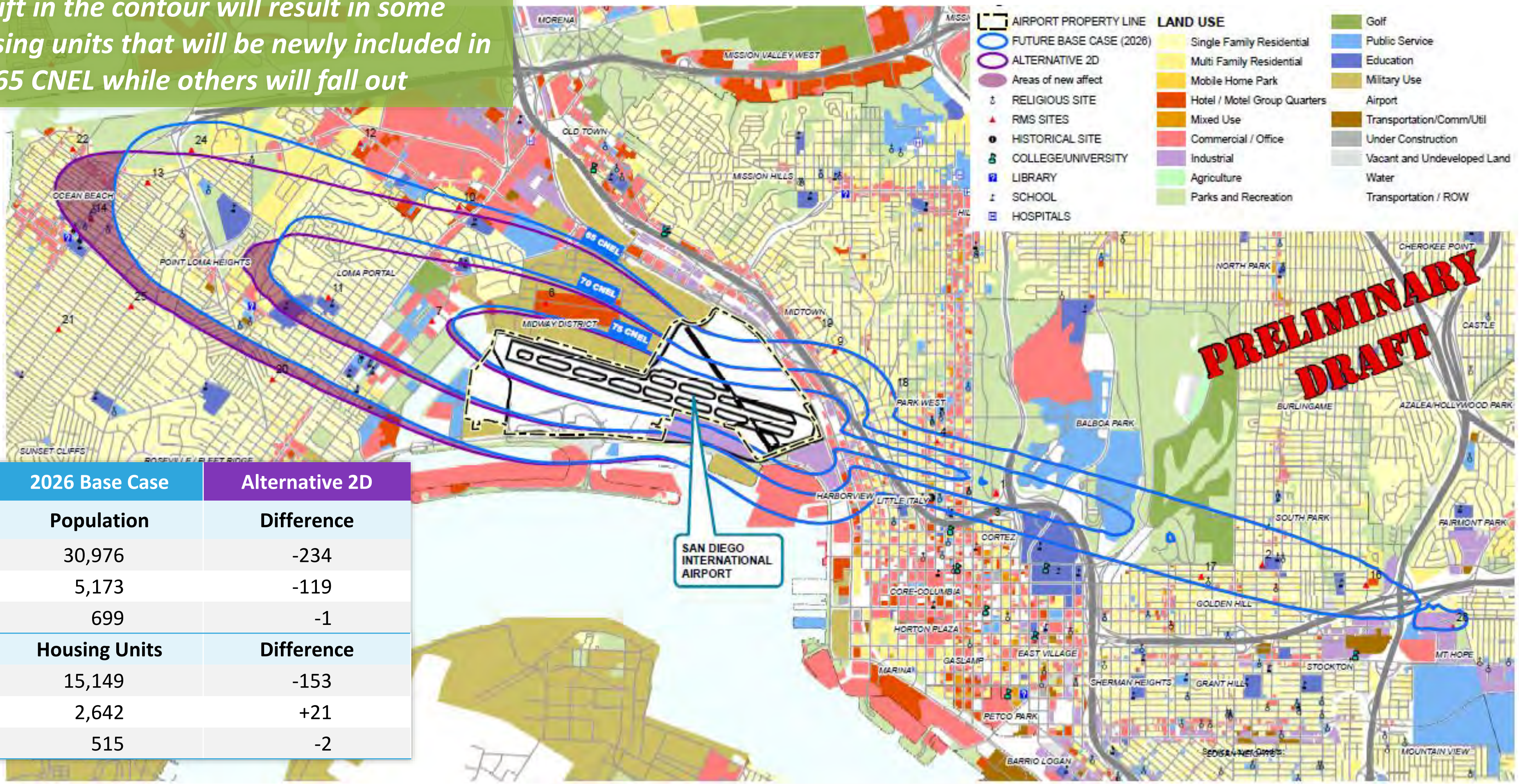
CONCENTRATION ALTERNATIVE: 2D – EQUIVALENT LATERAL SPACING OPERATIONS (ELSO) for Departures with Concentration

A shift in the contour will result in some housing units that will be newly included in the 65 CNEL while others will fall out



	2026 Base Case	Alternative 2D
	Population	Difference
> 65 CNEL	30,976	-234
> 70 CNEL	5,173	-119
> 75 CNEL	699	-1
	Housing Units	Difference
> 65 CNEL	15,149	-153
> 70 CNEL	2,642	+21
> 75 CNEL	515	-2

***Note:** that contours are draft and may change in size All final contours must be accepted by FAA*

DISPERSION ALTERNATIVE: 3 – Use of Three SIDs

Alternative 3 Initial Coding
VI to Intercept Point
CF to specified waypoint

Route Description
Aircraft will depart runway to an intercept point located around one NM from the departure end of Runway 27, then proceed on a 285-degree magnetic course to NEW WNFLD waypoint or on a 295-degree magnetic course to NEW LNDN waypoint.

Intent
Reduce noise levels for residential areas exposed to levels at or higher than CNEL 65 and provide dispersion. Would also reduce noise for Pacific Beach and La Jolla area by moving northbound departures further south

NOTE: Mean Sea Level (MSL) – height above sea level; Above Ground Level (AGL) – height above the ground
SOURCE: Google, January 2020 (aerial photo); Ricondo & Associates, October 2020 (dispersion area); ABCX2, July 2020 (proposed modified PADRZ/CWARD and ECHOO/MMOTO SID designs)

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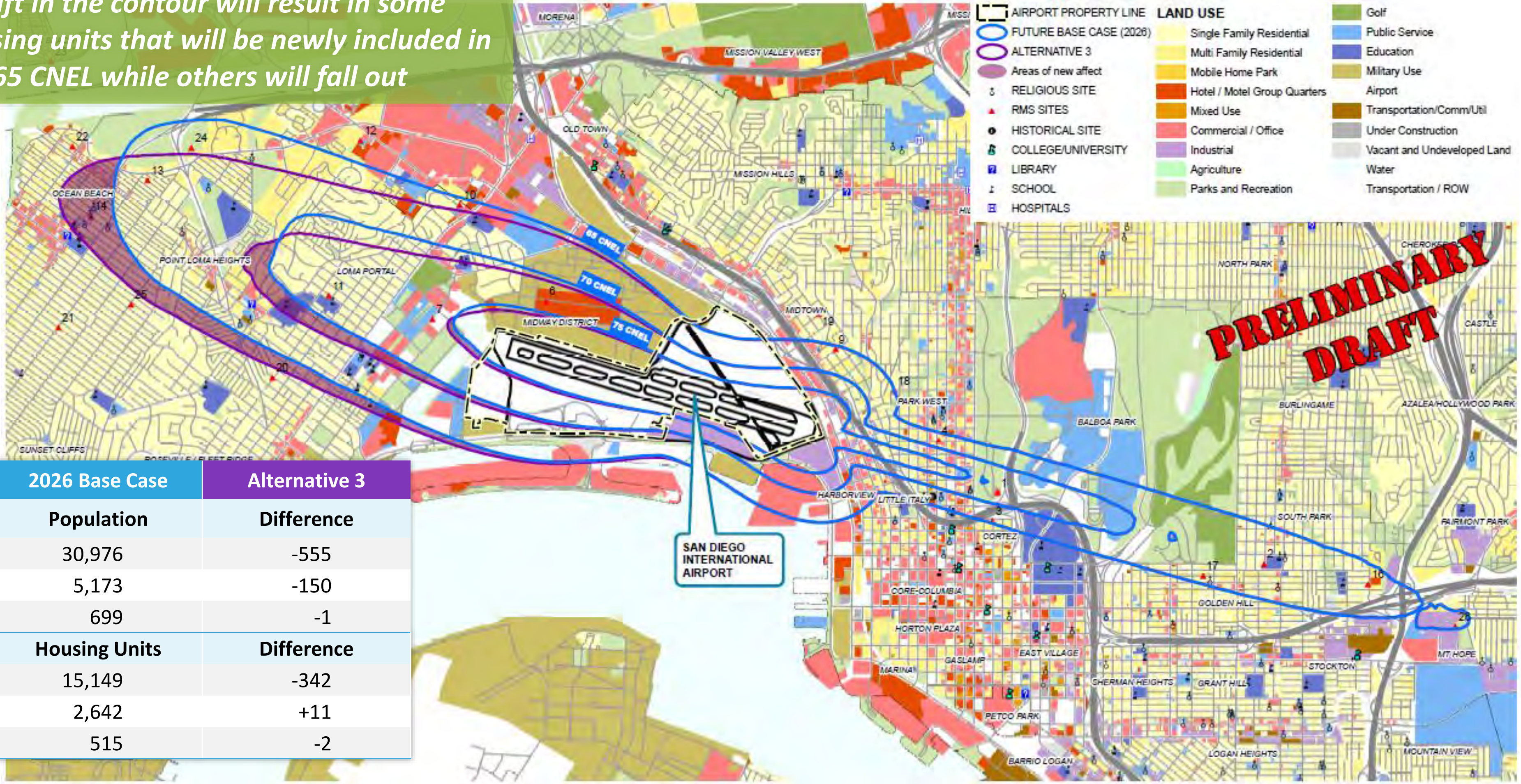
DISPERSION ALTERNATIVE: 3 – Use of Three SIDs

A shift in the contour will result in some housing units that will be newly included in the 65 CNEL while others will fall out



	2026 Base Case	Alternative 3
	Population	**Difference**
> 65 CNEL	30,976	-555
> 70 CNEL	5,173	-150
> 75 CNEL	699	-1
	Housing Units	**Difference**
> 65 CNEL	15,149	-342
> 70 CNEL	2,642	+11
> 75 CNEL	515	-2

Note: *that contours are draft and may change in size All final contours must be accepted by FAA*

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NIGHTTIME ALTERNATIVE: 4 – Nighttime (10:00 pm to 6:30 am) Eastbound Departures on ZZOOO RNAV SID

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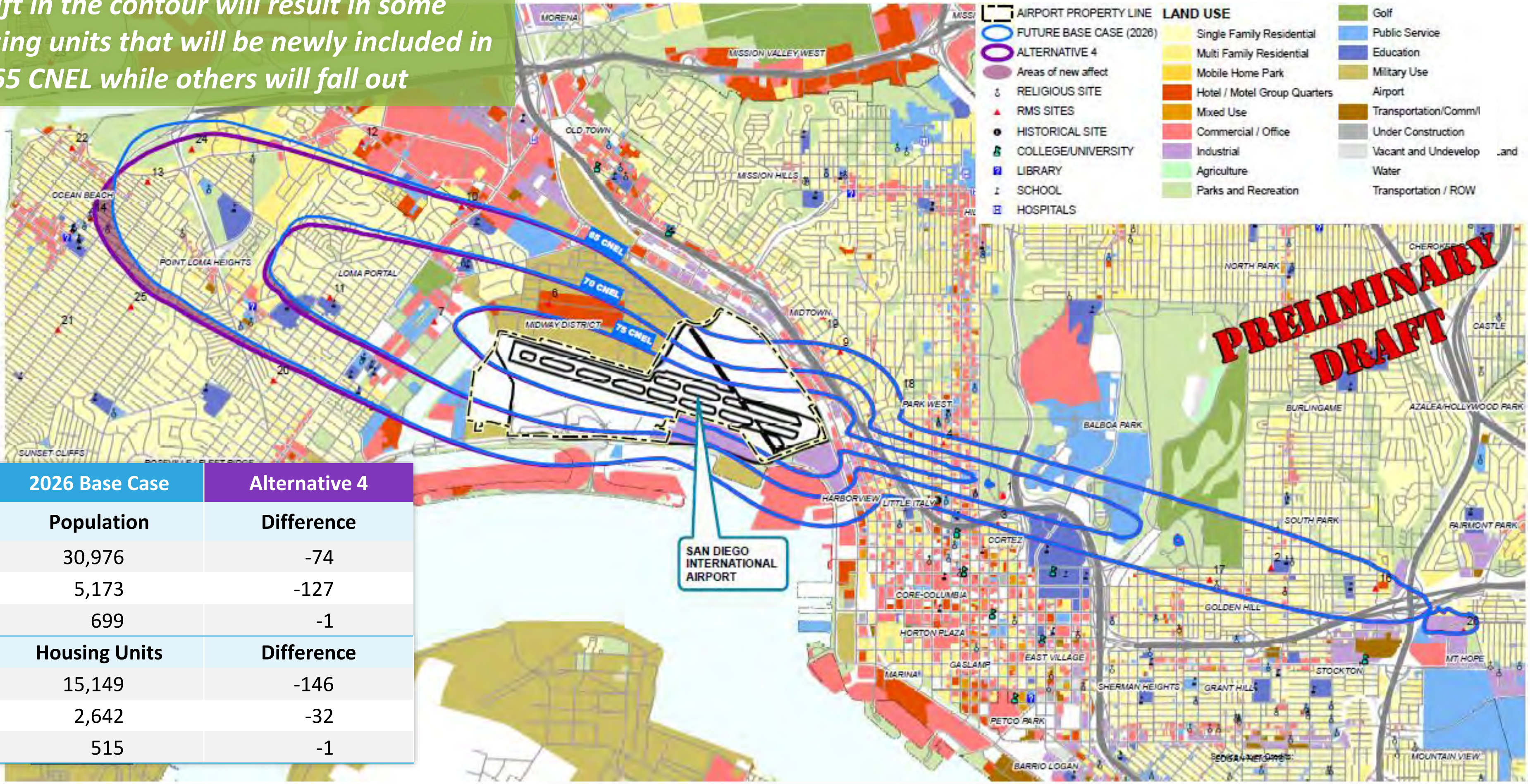
NIGHTTIME ALTERNATIVE: 4 – Nighttime (10:00 pm to 6:30 am) Eastbound Departures on ZZOOO RNAV SID

A shift in the contour will result in some housing units that will be newly included in the 65 CNEL while others will fall out



	2026 Base Case	Alternative 4
	Population	**Difference**
> 65 CNEL	30,976	-74
> 70 CNEL	5,173	-127
> 75 CNEL	699	-1
	Housing Units	**Difference**
> 65 CNEL	15,149	-146
> 70 CNEL	2,642	-32
> 75 CNEL	515	-1

***Note:** that contours are draft and may change in size All final contours must be accepted by FAA*

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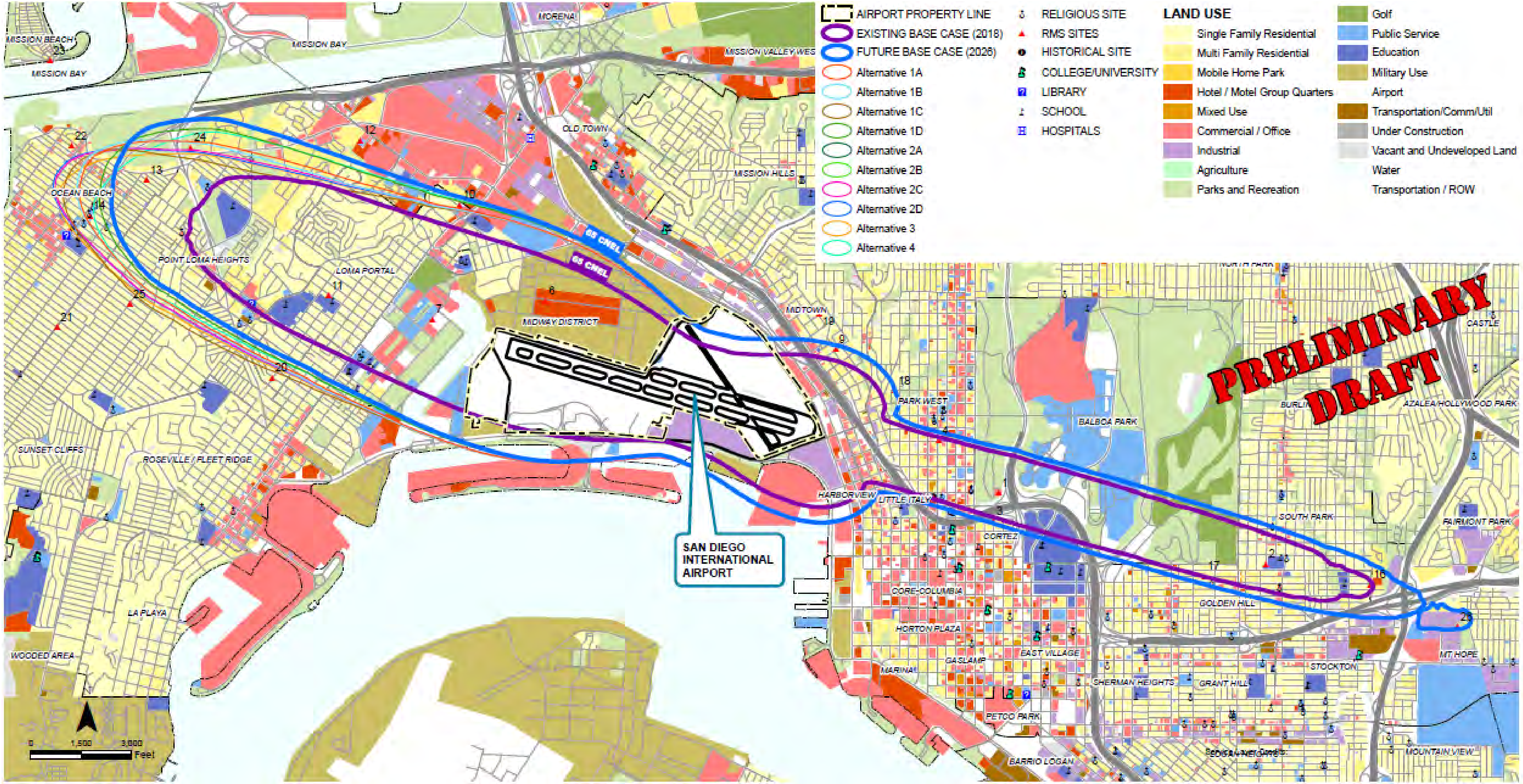
Operational Alternatives Comparison



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Population and Housing Units Alternatives Comparison

	Population										
		Concentration								Dispersion	Nighttime
	Base Case 2026	Alt 1A	Alt 1B	Alt 1C	Alt 1D	Alt 2A	Alt 2B	Alt 2C	Alt 2D	Alt 3	Alt 4
> 65 CNEL	30,976	-591	-867	-1,144	-289	+106	-2	-155	-234	-555	-74
> 70 CNEL	5,173	-339	-191	-84	-172	-138	-103	-154	-119	-150	-127
> 75 CNEL	699	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1

	Housing Units										
		Concentration								Dispersion	Nighttime
	Base Case 2026	Alt 1A	Alt 1B	Alt 1C	Alt 1D	Alt 2A	Alt 2B	Alt 2C	Alt 2D	Alt 3	Alt 4
> 65 CNEL	15,149	-348	-487	-690	-198	+43	-4	-106	-153	-342	-146
> 70 CNEL	2,642	-73	-17	+43	-47	+11	+26	+9	+21	+11	-32
> 75 CNEL	515	-2	-2	-2	-2	-2	-2	-2	-2	-2	-1

Housing: New In-Out of Contours

	Housing Units								
		Alt 1A		Alt 1B		Alt 1C		Alt 1D	
	Base Case 2026	New in	New out	New in	New out	New in	New out	New in	New out
> 65 CNEL	**15,149**	+950	-1,280	+1,030	-1,500	+1,640	-2,320	+330	-520
> 70 CNEL	**2,642**	+230	-300	+310	-320	+450	-400	+100	-140
> 75 CNEL	**515**	0	0	0	0	0	0	0	0

	Housing Units												
		Alt 2A		Alt 2B		Alt 2C		Alt 2D		Alt 3		Alt 4	
	Base Case 2026	New in	New out	New in	New out	New in	New out	New in	New out	New in	New out	New in	New out
> 65 CNEL	**15,149**	+1,870	-1,780	+1,960	-1,950	+1,630	-1,720	+1,700	-1,840	+1,587	-1,917	+450	-600
> 70 CNEL	**2,642**	+350	-330	+380	-350	+340	-320	+370	-340	+367	-351	+100	-120
> 75 CNEL	**515**	0	0	0	0	0	0	0	0	0	0	0	0

Note: Numbers are approximate, rounded to the nearest 10 units

Land Use Alternatives

- **Continued measures**
  - Support compatible land use development: Local jurisdictions
  - Compatibility Planning Process: Local jurisdictions
  - Support of San Diego County Airport Land Use Commission (ALUC)
- **Updated Measures**
  - Continuation of Quieter Home Program
    - Residential and non-residential insulation

Program Management Alternatives

- **Continued measures**
  - Continued Support of Aircraft Noise Office and Program Manager
  - Update Airport Noise and Operations Monitoring System (ANOMS)
  - Communicate Noise Issues with Airlines
  - Provide Airport Use Regulations
  - California Quarterly Noise Reports
  - Update Noise Exposure Maps, every 5 years
  - Update NCP as needed
- **Updated Measures**
  - Continue Fly Quiet Program with updates
- **New Measures**
  - Implement Portable Noise Monitoring

Where we are in the Process

October 2018
Project starts and first meetings with Citizen Advisory Committee and Technical Advisory Committee.

December 2018
Consultants will be developing future forecasts of aviation activity for use in the modeling of future conditions.

May 2019
ANAC, CAC, and TAC committee meetings to discuss aviation forecasts

Aug 2019
ANAC, CAC and TAC committee meetings to discuss inventory and baseline noise contours.

November 2019
CAC and TAC committee meetings to discuss alternatives development

November 2019
Public Workshop

Fall 2019
Alternatives refinement

February 2020
FAA Approval of Modeling Inputs

Spring 2020
Evaluation and Modeling of Alternatives

May 2020
TAC and CAC virtual committee meetings to discuss preliminary modeled alternatives

June 2020
CAC virtual committee meeting to continue discussion on preliminary alternatives.

Summer 2020
Public and Committee Outreach on Alternatives

October 2020
TAC and CAC virtual committee meeting to discuss additional alternatives.

December 2020
CAC and TAC meetings to discuss preliminary recommendations.

December 2020
Public Workshop

March 2021
Public hearing

Next Steps

- **December 2020 – Committee Meeting/Public Workshop**
  - Preliminary Recommendations
- **February 2021 – Draft Report**
- **March 2021 – Public Hearing**

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Questions & Comments

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SAN NOISE STUDY

SAN NOISE STUDY TAC/CAC MEETING

OCT.15.2020

Thank you!

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SAN DIEGO INTERNATIONAL AIRPORT

Attendees (36), (6 viewers on YouTube)

LR Lauren Rasmussen - Part 15... (Co-host, me)
KA Kate Andrus - Part 150 Team (Host)
JW Jen Wolc... (Co-host) Ask to Unmute More >
AC Anita Cobb - Part 150 Team (Co-host)
SK Sjohnna Knack - Airport Authority (Co-host)
SS Stephen Smith - Part 150 Team
AH Alan H - CAC
AG Amy G. - Airport Authority
BH Bob Herrin - CAC
BR Brendan Reed - Airport Authority
CS Casey Schnoor - CAC
CG Cynthia Gibbs - Part 150 Team
DK Dave Kujawa - CAC
DR Dean Robbins - TAC (Airport Ops)
Deborah Watkins - TAC
GT Gernot Trolf - CAC
Heidi Gantwerk - Part 150 Team
Jim Payne - Airport Authority
Kathy Vandenheuvel - CAC

LK Lee Kaminetz - Airport Authority
LG Len Gross - CAC
LC Lynae Craig, ASA - TAC
Marc Adelman - CAC
MV Mary Vigilante - Part 150 Team
MH Matt Harris - Airport Authority
MD McKinna Dartez - Airport Authority
MB Michelle Brega - Airport Authority
MH Mike Herron - CAC
MT Mike Tarlton - CAC
NP Nancy Palmtag - CAC
PD Paul Dunholter - Part 150 Team
RR Ralph Redman - TAC (Airport Land Use)
RI Robins iphone - CAC
RL Roman Lanyak - Airport Authority
RD Ryk Dunkelberg - Part 150 Team
Tony Stiegler - CAC

SAN NOISE STUDY TAC/CAC MEETING

01.07.21

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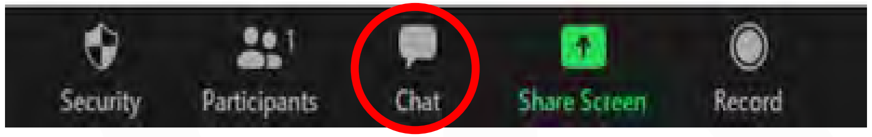
SAN DIEGO INTERNATIONAL AIRPORT

Zoom Protocols: Commenting

- **All participants are muted to avoid over-talking – you can now unmute yourself**
- **Heidi will call on *Committee Members* in the following order:**
  1. Video: Raise hand physically (if on video)
  2. Raise hand virtually (hand feature)
  3. Chat host in Zoom if there is a functionality issue
  4. Email Anita.Cobb@meadhunt.com if none of these features work and you are a committee member with a question or comment



Meeting Purpose and Agenda

- **Purpose: Discuss how input has been considered in process and discuss**
  - Alternative 3B – Refinement of Alternative 3
  - Preliminary Consultant Recommendations
  - Open Discussion
  - Questions/Comments

SAN NOISE STUDY

Draft – For Discussion Purposes Only

How public input has driven this process

- **ANAC Recommendations represented the first set of modeled alternatives with additional context from:**
  - Comments from first several TAC/CAC meetings and Flight Procedure meetings
  - November 2019 Public workshop comments
- **May 2020 TAC/CAC meeting resulted in additional modeling based on comments**
  - NADP – Single event modeling
  - Noise barrier – Single event modeling
- **Extra June 2020 CAC meeting conducted to gather more input and discussion**
  - New additional alternatives based on comments: consideration of 3 SIDs and GBAS
- **TAC/CAC meeting in October 2020**
  - Alternatives Screening Document developed to provide information for TAC/CAC members and public on which alternatives were modeled/not modeled, and why
  - Resulted in one additional alternative: 3 SIDS with different split to be presented today
  - Comments went into preliminary recommendations

DISPERSION ALTERNATIVE: 3B – Use of Three SIDs With Eastbound Departure Split

Alternative 3B Initial Coding
VI to intercept point
CF to specified waypoint

Route Description
Eastbound aircraft will depart runway to an intercept point located around one NM from the departure end of Runway 27 then proceed on a 285-degree magnetic course to a waypoint compatible with a route that turns aircraft to the left to go east; north and westbound aircraft will turn on a 295-degree magnetic course to NEW LANDN waypoint when close to about one NM from the departure end of Runway 27

Intent
Reduce noise levels for residential areas under the ZZOOO SID flight path and exposed to levels at or higher than CNEL 65 and provide dispersion

SOURCE: Google, January, 2020 (aerial photo); Ricondo & Associates, Inc., October 2020 (dispersion area); ABCX2, July 2020 (proposed modified PADRZ/CWARD and ECHHO/MMOTO SID designs).

3A/3B Comparison – Same tracks, different split
3A: 23.2% Northern track, 24.6% Middle track, 52.4% Southern track
3B: 47.8% Northern track, 26.2% Middle track, 26.2% Southern track

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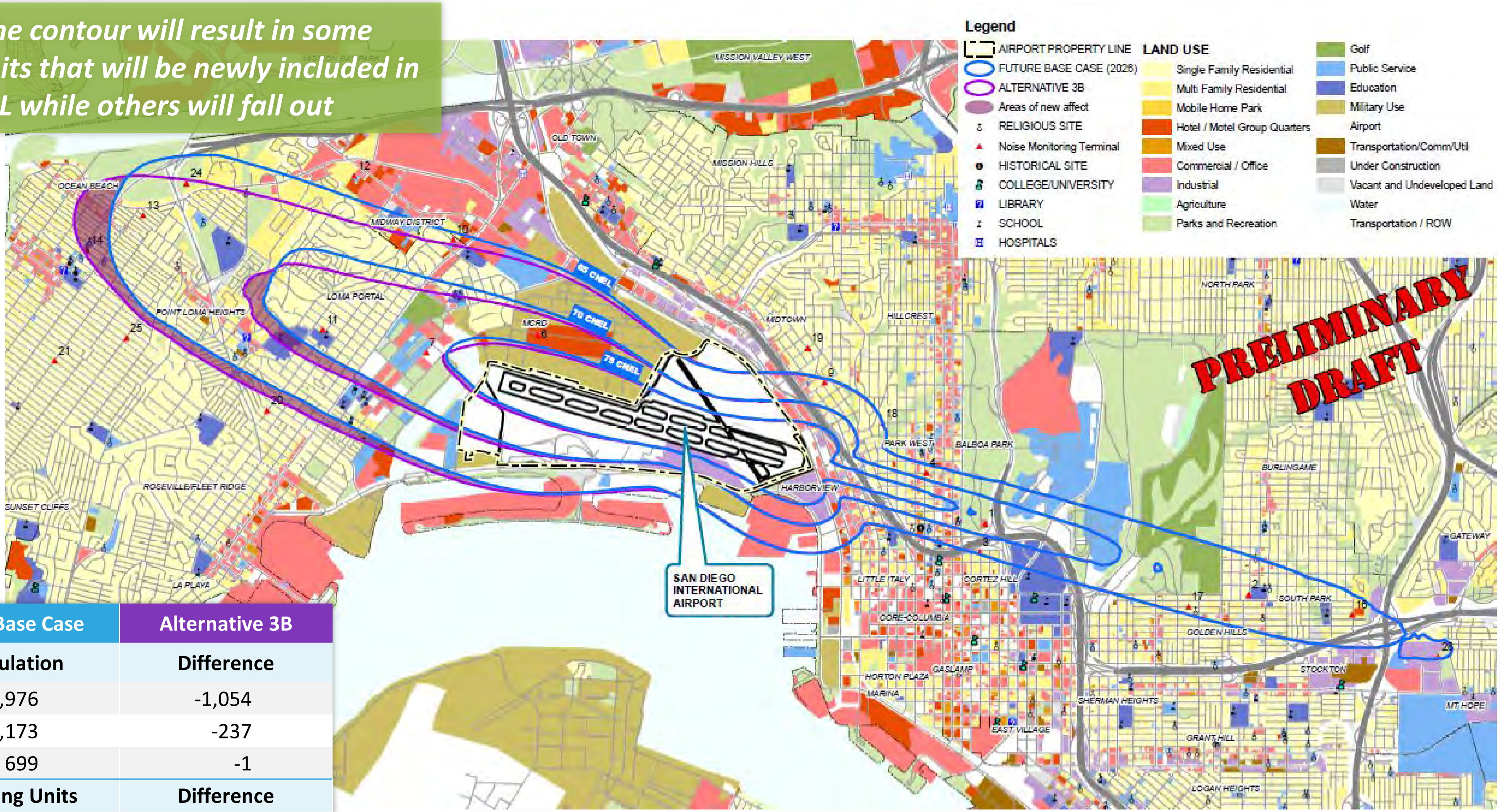
DISPERSION ALTERNATIVE: 3B – Use of Three SIDs With Eastbound Departure Split

A shift in the contour will result in some housing units that will be newly included in the 65 CNEL while others will fall out



	2026 Base Case	Alternative 3B
	Population	**Difference**
> 65 CNEL	30,976	-1,054
> 70 CNEL	5,173	-237
> 75 CNEL	699	-1
	Housing Units	**Difference**
> 65 CNEL	15,149	-572
> 70 CNEL	2,642	-28
> 75 CNEL	515	-2

Note: that contours are draft and may change in size. All final contours must be accepted by FAA.

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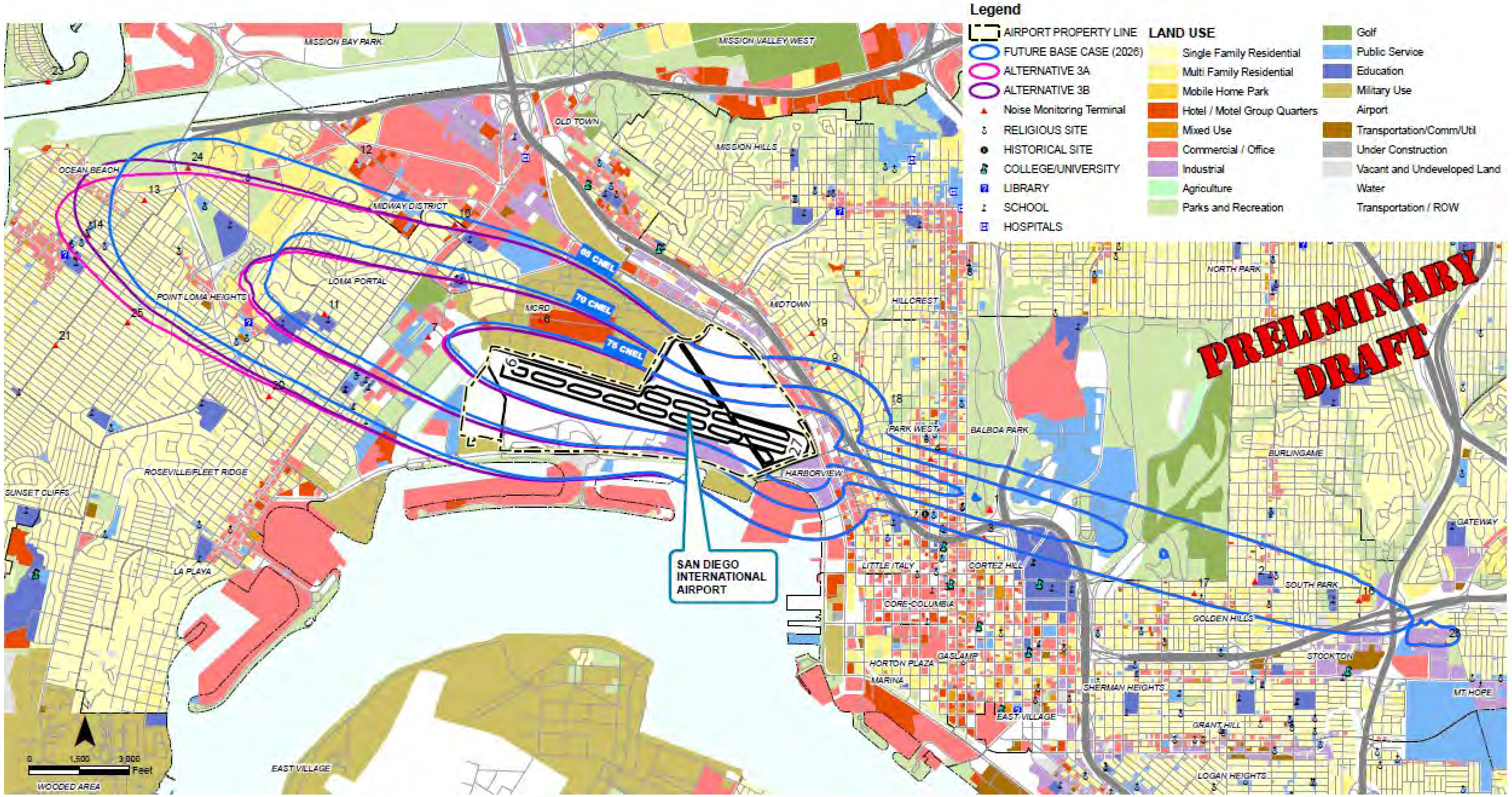
3A/3B Alternatives and 2026 CNEL Comparison



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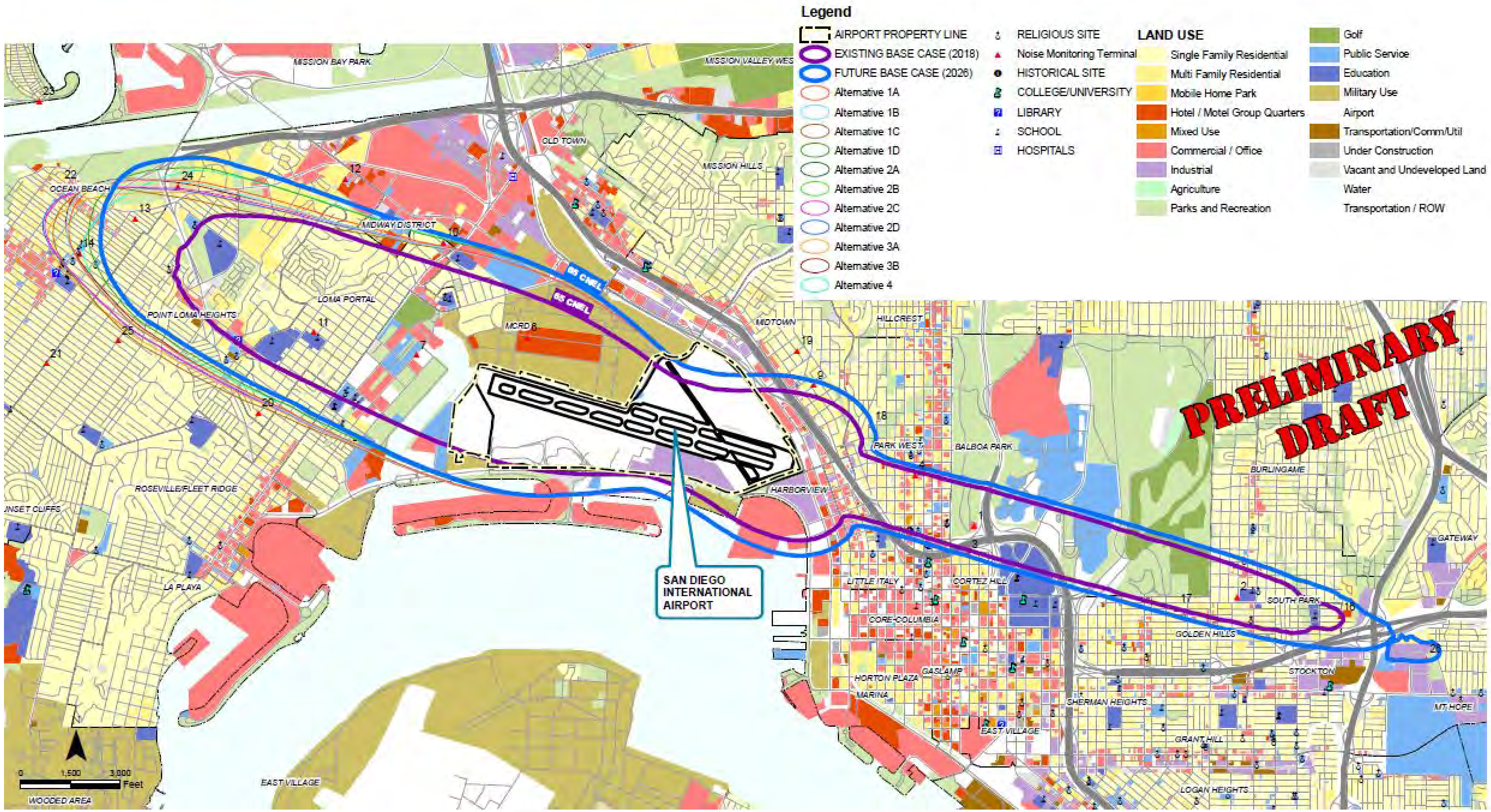
Operational Alternatives Comparison (1A through 4)



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Operational Recommendations Screening

- **Consistency with 14 CFR Part 150**
  - Focus on addressing noise within the 65 CNEL or greater contour
  - Part 150 goal of reducing existing non-compatible land use and preventing introduction of additional non-compatible land use
  - Alternatives that affect efficiency, capacity, or safety and do not conflict with FAA's mission to provide a safe and efficient use of the airfield are not considered for modeling
- **General feasibility close to airport**
  - Full TRACON and ARTCC airspace reviews would be conducted if recommended
- **Shifting noise from one community to another is not considered to meet 14 CFR Part 150's purpose by SDCRAA and FAA (see attached letter)**
- **Concentrated non-compatible land uses around the airport limits alternatives that are recommended because modeling indicates most procedure heading changes would either elongate or shift the 65 CNEL contour**
- ***Since no heading changes are proposed, committees may discuss moving forward with Flight Procedure Recommendations that were awaiting results of Part 150***

Operational and Facility Recommendations

Operational Recommendations

- NADP Close-in with 1,500-foot Above Field Elevation cut back
  - Use full thrust for departure; reduce thrust to 85% for climb; and accelerate once past the shoreline
  - Close-in NADP could further enhance noise abatement flight tracks for departing aircraft on Runway 27
  - Comparison completed relative to John Wayne-type departure to determine potential benefits of a "specialized NADP"
  - ICAO-A Close-In is similar to John Wayne departure, with increased opportunity for implementation and use by using an ICAO profile rather than specialized NADP

Operational and Facility Recommendations

Facility Recommendations

Ground Based Augmentation System (GBAS)

- GBAS can provide precision lateral and vertical guidance for multiple runway ends
- Allows for more repeatable and precise paths and consistency with 3.5-degree glidepath
- Increased benefits of repeatability over time as utilization increases
- Tests of GBAS are the basis for recommendation since only 25% of the fleet can currently use. Benefits cannot be effectively modeled with CNEL because it would not show up in the cumulative metric. However, there could be single event benefits.

Land Use Recommendations

- **Continued measures**
  - Support compatible land use development: Prevent non-compatible development near airport
  - Compatibility Planning Process: Coordination during comprehensive planning processes
  - Support of San Diego County Airport Land Use Commission (ALUC)
- **Updated Measures**
  - Continuation of Quieter Home Program
    - Residential and non-residential insulation – FAA funded with local match
    - Updated for new future base case 65 CNEL contour - 2026

Program Management Recommendations

- **Continued measures**
  - Continued Support of Aircraft Noise Office and Program Manager
  - Update Airport Noise and Operations Monitoring System (ANOMS)
  - Communicate Noise Issues with Airlines
  - Provide Airport Use Regulations
  - CA DOT Quarterly Noise Reports
  - Update Noise Exposure Maps, every 5 years
  - Update NCP as needed
- **Updated Measures**
  - Continue Fly Quiet Program with updates
    - Monitor and coordinate with airlines to accelerate use of Stage 5
- **New Measures**
  - Implement Portable Noise Monitoring

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Questions & Comments

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SAN NOISE STUDY

Next Steps

- **Comments on Preliminary Recommendations**
- **January 21 – Public Workshop**
  - Preliminary Recommendations
- **February 2021 – Draft Report**
- **March 2021 – Public Hearing**

SAN NOISE STUDY TAC/CAC MEETING

01.07.21

Thank you!

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SAN DIEGO INTERNATIONAL AIRPORT

A public workshop for the SDIA 14 CFR Part 150 Study was conducted on January 21, 2021. The attendee list for the workshop is listed below:

Meeting ID		Topic
	95547234525	San Diego International Airport Part 150 Noise Compatibility Study - Public Workshop

Name (Original Name)		User Email
	16193987357	
Abigail Geraci		ageraci@sandiego.edu
Alan H		alanpacbch@gmail.com
Anita Cobb - Part 150 Team		
Ashley Martinez - Airport Authority		ashleythomasmartinez@gmail.com
Ben Bowen		bowenbp1@yahoo.com
Bill Orabone		orabone@gmail.com
Bob Herrin		
Brendan Reed - Airport		breed@san.org
BridgeNet International		zoom@airportnetwork.com
Casey Schnoor		casey@copperrockresearch.com
Charlou Benedict		
Cindy Gibbs - Part 150 Team		cindyg@airportnetwork.com
Colleen Bosold		colleen.bosold@meadhunt.com
Dan		
Dave Schwab		reporter@sdnews.com
Gary Wonacott		gwonacott@hotmail.com
Heidi Gantwerk		hgconsultingsd@gmail.com
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Jen Wolchansky - Part 150 Team		
Jim Payne - Airport Authority		jpayne@san.org
Joel Young		
John C. Colwell		debtclinic@gmail.com
Jon Berger		
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Marc Adelman		
Marie Huff		
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Mike Tarlton		

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Richard Stakelum	
Robert Bates	
Roman Lanyak - Airport Authority	
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Suhail Khalil	
Tania Fragomeno- ANAC Downtown	
Ted Anasis - AIrport Authority	
Tim SanFelice	tim@feliceagency.com
Tony Stiegler	astiegler@salk.edu
Will Schussel - LegalShield	

SAN NOISE STUDY TAC/CAC MEETING

01.21.21

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SAN DIEGO INTERNATIONAL AIRPORT

Purpose of Study

- **Part 150 Studies *are voluntary,* the Airport Authority is being proactive to address aircraft noise levels and to identify measures to address them**
- **The Part 150 Study addresses aircraft noise issues within the 65 CNEL noise contour only**

Elements of the Study

- **The *Noise Exposure Maps (NEMs)* are accepted by the Federal Aviation Administration**
- **The *Noise Compatibility Program (NCP)* measures are either approved or disapproved by the FAA. Approved measures are eligible for Federal funding**
- **The Study will look at *aircraft fleet mix*, increase in *operations* and *noise levels* associated with them**

Part 150 Noise Study Components

NEM

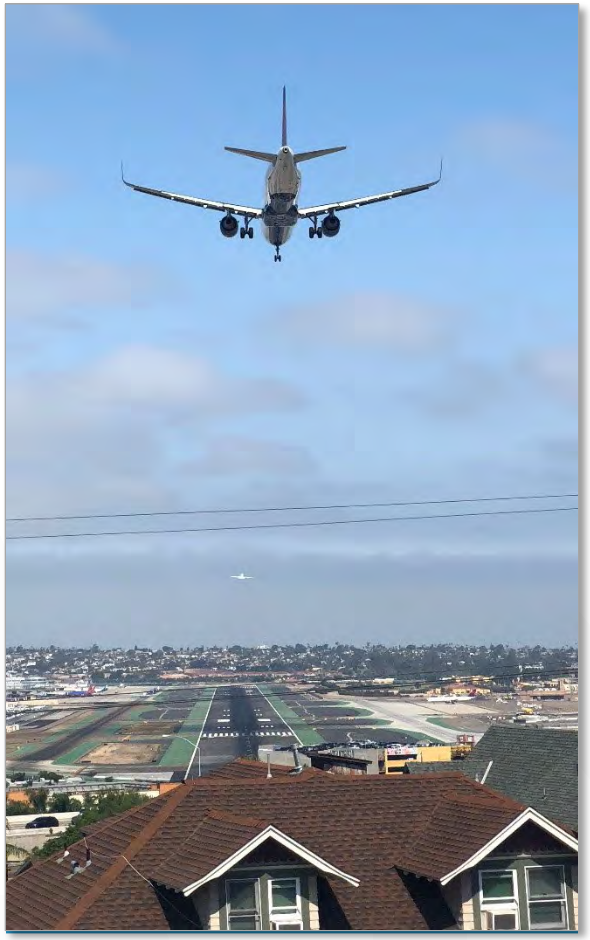
Noise Exposure Map (NEM)

- Detailed Information on Noise
- Existing and 5-Year Contours

NCP

Noise Compatibility Program (NCP)

- Alternatives to reduce the number of non-compatible land uses and prevent new non-compatible land uses



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Existing and Future Operations

Aircraft Category	2018 Existing Operations*	2026 Forecast Operations**
Commercial/Cargo	212,430	247,105
Air Taxi/Charter	365	730
General Aviation	11,680	9,855
Military	730	730
Helicopter	365	365
Total	**225,570**	**258,785**

Private Aircraft

As congestion and delays increase, GA operations will relocate to less congested airports

***Source:** Airport ANOM Data, 2018, Leigh Fisher and HMMH Analysis
****Source:** 2018 Aviation Activity Forecast Update, LeighFisher June 2019

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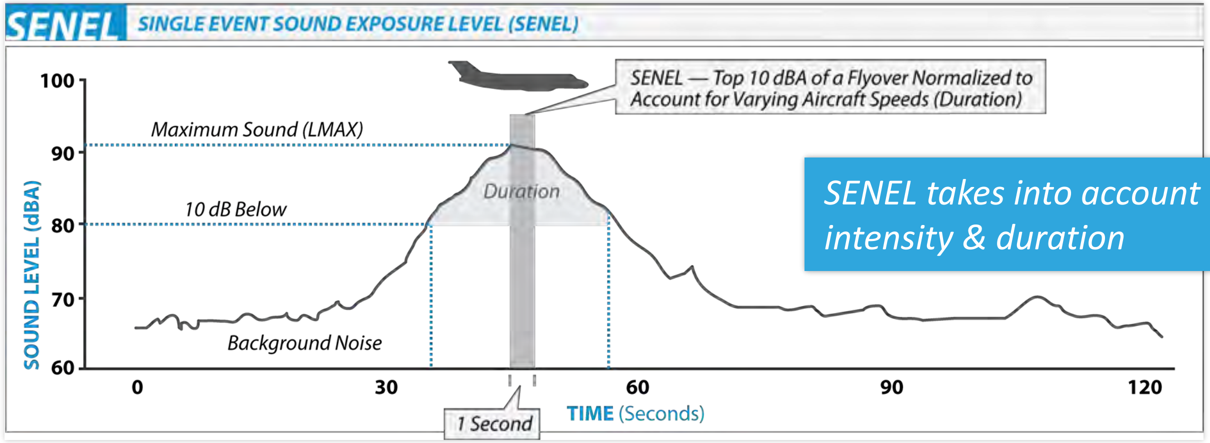
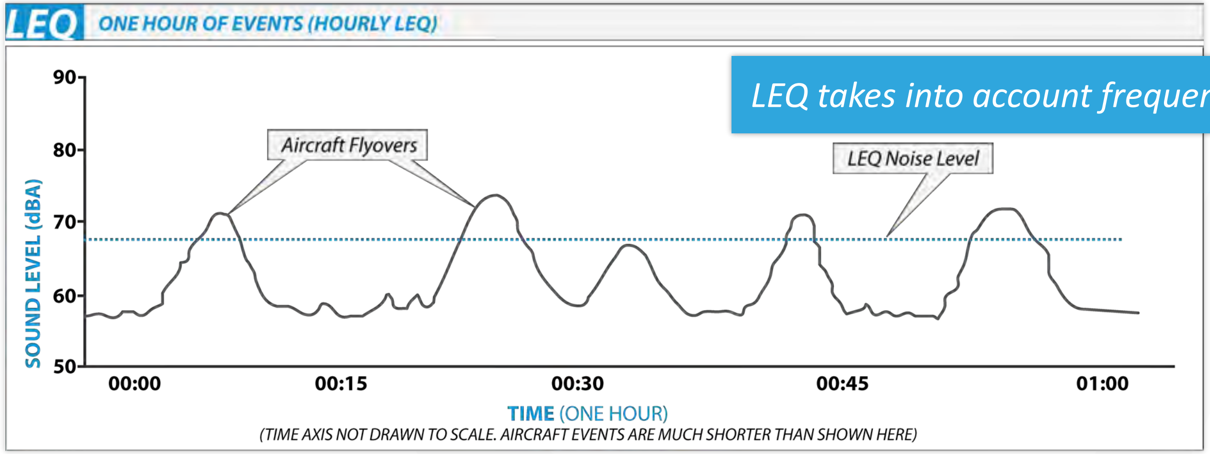
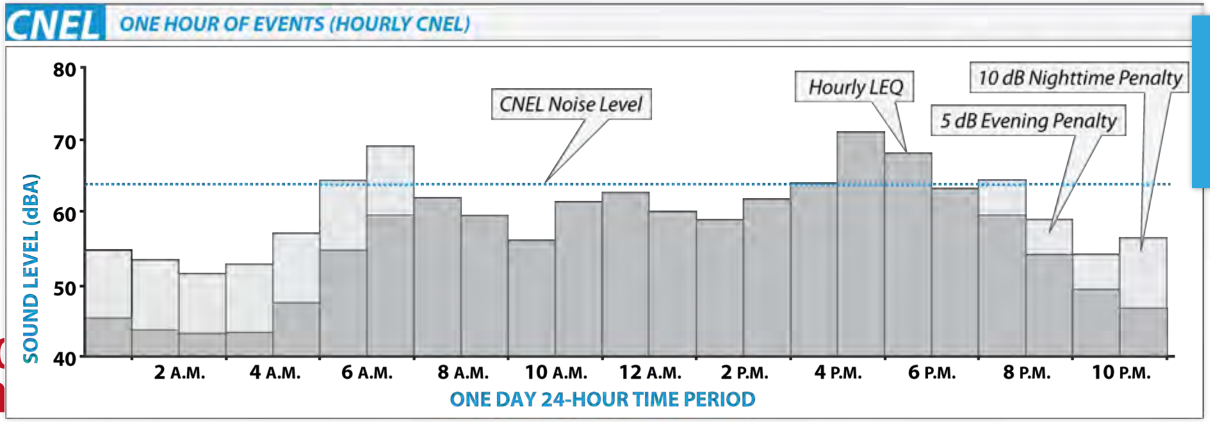
Examples of **Lmax**, **SENEL**, **LEQ**, and **CNEL** Noise Levels



SENEL takes into account intensity & duration



LEQ takes into account frequency



CNEL is the threshold used to measure noncompatible land use in a Part 150 Study

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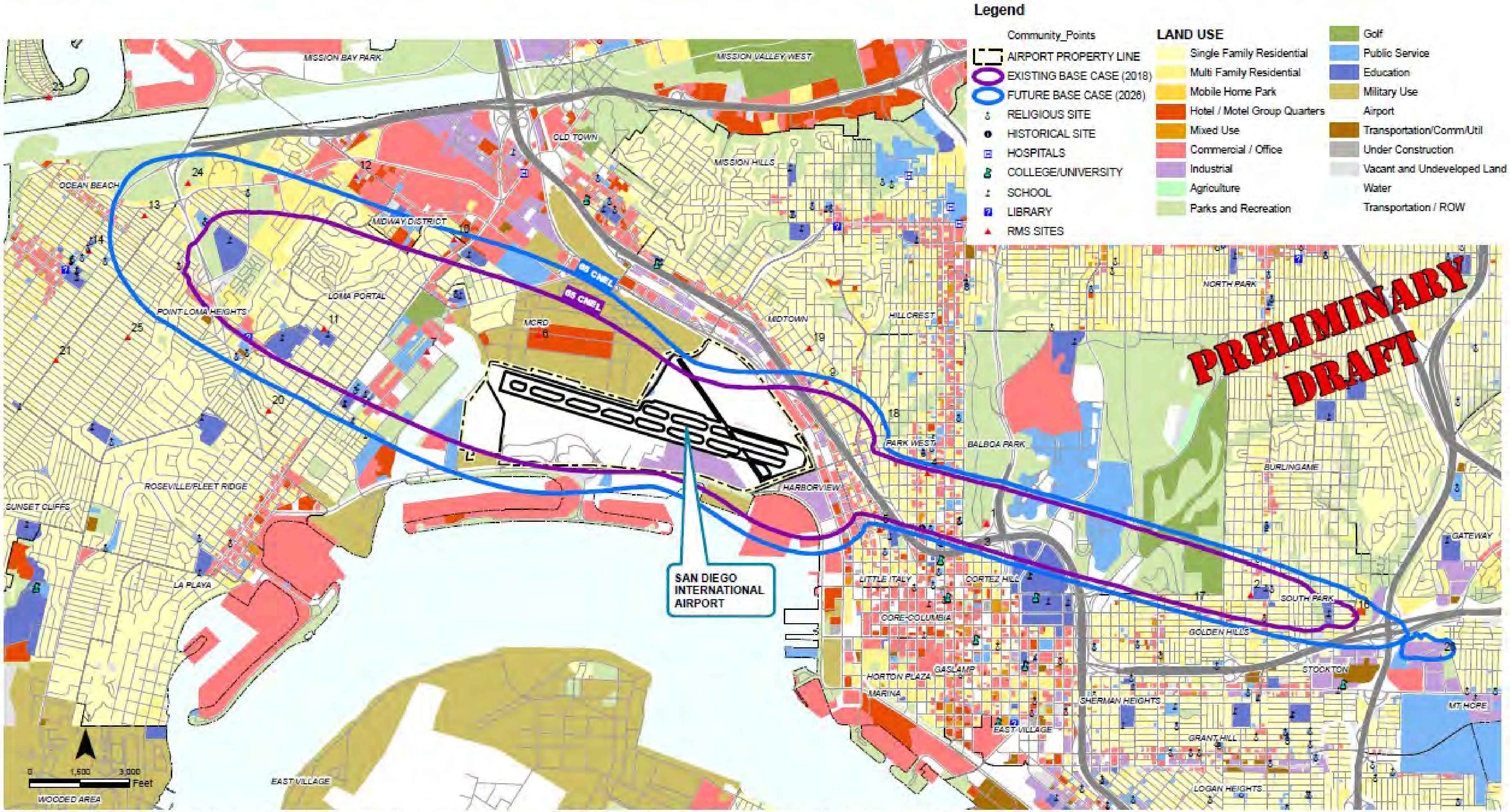
CFR Part 150 Required Alternatives

- **CFR Part 150 Requires the evaluation of the following measures**
  - Acquisition of land and interests therein
  - Barriers and acoustical shielding/sound attenuation
  - Preferential runway system
  - Complete or partial curfew
  - Flight procedures (modifications to flight tracks)
  - Use restrictions—*Dueling Regulations—Part 161*
  - Other reasonable actions from FAA

Existing 2018 and Future 2026 Base Case Contours (65 - 75 CNEL)



SOURCE: 1. SANDAG Technical Services - GIS, SANDAG Land Layers Inventory Mapping Source: SanGIS landbase (i.e. parcels), SANDAG, County Assessor's Master Property Records file, Cleveland National Forest, Bureau of Land Management (BLM), State Parks, other public agency contacts, and local agency review.
2. SDIA ANOMS 2019 and associated appendices. 3. HMMH Technical Report, Noise Appendix, 2020.

Population and Housing Units Base Case: 2018 and 2026

2018	Population	Housing Units
65 dB CNEL and greater	16,188	7,805
70 dB CNEL and greater	1,907	1,236
75 dB CNEL and greater	178	131

2026	Population	Housing Units
65 dB CNEL and greater	30,976	15,149
70 dB CNEL and greater	5,173	2,642
75 dB CNEL and greater	699	515

Source: US Census 2010, Mead & Hunt Land Use Analysis, 2020; HMMH Contours, 2020.

Note: These numbers include homes that have been sound attenuated or were built after October 1, 1998 and therefore considered compatible (Approx. **4,300** homes have been sound attenuated through 5/28/20)

Contours are cumulative (i.e. 65 dB CNEL includes all homes within the 65, 70 and 75 contours)

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Categories of Alternatives

- **Operational Alternatives—Federal Government**
  - Flight track changes
  - Noise restrictions
- **Land Use Alternatives—Local and State Government**
  - Preventative
  - Remedial
- **Administrative Alternatives—Airport Proprietor**
  - Noise Monitoring/Flight Track Monitoring
  - Fly Quiet Program
  - Part 150 Updates

Categories of Alternatives

- **Supplemental Analysis (Lmax considerations)**
  - Operational changes: Climb Profile (Single Event Analysis)
  - Facility Modifications
    - Noise Barrier
    - Ground Based Augmentation System (GBAS)
- **Operational Alternatives—Federal Control (CNEL analysis)**
  - Operational changes: flight tracks (CNEL)
- **Land Use Alternatives—Local and State Control**
  - Preventative: Land Use Restrictions
  - Remedial: Sound Attenuation (Quieter Home Program)
- **Administrative Alternatives—Airport Proprietor**
  - Noise Monitoring/Flight Track Monitoring
  - Fly Quiet Program
  - Part 150 Updates

Climb Profile - Modification to Noise Abatement Departure Procedure (NADP)

Includes two NADP profiles (per AC 91-53)

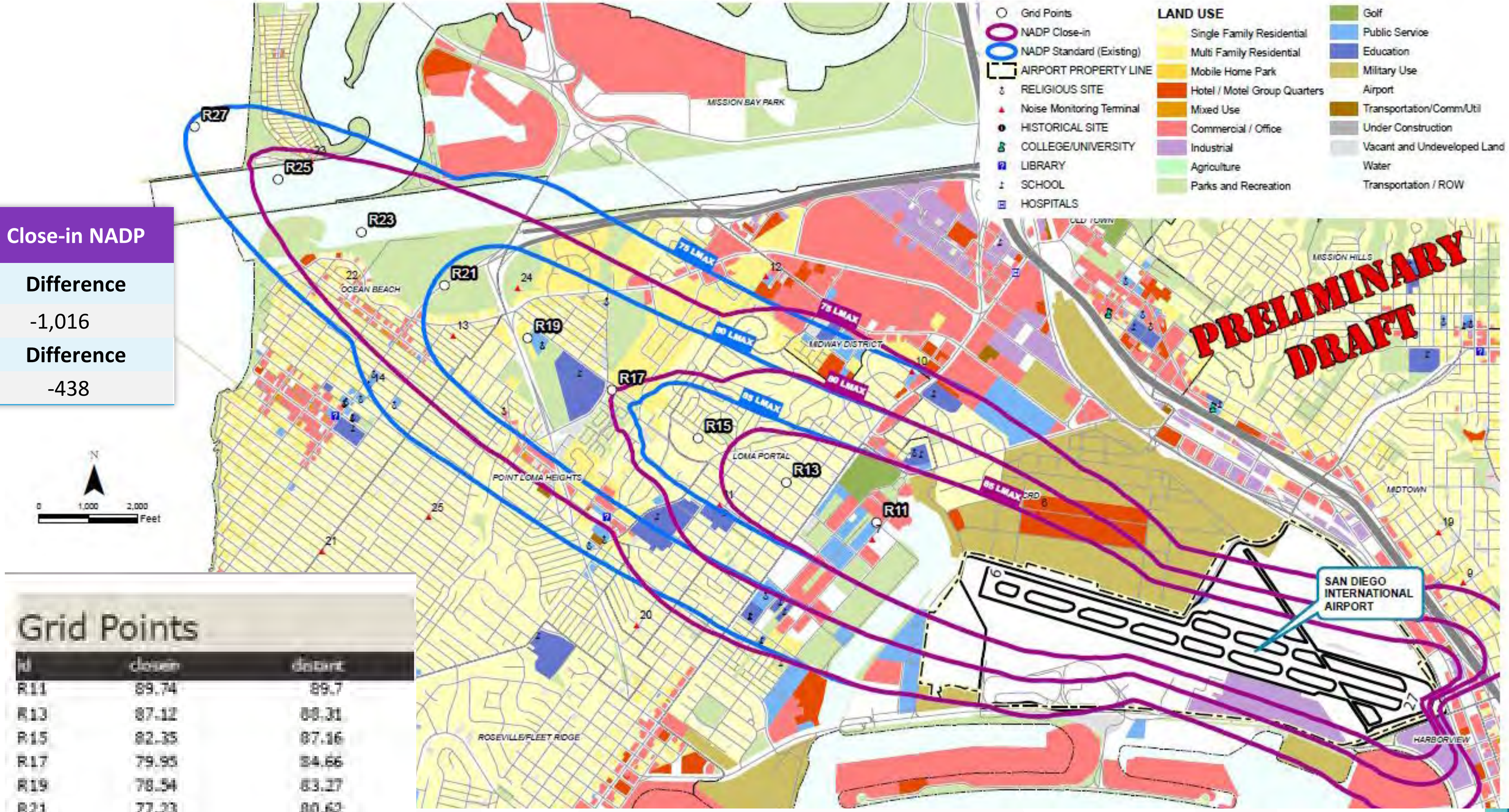
- NADP Close-in with 1,500-foot AFE cut back
  - Use full thrust for departure; reduce thrust to 85% for climb; and accelerate once past the shoreline
- NADP Distant (Existing/Standard) with 1,000-foot AFE cut back
  - Similar to Close-in, main difference that flaps & slats are retracted
- Evaluated via Lmax, not CNEL

NADP recommendation:

- Close-in NADP could further enhance noise abatement flight tracks for departing aircraft on Runway 27
- Implementing voluntary NADPs can yield positive results with air carriers; these procedures can be included in Fly Quiet programs
- **Potential for slight reduction single event overflight noise within the 65 CNEL**

Climb Profile - Modification to Noise Abatement Departure Procedure (NADP): LMAX Analysis

	Distant NADP (Existing)	Close-in NADP
	Population	Difference
> 85 Lmax	2,048	-1,016
	Housing Units	Difference
> 85 Lmax	877	-438



Grid Points

id	closein	distant
R11	89.74	89.7
R13	87.12	88.31
R15	82.35	87.16
R17	79.95	84.66
R19	78.54	83.27
R21	77.23	80.62
R23	76.07	77.33
R25	75.17	76.11
R27	74.55	75.06

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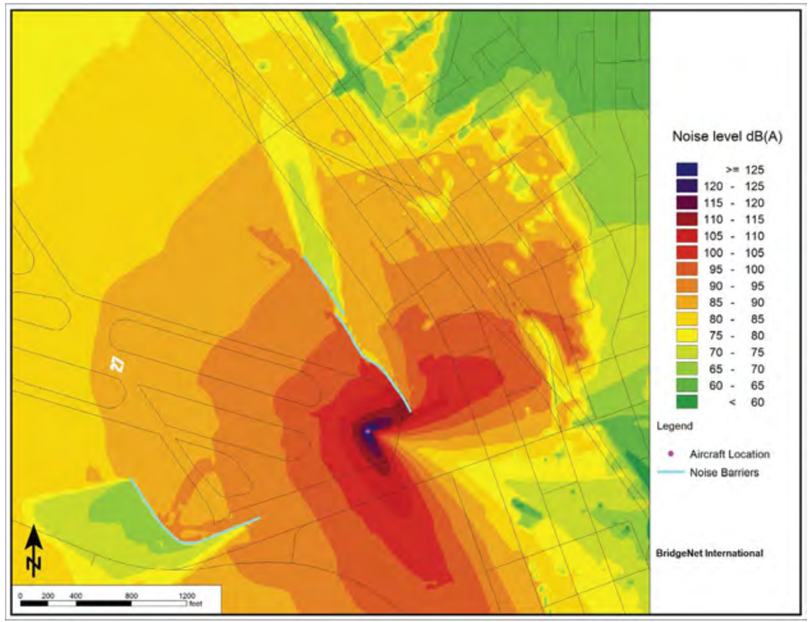
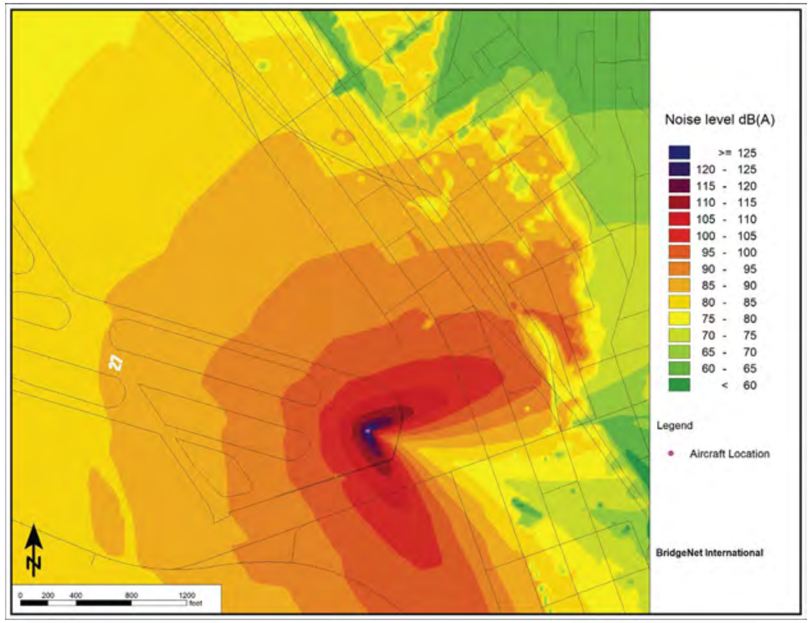
FACILITY ALTERNATIVE – Noise Barriers

With noise barriers

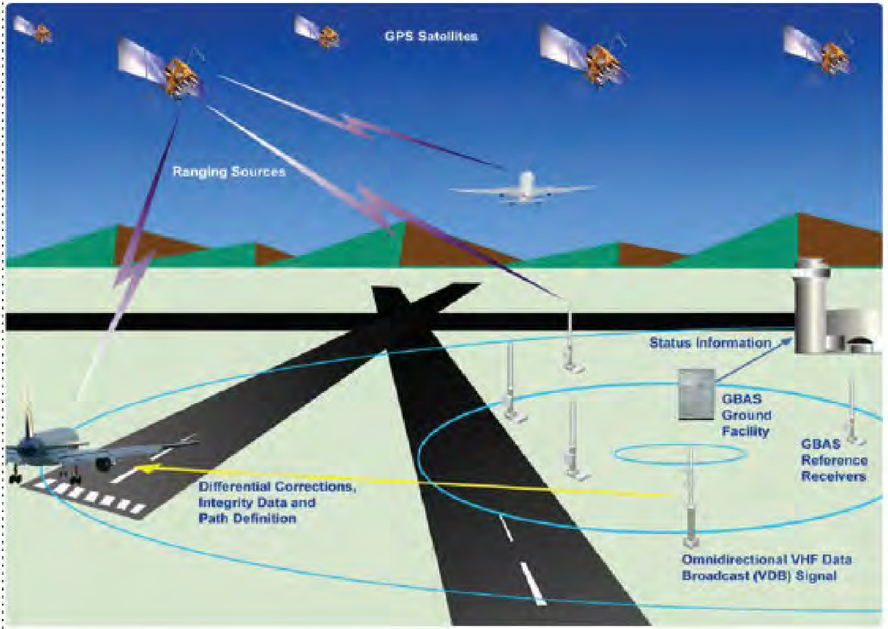


Without noise barriers



- **Locations evaluated for FAR Part 77 surfaces**
- **Three noise barriers evaluated Runway 27 End**
  - Two North, One South
- **Analyzed using Lmax for 737-700/800**
- **Lmax reduction of less than 5 dBA over residential area**
  - ***Benefits only over compatible land uses***
  - *South wall also is in Least Tern nesting habitat*

FACILITY ALTERNATIVE – Ground Based Augmentation System (GBAS)



- **GBAS can provide precision lateral and vertical guidance for multiple runway ends**
- **Allows for more repeatable and precise paths and consistency with 3.5-degree glidepath**
- **Reduction/elimination of level segments during the descent, requiring less engine thrust**
- **Could provide reductions of 1-2 dBA on east side approach**
  - Less than 5 dBA is typically not "perceived" by the human ear
  - However, cumulative changes and consistency could result in long term benefits

Operational Alternatives Development Screening

✈ Rationales for modeling

- Consistency with 14 CFR Part 150
  - Focus on addressing noise within the 65 CNEL and greater contour
  - Alternatives that affect efficiency, capacity, or safety and do not conflict with FAA's mission to provide a safe and efficient National Airspace System are not considered for modeling
- Address the representative range of comments received
- Meet the general intent of a procedure (concentration, dispersion, nighttime ops, etc.)
- Identify “bookend” alternatives that represent the range of traffic designs to achieve an overall goal
- Shifting noise from one community to another is not considered to meet 14 CFR Part 150’s purpose

CONCENTRATION ALTERNATIVE 1A – Departures Over Mission Bay Channel with Dispersion

Alternative 1A Initial Coding

VA to 520 feet MSL

DF to A1 INT waypoint

Route Description

Aircraft would depart runway heading and climb to 520 feet MSL at a climb gradient of 500 feet per nautical mile then proceed direct to A1 INT waypoint

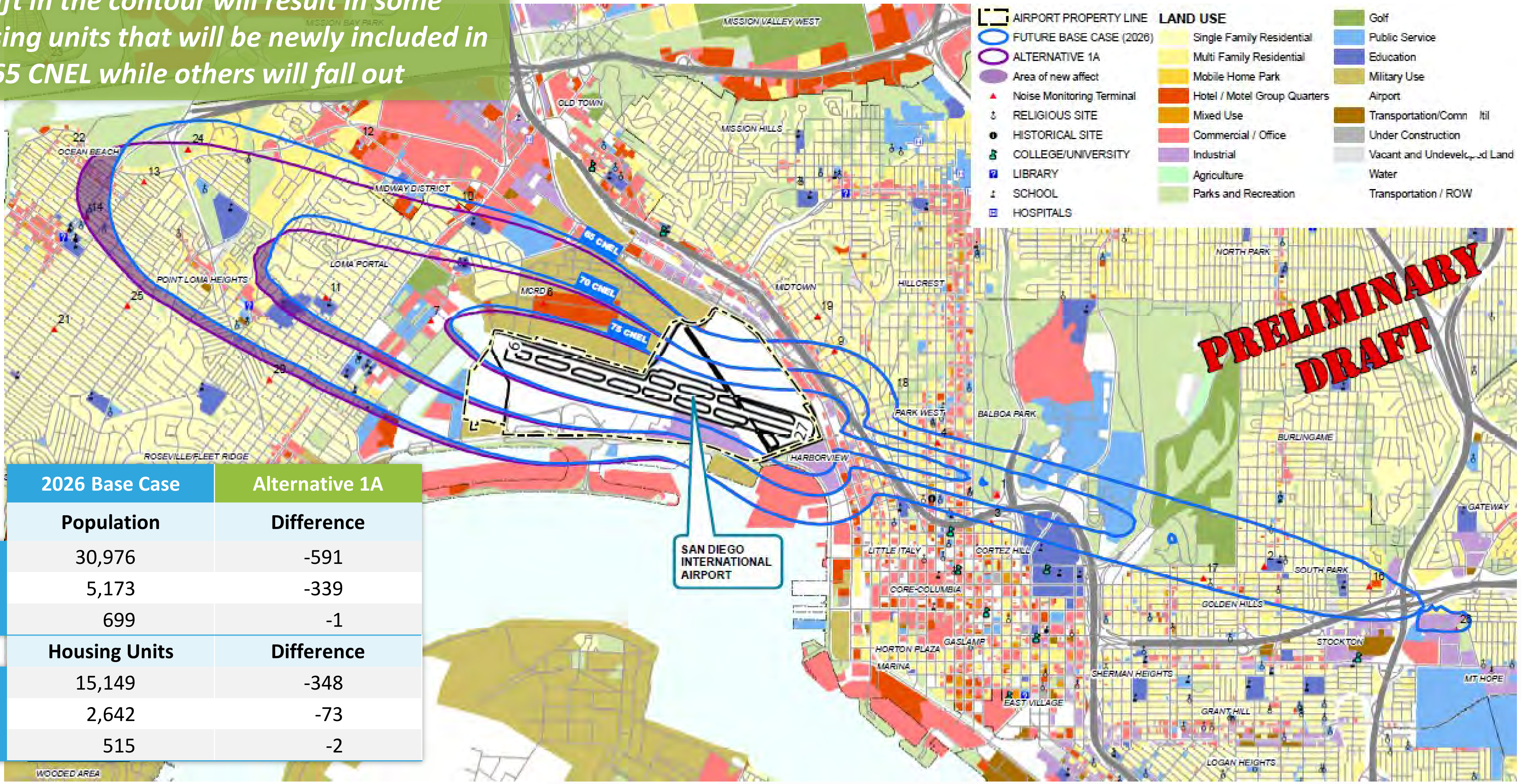
Intent

Provide a path over the inlet while maintaining some dispersion for right turn departures to reduce noise levels for areas such as Mission Beach

SOURCE: Google, January, 2020 (aerial photo); Ricondo & Associates, Inc., January 2020 (proposed paths and dispersion area).

CONCENTRATION ALTERNATIVE 1A - Departures Over Mission Bay Channel with Dispersion

A shift in the contour will result in some housing units that will be newly included in the 65 CNEL while others will fall out



	2026 Base Case	Alternative 1A
	Population	**Difference**
> 65 CNEL	30,976	-591
> 70 CNEL	5,173	-339
> 75 CNEL	699	-1
	Housing Units	**Difference**
> 65 CNEL	15,149	-348
> 70 CNEL	2,642	-73
> 75 CNEL	515	-2

***Note** that contours are draft and may change in size. All final contours must be accepted by FAA*

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CONCENTRATION ALTERNATIVE 1B – Departures Over Mission Bay Channel with Concentration

Alternative 1B Initial Coding
VI to intercept point
CF to A1 INT waypoint

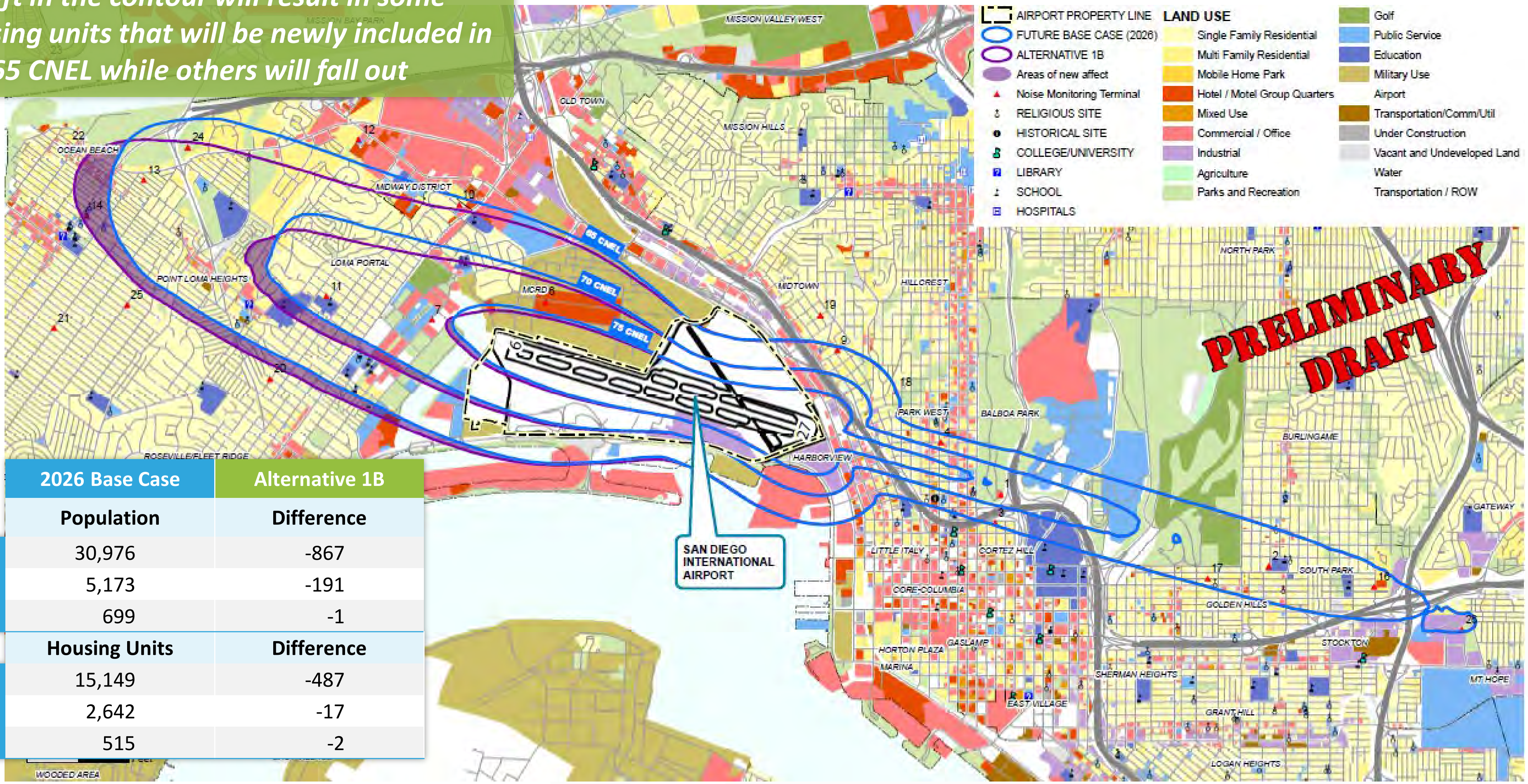
Route Description
Aircraft would depart runway heading and climb at 500 feet per NM to an intercept point located .98 NM from the departure end of Runway 27 then proceed on a 293-degree course to A1 INT waypoint

Intent
Provide a predictable path over the inlet for right turn departures to reduce noise levels for areas such as Mission Beach

SOURCE: Google, January, 2020 (aerial photo); Ricondo & Associates, Inc., January 2020 (proposed paths and dispersion area).

CONCENTRATION ALTERNATIVE 1B – Departures Over Mission Bay Channel with Concentration

A shift in the contour will result in some housing units that will be newly included in the 65 CNEL while others will fall out



	2026 Base Case	Alternative 1B
	Population	Difference
> 65 CNEL	30,976	-867
> 70 CNEL	5,173	-191
> 75 CNEL	699	-1
	Housing Units	Difference
> 65 CNEL	15,149	-487
> 70 CNEL	2,642	-17
> 75 CNEL	515	-2

***Note:** that contours are draft and may change in size All final contours must be accepted by FAA*

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CONCENTRATION ALTERNATIVE 1C – Departures Over Mission Bay Channel with a Fly-Over Waypoint

Alternative 1C Initial Coding

DF to A1C FO waypoint

DF to A1C INT waypoint

Route Description

Aircraft would depart runway heading and at a climb gradient of 500 feet per NM direct to A1C FO waypoint then proceed direct to A1C INT waypoint

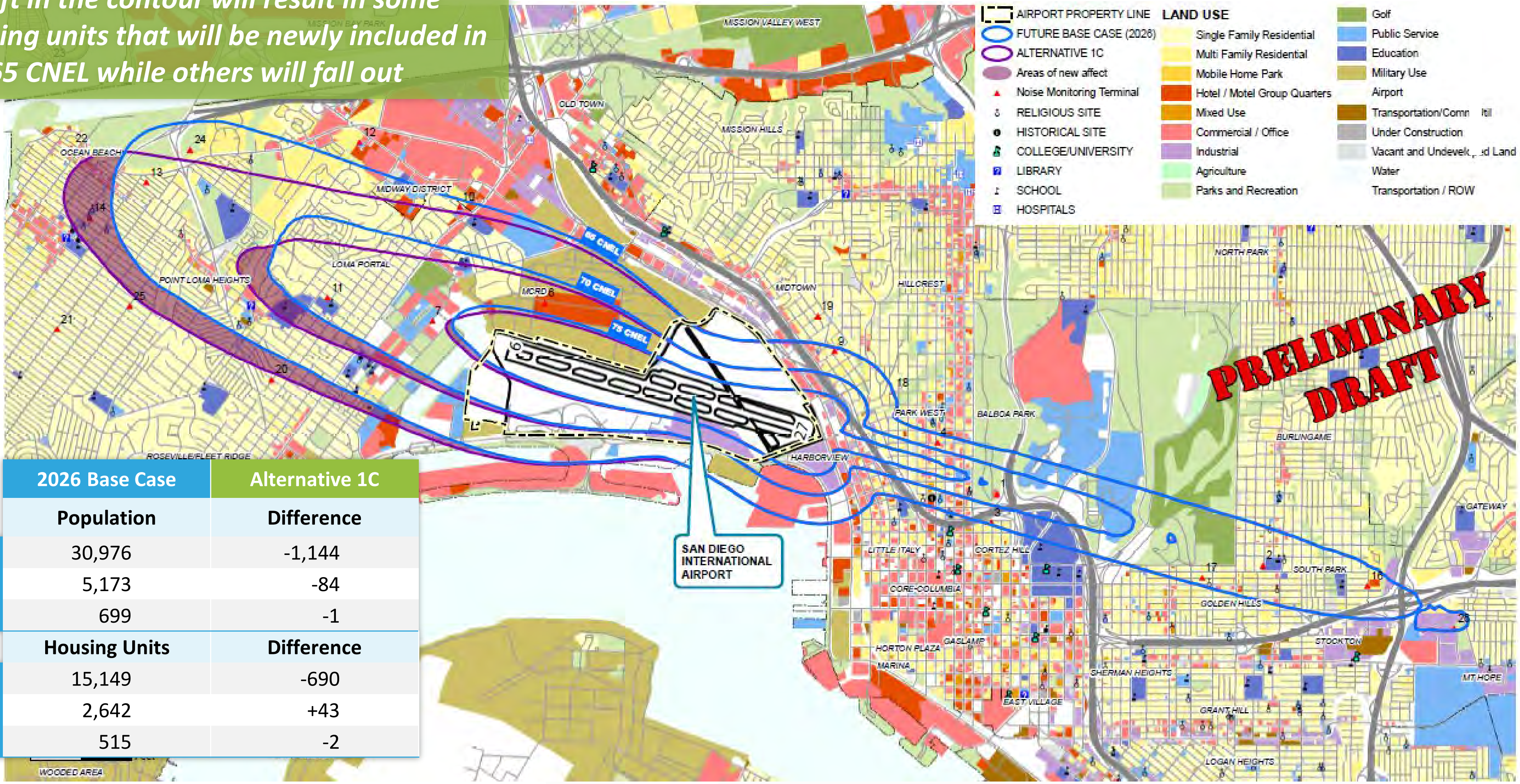
Intent

Provide a predictable path over the inlet for right turn departures to reduce noise levels for areas such as Mission Beach

SOURCE: Google, January, 2020 (aerial photo); Ricondo & Associates, Inc., January 2020 (proposed paths and dispersion area).

CONCENTRATION ALTERNATIVE 1C – Departures Over Mission Bay Channel with a Fly-Over Waypoint

A shift in the contour will result in some housing units that will be newly included in the 65 CNEL while others will fall out



	2026 Base Case	Alternative 1C
	Population	**Difference**
> 65 CNEL	30,976	-1,144
> 70 CNEL	5,173	-84
> 75 CNEL	699	-1
	Housing Units	**Difference**
> 65 CNEL	15,149	-690
> 70 CNEL	2,642	+43
> 75 CNEL	515	-2

Note: *that contours are draft and may change in size All final contours must be accepted by FAA*

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CONCENTRATION ALTERNATIVE 1D – Departures Over Mission Bay Channel with Concentration (Nighttime Only Operations)

Alternative 1D Initial Coding
VI to intercept point
CF to A1 INT waypoint

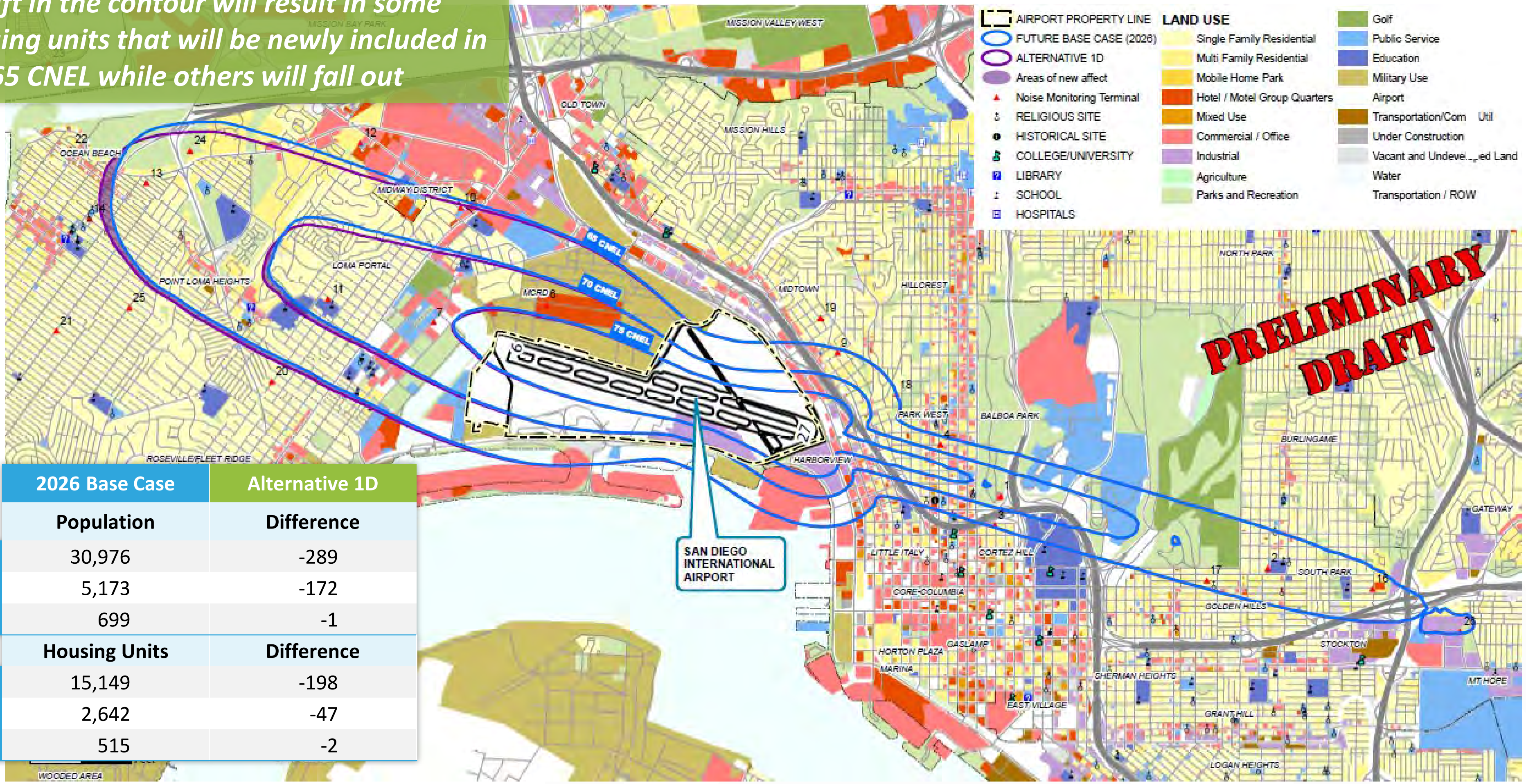
Route Description
Aircraft would depart runway heading and climb at 500 feet per NM to an intercept point located .98 NM from the departure end of Runway 27 then proceed on a 293-degree course to A1 INT waypoint

Intent
Provide a predictable path over the inlet for right turn departures between 10:00 p.m. and 6:30 a.m. to reduce noise levels for areas such as Mission Beach

SOURCE: Google, January, 2020 (aerial photo); Ricondo & Associates, Inc., January 2020 (proposed paths and dispersion area).

CONCENTRATION ALTERNATIVE: 1D – Departures Over Mission Bay Channel with Concentration (Alternative 1B with Nighttime Only Operations)

A shift in the contour will result in some housing units that will be newly included in the 65 CNEL while others will fall out



	2026 Base Case	Alternative 1D
	Population	**Difference**
> 65 CNEL	30,976	-289
> 70 CNEL	5,173	-172
> 75 CNEL	699	-1
	Housing Units	**Difference**
> 65 CNEL	15,149	-198
> 70 CNEL	2,642	-47
> 75 CNEL	515	-2

Note: *that contours are draft and may change in size All final contours must be accepted by FAA*

CONCENTRATION ALTERNATIVE 2A – EQUIVALENT LATERAL SPACING OPERATIONS (ELSO) for Departures with Dispersion

Alternative 2A Initial Coding
VA to 520 feet MSL
DF to A2 INT waypoint

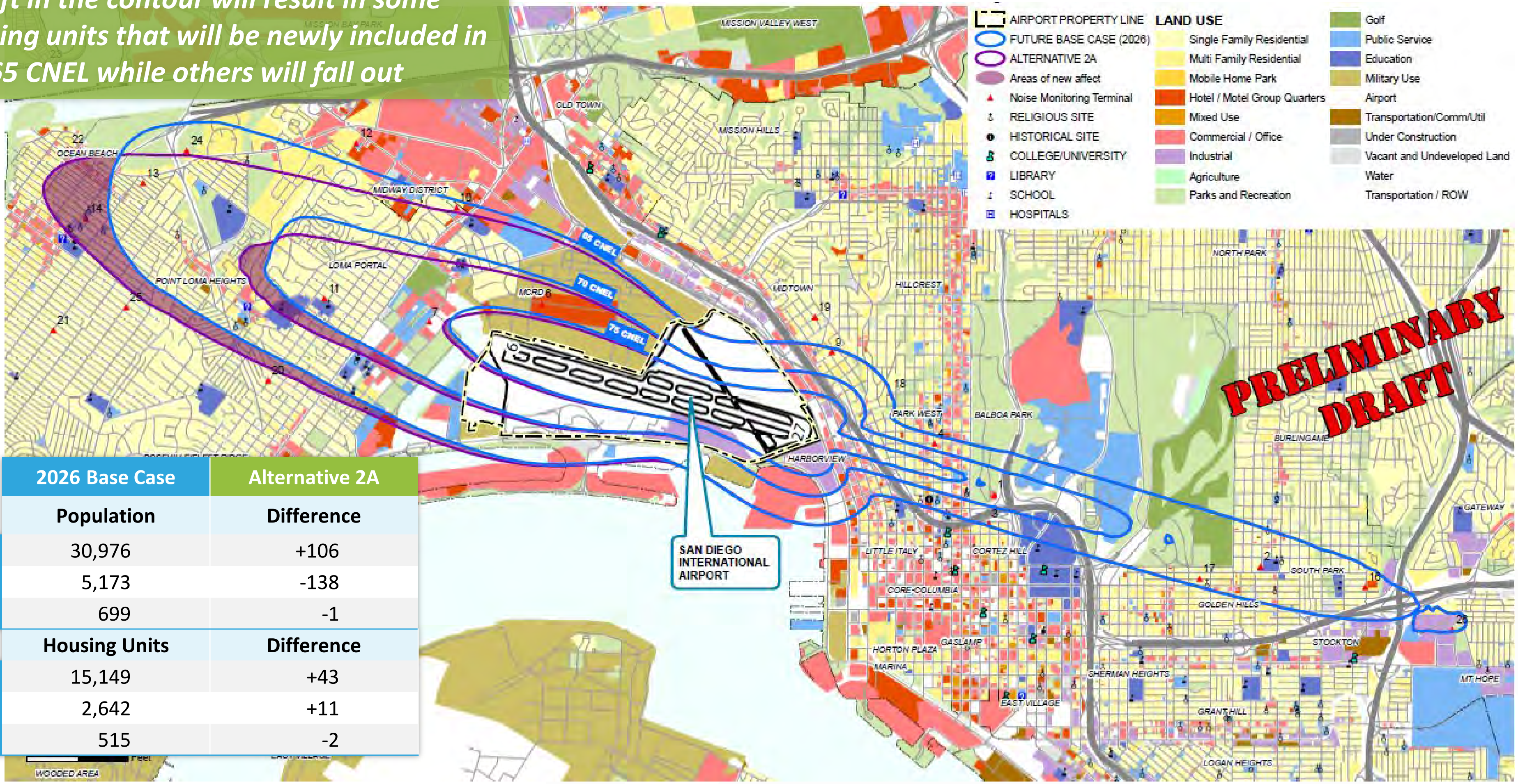
Route Description
Aircraft would depart runway heading and climb to 520 feet MSL at a climb gradient of 500 feet per NM then proceed direct to A2 INT waypoint

Intent
Reduce noise levels for areas exposed to CNEL 65 or higher and for Pacific Beach and La Jolla area by moving northbound departures further south

SOURCE: Google, January, 2020 (aerial photo); Ricondo & Associates, Inc., January 2020 (proposed paths and dispersion area).

CONCENTRATION ALTERNATIVE 2A – EQUIVALENT LATERAL SPACING OPERATIONS (ELSO) for Departures with Dispersion

A shift in the contour will result in some housing units that will be newly included in the 65 CNEL while others will fall out



	2026 Base Case	Alternative 2A
	Population	Difference
> 65 CNEL	30,976	+106
> 70 CNEL	5,173	-138
> 75 CNEL	699	-1
	Housing Units	Difference
> 65 CNEL	15,149	+43
> 70 CNEL	2,642	+11
> 75 CNEL	515	-2

Note: *that contours are draft and may change in size All final contours must be accepted by FAA*

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CONCENTRATION ALTERNATIVE 2B – EQUIVALENT LATERAL SPACING OPERATIONS (ELSO) for Departures with Concentration

Alternative 2B Initial Coding

VI to intercept point
CF to A2 INT waypoint

Route Description

Aircraft would depart runway heading and climb at 500 feet per NM to an intercept point located .98 NM from the departure end of Runway 27 then proceed on a 285-degree course to A2 INT waypoint

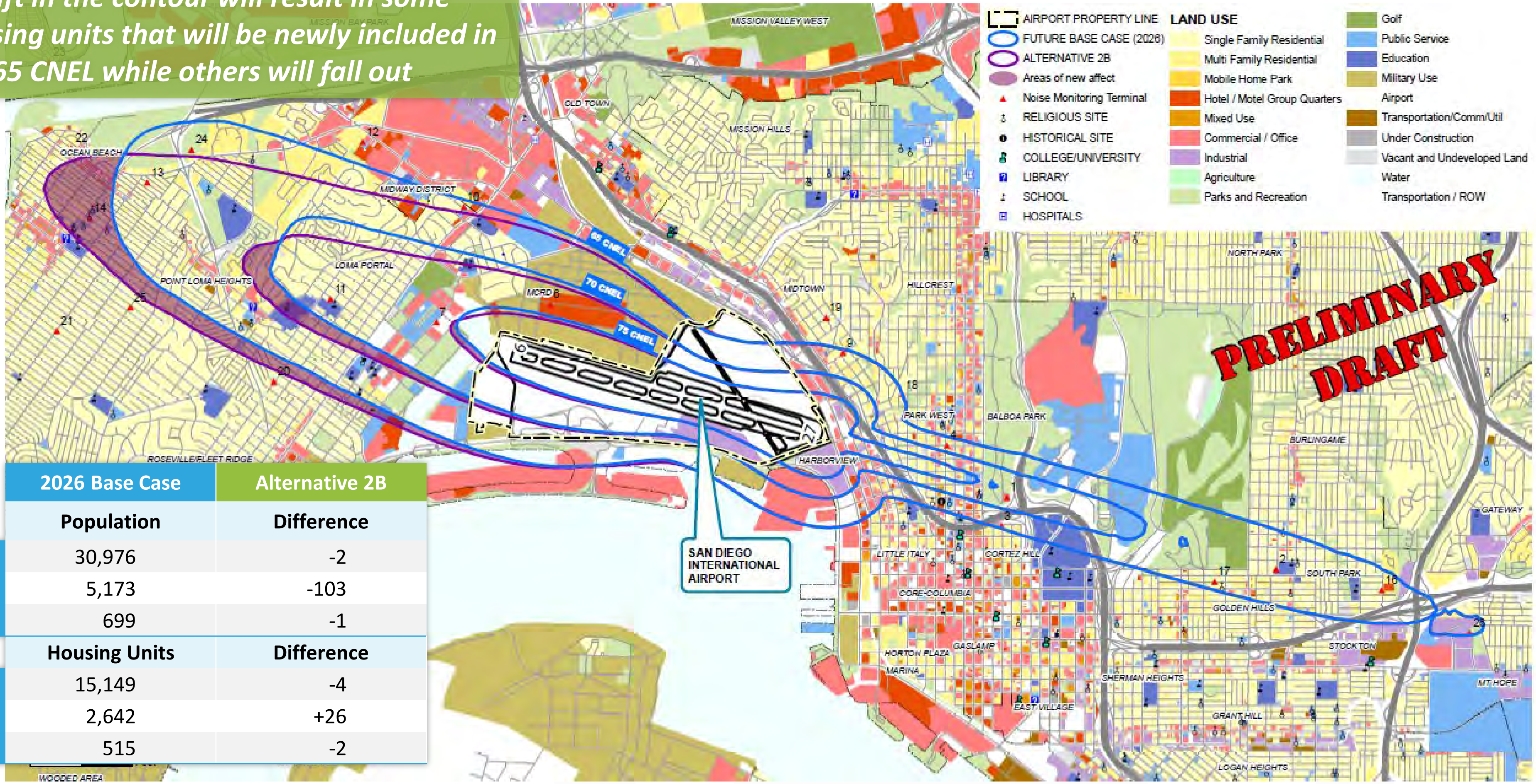
Intent

Reduce noise levels for areas exposed to CNEL 65 or higher and for Pacific Beach and La Jolla area by moving northbound departures further south

SOURCE: Google, January, 2020 (aerial photo); Ricondo & Associates, Inc., January 2020 (proposed paths and dispersion area).

CONCENTRATION ALTERNATIVE 2B – EQUIVALENT LATERAL SPACING OPERATIONS (ELSO) for Departures with Concentration

A shift in the contour will result in some housing units that will be newly included in the 65 CNEL while others will fall out



	2026 Base Case	Alternative 2B
	Population	**Difference**
> 65 CNEL	30,976	-2
> 70 CNEL	5,173	-103
> 75 CNEL	699	-1
	Housing Units	**Difference**
> 65 CNEL	15,149	-4
> 70 CNEL	2,642	+26
> 75 CNEL	515	-2

***Note:** that contours are draft and may change in size All final contours must be accepted by FAA*

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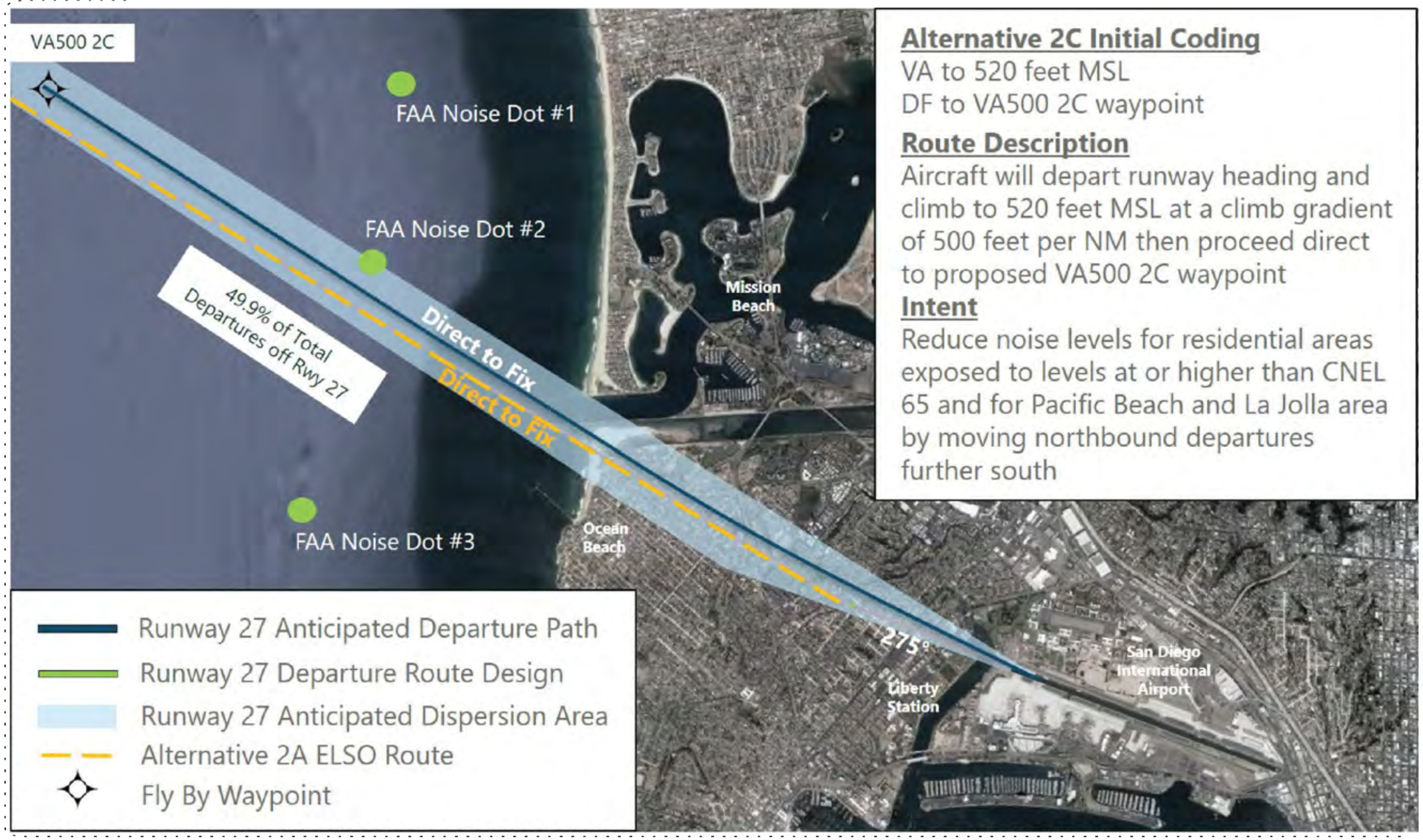
CONCENTRATION ALTERNATIVE: 2C – EQUIVALENT LATERAL SPACING OPERATIONS (ELSO) for Departures with Concentration



Alternative 2C Initial Coding
VA to 520 feet MSL
DF to VA500 2C waypoint

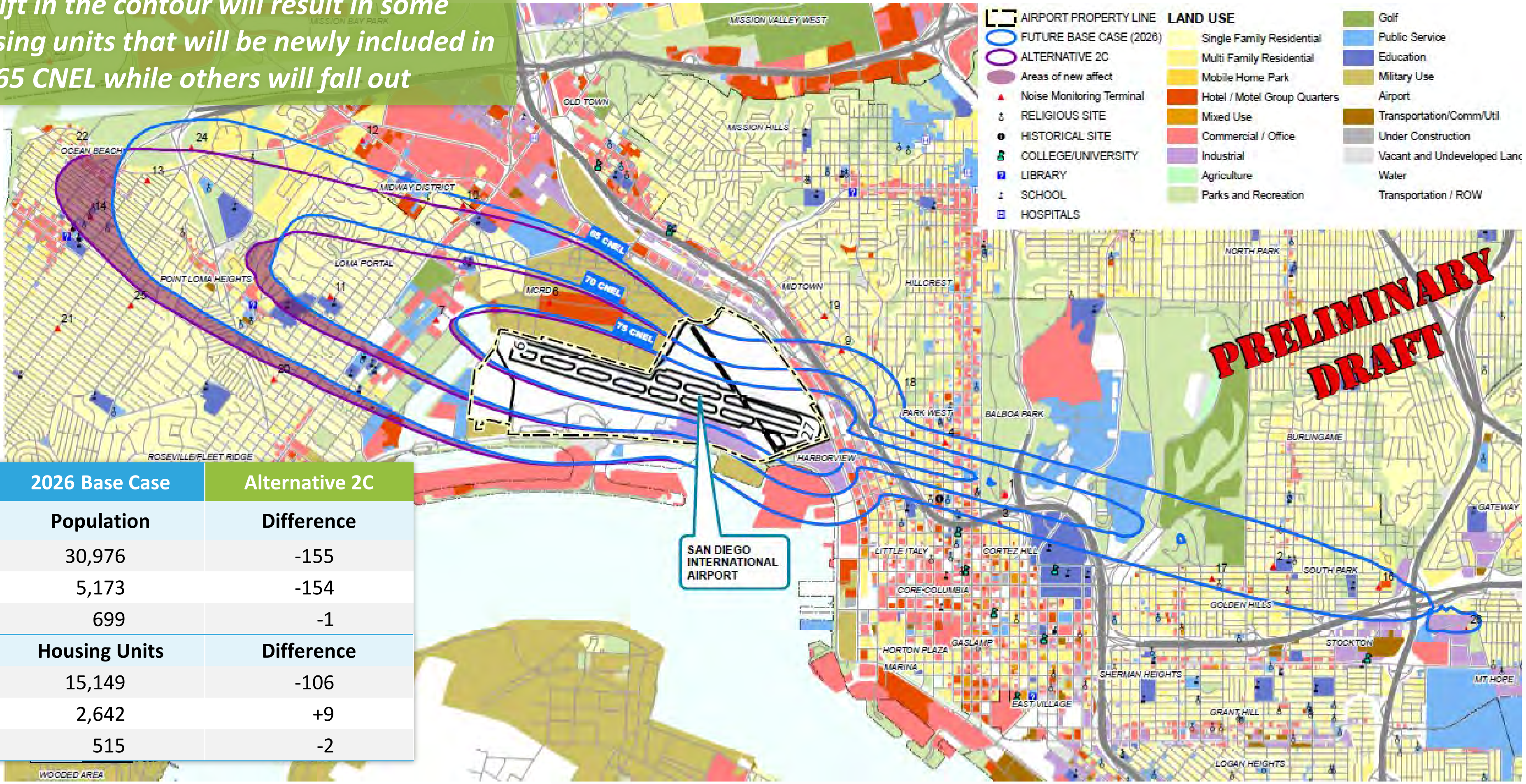
Route Description
Aircraft will depart runway heading and climb to 520 feet MSL at a climb gradient of 500 feet per NM then proceed direct to proposed VA500 2C waypoint

Intent
Reduce noise levels for residential areas exposed to levels at or higher than CNEL 65 and for Pacific Beach and La Jolla area by moving northbound departures further south

SOURCE: Google, January, 2020 (aerial photo); Ricondo & Associates, Inc., September 2020 (proposed paths and dispersion area).

CONCENTRATION ALTERNATIVE: 2C – EQUIVALENT LATERAL SPACING OPERATIONS (ELSO) for Departures with Concentration

A shift in the contour will result in some housing units that will be newly included in the 65 CNEL while others will fall out



	2026 Base Case	Alternative 2C
	Population	Difference
> 65 CNEL	30,976	-155
> 70 CNEL	5,173	-154
> 75 CNEL	699	-1
	Housing Units	Difference
> 65 CNEL	15,149	-106
> 70 CNEL	2,642	+9
> 75 CNEL	515	-2

***Note:** that contours are draft and may change in size All final contours must be accepted by FAA*

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CONCENTRATION ALTERNATIVE: 2D – EQUIVALENT LATERAL SPACING OPERATIONS (ELSO) for Departures with Concentration

Alternative 2D Initial Coding

VI to intercept point

CF to VA500 2C waypoint

Route Description

Aircraft will depart runway heading at a climb gradient of 500 feet per NM to an intercept point located .98 NM from the departure end of Runway 27 then proceed on a 287-degree magnetic course to VA500 2C waypoint

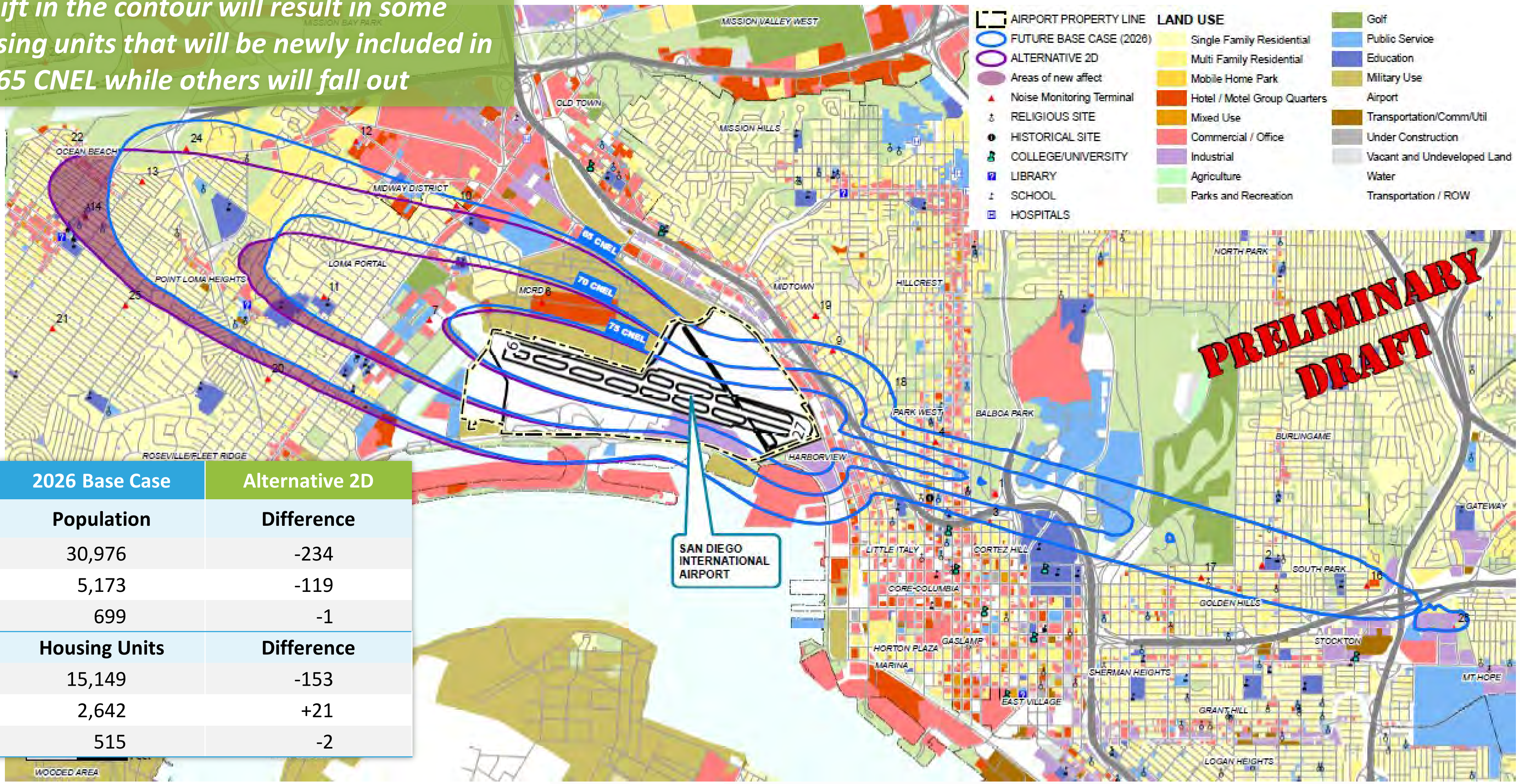
Intent

Reduce noise levels for residential areas exposed to levels at or higher than CNEL 65 and for Pacific Beach and La Jolla area by moving northbound departures further south

SOURCE: Google, January, 2020 (aerial photo); Ricondo & Associates, Inc., September 2020 (proposed paths and dispersion area).

CONCENTRATION ALTERNATIVE: 2D – EQUIVALENT LATERAL SPACING OPERATIONS (ELSO) for Departures with Concentration

A shift in the contour will result in some housing units that will be newly included in the 65 CNEL while others will fall out



	2026 Base Case	Alternative 2D
	Population	Difference
> 65 CNEL	30,976	-234
> 70 CNEL	5,173	-119
> 75 CNEL	699	-1
	Housing Units	Difference
> 65 CNEL	15,149	-153
> 70 CNEL	2,642	+21
> 75 CNEL	515	-2

***Note:** that contours are draft and may change in size All final contours must be accepted by FAA*

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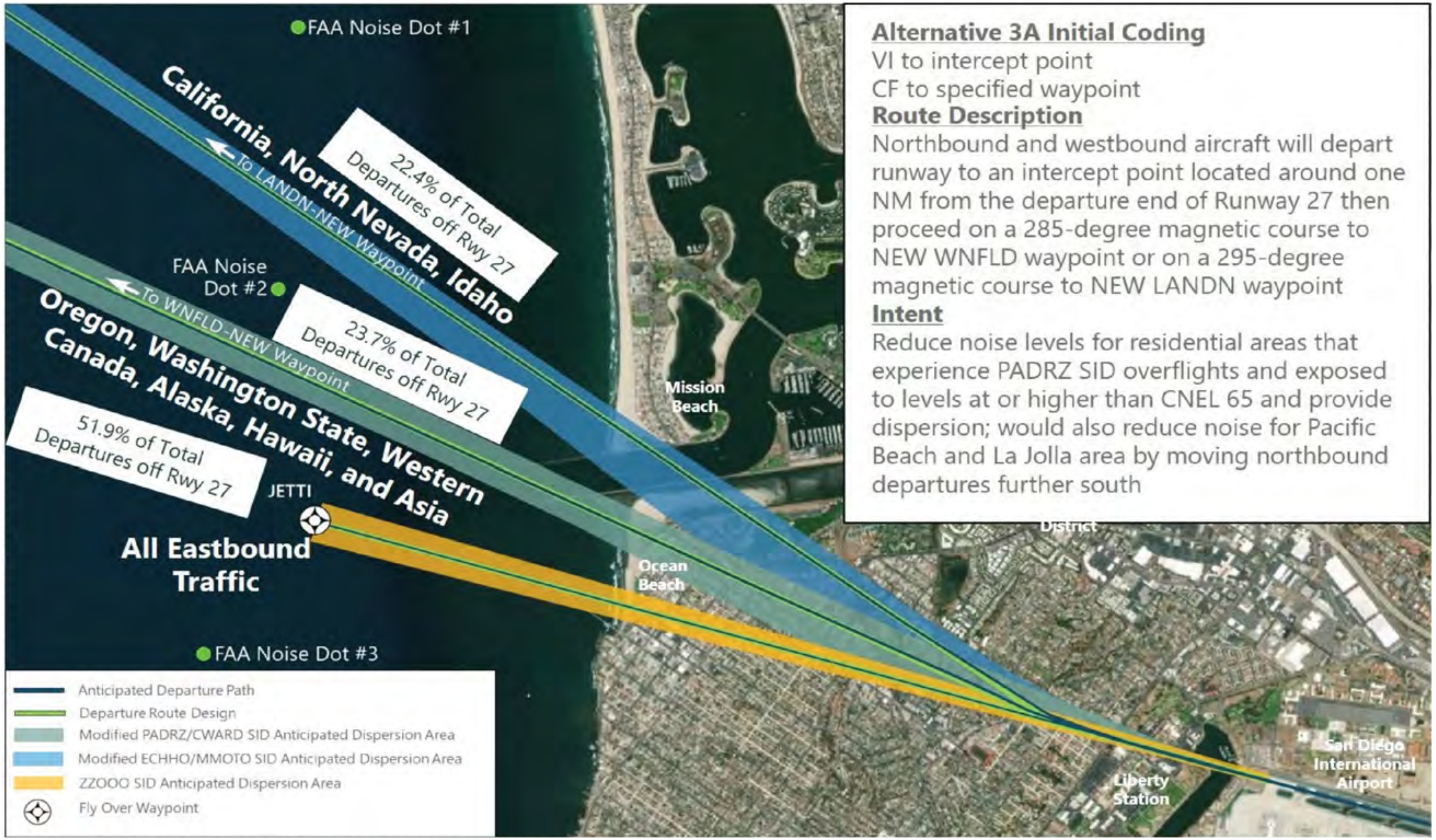
DISPERSION ALTERNATIVE: 3A – Use of Three SIDs With Northbound Departure Split



Alternative 3A Initial Coding

VI to intercept point

CF to specified waypoint

Route Description

Northbound and westbound aircraft will depart runway to an intercept point located around one NM from the departure end of Runway 27 then proceed on a 285-degree magnetic course to NEW WNFLD waypoint or on a 295-degree magnetic course to NEW LANDN waypoint

Intent

Reduce noise levels for residential areas that experience PADRZ SID overflights and exposed to levels at or higher than CNEL 65 and provide dispersion; would also reduce noise for Pacific Beach and La Jolla area by moving northbound departures further south

SOURCE: Google, January, 2020 (aerial photo); Ricondo & Associates, Inc., October 2020 (dispersion area); ABCX2, July 2020 (proposed modified PADRZ/CWARD and ECHHO/MMOTO SID designs).

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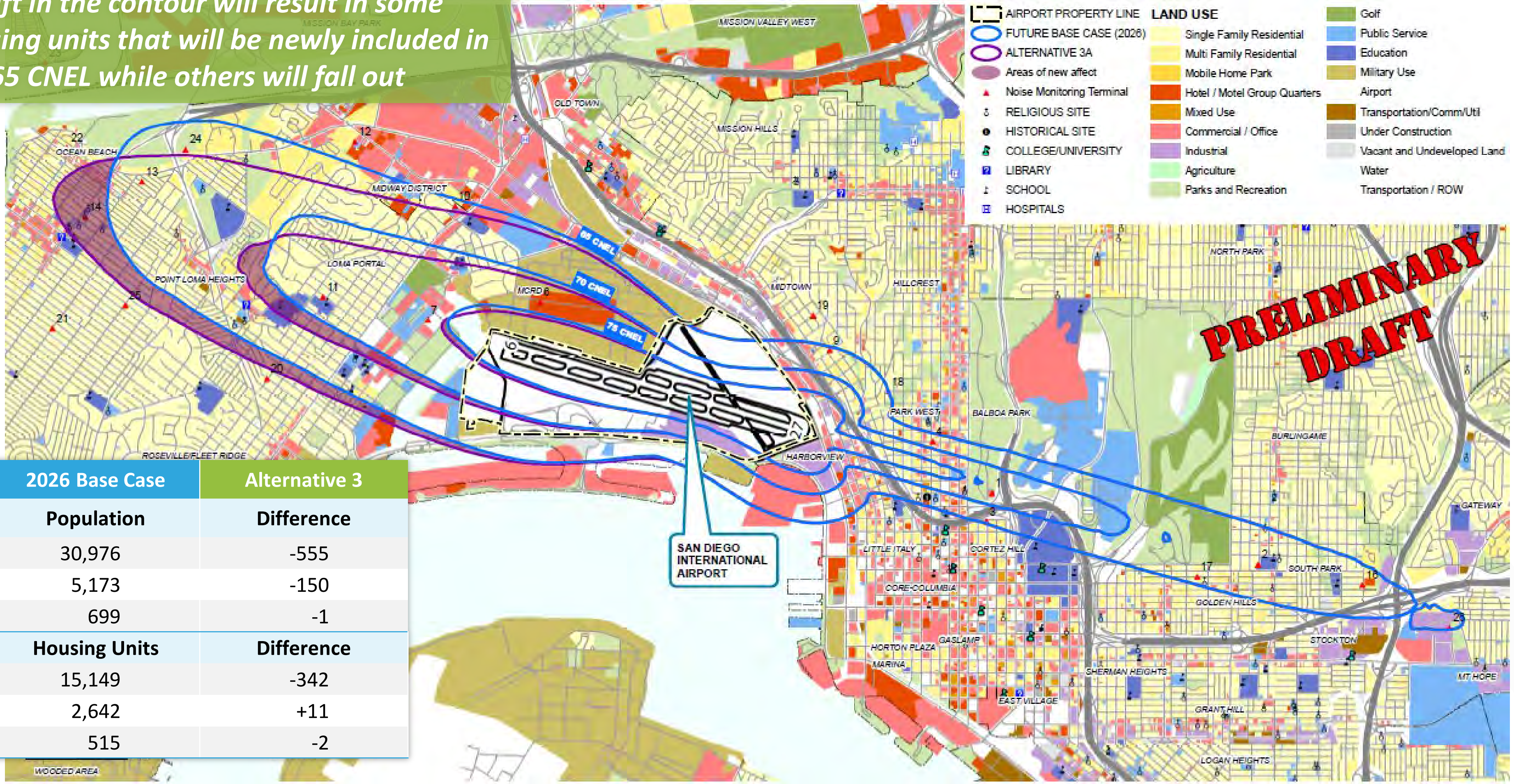
DISPERSION ALTERNATIVE: 3A – Use of Three SIDs With Northbound Departure Split

A shift in the contour will result in some housing units that will be newly included in the 65 CNEL while others will fall out



	2026 Base Case	Alternative 3
	Population	**Difference**
> 65 CNEL	30,976	-555
> 70 CNEL	5,173	-150
> 75 CNEL	699	-1
	Housing Units	**Difference**
> 65 CNEL	15,149	-342
> 70 CNEL	2,642	+11
> 75 CNEL	515	-2

Note: *that contours are draft and may change in size All final contours must be accepted by FAA*

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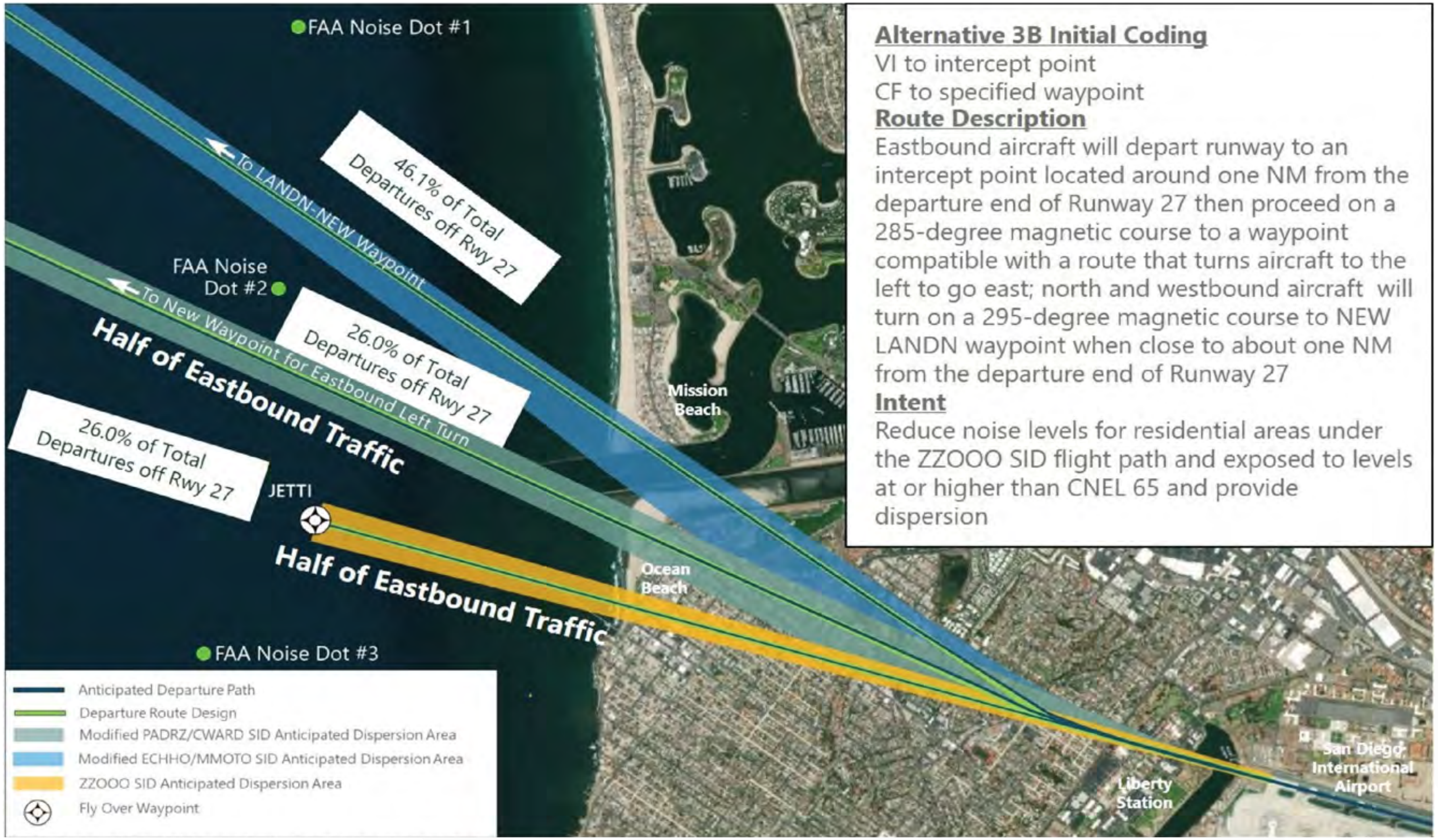
DISPERSION ALTERNATIVE: 3B – Use of Three SIDs With Eastbound Departure Split



Alternative 3B Initial Coding

VI to intercept point
CF to specified waypoint

Route Description

Eastbound aircraft will depart runway to an intercept point located around one NM from the departure end of Runway 27 then proceed on a 285-degree magnetic course to a waypoint compatible with a route that turns aircraft to the left to go east; north and westbound aircraft will turn on a 295-degree magnetic course to NEW LANDN waypoint when close to about one NM from the departure end of Runway 27

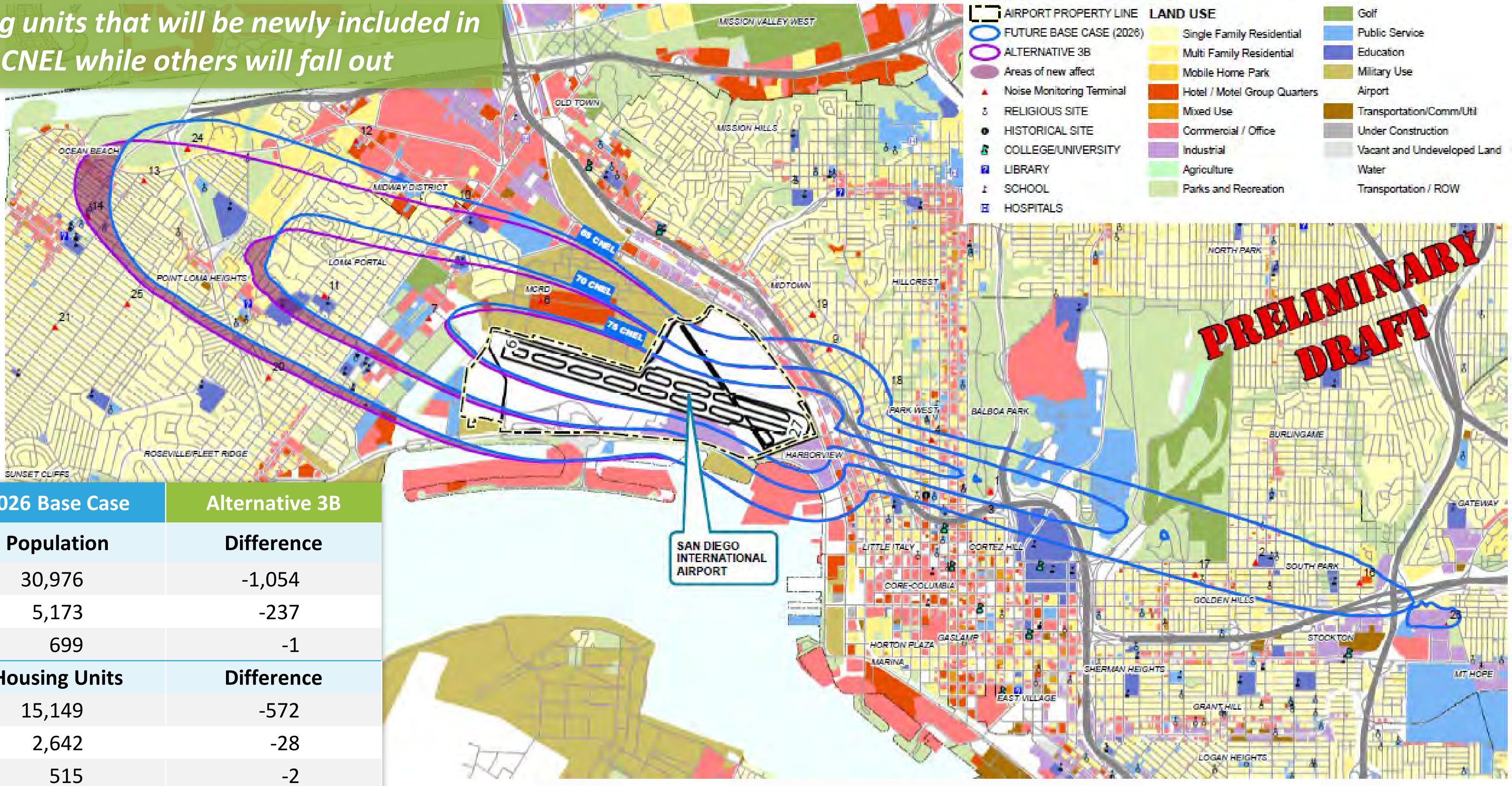
Intent

Reduce noise levels for residential areas under the ZZOOO SID flight path and exposed to levels at or higher than CNEL 65 and provide dispersion

SOURCE: Google, January, 2020 (aerial photo); Ricondo & Associates, Inc., October 2020 (dispersion area); ABCX2, July 2020 (proposed modified PADRZ/CWARD and ECHHO/MMOTO SID designs).

DISPERSION ALTERNATIVE: 3B – Use of Three SIDs With Eastbound Departure Split

A shift in the contour will result in some housing units that will be newly included in the 65 CNEL while others will fall out



	2026 Base Case	Alternative 3B
	Population	**Difference**
> 65 CNEL	30,976	-1,054
> 70 CNEL	5,173	-237
> 75 CNEL	699	-1
	Housing Units	**Difference**
> 65 CNEL	15,149	-572
> 70 CNEL	2,642	-28
> 75 CNEL	515	-2

***Note:** that contours are draft and may change in size All final contours must be accepted by FAA*

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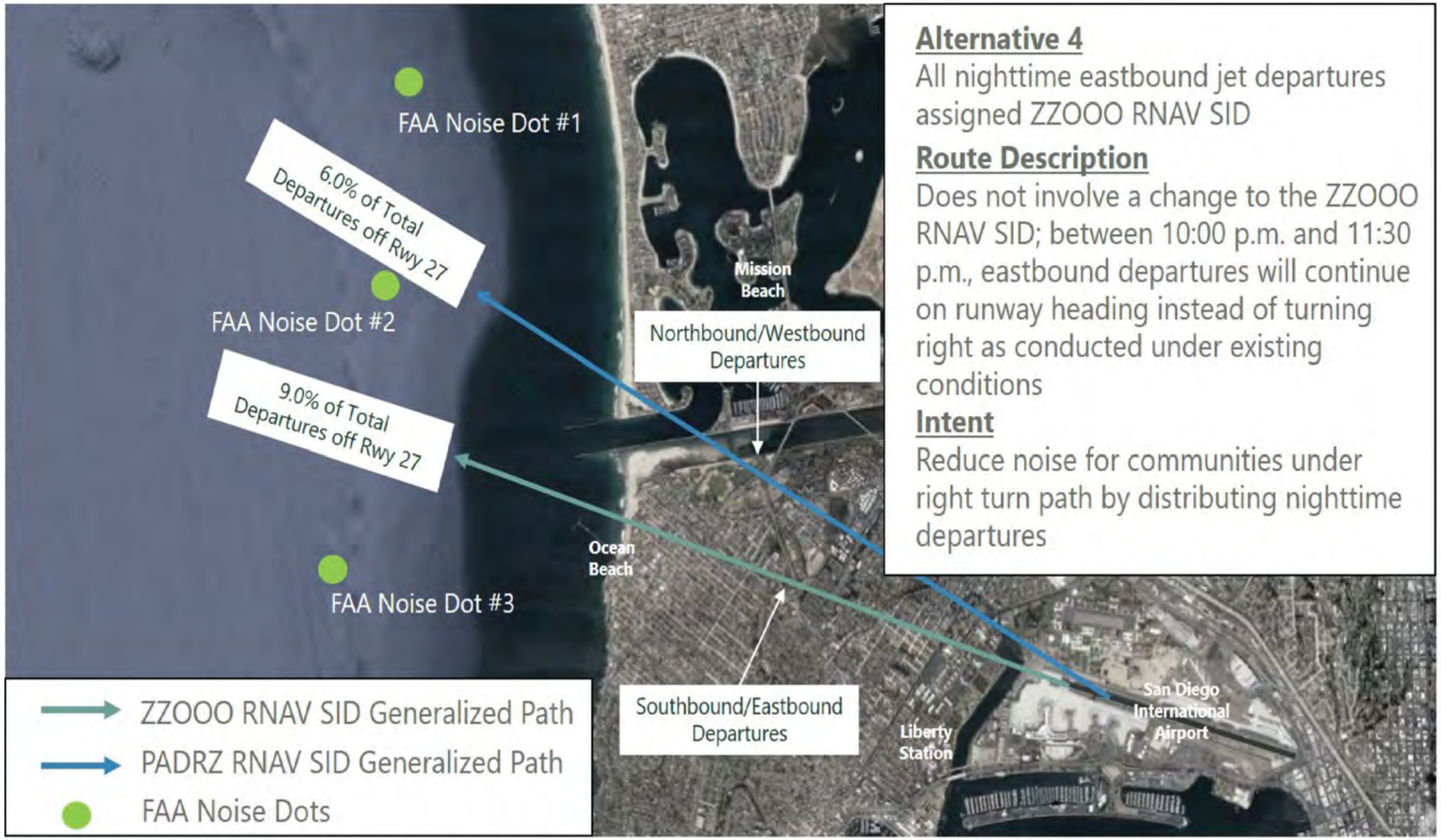
NIGHTTIME ALTERNATIVE: 4 – Nighttime (10:00 pm to 6:30 am) Eastbound Departures on ZZOOO RNAV SID



Alternative 4

All nighttime eastbound jet departures assigned ZZOOO RNAV SID

Route Description

Does not involve a change to the ZZOOO RNAV SID; between 10:00 p.m. and 11:30 p.m., eastbound departures will continue on runway heading instead of turning right as conducted under existing conditions

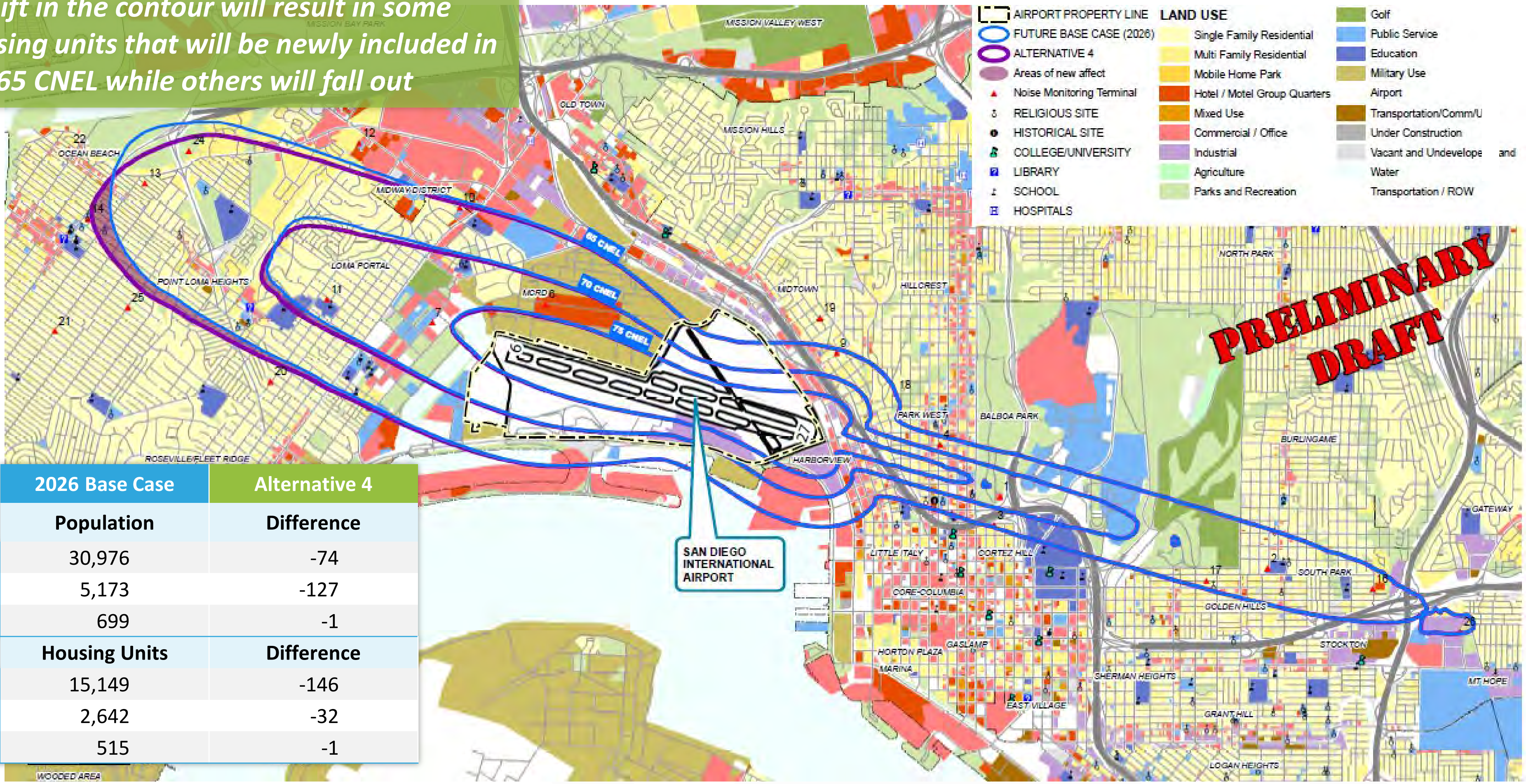
Intent

Reduce noise for communities under right turn path by distributing nighttime departures

SOURCE: Google, January 2020 (aerial photo); Ricondo & Associates, January 2020 (proposed paths).

NIGHTTIME ALTERNATIVE: 4 – Nighttime (10:00 pm to 6:30 am)
Eastbound Departures on ZZOOO RNAV SID

A shift in the contour will result in some housing units that will be newly included in the 65 CNEL while others will fall out



	2026 Base Case	Alternative 4
	Population	**Difference**
> 65 CNEL	30,976	-74
> 70 CNEL	5,173	-127
> 75 CNEL	699	-1
	Housing Units	**Difference**
> 65 CNEL	15,149	-146
> 70 CNEL	2,642	-32
> 75 CNEL	515	-1

Note: *that contours are draft and may change in size All final contours must be accepted by FAA*

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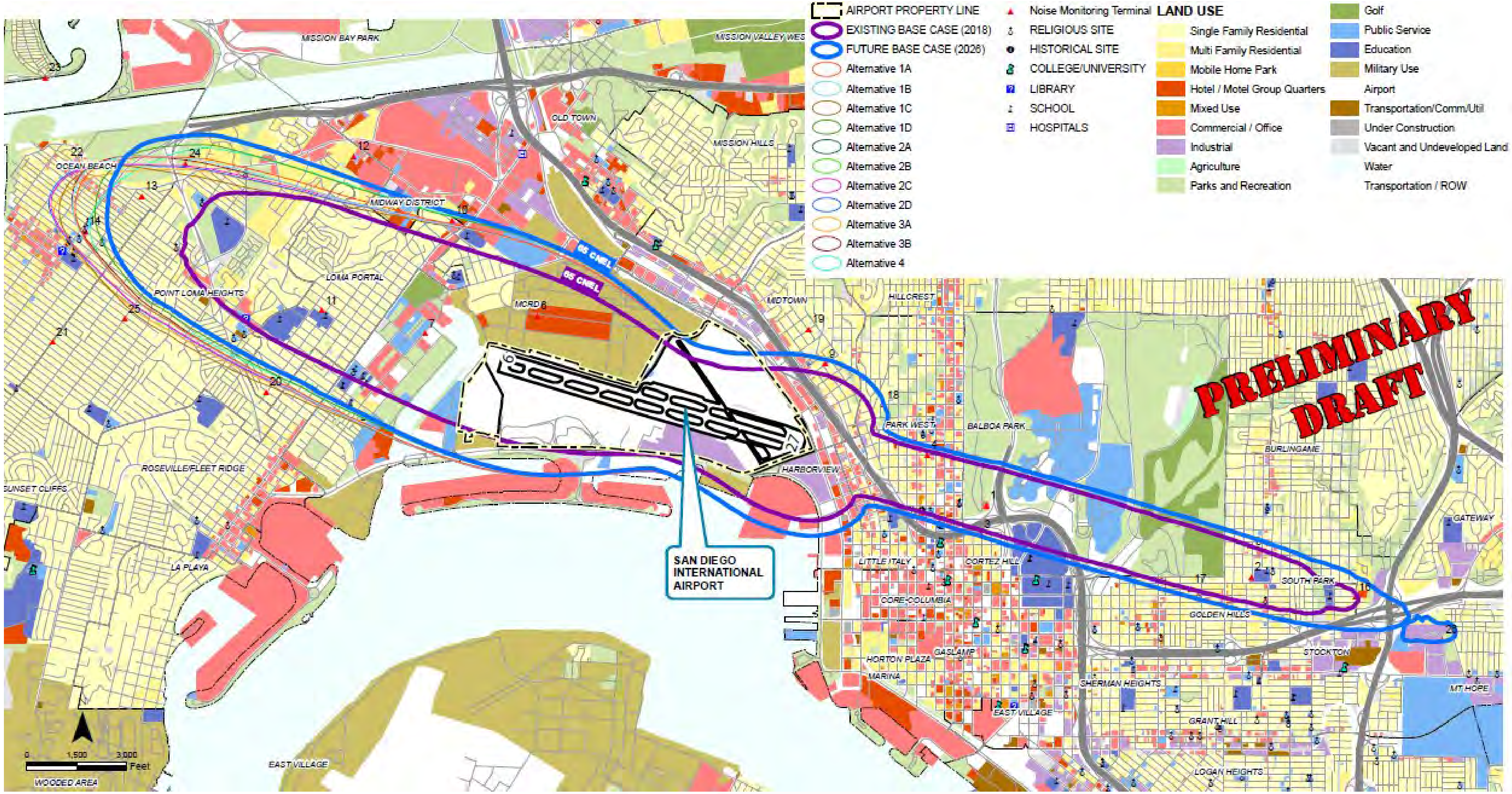
Operational Alternatives Comparison



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Population and Housing Units Alternatives Comparison

	Population											
		Concentration								Dispersion		Nighttime
	Base Case 2026	Alt 1A	Alt 1B	Alt 1C	Alt 1D	Alt 2A	Alt 2B	Alt 2C	Alt 2D	Alt 3A	Alt 3B	Alt 4
> 65 CNEL	**30,976**	-591	-867	-1,144	-289	+106	-2	-155	-234	-555	-1,054	-74
> 70 CNEL	**5,173**	-339	-191	-84	-172	-138	-103	-154	-119	-150	-237	-127
> 75 CNEL	**699**	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1

	Housing Units											
		Concentration								Dispersion		Nighttime
	Base Case 2026	Alt 1A	Alt 1B	Alt 1C	Alt 1D	Alt 2A	Alt 2B	Alt 2C	Alt 2D	Alt 3A	Alt 3B	Alt 4
> 65 CNEL	**15,149**	-348	-487	-690	-198	+43	-4	-106	-153	-342	-572	-146
> 70 CNEL	**2,642**	-73	-17	+43	-47	+11	+26	+9	+21	+11	-28	-32
> 75 CNEL	**515**	-2	-2	-2	-2	-2	-2	-2	-2	-2	-2	-1

Housing: New In-Out of Contours

Housing Units													
		Alt 1A		Alt 1B		Alt 1C		Alt 1D		Alt 2A		Alt 2B	
	Base Case 2026	New in	New out	New in	New out	New in	New out	New in	New out	New in	New out	New in	New out
> 65 CNEL	15,149	+946	-1,279	+1,029	-1,500	+1,642	-2,319	+331	-520	+1,856	-1,796	+1,956	-1,945
> 70 CNEL	2,642	+230	-297	+314	-322	+446	-396	+101	-136	+345	-328	+380	-346
> 75 CNEL	515	0	0	0	0	0	0	0	0	0	0	0	0

Housing Units											
		Alt 2C		Alt 2D		Alt 3A		Alt 3B		Alt 4	
	Base Case 2026	New in	New out	New in	New out	New in	New out	New in	New out	New in	New out
> 65 CNEL	15,149	+1,629	-1,720	+1,703	-1,840	+1,587	-1,917	+987	-1,544	+452	-597
> 70 CNEL	2,642	+339	-324	+367	-339	+367	-351	+301	-322	+100	-124
> 75 CNEL	515	0	0	0	0	0	0	0	0	0	0

Note: Numbers are approximate, rounded to the nearest 10 units

Land Use Alternatives

- **Continued measures**
  - Support compatible land use development: Local jurisdictions
  - Compatibility Planning Process: Local jurisdictions
  - Support of San Diego County Airport Land Use Commission (ALUC)
- **Updated Measures**
  - Continuation of Quieter Home Program
    - Residential and non-residential insulation

Program Management Alternatives

Continued measures

- Continued Support of Aircraft Noise Office and Program Manager
- Update Airport Noise and Operations Monitoring System (ANOMS)
- Communicate Noise Issues with Airlines
- Provide Airport Use Regulations
- California Quarterly Noise Reports
- Update Noise Exposure Maps, every 5 years
- Update NCP as needed

Updated Measures

- Continue Fly Quiet Program with updates

New Measures

- Implement Portable Noise Monitoring

Recommendations and Next Steps

How were preliminary recommendations developed?

- **Consistency with 14 CFR Part 150**
  - Does it reduce the reducing existing non-compatible land use AND prevent new non-compatible land use
  - Alternatives that affect efficiency, capacity, or safety and do not conflict with FAA's mission to provide a safe and efficient use of the airfield are not considered for modeling
- **General feasibility close to airport**
- **Public and committee discussions**
- **Expertise from Study Team**
- **Building upon existing mature noise program**

Recommendations and Next Steps

Operational Recommendations

- Concentrated non-compatible land uses around the airport limits alternatives that are recommended because modeling indicates most procedure heading changes would either elongate or shift the 65 CNEL contour
- No alternatives that shift noise are recommended
- Close-in Departure Profile change is recommended

Facility Recommendations

- GBAS: precision lateral and vertical guidance system

Land Use and Administrative Recommendations

- All Land Use Alternatives are recommended for continuation
- Updates to QHP potential eligibility boundaries

Next Steps

- **Gather Comments on Preliminary Recommendations**
  - Breakouts to begin shortly
- **March 2021 – Draft Report**
- **April 2021 – Public Hearing**
- **Please submit any additional comments by February 4th at:**
  - https://sannoisestudy.com

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SAN NOISE STUDY

Questions? Join a breakout room!

- **Main Room**
  - Move between breakout rooms at your own pace, chat Lauren Rasmussen if you need assistance
- **Station 1:**
  - Background, Purpose of Study and Existing Noise
- **Station 2:**
  - Magnetic Variation
- **Station 3:**
  - Operational and Facility Alternatives
- **Station 4:**
  - Land Use and Program Management Alternatives
- **Station 5:**
  - Recommendations and Next Steps

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Questions & Comments

✈ https://sannoisestudy.com/

SAN NOISE STUDY

SAN NOISE STUDY TAC/CAC MEETING

01.21.21

Thank you!

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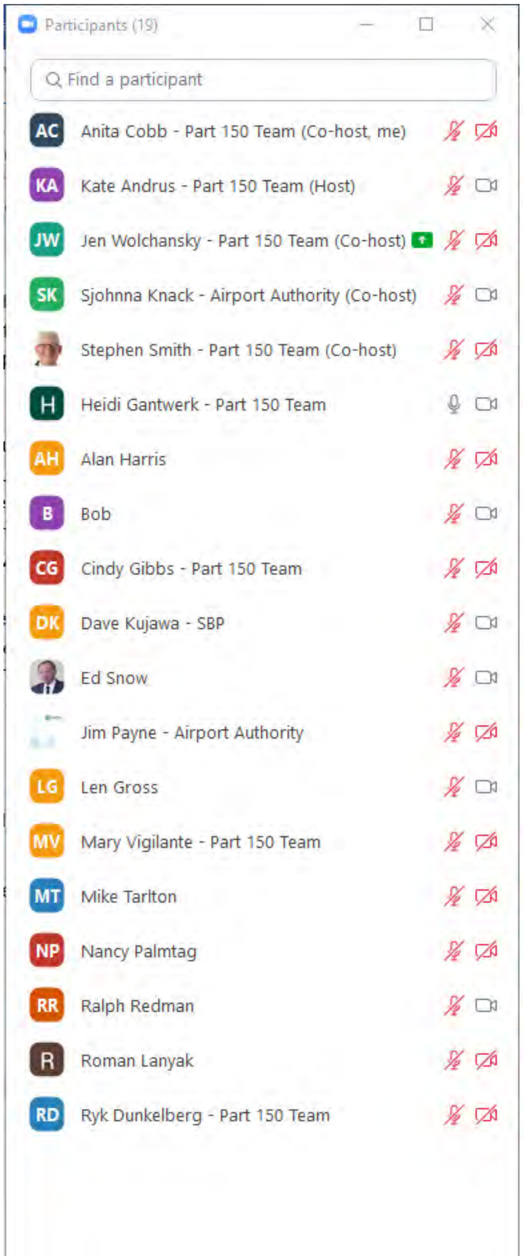
SAN DIEGO INTERNATIONAL AIRPORT

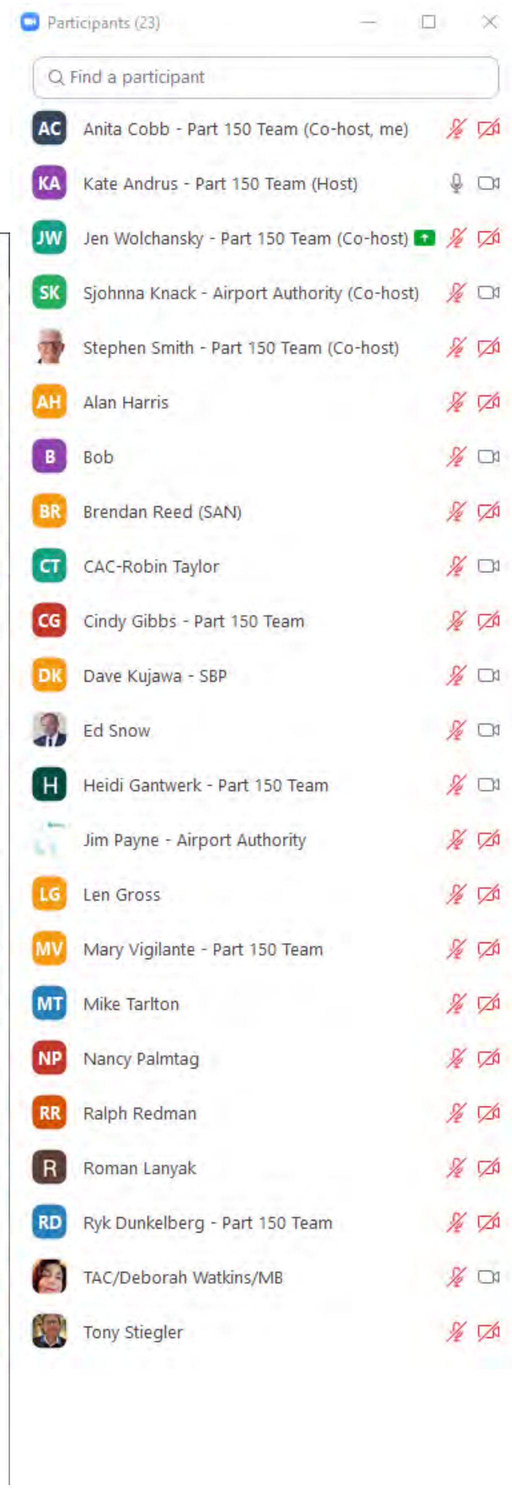
TAC & CAC Advisory Meeting Attendee List – April 2021



Participants (19)

Find a participant

- AC Anita Cobb - Part 150 Team (Co-host, me)
- KA Kate Andrus - Part 150 Team (Host)
- JW Jen Wolchansky - Part 150 Team (Co-host)
- SK Sjohnna Knack - Airport Authority (Co-host)
- Stephen Smith - Part 150 Team (Co-host)
- H Heidi Gantwerk - Part 150 Team
- AH Alan Harris
- B Bob
- CG Cindy Gibbs - Part 150 Team
- DK Dave Kujawa - SBP
- Ed Snow
- Jim Payne - Airport Authority
- LG Len Gross
- MV Mary Vigilante - Part 150 Team
- MT Mike Tarlton
- NP Nancy Palmtag
- RR Ralph Redman
- R Roman Lanyak
- RD Ryk Dunkelberg - Part 150 Team



Participants (23)

Find a participant

- AC Anita Cobb - Part 150 Team (Co-host, me)
- KA Kate Andrus - Part 150 Team (Host)
- JW Jen Wolchansky - Part 150 Team (Co-host)
- SK Sjohnna Knack - Airport Authority (Co-host)
- Stephen Smith - Part 150 Team (Co-host)
- AH Alan Harris
- B Bob
- BR Brendan Reed (SAN)
- CT CAC-Robin Taylor
- CG Cindy Gibbs - Part 150 Team
- DK Dave Kujawa - SBP
- Ed Snow
- H Heidi Gantwerk - Part 150 Team
- Jim Payne - Airport Authority
- LG Len Gross
- MV Mary Vigilante - Part 150 Team
- MT Mike Tarlton
- NP Nancy Palmtag
- RR Ralph Redman
- R Roman Lanyak
- RD Ryk Dunkelberg - Part 150 Team
- TAC/Deborah Watkins/MB
- Tony Stiegler

SAN NOISE STUDY TAC/CAC MEETING

04.13.21

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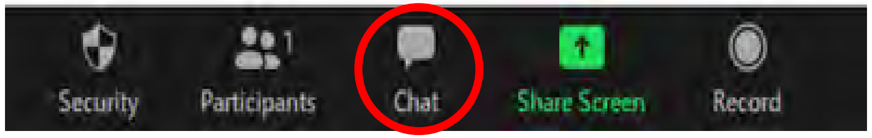
SAN DIEGO INTERNATIONAL AIRPORT

Agenda

- Summary of study recommendations
- Discussion ANAC modeling request
- Summary of public comments
- Comments and discussion

Zoom: Committee Meeting

- All participants are muted to avoid over-talking
- Please remain muted until called on for comments/questions
- For help with Zoom, please use chat function to Anita Cobb



A Look Back at the Process

The Part 150 Noise Study has been updated **three times** in the last **30 years**

Over **two years**, **14 public meetings** have been held

10 noise impacted San Diego communities have been represented in those discussions

More than 30 alternatives were evaluated

17 recommendations were presented as feasible

Facility and Operational Recommendations

Facility Recommendations

- **Ground Based Augmentation System (GBAS): precision lateral and vertical guidance system**
  - Allows for more repeatable and precise paths and consistency with 3.5-degree glidepath
  - Increased benefits of repeatability over time as utilization increases
  - Tests of GBAS are the basis for recommendation since only 25% of the fleet can currently use. Benefits cannot be effectively modeled with 65 CNEL because it would not show up in the cumulative metric. However, there could be single event benefits

Operational Recommendations

- **Concentrated non-compatible land uses around the airport limit alternatives that can be recommended (modeling indicates most procedure heading changes would either elongate or shift the 65 CNEL contour encompassing new non-compatible land uses)**
- **No alternatives that shift noise are recommended**
- **Work with airlines to develop and implement a Noise Abatement Departure Procedure (NADP) Close-in Departure Profile (ICAO-A)**

Administrative Recommendations

- **Continued measures**
  - Continued Support of Aircraft Noise Office and Program Manager
  - Update Airport Noise and Operations Monitoring System (ANOMS)
  - Communicate Noise Issues with Airlines
  - Provide Airport Use Regulations
  - Continue Completing California Quarterly Noise Reports
  - Update Noise Exposure Maps, every 5 years
  - Update Noise Compatibility Program as needed
- **Updated Measures**
  - Continue Fly Quiet Program with updates
- **New Measures**
  - Implement Portable Noise Monitoring

SAN NOISE STUDY

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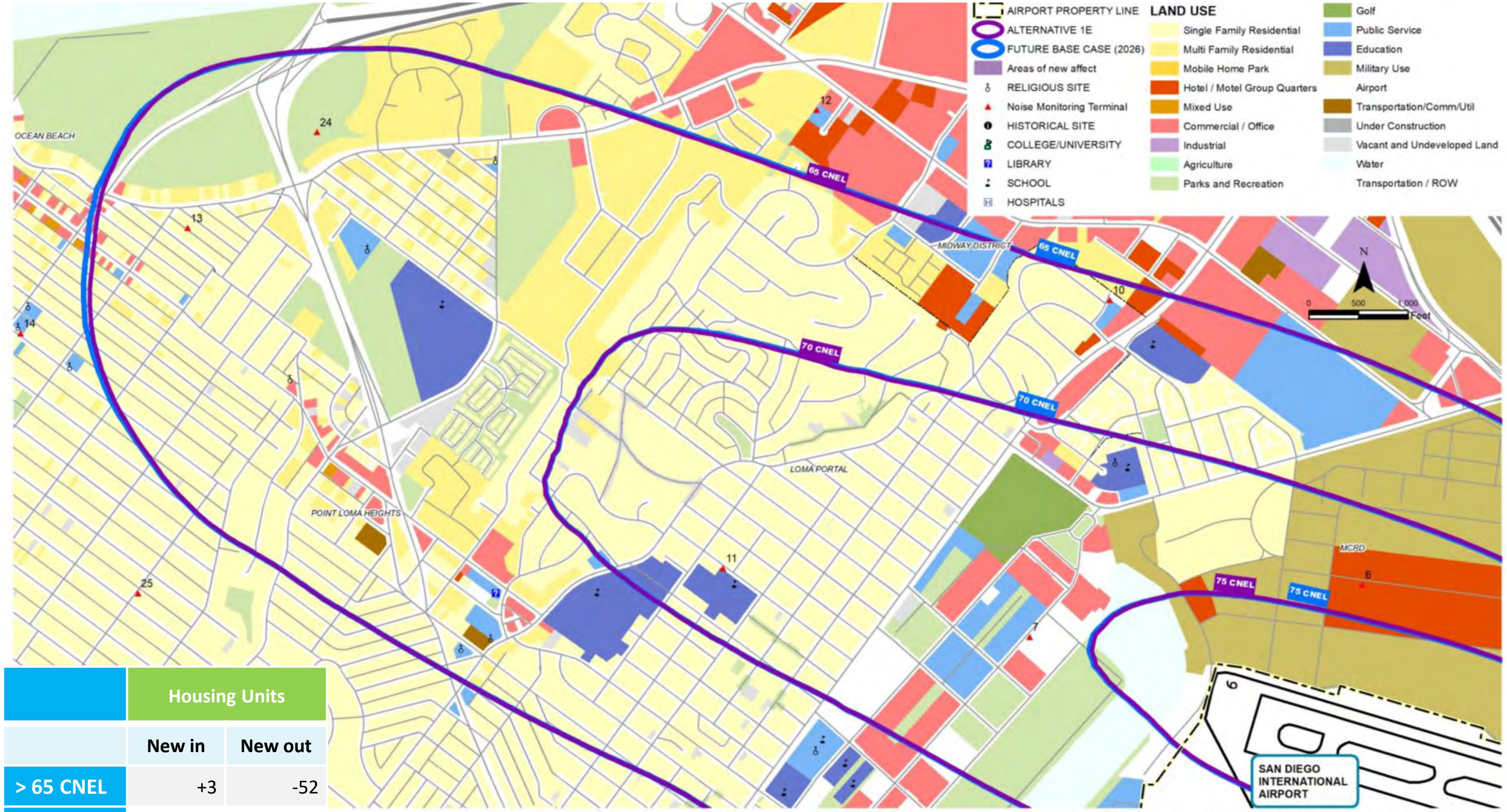
Land Use Recommendations

- **Continued measures**
  - **Support compatible land use development: Local jurisdictions**
  - **Compatibility Planning Process: Local jurisdictions**
  - **Support/Continuation of San Diego County Airport Land Use Commission (ALUC)**
- **Updated Measures**
  - **Continuation of Quieter Home Program**
    - Residential and non-residential insulation

ANAC REQUESTED MODELING – Nighttime RNAV Procedure on PADRZ Initial Route



entory Mapping Source: SanGIS landbase (i.e. parcels), SANDAG, County Assessor's Master Property Records file, Cleveland National Forest, Bureau of Land Management (BLM), State Parks, other public agency contacts, and local agency review.
icondo & Associates, September, 2020 (Alternative Contours)

	Housing Units	
	New in	New out
> 65 CNEL	+3	-52
> 70 CNEL	+2	-3
> 75 CNEL	0	0

A shift in the contour will result in some housing units that will be newly included in the 65 CNEL while others will fall out

Note *that contours are draft and may change in size. All final contours must be accepted by FAA*

Mead & Hunt

Summary of Public Comments

- Public Hearing held on April 8th
- Summary of Committee Public Hearing and Comment Period (to date)
- Discussion on public comments at Public Hearing and sannoisestudy.com

SAN NOISE STUDY

Mead & Hunt

Next Steps of Study

- Gather comments at the hearing and through the end of the public comment period (April 21st)
- Respond to all substantive comments for inclusion in the Study
- Review comments and recommendations with TAC/CAC (April 13th)
- Present Part 150 Study Update to ANAC for their recommendation to submit to Airport Authority Board (April 21st)
- Airport Authority Board (June 3rd)

Mead & Hunt

Questions & Comments

✈ https://sannoisestudy.com/

SAN NOISE STUDY

Next Steps and Closing

- **Thank you!**
- **Please submit any additional comments by April 21st at:**
  - https://sannoisestudy.com
  - Or written to:

    Jen Wolchanksy
    1743 Wazee Street, Suite 400
    Denver, CO 80202

Public Comments from
October 30, 2019 to
December 3, 2019

Date Received: October 30, 2019
From: Matthewjpricemd
Comment: I suggest that the "night time noise abatement procedure" for SDIA should be removed and that flights departing during "nighttime noise abatement hours", ie, after 10:00pm and until 630 AM, fly the standard daytime procedures. As a reminder, the nighttime procedure was based on a "handshake agreement" which directs all departing aircraft along a more northerly direction than during daytime hours, and after flying this northerly path, east-bound jets turn south to follow ZZOO (and occasionally are directed by ATC rightward and East over La Jolla). With the replacement of turboprops with large jet planes, the adoption of satellite navigation/NextGen, and the increase in air traffic, the nighttime handshake agreement now has inordinate impacts on Ocean Beach, Mission Beach, Pacific Beach, and La Jolla; returning the night time flights to the daytime procedures may also improve parts of the basec-case 65CNEL at night, and should be further evaluated.

Date Received: October 30, 2019
From: Kelly Powell
Comment: I am writing to provide feedback on the proposed planned growth at San Diego Int'l Airport. I find much of the plan (e.g. modernizing Terminal 1, improved parking, new multi-use pedestrian & bike paths, etc.) to be in keeping with the improvements necessary to maintain San Diego's status as America's Finest City.

That said, my concern - and it's a major concern - has to do with increased noise across the Point Loma peninsula. As the plan states, there will be an increase in noise, which has already been on the rise with more flights as well as the use of larger plans. I believe the Point Loma/peninsula community has already been quite vocal about the problems this creates but there have been no attempts to address the growing noise issues.

The WHO guidelines for aircraft noise strongly recommends reducing noise levels produced by aircraft below 40-45 dB, as aircraft noise above this level is associated with adverse health effects. Clearly, significant portion of the peninsula is already impacted by noise in excess of this recommendation. If we are going to see increased traffic, we also need to have the airport be a good citizen and help its neighbors by requiring airplanes that use SAN to utilize state of the art quiet-engine technology (and commit to working on continued improvement of this technology.) There will still only be one runway, so require the largest, heaviest planes (e.g. international flights, cargo planes) to fly over the least densely residential populated areas such as the South Mission jetty, and stop expanding the flight path. Require planes to reach higher elevations more quickly. Employ many of the strategies that the John Wayne airport uses to mitigate noise for their neighbors. In a nutshell, I'm sure that there are a number of things that can be done to address the noise issue, but the plan needs to allocate time, money, resources, political clout, etc. to make that happen; otherwise, its obvious that SAN is not simply unable to solve this problem, but unwilling to do so.

It seems that San Diego and the airport can achieve most of their goals AND work to significantly reduce noise pollution. This doesn't need to be a zero-sum game - please don't ignore the adverse health effects airport noise has on our community. Please be a good neighbor, and you'll get much better support from your neighbors.

Date Received: **November 21, 2019**
From: **philly74**
Comment: **on 11-18-19 at 9:52 pm our baby monitor registered a noise level of 81.5 db... pretty loud for that time at night.**

Date Received: **November 21, 2019**
From: **Carol Knott**
Comment:

- Reduce noise over South Mission Beach!
- Can planes take off on a steeper slope making them higher when passing over our homes in South Mission Beach?
- Can planes fly over the channel like I think they did prior to about 2017 (thus avoiding flying directly over my home)?
- Can a change be made to disperse the planes? 100% of nighttime flights over my home is unacceptable. I think we in South Mission Beach get 100% of early morning flights, too, but I never hear mention of that.

Date Received: November 22, 2019

From: Solutions

Comment: The AEM tool could be used to track each airlines contribtion to noise at SDIA. The FAA AEM tool calculates the 65 DNL area, since the version I have includes only the 10 dB penalty. I had to manually convert evening to daytime by multiplying the number of evening operations by five and then moving them to the daytime column. When I used this to estimate the CNEL decrease for use of Stage 4 for nighttime, I put in all of the aircraft at SDIA, or equivalent from the AEM database. This would be the best way to determine the contribution from each airline, except the logarithms makes the calcualtion non-linear tool. So, some clever approach would have to be used to calculate each airline value. This does not include any GTOW compensation, which is the best approach to calculate each airline contribution.

If you stay with the same approach, then I would suggest the following:

While I don't agree with some of the logarithm math, I don't think in most cases it makes a big difference. I think though that it would be fairly straight forward to correct it. With regard to other issues on the Fly Quiet Program that we discussed that I think would add to its credibility:

The largest group of impacted residents are on the departure side. Therefore, I would use only the takeoff Part 36 noise levels in the analysis. The arrival noise levels sometimes drown out the departure levels in the calculation.

In your calculation, you subtract the dB associated with GTOW, as they do in the FAR Part 36 and are not part of the CNEL calculation; I don't believe this results in relevant information for those on the ground. I would suggest using the levels of noise without subtracting the discount for GTOW.

I would suggest adding the 5 dB and 10 dB penalties for evening and nighttime departures as this reflects the disruption value.

I would show absolute contribution by airline and the normalized value. Both of these are of value to track.

Then I would maintain and report the absolute value from your calculation, since this would show any changes made by airlines over time.

Date Received: November 22, 2019

From: Nancy Palmtag

Comment: Thank you for this opportunity. Here are comments regarding what I would like to see included in the Part 150 Study:

Summary/list of past SAN Part 150 recommendations that were made to the FAA, and their respective outcomes.
Statement formalizing landing procedures for night time flights.
Analysis of noise impact of curfew violations.
Identification by name of Noise Sensitive Properties in both the 2018 and 2016 forecast contour maps, including schools, religious facilities, historic sites, and libraries.
Provide a breakdown of the 2018 and 2016 fleet mix identifying which planes are Stage 4.
Summary of successful actions taken by other airports to decrease noise impacts via a Part 150 Study.
Explore any departure procedures that could be changed at SAN to decrease noise, without compromising safety.

Date Received: November 24, 2019

From: Gary Wonacott

Comment: Change the concept so that it flys a vector from turn point assumed in Recommendation 14 Alt 5 - ELSO (290) instead of 285 degrees to a new waypoint located 2 NM from the shoreline , then BROCK 2. I am not sure who would have recommended 285 degrees vector, since that clearly is too far south. And 290 is consistent with the current nighttime noise abatement agreement.

Date Received: November 24, 2019

From: Gary Wonacott

Comment: Recommendation 14, Alt 6, same comment, change 285 degrees to 290 degrees. There is a misconception perpetuated by the Noise Abatement Office that PADRZ is coincident with 290 degrees. Not true. PADrZ is coincident with a line that is between 295 degrees and 298 degrees.

Date Received: November 24, 2019
From: Gary Wonacott
Comment: Recommendation 15 Alternative 2 Version 2 begins with an error. Flights going east post 10 pm departed on a 290 vector. PADRZ is statistically closer nominally to 295 to 298 degrees. This kind of deception is unacceptable. The nominal location, including dispersion is at the southern tip of the Mission Beach peninsula. This was shown graphically, or pictorially in the DEIR report.

Date Received: November 24, 2019
From: Gary Wonacott
Comment: Never before in my 40 plus years of engineering have I seen data fabricated as badly as I have seen here. There is complete disregard for the 290 nighttime departure agreement, or there is an attempt to deceive by stating that the 290 is somehow coincident with PADRZ. There is data which contradicts this assertion in Recommendation 15. The Noise Abatement Office/Consultant have put this misconception into the public domain, such that it can be used by those of us in the Public who fully comprehend the difference between 285, 290 and PADRZ. This needs to be changed back.

Date Received: November 24, 2019
From: Gary Wonacott
Comment: Thanks for taking the time to review this material, which in the grand scheme of the many studies is small, but is huge for Mission Beach residents, and in particular, those of us who live in South Mission Beach. There has been a lot of confusion and misunderstanding about the 290 degree heading as well as PEBEL 6 and PADRZ. For a long time, both the Noise Abatement Office and the FAA claimed that all aircraft, including those pre NexGen on PEBEL and post NexGen on PADRZ were assigned by ATC to the 290 degree heading. I plotted substantial data in the past couple of years and could clearly see that pre NexGen, aircraft were departing on two headings, albeit only a few degrees different, but still with a discernible difference. When NexGen was implemented, no one knew quite what the nominal path would be for this SID. But we quickly were able to see that the PADRZ RNAV software defined a unique S-turn shape. Depending on where the aircraft began its turn, the pilot tracking the line or the RNAV itself, turned the aircraft to an angle between 295 and almost 300 degrees. It is typical that the later the turned was started, the higher the turn angle. This typically resulted in the aircraft following a track over South Mission Beach and then almost immediately, making a slight left turn back. This was done so that the aircraft would intercept WNFLD.

1. The PADRZ SID track is initially between 295 and almost 300 degrees. This is substantially greater than the 290 degree nighttime noise abatement nominal track.
2. ANAC charts shown at meetings have incorrectly annotated the PADRZ track with the word or number 290 degrees. I cannot stress enough that this is absolutely incorrect.

I have shown two pictures below that I would like to use to make a few points. The three yellow pointers (not WNFLD) are at the mid-point of the runway, the end of the runway, and one mile out from the end of the runway. There is one red line, the bottom one, that is an extension of the runway. There are three other red lines coming off of the first red line at three locations, the midpoint of the runway, the end of the runway, and at one mile from the end of the run way. The three red lines are all vectored at 290 degrees. Not surprisingly, the three lines cross over Mission Beach at three locations, the bottom one one at the lower tip of Mission Beach.
For nighttime operations (10 pm to 11:30 pm), for the flights with eastbound destinations, they are vectored on a 290 degree heading. Noise abatement office personnel have at times stated that the 290 degree line vertex is at the midpoint of the runway, but in the context of the nighttime procedure, it is a virtual point that can be determined by taking the average of all of the departures on the 290 heading and then drawing a 290 line back towards the runway. Where this line intersects the lowest red line is the vertex for the 290 degree heading. In reality, aircraft begin their turn before they reach the vertex and end the turn beyond the vertex.
Now we go to the second picture off to the right. Our group has access to public domain data. In this case, we downloaded and used data for much of 2018. The chart is altitude versus distance from bottom tip of Mission Beach. In the left picture, the bottom tip of Mission Beach intersects with the bottom 290 degree line that emanates from the one mile from end of runway point. The data plotted is most every departure in 2018, post 10 pm to 11:30 pm. There are red dots that show those aircraft that turn left for east bound destinations and green dots for those that turn right for north and north east bound destinations. First, i think it is clear that there are far more red dots than green ones. Second, I think it is clear that the red dots are generally lower when they pass by Mission Beach, which is to be expected given their destinations are typically much farther away. The following data is shown on the graph:

- **Green dots,**
    - **there are a total of 1306 flights in the year for the calculations**
    - **The average altitude for the flights passing over Mission Beach is 2,900 feet with a standard deviation of 590 feet (assuming Gaussian)**
    - **The average horizontal distance is 0.36 miles with a standard deviation of 0.08 miles.**

- **Red dots,**
    - **Total flights is 3284**

- **The average altitude is 2,260 feet, which is quite a bit lower than for the green dots. The lower altitude means more weight, higher thrust and therefore greater noise.**
- **The average horizontal distance 0.13 miles**

As you can see there is a clear statistical difference between the 290 degree nighttime noise abatement agreement heading and PADRZ. Also, the difference between the horizontal distances for the green and red dots is almost five degrees.
There are several points to all of this discussion:

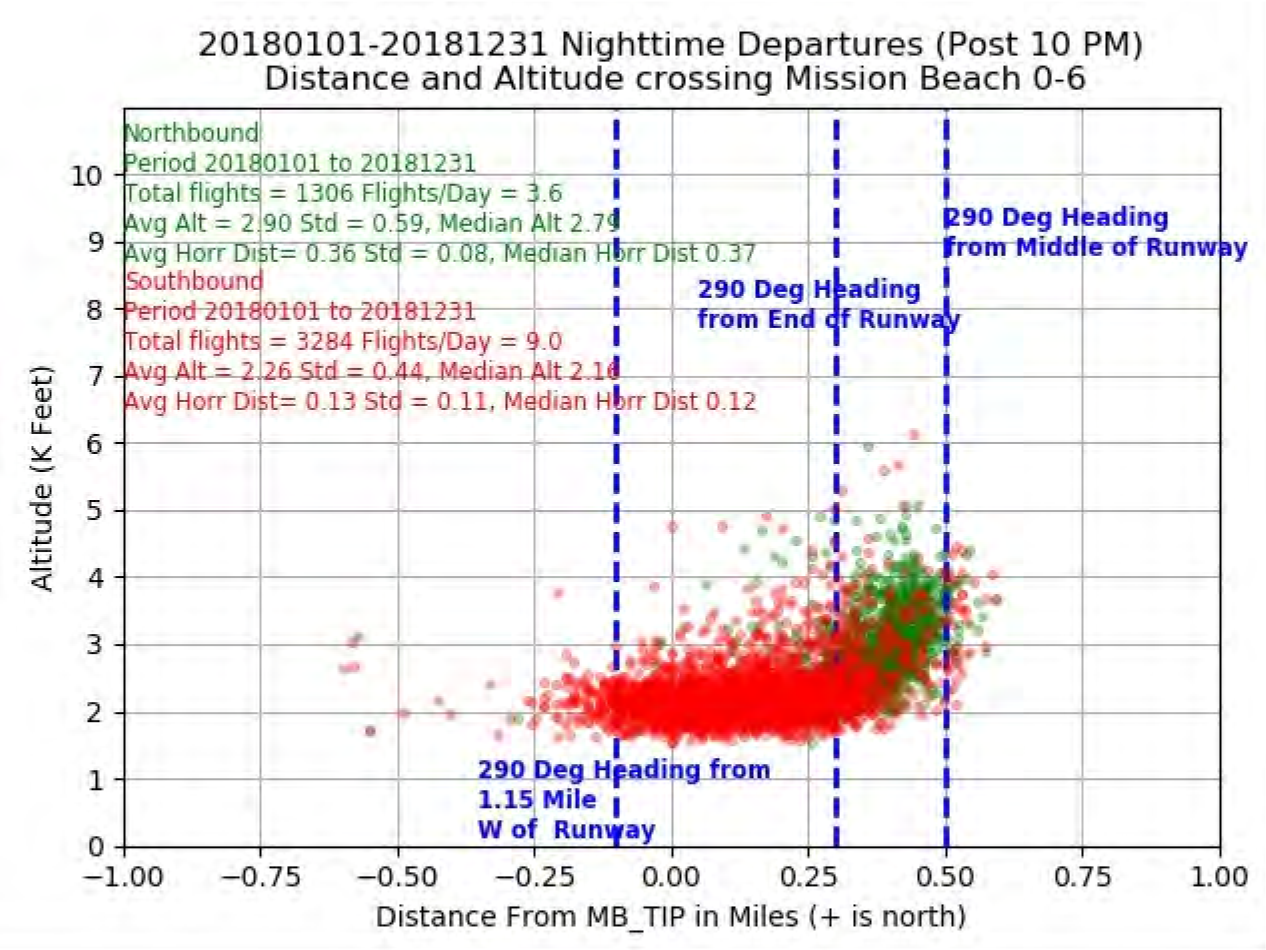
1. Using or replacing the 290 degree heading with PADRZ will shift a substantial number of aircraft, about 3.5 times more, and amount of noise northward into Mission Beach residential areas, a stated non-starter for the study. Not only will the number of aircraft passing over residential areas increase substantially, the noise levels for these added aircraft are much greater, thus adding to the disruption.
2. This applies to recommendation 14, Alt, Alt 2 Alt 3, Alt 4, Recommendation 15, Alt 2, 3,
3. The only way that PADRZ can be used for the nighttime noise abatement agreement flights is if PADRZ track is moved south to the 290 degree vector. No one ever recommended 285 degrees vector; 290 has a minimal impact on residential areas and is already well documented.
1. Therefore, change Recommendation 14, Alt 5 and 6, Recommendation 15, Alt 5, from 285 degrees to 290 degrees.

In summary, the actual data shows a clear difference between those aircraft with 290 versus PADRZ plans and confirmed by pilots to ATC at one-five-zero-zero altitude during departure. The 290 degree nominal departure is near the southern most tip of Mission Beach. Maintaining the departure on the 290 degree vector and moving those aircraft currently with PADRZ plans to the 290 will result in less noise over residential areas in Mission Beach compared to moving all nighttime departures to PADRZ. Already, the residents of SMB have the largest number of noise complaints, and fully recognize the this process has been carried out without true representation on either TAC or CAC by a Mission Beach resident committed to protect our environment. The fact that the current representatives have such little technology knowledge and cimittmeunt to SMB provides ground for an appeal. Also, during the day, the residents favor changing to Recommendation 14, Alternative 6 - ELSO, replacing 285 with 290 degrees vector daytime.

I understand there is a lot of data presented here, but keep in mind that there is much more evidence that supports the recommendations in this email. I would be happy to meet with you to discuss the content of this email.
regards,

Gary Wonacott
Mission Beach

While this email does not reflect and official position of the Mission Beach Town Council, since it has not been reviewed by it Board, I have copied several key individuals for information purpose.



If you believe you submitted a comment that has not been included, please send an email to Jen.Wolchansky@meadhunt.com.

Public Comments from December 4, 2019 to July 6, 2020

Date Received: December 8, 2019

From: Tony Stiegler

Comment: I represent Quiet Skies La Jolla, Inc. a 504(c)(4) non profit public benefit corporation. We request that the night time noise abatement procedure covering Point Loma be modified or rescinded such that departing air traffic is equally distributed between Point Loma and the northerly beach communities during all flight operation hours at SDIA. More specifically, we believe that during night time departure hours between approximately 8:00-11:30 p.m. all flights departing are directed away from Point Loma ZOO flight path and instead directed to the the PADRZ flight path towards Mission Beach, Pacific Beach and La Jolla. That night time noise abatement for Point Loma is an unfair and unequal distribution of the commercial jet noise associated with SDIA and falls disproportionately on La Jolla and its northern coastal neighboring communities. The night time noise abatement procedure should be rescinded or modified to protect the interests of all coastal communities to the north of SDIA.

Best regards.

Anthony M. Stiegler

Quiet Skies La Jolla, Inc.

Date Received: December 19, 2019

From: Kelly Powell

Comment: I would like to see the departure thrust cutback procedures modified in ways that would decrease noise in the communities surrounding the flight path. For example, planes would need to reach higher altitudes sooner upon takeoff to increase the distance between land and aircraft. I would also like to see the FAA commit to continuous development and utilization of the most advanced quiet-engine technology.

Date Received: December 30, 2019

From: PointLomaResident

Comment: If I ever set my alarm later than 6:30 am, I am rudely awakened by the aircraft flying overhead. When I am inside my house, with the windows closed, I often have to pause while speaking because the noise is so loud that someone sitting only a few feet away from me cannot hear what I am saying. It is so loud in my house that I have to spike the volume on the TV or pause the show and wait for the current plane to pass. The planes rattle my windows, causing destructive vibration to my house.

The planes regularly operate outside of their curfews which makes it hard to fall asleep at night and wakes me up especially early. The planes also often fly directly over my house even though I am not considered within the Quieter home program zone. The Quieter home program zone should include my area as the airplane noise is extremely loud where I live. Just being in my backyard it hurts my ears when the planes go overhead. You get trapped indoors to try to muffle the noise as much as possible. I am also very concerned with all of the exhaust coming out of the planes and raining down on the people below. I am concerned about the long-term health effects of living under a flight path; and any increase of air traffic increases my exposure and subsequent risk. SAN needs to take action to make my home hospitable and not expand the number of flights.

Date Received: January 10, 2020

From: jandiego

Comment: I notice there are no monitoring points near my location. Noise has increased a lot since we purchased this home in 2020. I think this quadrant of the airport sphere should have a noise monitoring site. Our windows and doors do not suppress the noise at all. The Dbs need to be monitored.

Date Received: April 10, 2020

From: JLW

Comment: Please contact me for any participation in this study.

Date Received: April 15, 2020

From: Tony Stiegler

Comment: Can you please update the CAC/TAC on Dennis Probst's announcements at the recent Air Noise Symposium in San Diego that "three proposals from the Flight Path & Procedures Study were advanced to the FAA

and we can confirm that one is still alive". Please publicly disclose and share all the details of those communications and decisions. Thanks very much.

Date Received: April 15, 2020
From: Nancy Palmtag
Comment: Thank you. I found the comments. My question remains. What is being done with them?

Date Received: April 15, 2020
From: Gary Wonacott
Comment: Thanks for the update, although I was not able to find any results for the recommendations assessment. Are these still being evaluated or did I miss something? We in Mission Beach continue to be concerned by the possibility of integration of the first segment of the nighttime noise abatement agreement into the PADRZ SID.

Date Received: May 5, 2020
From: Tony Stiegler
Comment: May I suggest circulating the slides in advance so that participants have an opportunity to prepare, which will lead to a more informed effective discussion?

Date Received: May 5, 2020
From: Will Schussel
Comment: I support the following:

1. Make the current 290 degree vector the initial leg up to the coast for ALL PADRZ SID departures, assuming that the 290 degree vector goes over Noise Dot #2.
2. Ask the CAC to consider adding a lower thrust departure for both ZZOOO and PADRZ out 2 miles beyond the coast line based on proven benefits at John Wayne Airport.

Thanks,

Will Schussel

Resident of Mission Beach, San Diego, CA 92109.

Date Received: May 5, 2020

From: Gary Wonacott

Comment: I have prepared a report with supporting data. This space is not sufficient. Can I submit the report to Ms. Gantwerk instead?

Date Received: May 5, 2020

From: Gary Wonacott

Comment: I have provided copies of this document to Gernot, but I am fairly sure that it will get no farther. I have asked a couple of pilots to review and they insist, or at least one does, that airlines are already flying the close in noise mitigation profiles at Lindbergh, but this is not the issue. I am most concerned about the increases in thrust that occur after the aircraft pass over Midway on route to Mission Beach. I believe there is a substantial win-win here.

Date Received: May 6, 2020

From: Gary Wonacott

Comment: We in Mission Beach are very concerned that it is the intent of the SDCRAA to integrate the nighttime 290 degree vector departure into the first leg of PADRZ, even though PADRZ initial nominal heading is closer to 295 degrees. This is what was shown in your flight procedures charts. Ms. Watkins had every opportunity to object, particularly when Mike Tarlton mention twice that this change will increase nighttime noise over Mission Beach. I have substantial data that shows that moving from 29-0 to PADRZ will result in a substantial noise impact on Mission Beach and would activate a NEPA assessment by FAA. Since Ms. Watkins made no effort to raise the visibility on this issue at TAC and CAC will not address this issue, because the change from 290 to PADRZ will likely have little effect on the 65 dB CNEL, I filed a complaint with the FAA. My other concern is that Ms. Knack has repeatedly tried to show that PADRZ and the nighttime noise abatement vector departure are one and the same.

This would not be the first time that SDCRAA has tried to dump on Mission Beach. A number of decades ago, an LOA was signed that moved the post 10 pm departures from 275 to 290 degrees. There have been multiple attempts to

find the documentation on this move. None has been found, which FAA personnel I have spoken to say is not possible. A change in noise from one community to another of this magnitude would have required a NePA to be activated. My complaint to the FAA references this illegal move as an example of actions taken at Lindbergh Field against Mission Beach. Since there was no NEPA, there is no appeal time limit. So this LOA could be challenged.

One of the biggest reasons why the number of complaints from Mission Beach is that the PADRZ has concentrated the departures over a very narrow corridor of SMB, where previously, aircraft on the 293 degree vector were much more fanned out. Yes this did result in more early turns to the right, but the majority of complaints then, far less than now, were coming from Debbie Watkins who lives farther north in Mission Beach. So, I propose that we go back to either a 290 or 293 degree vector for the first leg of the departure on PADrZ and then after crossing over Mission Beach bypass WNFLD and go directly to the second marker. This should alleviate the concentrated noise on SMB.

Second, at the Aviation or Airport Noise and Environmental Conference in San Diego a few months ago, I attended the NEPA session as well as the presentations on noise mitigation approaches being adopted at other airports. One presentation was by Melinda Franklin at United Airlines during which she discussed a flight test program that United is conducted with the City of Newport at John Wayne Airport. The testing is looking at different flight profiles to determine if there is one that might minimize noise over the residential areas there. I have flight profiles from JWA and it is clear that we in Mission Beach could benefit from a profile that maintains a lower thrust, therefore lower noise out well beyond the Mission Beach coastline.

Here is where I have a problem with your folks. This idea will go out and someone will come back with a flippant response simply saying that won't work here and Wonacott is wrong. I have past communications from your folks obtained using a public record request that backs up my criticism. What I would like to see you all do is figure out how to make the JSW flight profile work for Mission Beach.

Date Received: **May 12, 2020**
From: **Tony Stiegler**
Comment: **This follows up on Ms. Gantwerk's recent email regarding the May 28, 2020 TAC and CAC meetings, and the intention to "workshop" all ideas for consideration in the Part 150 Study. I must object to the intimated process because it gives inadequate time and information for members of the CAC and TAC to consider the discussion, take issues back to their constituencies and provide meaningful feedback and additional information and suggestions to be explored in the Part 150 Study. I am certain that ANAC's intention is not to foreclose or prejudice**

community engagement, but I am concerned that the process suggested by Ms. Gantwerk's most recent email would do just that.

The correct process should be along the following lines:

May 28, 2020: SDCRAA and its consultants update and brief the members of the TAC and CAC regarding current developments with the FAA and the Part 150 Study. It should be an informational update with projected time lines and a suggested process by Mead Hunt. There should not be any expectation of community feedback on the spot, in real time.

4-8 weeks are built into the schedule (at a minimum) for CAC and TAC members to report to our constituencies about the SCDRAA's May 28 debriefing.

A further date several weeks later is set for CAC and TAC members to provide written comments and any additional suggestions for investigation and study on proposals to mitigate commercial jet noise within the Part 150 Study; Mead & Hunt do not progress to a point where additional proposals from the communities or airlines are impractical because of progress made to date.

A further date is set to "workshop" those proposals among the CAC and TAC, to ensure that all communities are actively engaged and fully briefed about the proposals and process for consultant analysis, recommendations and interactions with the FAA. An informed dialogue is critical, based on all the facts and all the proposals.

A careful schedule is set forth going forward to ensure that adequate information, discussion and decision making occurs in an orderly way, without prejudicing the affected communities by allowing sufficient time for informed discussion and feedback.

Given the Covid-19 pandemic and the associated economic collapse of the airline industry, and the consequent SD International Airport's financial condition and prospects, there is time to get the noise mitigation solutions right.

I did not have the complete list of all CAC/TAC members' emails, but found this old email from Ms. Knack. Heidi--please ensure that this email is forwarded and published to all current TAC and CAC members.

Date Received: **May 19, 2020**

From: Debbie Watkins

Comment: I want to reiterate what I recommended during the Flight Procedure Analyses and ANAC meetings that:

- An important objective for me regarding aircraft noise and the Nighttime Noise Departure "Procedure" over the years is to reduce the aircraft noise and not increase the noise in the Mission Beach community, even 1 db.
- As you may know, the Mission Beach community is impacted by aircraft noise from 6:30 AM to 11:30 PM. All nighttime departures from 10 PM – 11:30 PM are already directed over the Mission Beach community at the 290 degree heading, which is an unpublished FAA procedure at this time.
- Any increase in operations at the airport, increases the aircraft noise Mission Beach receives every day and night.
- It is my understanding that New flight procedures will be reviewed under the Part 150 Study, including the Nighttime Noise Abatement procedure. After 20+ years of planes departing exclusively over Mission Beach from 10 PM – 11:30 PM, I believe it is time to consider a new and different flight procedure for nighttime departures so Mission Beach does not continue to receive the brunt of departing flights from 10 PM – 11:30 PM (including curfew violations.)
- We can call it SLEPN – short for "Sleeping" – make it a fly over waypoint and an FAA published procedure. This would be a new departure path over the channel between Ocean Beach and Mission Beach and would require planes to turn right or left at 2 miles over the ocean. This would greatly reduce the nighttime airplane noise over Mission Beach, Pacific Beach and La Jolla.
- Because we have been fortunate during this process to be able to recommend suggestions, I would very much like to ask the FAA and ATC whether they can design and recommend a new departure Nighttime Noise Abatement flight path called SLEPN, which would be fair and equitable among the current noise-impacted communities to share the burden.

Date Received: May 22, 2020

From: Gary Wonacott

Comment: Dispersion is referenced in the presentation, but not defined. Would the dispersion Be somehow controlled, and if so how, or would it have a statistical form. If statistical, and assuming a Gaussian, can you predict the dispersion statistics.

Date Received: May 22, 2020

From: Gary Wonacott

Comment: In the presentation document, I have inferred that the FAA controls the climb profiles are under FAA control; however, it is my understanding that the diversity of types of aircraft and engines and airline policy gives the airlines and even the individual flight crews substantial latitude as long as the FAA approves the overall procedure. Therefore, noise abatement flight profiles could be established by an airline and then referred to the FAA for consideration. It is apparent from analyses performed on both PADRZ and ZZOOO departures that there are departure profiles that would result in less aerodynamic and engine noise that should be investiaged.

Date Received: May 22, 2020

From: Gary Wonacott

Comment: If the idea of Chart 13 is to show a current anticipated and dispersion of aircraft on PADRZ over Mission Beach, it is an incorrect depiction of the current actual PADRZ route. Your picture shows the anticipated route crossing Mission Beach at its southern most tip. The actual average horizontal crossing distance from the southern tip of Mission Beach is o.45 miles, while the median distance is 0.37 miles. These numbers are backed up by actual data downloaded from the public domain.

Date Received: May 22, 2020

From: Gary Wonacott

Comment: On chart 13, you are showing a dispersion of about .71 miles from Dog Beach to what we now experience as the typical crossing path for PADRZ. The actual total dispersion path is 0.6 miles, but the vast majority of the aircraft cross over at about 0.4 miles. The 290 degree vector dispersion is far greater at 0.8 miles from about -0.25 miles to about 0.55 miles from the southern tip of Mission Beach. The average is close to 0.13 miles and the median is 0.12 miles. Note the aircraft on PADRZ typically turn to 295 degree, or 5 degrees great than the 290 degree nighttime noise abatement agreement vector.

Date Received: May 22, 2020

From: Gary Wonacott

Comment: The Nighttime Noise Abatement Agreement shifted all departures 10 pm to 6:30 am from 275 degrees to 290 degrees. However, the FAA has not been able to produce any documentation for this significant shift in noise over to Mission Beach. According to FAA officials, a NEPA should have been activated that would have activated analyses quantifying the noise shift; however this was never done. Since there was no NEPA, there is no expiration date to appeal this change that was implemented without participation by residents of Mission Beach. This decision needs to be reviewed.

Date Received: May 22, 2020
From: Gary Wonacott
Comment: There are three distinct departures on 27, the ZZOOO or 275, the 290, and PADRZ or 295. At no time during the studies has the assumed departure for the 290 been shown.

Date Received: May 22, 2020
From: Gary Wonacott
Comment: Alternative 1B - there are several false assumptions made on this picture. First, based on actual PADRZ flight data, the dispersion at the coast is 0.4 miles; therefore Alternative 1A is not realistic. Not clear what is meant by climb at at climb gradient of 500 feet per nautical mile or 435 feet per mile. Please explain because arcrft typically climb at a much faster rate during take-off. Assuming that it takes 2 miles from the end of the runway to complete the turn is far too conservative and unrealistic based on actual flight data. This would be a vector departure at 293 degrees. A1 int is not defined. What are the latitude and longitude of this waypoint? It seems that this design is feasible and meets the 15 degree criterion.

Date Received: May 22, 2020
From: Gary Wonacott
Comment: For 1B is it assumed that the pilot would fly the plane manually? If so, when would the RNAV be engaged.

Date Received: May 22, 2020
From: Gary Wonacott
Comment: It would be most helpful if you could also show the PADRZ nominal track on the pictures to understand the new CNEL contours changes.

Date Received: May 22, 2020
From: Gary Wonacott
Comment: Presumably you are assuming the narrow and wide body mix pre-coronavirus. It has been reported in the news that airlines are shifting their strategy back to more narrow body acrft and retiring the older wide bodies. Can you make a calculated assessment of this effect.

Date Received: May 22, 2020
From: Gary Wonacott
Comment: Alternative 1C dispersion associated with the turn is unrealistically conservative, as in too large. Again, I think there is good actual data that shows the dispersion even for this case would be far less, closer to 0.4 miles or 4.6 NM.

Date Received: May 22, 2020
From: Gary Wonacott
Comment: Alternative 2A - I think this is another good example of a bad assumption with regard to the turn completion and associated overly large dispersion on the southern side of the dispersion curves.

Date Received: May 22, 2020
From: Gary Wonacott
Comment: Why are you assuming that aircraft are waiting so long to complete the turn. Why are you assuming a climb rate of 500 feet per NM. This seems unrealistically low. Most aircraft currently reach a climb rate of 2,500 to 3,500 feet per minute. Are you using climb rate to control the turn point?

Date Received: May 22, 2020
From: Gary Wonacott
Comment: Alternative 4 - Are you assuming that the nighttime noise abatement procedure would not be used, but eastbound aircraft would depart on ZZOOO? Was this recommendation always there?

Date Received: May 22, 2020
From: Gary Wonacott
Comment: Shows key fly out metrics at San Diego International Airport (PADRZ and ZZOOO departures)

dashed line shows the coast at Mission Beach at a little more than three miles from the end of the runway. As is shown in the climb rate metric, shortly after take off, the climb rate drops to a relatively low number, on the order of 700 ft per minute, but then well before reaching Mission Beach, the climb rate increases to more than 2,000 ft per minute resulting in substantially greater noise than if it had maintained the lower thrust rate well past the Mission Beach coast line. In this particular case, the speed is about the same, but the aircraft departing from JWA reaches a much higher altitude. On the other hand, it is difficult to derive too much from this very limited single example.

John Wayne Airport has a number of noise sensitive areas to the west, including Balboa Island and Newport Beach, and aircraft noise is as big an issue there as it is at Lindbergh. At JWA, the communities have a very good working relationship with the Airport Authority in large part because the City of Newport Beach public officials engage and support the community efforts to mitigate noise in the surrounding communities.

This proposal would include the following assessments:

1. Compare the higher, faster departure with the higher climb angle, but with lower power settings, for three departures, ZZOOO, PADRZ, and the 290 degree vector nighttime agreement.
    a. Evaluate multiple variations between the two extremes.
    b. Evaluate the effects of nominal and extreme weather conditions.
    c. Evaluate the effect of different variations on different aircraft types (wake turbulence), interlacing of arrivals and takeoffs, interlacing of north going vs south impact on separation distances required and then subsequently on runway capacity.
    d. Assess noise changes within the 65 dB CNEL, as well as noise levels in dB CNEL in both Mission Beach and Bird rock. Set up a temporary noise monitoring system in Bird Rock for experimental work.
    e. Select a noise criterion and quantify single event nighttime sleep disturbance.
2. Perform similar types of analyses as in 1., but assessing aircraft emissions, including types of pollutants, pollutants abundance, and different types of pollutants abundance at different distances from the end of the runway out to 3 miles from the end of the runway.
3. A report will be prepared at the conclusion of 1. and 2. above and an assessment will be made for the need and benefits of an experimental program. If there is sufficient evidence of noise and emissions mitigation associated

with custom departure thrust-time profiles for ZZOOO, PADRZ and the 290 nighttime departure, then an experimental program will be developed in collaboration with one or more airlines.

Pictures of departures cannot be uploaded. Is it possible to email them?

Date Received: May 23, 2020
From: Gary Wonacott
Comment: Alternative 4 moved all aircraft from the 290 vector to ZZOOO. Depending on the time of the year, this could affect from 15-20 aircraft moving them south by about 0.84 miles. Since there is a nighttime penalty of 10 dB, this would be equivalent to moving 150-200 aircraft south by the 0.84 miles and yet there is very little change to the 65 dB CNEL. My concern is that if your assumptions are so bad for this case, what about all other cases analyzed.

Date Received: May 24, 2020
From: Gary Wonacott
Comment: I think it is clear that some assumptions made are very questionable. It then begs the question, what if any sensitivity analyses did you perform/. If not why not? Also, at the end of the presentation, you showed the net number of houses resulting from the change, but not the net population change, which could show to be more substantial leading to a different conclusion. Can you please show those numbers. Also, did you look at combining any of the alternatives to determine the combined effects. I believe the process is non-linear. For example, what if you combine managed thrust profile plus any of the alternatives outlined?

Date Received: May 24, 2020
From: Gary Wonacott
Comment: I am concerned that there is substantial relevant information that I have not yet received from the FAA. First, I filed a formal complaint regarding the absence of a NEPA assessing the original nighttime noise abatement agreement at 290 degrees vector. Second, i filed a public record request with the FAA to obtain the date of the nighttime noise abatement agreement. The FAA called me to tell me that they had the document and would send it to me, but thus far I have not received it. Also, I submitted a public records request to the San Diego County Regional Airport Authority requesting all communications regarding NEPAs and the nighttime noise abatement

agreement. Lastly, Congress has not completed their assessment of the requests they made of the FAA in the 2018 Congressional authorization.

Date Received: **May 24, 2020**
From: **Len Gross**
Comment: **I think I found some errors in the power point.**
The "color coding" and sign-convention for in and out of the 65 DNL is quite confusing, but I don't think the chart o slide 29 Is consistent with the tables on the contour plot. For most of the contour plots the negative values translate into "black" on the slide 29. But for Alt 2A a negative number is in red. There are several other "wrong colors" as well.

If I were you, I would ditch the color coding and simply use plus and minus. With minus meaning it increased and plus meaning it increased with the alternative track. I think everyone can understand that – (a decrease) is a good thing. "New in" and "New out" could be changed to Added and removed.

Date Received: **May 24, 2020**
From: **Mike Tarlton**
Comment: **Thanks for working this! Appreciate the team moving forward using Zoom as an alternative to waiting for COVID to subside.**

Can I get some help / make a suggestion? In the current deck, we have multiple options / alternatives to consider, but no where can I see the baseline we are discussing deviating from. Can you put the baseline in the presentation or at least point me back to the slide deck that shows it? I get confused when all I see are numbered recommendations and noise contours that shift the noise South into OB. I would like to understand what the current status quo is and be able to compare it to these options.

Also, I am slightly confused as to how these options got into the mix at all? Every option presented seems to shift noise from Mission Beach to Ocean Beach... I know Mission Beach has a bunch of vocal participants, but it is still 100% unacceptable to shift noise South to OB, just because they would like it so. I thought the first rule of engagement was we can't and won't shift noise from one community to another?

What did I miss that allowed these recommendations to be put forward?

Date Received: May 25, 2020
From: Gary Wonacott
Comment: Again, I apologize, but in all of the years I was in aerospace engineering, I never saw a situation where we were denied the possibility to present our data or analysis results. I am sending you this information because I believe it supports ideas that will mitigate noise over Mission Beach.

The chart below is from the 2010 Part 150 Study and shows a substantial number of departures for the two main SIDs at the time, the 275 and 290 degree vectors. This airport operated for decades under these conditions with no incidents that as far as I know made it into the news. So killing the recommendation to move WNFLD south a short distance so that PADRZ nominal track is south of Mission Beach seems fully justified.

In 2010, a Part 150 Study was commissioned. One of the options examined was to analyze a noise abatement departure procedure. I have no idea exactly what procedure was analyzed, but a comparison of the baseline and the NADP contours are shown in the third chart. The assessment is that these results would produce an insignificant decrease in noise. You have looked at a lot more contours than I have, but this does not look like an insignificant decrease. Also, the NADP currently being looked at and tested by UAL at SNA is substantially less jolting. A comparison of of altitude, climb rate, and speed are shown in the second chart for SNA and SAN. Both charts begin at the end of their respective runways. The coast for SAN is 3.4 miles from end of runway and 5 miles for SNA.

As always there is a trade off, in this case, throughput (maybe) versus noise decrease. If you examine the climb rate for the two cases, climb rate is higher for the first 0.2 miles, but then very similar out to the coast, except that the climb rate, and or thrust is increased about 2.2 miles out. I believe this results in increased noise in Mission Beach that is unnecessary and could be mitigated. Also, yes the speed is less at SNA. I could be wrong, but I believe that noise is a function of speed squared.

I think some analytical study should be performed to determine what level of noise mitigation might be achieved at SAN. Note that our contact at SNA in the community group has stated their goal is a 5dB decrease in noise. So far, they are at 3 dB.

Date Received: May 25, 2020
From: Gary Wonacott

Comment: The analyst should include in the results, the area change of the contour, the number of houses affected, and the population affected.

Date Received: May 25, 2020
From: Gary Wonacott
Comment: For decades prior to the implementation of the FAA RNAV satellite navigation, there were two departures at Lindbergh, 275 and 290 degrees. PADRZ departs on a 295 resulting in aircraft flying directly over South Mission Beach in a concentrated nature thus resulting in far more noise complaints. Recommendations that moved WNFLD south were deemed incorrectly to be flying a departure less than 290 degrees in large part because the Noise Abatement Office measured the angles from the centerline of the runway instead of the actual nominal turning completion point for the aircraft. This earlier conclusion that the modified PADRZ would violate the 15 degree rule was therefore flawed. If this option is not reevaluate, a formal complaint will be delivered to the FAA Western Pacific Ombudsman appealing the decision based on a flawed process.

Date Received: May 26, 2020
From: Willmont85
Comment: I want Debbie Watkins replaced as I feel she has not represented her area well and has misused her position as a representative on one of your boards.. As a resident & homeowner for over 62 years I am tired of how Mission Beach has unnecessarily taken the brunt of airport noise over our area. From 6:30 a.m. to 8:30 a.m. I have counted flights flying directly over my home by the jetty (Aspin Ct.) every 30 to 40 seconds. Over 50 of my close neighbors have requested D. Watkins removal on a petition last year. We are being discriminated upon, I feel we are being discriminated up as do over 60 of my close neighbor who signed a petition signed by them and presented to the MB Precise Plan board. We believe your constant flight increase over our area is a danger to us and the passengers using Lindberg Field.

Date Received: May 27, 2020
From: Ladyjane0420
Comment: I ask that the following concepts be incorporated into any plans deriving from this study

Modify the PADRZ SID to reduce noise over MB PB LaJolla and that an equitable distribution of noise be incorporated

Add permanent noise monitor in South Mission Beach area

Add single event noise level criterion to Quiet Home Program

Investigate alternative flight departures thrust time profile.

PLEASE SEND ZOOM LINK FOR UPCOMING MEETINF IN MAY

Date Received: **May 27, 2020**
From: **Gary Wonacott**
Comment: **The results from 1A, 1B, 1C confirm a very key point for Mission Beach. The larger the dispersion, the larger the number of people removed from the 65 dB CNEL. When the FAA implemented PADRZ it resulted in a Substantial concentration of the dispersion, which has resulted in noise complaints from the residents of Mission Beach increasing from just a few to a very large percent of the total noise complaints. There is only one conclusion that can be made from these results. The flight procedures study must be revisited to assess alternative approaches, potentially those that spread out PADRZ to reduce the noise concentration.**

Date Received: **May 27, 2020**
From: **Gary Wonacott**
Comment: **Alternative 4 also produced very important insight into noise over Mission Beach. In looking at the noise contour for Alternative 4, there is very little difference with the baseline. While it might be concluded that it would not make sense to follow up implementing Alternative 4, because there was little difference, it also follows that there was little or no rationale for moving the post 10 pm aircraft from 275 to 290 degrees in the first place. Since there seems to be more evidence that this change was made without following the appropriate FAA NEPA process, then it only makes sense to return back to the original post 10 pm departure procedures. It also shows how inane sole use of the 65 dB CNEL is for determining flight procedures.**

Date Received: **May 28, 2020**

From: Gary Wonacott

Comment: I did watch most of the meeting, and was appalled that the Pt. Loma resident and committee member was allowed to disparage Mission Beach and its residents. We have families and we have elderly on our court living directly under PADRZ. Whenever the 290 was implemented, the folks on the 275 track benefitted by about an 8 dB SENEL decrease.

I think you know that we will challenge moving the aircraft currently from the 290 to PADRZ, as this would result in a substantial increase in noise levels over us. Also, while leaving the aircraft on the 290 would be acceptable, as Casey said, the dispersion needs to be decreased substantially. I am not even sure in the long term that the FAA will allow what I believe to be the illegal 290 nighttime noise abatement agreement.

Alternative 1, in any form, would be acceptable, although the smaller dispersion would be preferred. Seems like the Pt. Loma folks can go with one of the Alternative 1 options, or Alternative 4. By the way, it was intimated that someone from Mission Beach proposed Alternative 4. Perhaps you can point me to the comment from which that Alternative came, because I do not think it was me.

I understand that this was the first attempt to move towards a compromise. But, given the intensity of PADRZ, I think you can understand that Mission Beach has gone far enough and cannot compromise any further.

Also, I believe that having the two MB representatives on your two committees has not helped either you or us.

Date Received: May 29, 2020

From: Len Gross

Comment: These comments relate to the 5/28/2020 CAC meeting:

1) All the proposed routes seem to have rather small changes in the dB profiles. If this was not a Part 150 would the "changes" qualify for a CATEX? Can that be claimed even though it is a Part 150?
2) What is the uncertainly level of the in/out calcs? For example, what happens if the aircraft type is slightly changed? The changes being shown are fairly small but become the gating criteria. If load factor changes by +/- 5 percent do the results change? Etc.
3) As mentioned in the meeting, giving the in/out for those that can actually hear the difference would be very valuable.

Date Received: May 30, 2020
From: Gary Wonacott
Comment: What about changing 275 ZZOOO from one to three SIDs at 270, 275, and 280. Theoretically, would the width of the 65 be the same, but the length would decrease? If no new people, then why not. Yes, more complex, but and does not impact new people, and reduces the 65, why not?

Date Received: May 30, 2020
From: Gary Wonacott
Comment: I presume you are passing these along, but if not OK. I do know that if I was sending to Sjohnna, I don't think she would be sending to you. There are a couple of key points from this presentation:

1. The variation of number of nighttime flights during the year obviously shows more in the summer months when these departures are more disruptive to us on the ground.
2. The chart showing green (PADRZ) and red (290) departures post ten pm. Note the actual size of the dispersion. These are real, so if your model is giving something else, some input variable needs to be corrected.
3. In speaking with the president of the JWA Airport Working Group, he and hearing about our current situation, he suggested that the flight testing being done up there be completed in 2021 (depends on the virus); the airlines have agreed to share the information with other noise distressed airports; I think it would make sense for him to meet with the committees down here (CAC and TAC) and give them an overview of the process they are using up there. The airlines have agreed to set aside issues like increased operational cost and time of flight (as long as it is not greater than 30 seconds, not including differences in takeoff times) and focus on noise abatement departure profiles. He is not willing to share results, but he can go through the process he has worked out with the airlines (Airport Authority is not directly in the loop). And, based on his overview decide what if any analyses would be conducted now before we have the flight test results. He emphasized that safety is always an over-arching consideration. We would cover his costs to come down if that works out due to virus constraints.
4. AETG-2e model and noise monitors accuracy. There are clearly assumptions made in the models that can result in errors in the contour. He mentioned that they found errors of 1-3 dB. That's important. But, they also found when they changed out the noise monitors 18 months ago, the numbers changed. That is also important.

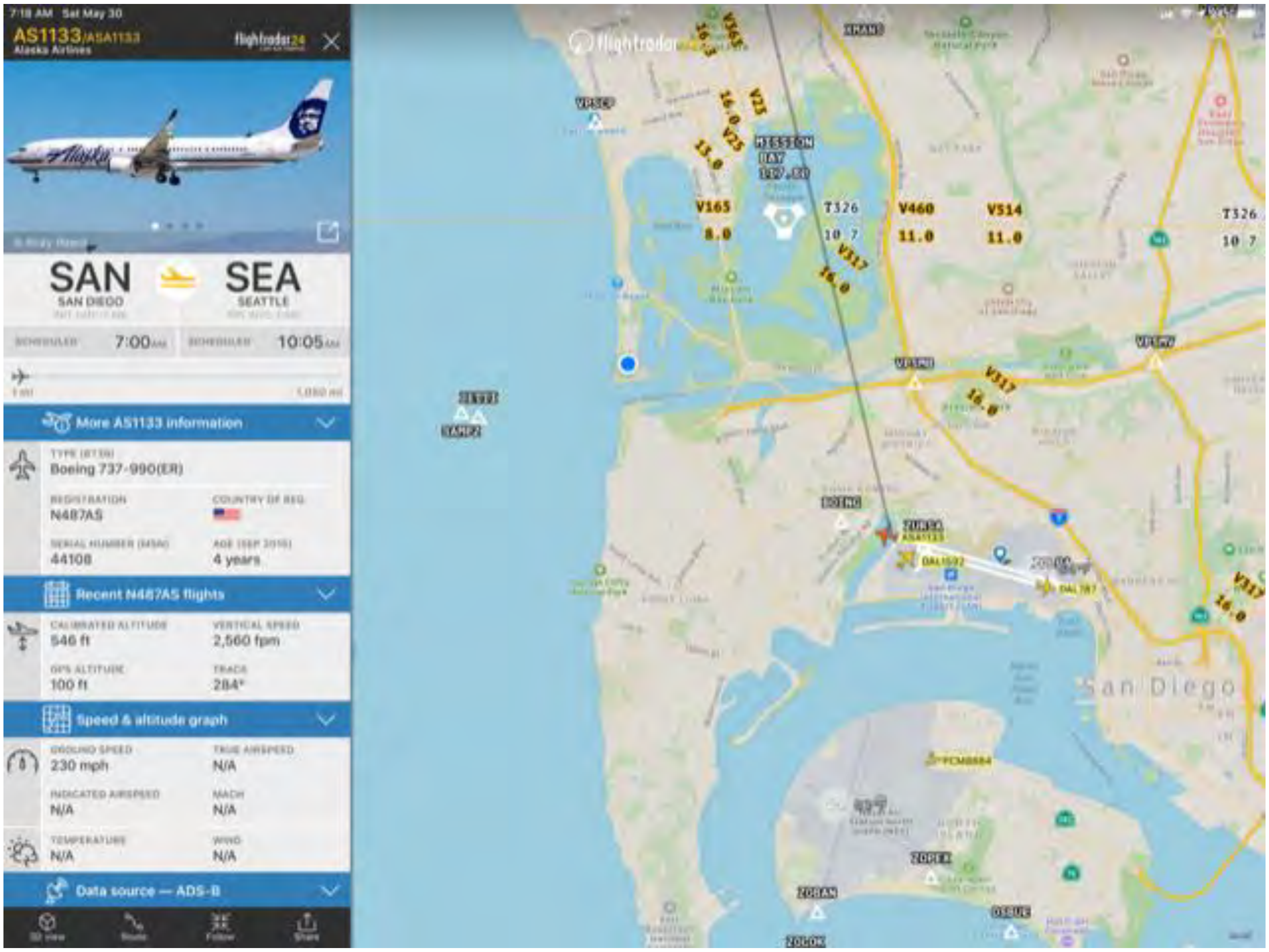
I personally think that it would make sense for ANAC to create a new Subcommittee on noise mitigation thrust/altitude management that could work this issue for the next year at least. Lastly, he mentioned that it should be a lot easier to make changes if they are to operations rather than procedures. I am not quite sure what was compared for your case where the 290's were moved back to ZZOOO. Whatever, it did not make sense. I measured from noise monitors a 8 dB SENEL average decrease in noise at the monitor on the ZZOOO track by moving the post 10 pm flights to the 290. I would think this would result in a substantial change in the 65. Showing that benefit first might have slowed down the OB resident, Robin.

Date Received: May 30, 2020
From: Gary Wonacott
Comment: This flight illustrates the PADRZ problem exactly. Look at track from Flightradara24. You have to subtract 11 to get to the number we most relate to.

Picture:

1. 273
2. 273
3. 274
4. 274
5. 290 (perfect should stop here)
6. 294
7. 299 (why is he turning up here)
8. 302
9. 306
10. 295

To me, moving to Alt 1 is not a flight procedure change. It is a correction to the RNAV software that is causing the aircraft to turn right too far and then having to adjust back left over MB. I dont think the FAA will want to modify the software, but is this not what Alt 1 would be doing?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flightradar24
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Boeing 737-990(ER)
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COUNTRY OF REG.
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4 years
Recent N487AS flights
CALIBRATED ALTITUDE
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GPS ALTITUDE
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TRACK
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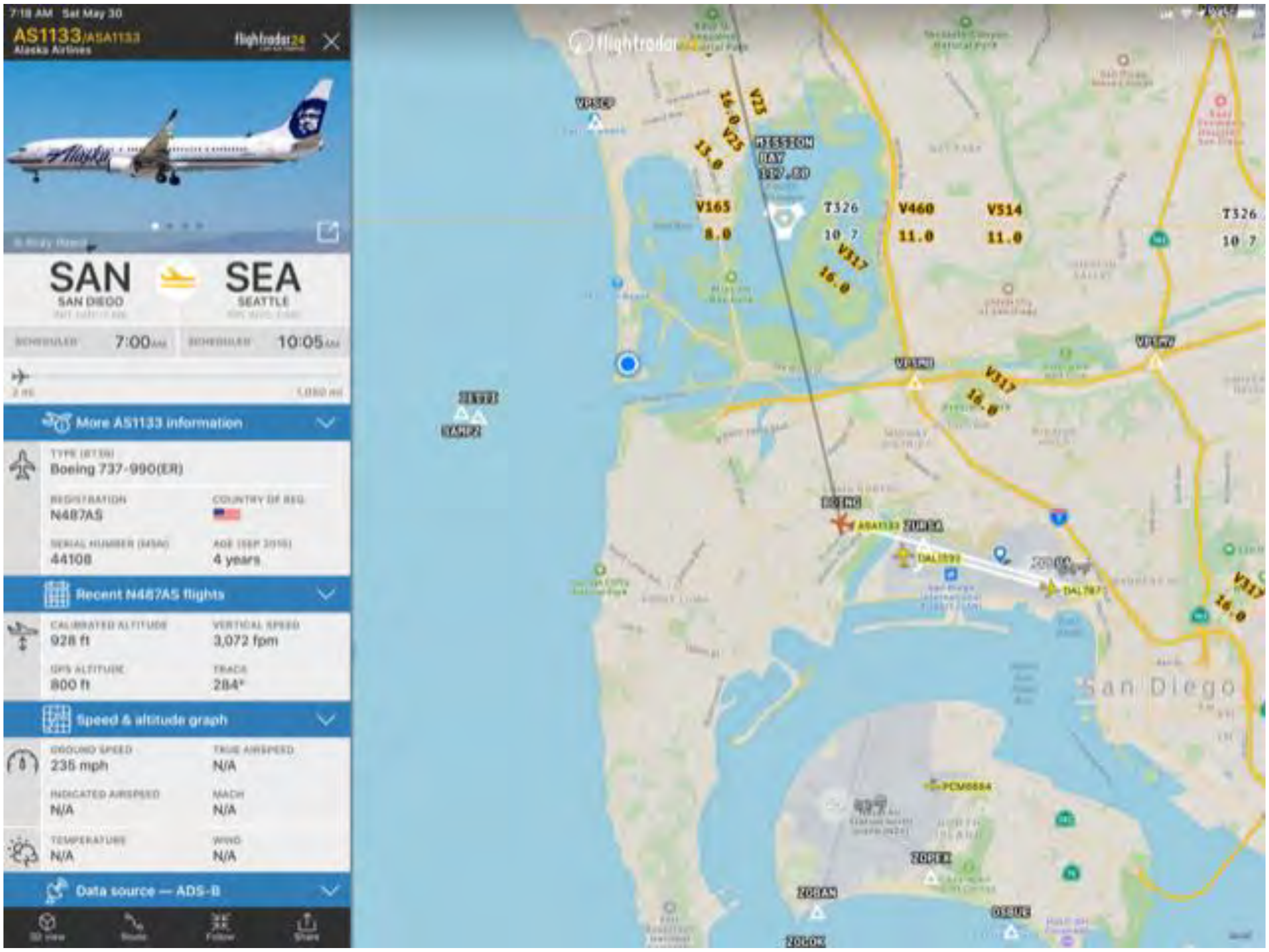
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4 years
Recent N487AS flights
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VERTICAL SPEED
3,072 fpm
GPS ALTITUDE
800 ft
TRACK
284°
Speed & altitude graph
GROUND SPEED
235 mph
TRUE AIRSPEED
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INDICATED AIRSPEED
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MACH
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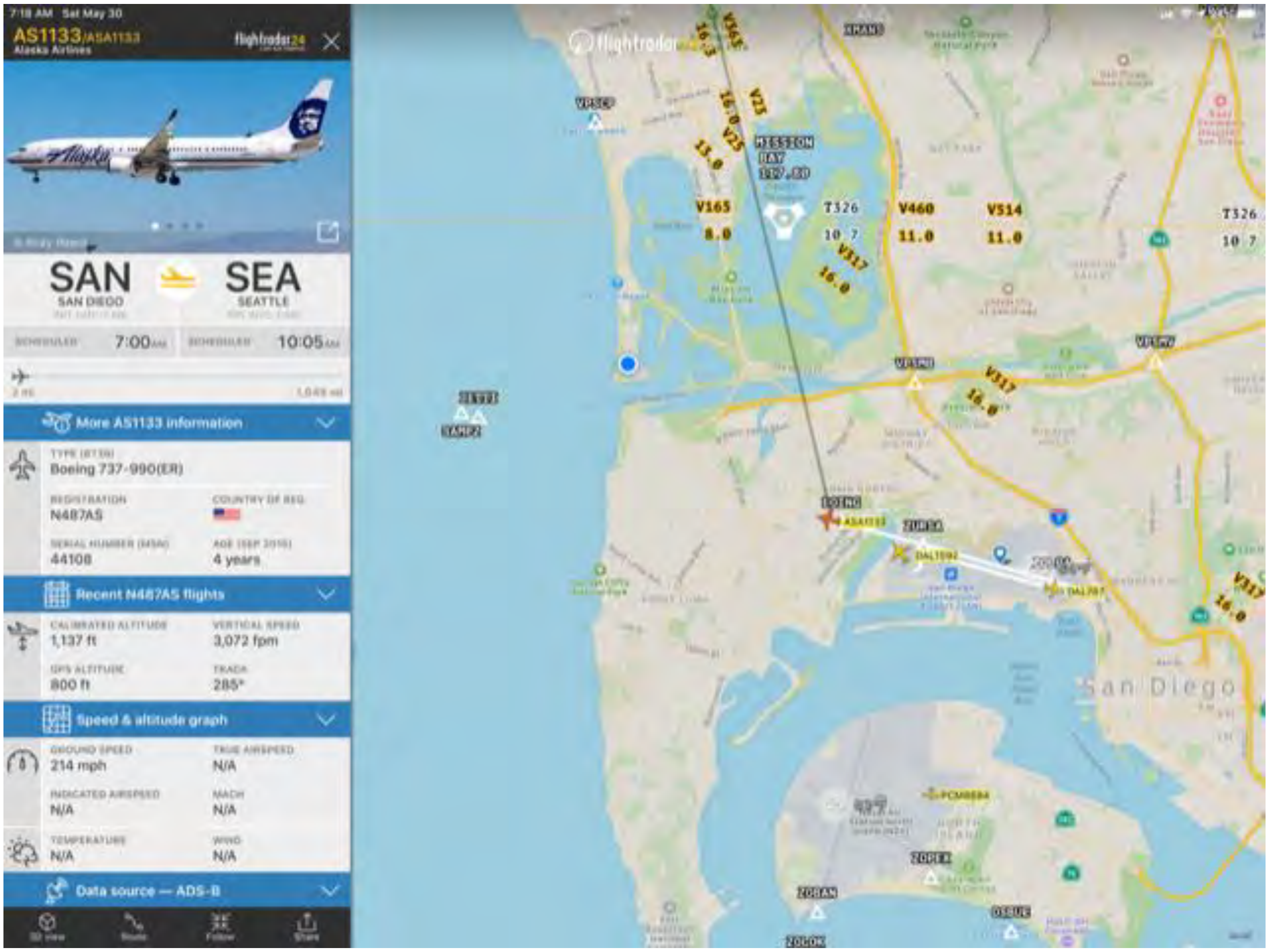
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Recent N487AS flights
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GPS ALTITUDE
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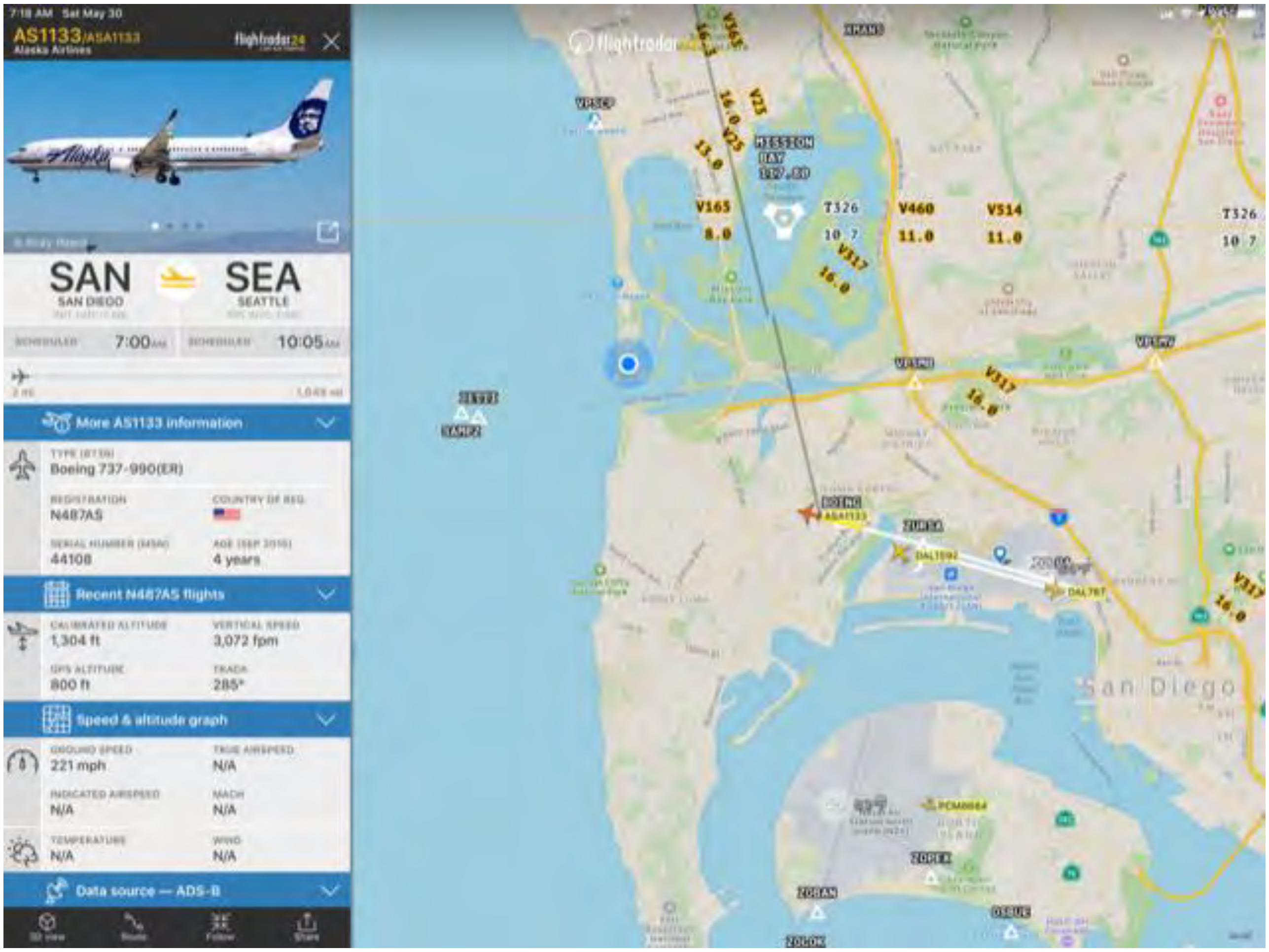

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4 years
Recent N487AS flights
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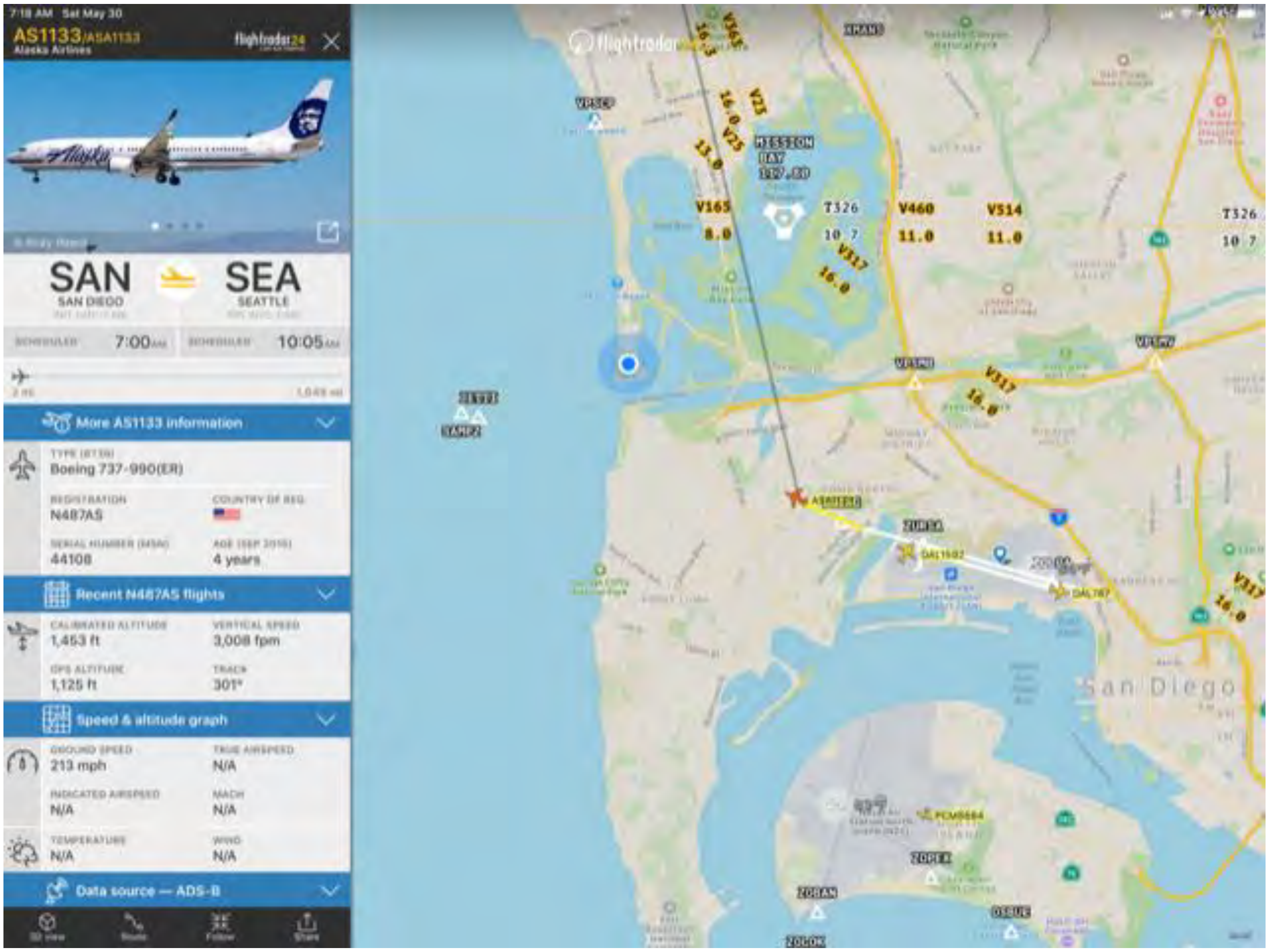
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Recent N487AS flights
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GPS ALTITUDE
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TRACK
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Speed & altitude graph
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TRUE AIRSPEED
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MACH
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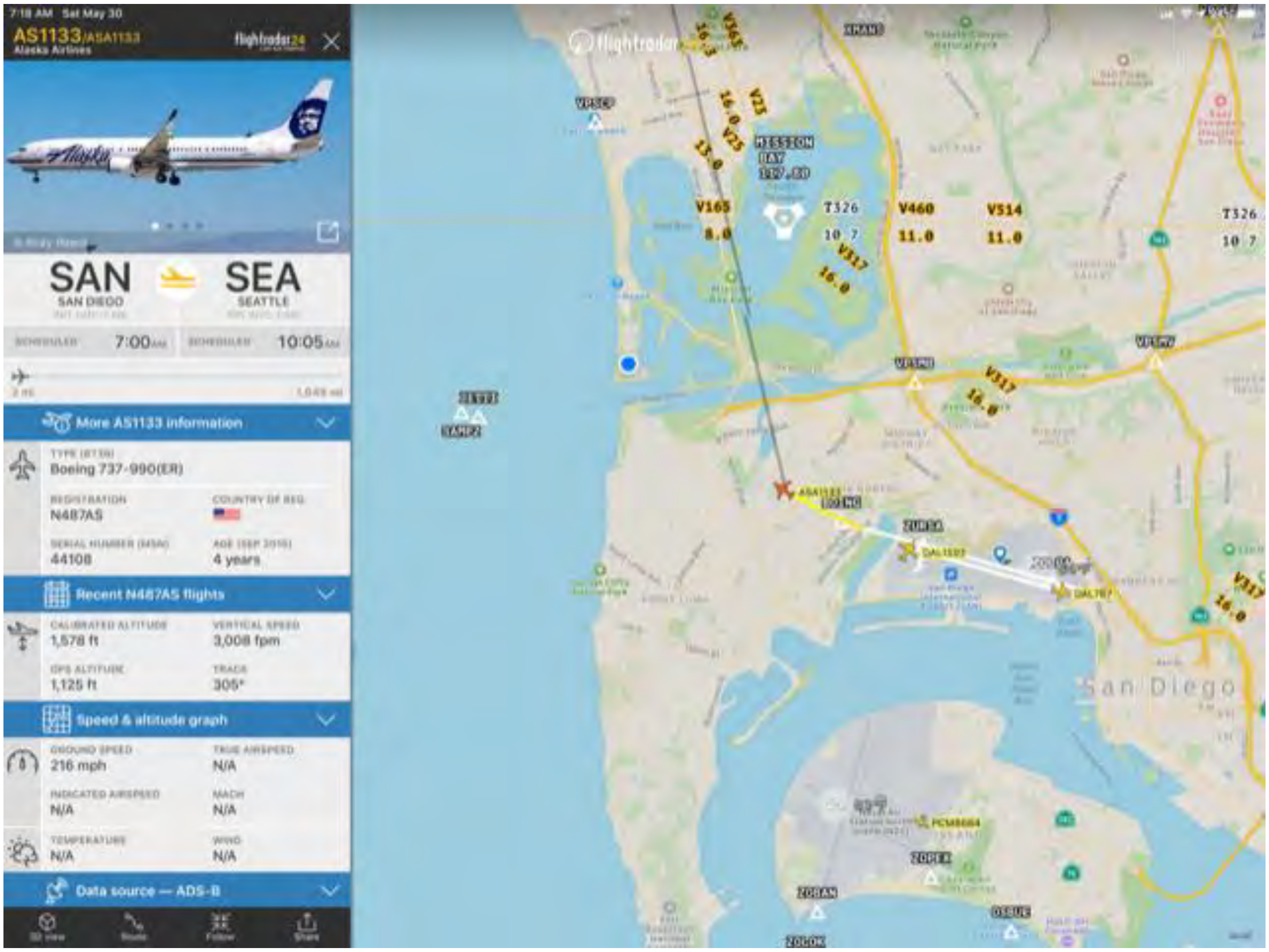
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GPS ALTITUDE
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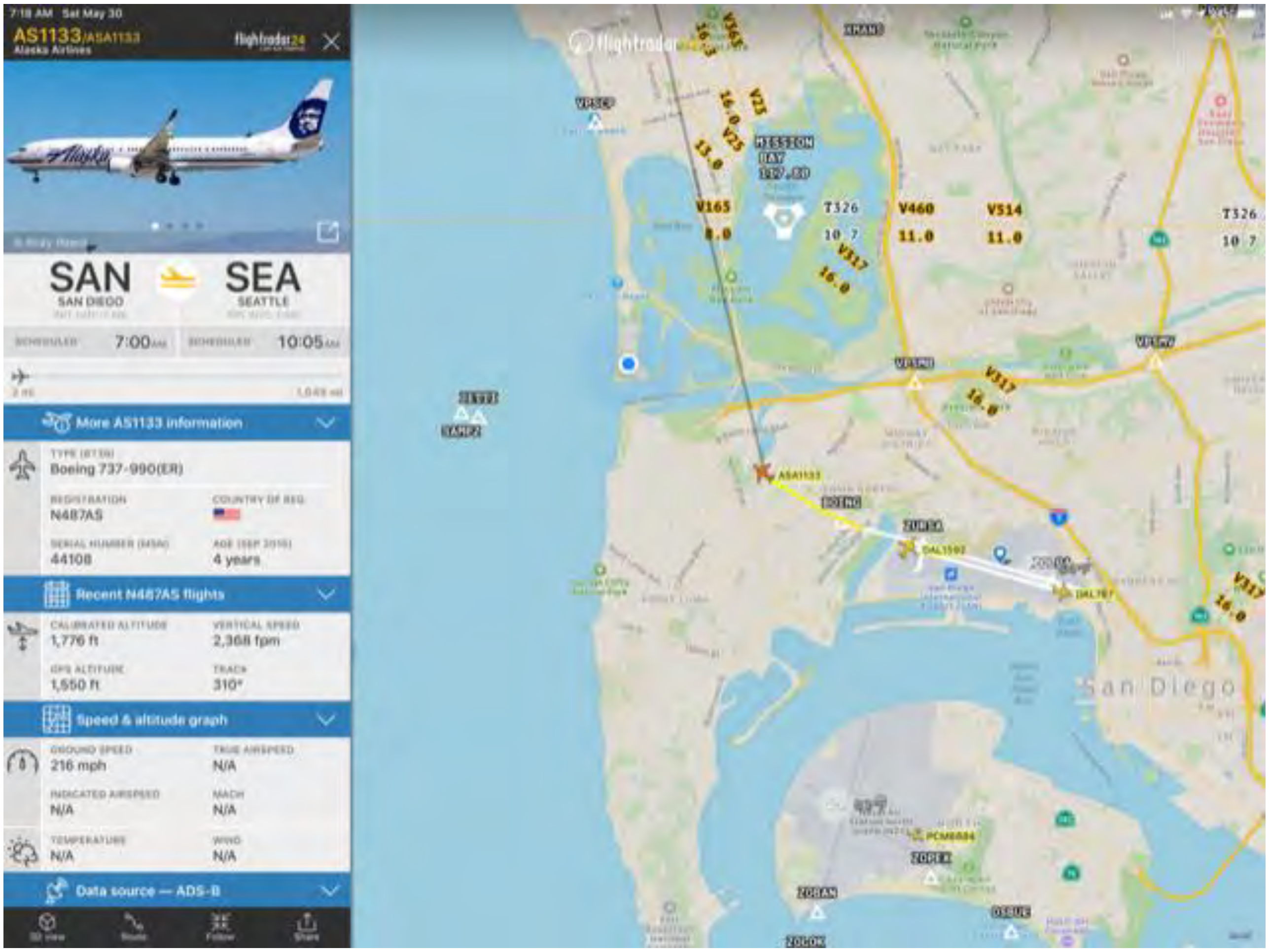
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REGISTRATION
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44108
4 years
Recent N487AS flights
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VERTICAL SPEED
2,368 fpm
GPS ALTITUDE
1,550 ft
TRACK
310°
Speed & altitude graph
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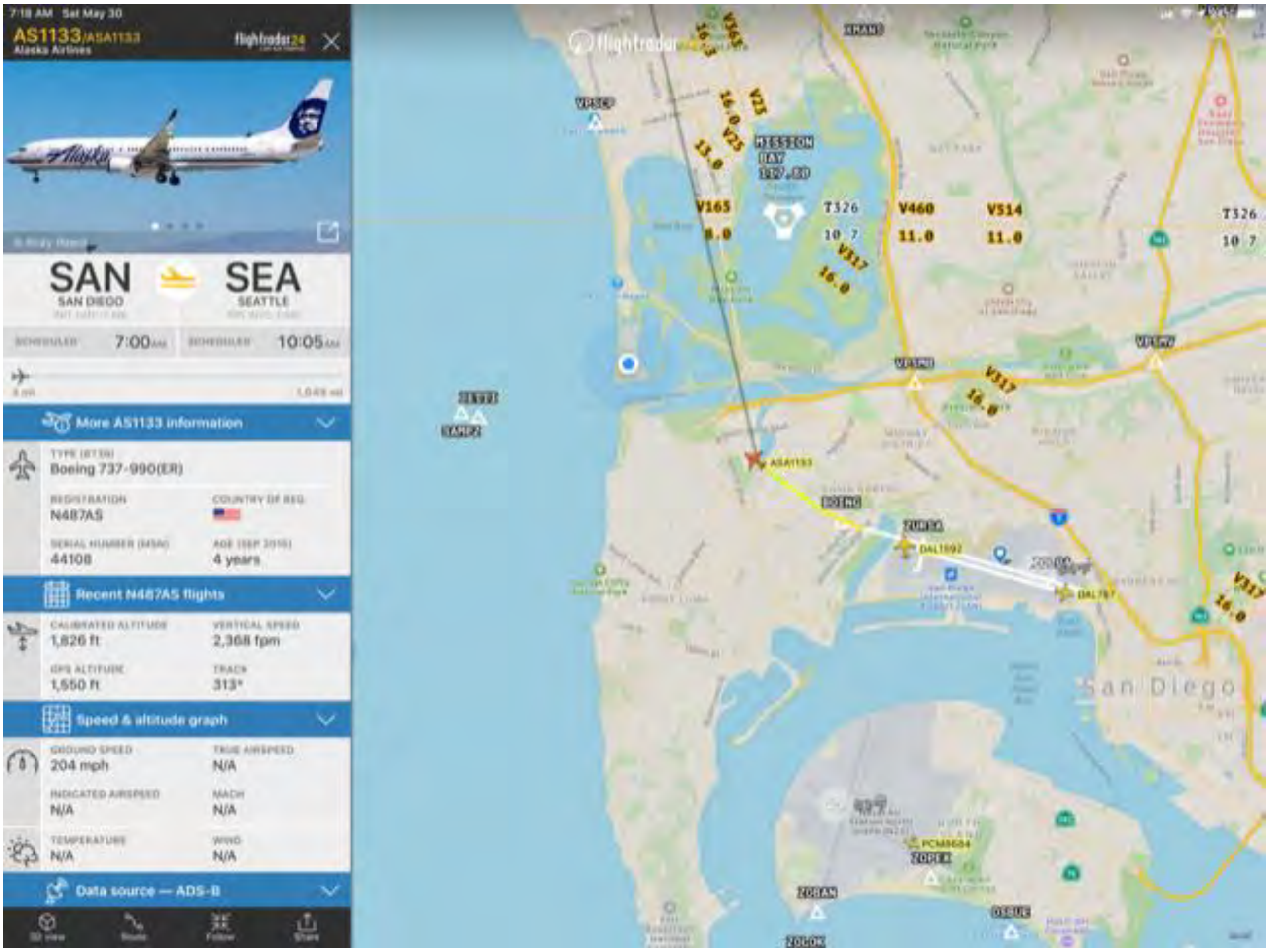
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More AS1133 information
Boeing 737-990(ER)
N487AS
44108
4 years
Recent N487AS flights
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1,550 ft
313°
Speed & altitude graph
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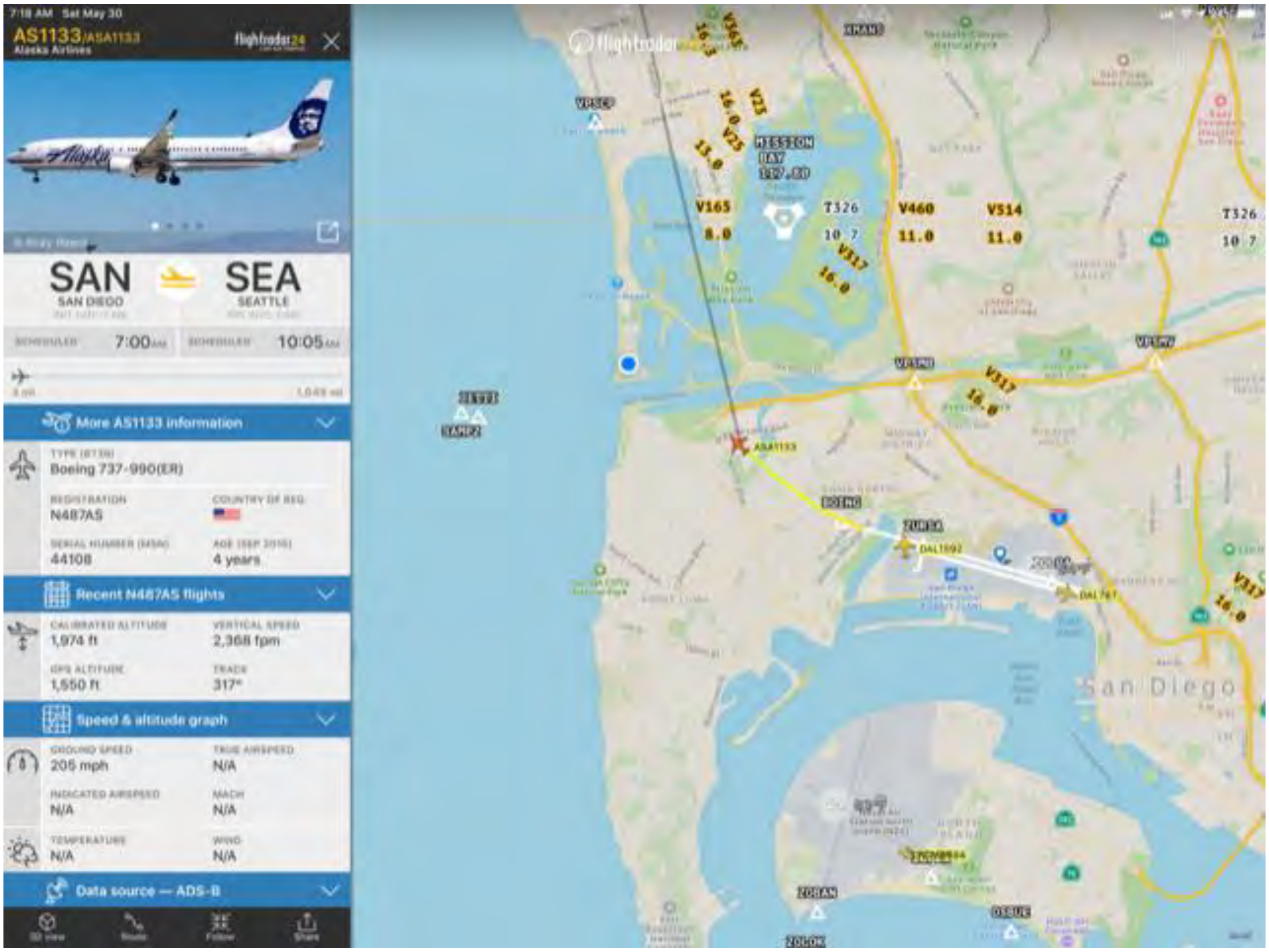

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4 years
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1,974 ft
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Speed & altitude graph
205 mph
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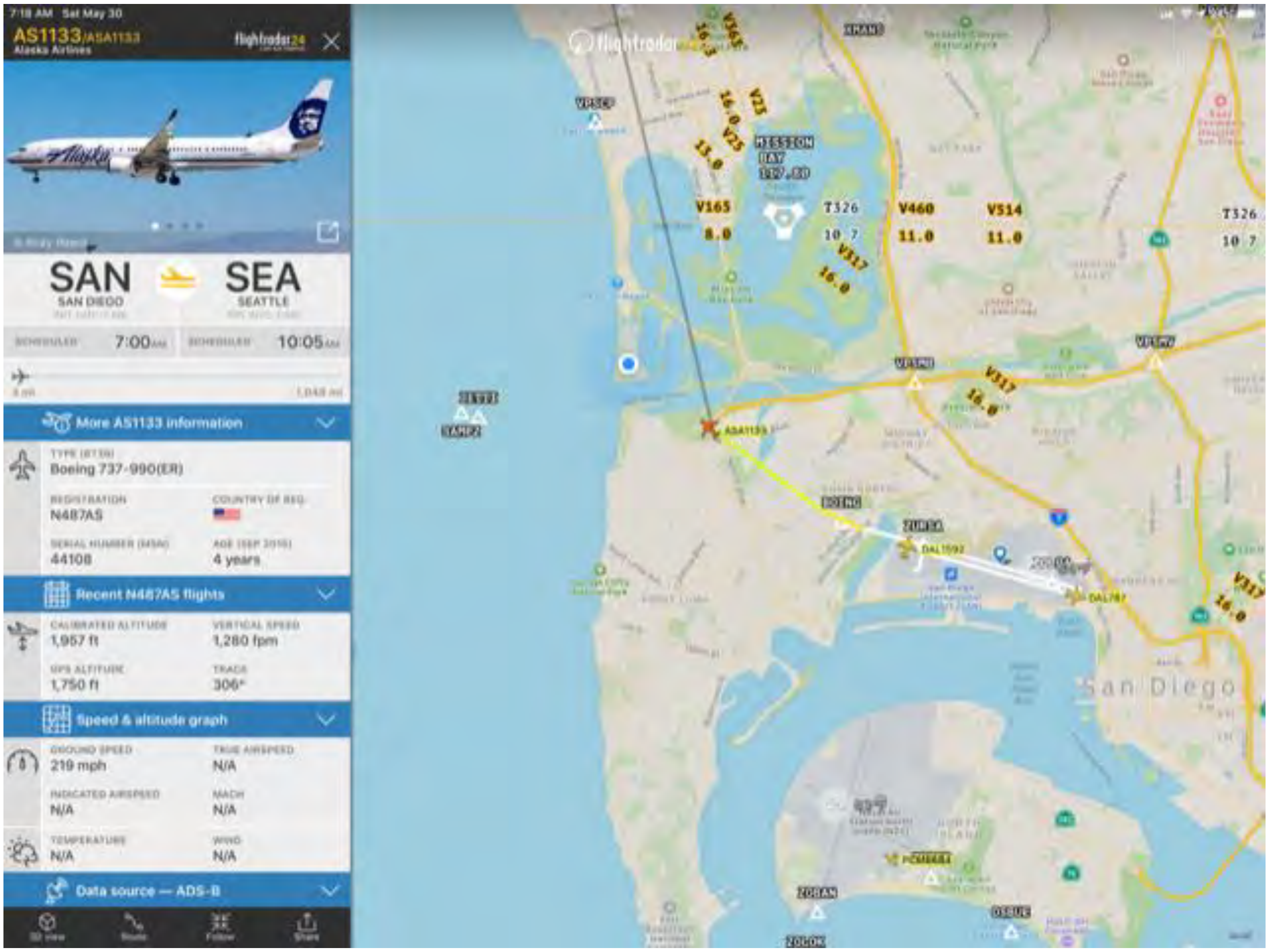
T326
San Diego



Date Received: June 1, 2020

From: Sablem

Comment: As a 50+ year resident of South Mission Beach I strongly urge the SAN PART 150 STUDY and process to consider moving the PADRZ SID to fly out over the San Diego Flood Control Channel. If not for all flights it should be a consideration for the 6:30-7:00 AM and 10-12 PM departures. Prior to the current CONVID 19 situation, it was almost unbearable for the Mission Beach community members.

Date Received: June 2, 2020
From: Gary Wonacott
Comment: My question is are we comparing apples to apples? Are we comparing how the pilots are flying PADRZ rather than the best case where the pilots could be flying as legal PADRZ? At the FAA meeting where we were introduced to PADRZ, we were shown the most southern PADRZ boundary that satisfied the environmental requirements.

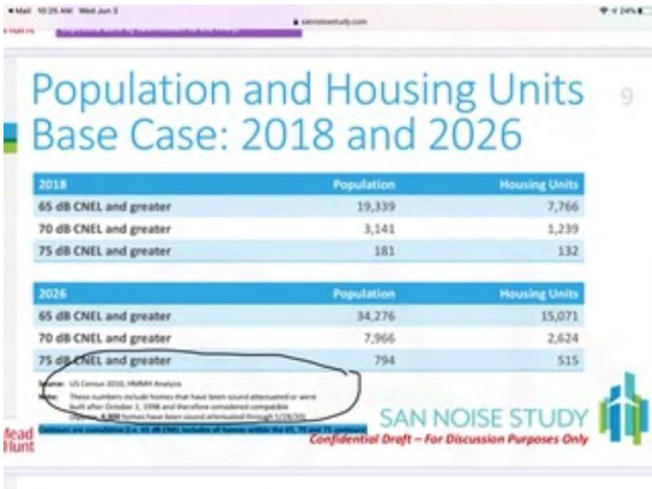
I believe this was a straight line on 275 to 1.1 miles from end of runway and then a straight line from there to WNFLD. This would be the top red line. I have also shown a typical PADRZ, which is the top white line. We expected the top white line, so why are we not comparing what we thought we were getting versus what is being proposed, versus what we got versus what is being proposed.

I think if we did this, we would see very little shift in the contour. I hope you understand what I am trying to say. Why should we pay the price for a poor design for PADRZ?

Date Received: June 3, 2020
From: Robin Taylor
Comment: I need some clarification on one of the slide notes...

Specifically the note referencing "....numbers Include homes that have been sound attenuated or were built after October 1, 1998...." see attachment below.

Does this mean that the population and housing units base case and all the related slides include these or not? Reference Slides 9, 14, 16,18,20,22,25,29 & 30.


Population and Housing Units Base Case: 2018 and 2026

2018	Population	Housing Units
65 dB CNEL and greater	19,339	7,766
70 dB CNEL and greater	3,141	1,239
75 dB CNEL and greater	181	132

2026	Population	Housing Units
65 dB CNEL and greater	34,276	15,071
70 dB CNEL and greater	7,966	2,624
75 dB CNEL and greater	794	515

Date Received: June 3, 2020
From: Gary Wonacott/Len Gross
Comment: Len Gross, a member of the CAC, asked me to forward this to you. He feels his assessment of the approach could be very relevant to the conclusions reached, and frankly, no one has any idea when there might be an opportunity in the future to meet and discuss.

Gary

The 150 is doing in/out analysis that compares alternatives projected to 2026 to a baseline which is the projection of current flight paths to 2026 . This sounded correct but may not be. Consider the following.

Let's say we are having a CAC meeting in 2028, and no changes have been made to flight patterns that were being flown in 2020. Of course, the number of ops has substantially increased. We therefore expect the DNL contours would be what we projected from the 2020 Part 150 . At the meeting, someone proposes a bunch of alternatives flight paths. For those paths we do the in/out analysis and conclude that though there is a is net reduction in people within the 65 DNL, some people are moved into it, The "you can't move the noise" argument is made and the alternatives are rejected. Significantly, in this case there is real "moving of noise" since the projected contours are in fact being heard by the population.

In contrast, the ins/outs of the current study are in/outs of projections and virtually all the "in" and "outs" are currently not in the 65 CNEL. The "noise" that is being moved is quite theoretical and should be viewed ss indicative of options that will in fact minimize the increase in people exposes to 65 DNL.

Now look at where we are today. We have the 2018 baseline contours and it would seem that our objective should be to come up with alternatives that minimize the number of people that will be in the 65 CNEL contour in 5 years.. What we should be looking at is the in/out count relative to the 2018 not the 2026 projection. There is going to be a large number of "ins" simply due to the increased ops, and possibly some "outs"
The 2026 projection is the "do nothing option" and it will have a huge "in." We should be looking at which alternatives have fewer "ins."

Stated another way, the "outs" should be only those that are currently within the current 65 DNL contour which move out (not many), and the "ins" should be those added to the current 65 DNL. "Ins" is going to be huge relative to outs and there is no "you are moving the noise" argument because everyone is going to get more noise. Alternatives will simply reduce the total pain.

Date Received: **June 4, 2020**
From: **Gary Wonacott**
Comment: **PADRZ was poorly designed to fly too far north. Perhaps at the time, the designers did not know how much dispersion there was going to be, but now we do. There is a southern boundary that was established by the designers. It is a line on 275 that goes out 1.1 miles and then sharply turns to WNFLD. Aircraft flying north of this boundary are compliant. To determine if new residences are being moved into the 65, the 2026 PADRZ must first be moved as far south as possible but still be compliant with the boundary. Since the 290 is not the same as PADRZ, it would be illegal to integrate the 290 into PADRZ to predict contours for the corrected 2026 PADRZ. The nominal 290 passes by Noise Dot 2, the old Noise Dot 1. The new Alternatives would then be run with 290 separate and with the 290 integrated into PADRZ. If the 290 aircraft turning south are integrated into PADRZ for the 2026 and then the alternatives, this would result in more of a shift**

Date Received: **June 4, 2020**
From: **Robin Taylor**
Comment: **I have another request which I hope you help with...it has to do with the Quieter Home Program.**

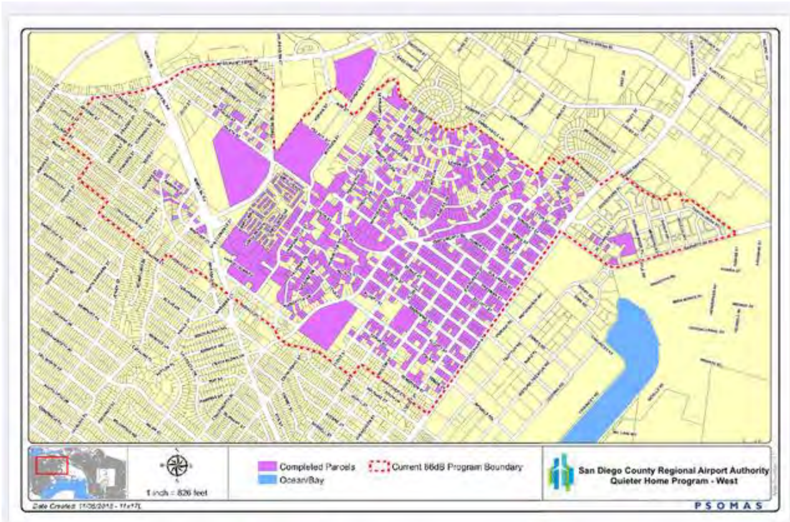
Within the QHP site, maps and tables (See attachments) are provided showing what has complete and what currently in work unfortunately the map only identifies complete parcels...

My questions are as follows:

1) When were the maps last updated? Map only states creation date of 11/05/2018 and the tables appear to be last update in fall of 2018.

2) Can the maps be updated to show in progress parcels to better show full impact of the QHP?

3) Within latest presentation, it was stated that structures build after 10/01/1998 meet the intent of the QHP sound attenuation requirements...Can these parcels be added the map? Again this would help baseline where we are today.



SAN DIEGO
INTERNATIONAL AIRPORT
QUIETER HOME PROGRAM

The Program has divided all homes participating in the Program into a specific phase and a corresponding subset, called groups. Each group is considered a project. Below you can find the historical designation, land use, location, and number of dwelling units completed within each project.

Note: the below figures are calculated in dwelling units. If an apartment building has 20 units, each unit is counted individually. In this example, it would be counted as having 20 total dwelling units.

In Process | Fall 2018

	Historic Status		Program Area		Dwelling Type		Total Units	Percent Complete
	Historic	Non - Historic	East[1]	West[2]	Single-Family[3]	Multi-Family		
Group 9.2/9.3	0	68	35	33	24	44	68	90%
Group 9.4	0	34	0	34	18	16	34	80%
Group 9.5	16	0	12	4	4	12	16	80%
Group 9.6	0	40	24	16	26	14	40	80%
Group 9.7	19	0	6	13	17	2	19	60%
Group 9.8	0	137	21	116	45	92	137	50%
Group 9.9	0	125	33	92	1	124	125	50%
Group 9.10	0	48	10	38	32	16	48	30%
Group 9.11	0	56	5	51	23	33	56	30%
Group 9.12	26	0	24	2	14	12	26	30%
Group 10.1	0	73	19	54	22	51	73	20%
	61	508	189	453	226	416	642	

(619) 400-2660 P.O. Box 82776 San Diego, CA 92138 www.quieterhome.org

1 Areas Included: Bankers Hill, Golden Hill, Middletown, South Park
2 Areas Included: Loma Portal, Ocean Beach
3 Includes Condominiums

Date Received: June 4, 2020

From: Len Gross

Comment: Flaw in the current analysis: The 150 is doing in/out analysis that compares alternatives projected to 2026 to a baseline which is the projection of current flight paths to 2026 . This sounded correct but may not be. Consider the following. Let's say we are having a CAC meeting in 2028, and no changes have been made to flight patterns that were being flown in 2020. We assume the number of ops has increased as projected, so we expect the

CNEL contours would be what we projected from the 2020 Part 150 . At the meeting, someone proposes several alternatives flight paths. For those paths we do the in/out analysis and conclude that though there is a is net reduction in people within the 65 DNL, some people are moved into it, The "you can't move the noise" argument is made and the alternatives are rejected. Significantly, in this case there is real "moving of noise" since the projected contours are in fact being heard by the population. Now look at what was presented at the TAC/CAC meeting, it is the results of the above theoretical meeting. In contrast to the above, the ins/outs of the current study are in/outs of projections and virtually all the "in" and "outs" are currently not in the 65 CNEL. No real noise is being moved and the in/outs and should be viewed as relative indication of options that will in fact minimize the increase in people exposes to 65 DNL. The idea that noise is being moved is just totally incorrect. Now look at where we are today. We have the 2018 baseline contours and it would seem that our objective should be to come up with alternatives that minimize the number of people that will be in the 65 CNEL contour in 5 years. What we should be looking at is the in/out count relative to the 2018 contour and not the 2026 projection. There is going to be a large number of "ins" simply due to the increased ops, and possibly some "outs." The 2026 projection is the "do nothing option" and it will have a huge "in." We should be looking at which alternatives have fewer "ins" relative to the current situation. Stated another way, the "outs" should be only those that are currently within the current 65 DNL contour which move out (not many), and the "ins" should be those added to the current 65 DNL. "Ins" is going to be huge relative to outs and there is no "you are moving the noise" argument because everyone is going to get more noise. Alternatives will simply reduce the total pain. A third way to think about this is that we are told that the FAA is likely to reject the alternatives because the current approach shows some "ins" and only about the same number of outs. This doesn't make sense since those alternatives may actually reduce the net number of people exposed in 2026 relative to the "do nothing" scenario. How can it be that an alternative that results in a smaller population inside the "bad zone" is summarily rejected?

Date Received: **June 4, 2020**
From: **Len Gross**
Comment: **Alternative 4 barely changes the contours. Given the 10X penalty for nighttime, it seems like a noticeable shift should have occurred.**
The contour change seems more what we would expect if the 10X penalty had not been turned on. You guys usually have the right, so it is possible my back of the envelope/intuition is wrong on this!

Date Received: **June 4, 2020**
From: **Len Gross**

Comment: Thanks for taking the time to respond to my email.
I understand the "we have to do it that way" or "we have always done it that way" perspective.
I also know it is foolhardy (and probably counterproductive) to argue with the FAA, but in this case the method seems wrong.

Ryk said even though the net change (using their current method) of the options was a reduction in the number of people within the 65 CNEL, the gain needed to be yet larger to pass FAA scrutiny. Maybe the in/out relative to 2018 can be included as supplementary material?

I do need to come up with a simpler explanation of why the approach used is wrong. I have some ideas for that.

Date Received: June 5, 2020
From: Robin Taylor
Comment: Totally understand you response to question 3...I question why the consultants even mentioned it if it can't be quantified.

Anyway the most important items are 1 & 2 visuals not the stats since I need to visually see what falls within the contours

Can you give me a date on the map updates? I really need this info before I comment on what was presented last Thursday

Let me know

Date Received: June 6, 2020
From: Casey Schnoor
Comment: May I respectfully ask that the agenda start with a quick summary/update of the FPA: what specific ANAC Sub Committee Rex's were addressed, which were deferred to Part 150, of those addressed, which were rejected, which were proposed to FAA, status of each FAA submission.

This will provide a refresher as well as proper context for the Part 150 discussion.

Pls also adjust your records to reflect this new email address for me.

Date Received: June 10, 2020
From: Nancy Palmtag
Comment: I would like to get clarification on departure headings and noise impacts today versus 30 years ago (1988 Part 150 Study). Thank you, Nancy Palmtag

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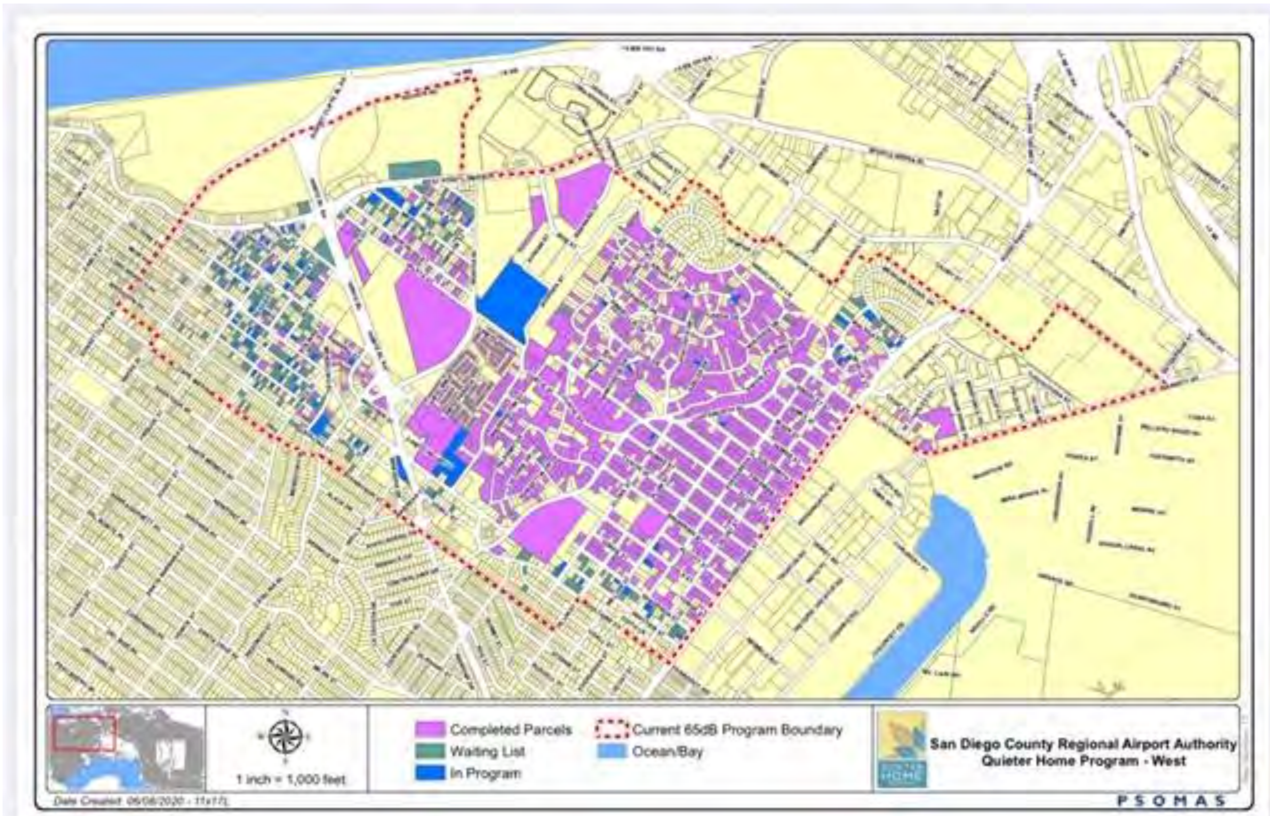
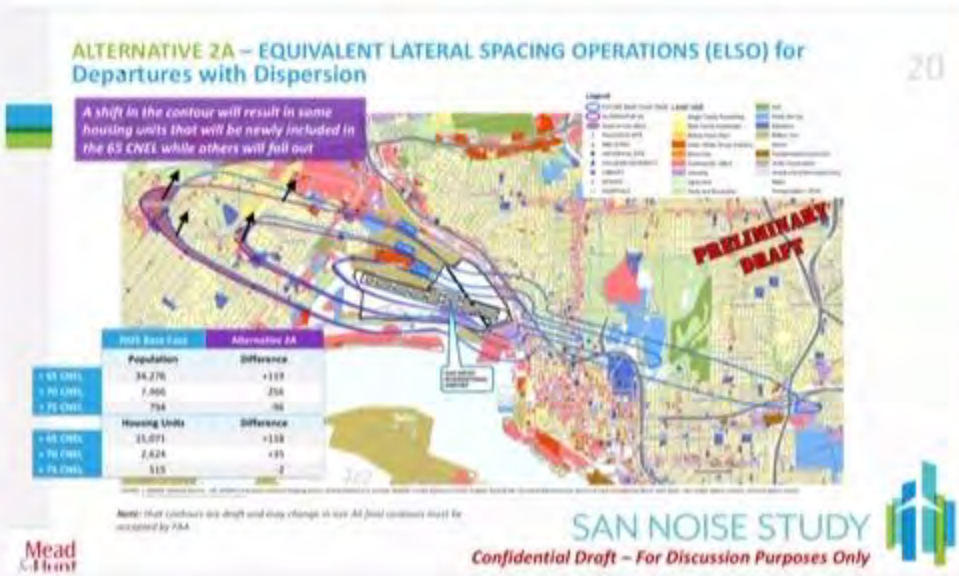
Date Received: June 10, 2020
From: Robin Taylor
Comment: In order to provide clear visual for the public, I need the consultants to overlay the 2018 noise contours on to the 2026 for all slides with contour maps. This will give all the communities impacted by the increase in airport operations a clear visual of what they can expect over the next 6 years.
All population/housing tables should be removed from current and future presentations until the data can be fully substantiated and vetted. The data as it stands is suspect at best since it includes current and future compatible parcels (QHP/post October 1998 new construction), it depends on old data and it gives a very distorted picture that doesn't represent reality. As can be seen on the map below, a significant amount of time and money has already spent through the QHP in the noise contour study area.



All alternatives that move the flight paths further south Into OB/PL should be put on hold since they violate the study rule "Do not move noise to new non-compatible areas".

I recommend a new study the shifts all 275 headings to overfly dog beach. This has the potential of moving CNEL 65 from non-compatible parcels to compatible areas (Rob Field, completed and in work QHP parcels and commercial corridors in and around Midway). This could allow for nighttime flights to moved south along this new heading providing a win win solution for S. Mission Beach/OB and Point Loma. The potential impact to the noise contours could be the reverse of Alternative 2a moving the impact north instead of south (see example below)



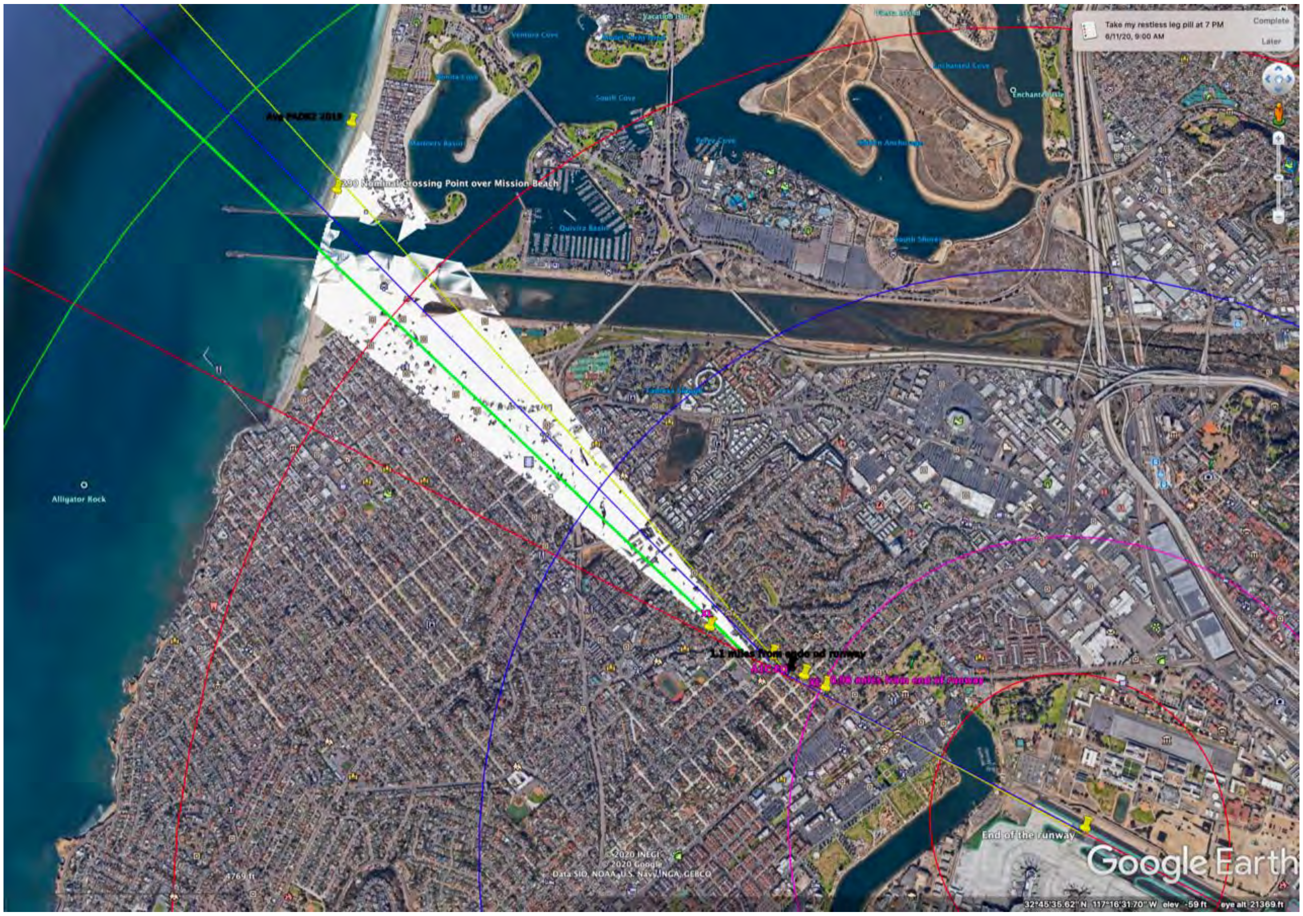
Date Received: June 11, 2020
From: Gary Wonacott

Comment: **I believe it is possible if not likely that the consultants assumed that PADRZ and the 290 nighttime departure are effectively on the same heading in their analyses. This picture is intended to clarify what has happened since the 290 was defined and implemented in the mid to late 19890s. I believe that the green line was the noninal track intended and confirmed by the State of California as passing through Noise Dot 1, which is not Noise Dot 2.The white area represents area over which the 290 departures are actually spread for all of 2019. I have included two yellow pins. The top pin shows the nominal crossing point for all of PADRZ and the bottom one shows the nominal crossing point for all of the 290s.**

I believe that if the intended 290 crossing point was used in the analyses then, or even the actual 290 pin was used, rather than lumping the 290s in with PADRZ, then the contour analyses would have shown far less if any shift south. This is to me the fundamental issue that needs to be resolved in considering the proposed Alternatives.

I believe the correct way or assumption would be to do the baseline analyses using the nominal track and dispersion for PADRZ and the 290I believe the actual dispersion for PADRZ is less than what was shown on the consultant's charts. The dispersion for the 290 should be around the theoretical; crossing point in the channel (green line). Then PADRZ and the 290 would be moved to the crossing point for the proposed alternatives with a dispersion that is based on the actual values. Most of the alternatives cross at the southern tip of SMB. I believe this will result in a far smaller contour shift to the south, if at all since the 290 would actually move north.

Gary



Date Received: June 11, 2020

From: Gary Wonacott

Comment: There is confirmation that it was the Port Authority that requested the ATC in 1987-88 to move departures post 10 pm from 275 to 290, which is after NEPA was implemented. This change resulted in substantial noise impact on Mission Beach, which has continued to increase over the years with the northward creep of aircraft. There is no evidence that a NEPA was performed as is required by Federal Law. As a result, the LOA has no legal standing and no statute of limitations for appeal. In addition to being illegal, there is growing concern based on comments by the Airport Authority consultants that the 290 and PADRZ were assumed to be one and the same departure and therefore the PADRZ departure SID was assumed to represent both in the Flight Procedures and the PART 150 analyses. This flawed assumption therefore resulted in a larger 65 contour shift southward than if the two

departures were kept separate. The 290 degree vector departure was always intended to pass through Noise Dot 2 in accordance with the definition by the State of California. The nominal crossing point over Mission Beach coast should be -0.12 miles from the southern tip of MIssion Beach The actual nominal or average crossing point for the 290 that has crept northward is +0.11 miles. It is the theoretical or defined value that should be used in all of the analyses. In contrast, PADRZ nominally crosses the Mission Beach coast +0.36 miles from the southern tip. That is a difference of 0.48 miles. If this was not done, then the analyses are flawed.

Date Received: **June 13, 2020**
From: **Mike Tarlton**
Comment: **After having time to go over the charts presented at the May 28, 2020 CAC and TAC meetings, and digesting the presentations, I respectfully submit the following comments:**
1. Generally, for each alternative flight path option in the presentation, can you please show how the actual proposed procedure is different from the PADRZ departure by putting the PADRZ points on the charts.

Example: The first alternative 1A Departures over Mission Bay with Dispersion was modeled with: VA to 520 MSL / DF to A1 Int Waypoint. On chart 13 it shows the basic dispersion and it shows the point "A1 Int"....it does not show where A1 Int is in relationship to WNFLD, DERNL, GYWWN or PADRZ...so I can't see how this flight track differs from the current PADRZ Departure.

This is critical in my opinion as we need to be able to see secondary effects associated with each of these alternatives. We can't just focus on what happens inside the 65 CNEL. If we did, we would fail to see that alternative 1C drives airline traffic to point "A1C Int," which appears to be North of the PADRZ track. So even though we have a good understanding of what that alternative does inside the 65 CNEL, we fail to acknowledge it will also put airline traffic closer to the coast line along Mission Beach and La Jolla, thus increasing noise in those communities outside the 65 CNEL.

2. Within Each 65 CNEL contour map, I question the census data and population models you are using to determine the total number of people affected. Specifically, the people who move into, and the people who move out of, the 65 CNEL contours for each of your options. The model you are using with respect to where people live does not appear to be accurate. In each of the #1 and #2 options (1A, 1B, 1C, 2A, and 2B) the "new" 65 CNEL contour is shifted Southwest, extending into a highly populated section of Ocean Beach where there are a lot of single-family homes and multi-family apartment complexes. In contrast, the section of the current 65 CNEL contour that has been removed is in the Northeast where there are relatively few people living. If you look on a map of Ocean Beach, you

can clearly see there are far fewer homes in the removed Northeast section than they are in the new Southwest section. In fact, the section that is being removed in all of the alternatives includes Rob Field, Correa Middle School Athletic complex, the uninhabited wetlands along West Point Loma Blvd, the Midway shopping district, and Pachanga Arena. However, the analysis for options 1A, 1B, and 1C all conclude there are fewer people in central Ocean Beach under the proposed new flight path than there are in the areas mentioned above in the current flight path. Can you please go back and look at the modeling once again? The numbers do not make sense. If we shift the current 65 CNEL model South and West to include more densely populated housing in Ocean Beach, and remove parts of the 65 CNEL contours in the North and East, where there are far fewer residential housing complexes, the number of people affected has to go up; not down as your data suggests in options 1A, 1B, and 1C. Additionally, options 2A and 2B both show the total number of people affected increasing. This correlates with a map of Ocean Beach, makes sense, and is in direct conflict with the outcomes of Options 1A, 1B, and 1C. For the reasons stated above, I oppose all of the Option 1 and 2 alternatives until a more robust analysis of population density in Ocean Beach and Point Loma is completed and validated.

3. It appears that all options presented actually move noise across the community. Given the 65 CNEL only affects Ocean Beach and Point Loma, we are not talking about moving noise from named communities, but rather from one portion of Ocean Beach or Point Loma to another portion of Ocean Beach or Point Loma. That said, it is still moving noise with people who live in the Southwest seeing an increase and people in the Northeast seeing a decrease. Additionally, I thought the ground rules stated we could not move noise from one community to another, and the goal was to reduce noise for everyone. Clearly these alternatives (1A, 1B, 1C, 2A, and 2B) do not do that, so again, I oppose their implementation until a more robust analysis of population density in Ocean Beach and Point Loma is completed and validated. In lieu of moving noise from Northeast to Central Ocean Beach, can we look at potential ways to drive noise into the channel in much the same way the "nighttime noise" abatement procedures are supposed to accomplish?

4. I am very concerned with Alternative 4. It appears the committee is proposing we completely remove the current Nighttime Noise Abatement Procedure (Letter Agreement; SCT\SAN\ATCT) that calls for a 290 departure heading for both left and right turns at night.

The original intent of Recommendation ANAC 17 was to maintain and enforce the Nighttime Noise Abatement Procedure (Letter Agreement; SCT\SAN\ATCT) that calls for a 290 departure heading for both left and right turns. How did we move away from this and come up with a proposal to basically eliminate it? The original Nighttime Noise Abatement procedure was designed to put aircraft over the least populated areas of Ocean Beach, Point Loma, and Mission Beach at night when residents are trying to sleep. Eliminating this procedure will cause a large

increase of late-night noise along the 275 degree ZZOOO flight track and directly impact a large number of Ocean Beach residences. Additionally, eliminating this procedure will cause a large increase of late-night noise along the PADRZ flight track and directly impact a large number of Mission Beach residences. This is in direct conflict with the intent of ANAC recommendation #17 and the Nighttime Noise Abatement Procedures (i.e. 290 degree departures) which was to reduce impacts of these late night flights by attempting to put all traffic over the channel. Thus, I strongly oppose Alternative 4 and ask that we look into enforcing the 290 nighttime noise abatement procedure instead of eliminating it.

5. I urge the committee to relook at Alternative 6. The data from John Wayne Airport in Orange County does not support your conclusions. They implemented a similar Noise Abatement Departure Procedure (NADP) that was very well received by the surrounding community. Thus, saying San Diego residents will only get an indistinguishable 1dB to 2dB reduction, or citing safety, airfield capacity, ability of airlines to fly the procedure, and air traffic workload do not seem fair without further analysis. We know it is possible to implement this sort of NADP because they did it in Orange County, and we know the Orange County community thought it made a difference. Thus, I believe we should look at the potential of something similar in San Diego that decreases overall noise using the vertical dimension and does not just attempt to shift noise around laterally within communities. The proposed analysis should include, but not be limited to: a) ALL NADP's currently implemented at SAN, b) A thorough review of alternative NADP's implemented at other US and Intl. airports, c) Consistency of application and implementation of NADP's at SAN, d) Departure Thrust Cutback (as referenced at Part 150 meeting 11/2019), e) Designated Noise Abatement TakeOff/Approach Paths (as referenced at Part 150 meeting 11/2019), f) NextGen: Performance Based Navigation (PBN) Required Navigation Performance (RNP) (as referenced at Part 150 meeting 11/2019), and g) Power and Flap Settings/CDA procedure (as referenced at Part 150 meeting 11/2019).

Date Received: **June 15, 2020**
From: **Gary Wonacott**
Comment: **I know Part 150 is all abut doing maps, but why was there no introduction of screening filters to put things into perspective before moving along to full analyses. For example, most of the PADrZ changes are lateral moves. Are we sure that these lateral move would require full on analyses? However, going back to the 1986 implementation of the nighttime noise abatement procedure that moved all of the nighttime aircraft from 275 to 290 that does showman's need for more in-depth analyses, but none were done. ILLEGAL!**

https://www.faa.gov/air_traffic/environmental_issues/environmental_tetam/media/guidance_noise_screening_air_traffic_actions.pdf

Date Received: June 15, 2020
From: Gary Wonacott
Comment: Most of the alternatives being evaluated presume that the design track will pass over the most southwestern tip of South Mission Beach, but the approaches proposed so far to achieve this end allow for considerable dispersion over the this same point at the south end of the peninsula. To minimize the dispersion at this point, why not include an alternative that states, Aircraft would depart runway heading and climb to 520 feet at a TBD climb gradient, then proceed direct to MRUTA located at 32 45 32.3 N, 117 15 14.16 W, then direct to WNFLD. Then there are two options. This departure could be used for all ZZOOO and PADRZ for 10 pm to 6:30 am, or PADRZ could be moved to this departure. This departure then either becomes the nighttime noise abatement NAV SID or becomes PADRZ2.

Date Received: June 15, 2020
From: Gary Wonacott
Comment: Why is the consultant not performing an initial preliminary screening filter analysis (Lateral movement of waypoints or vector) for the alternatives/recommendations to assess whether the change only requires a CATEX and not a full analysis.

Date Received: June 15, 2020
From: Len Gross
Comment: (These include some similar comments that I put in before, but I did not receive the "notification" from the system that they have been accepted. INHO, these are stated more clearly and should replace my previous ones. Sorry to do that, but the comments are clearer.)

1: The CAC slides present a comparison of options to a projected baseline, and then calculate the “ins” and “outs” of the 65 DNL. These “ins” and” outs” are our best guess at that would occur in 2026 if we then decided to fly those options at that date. In that case, there would be moving of nose. Any option that has more “outs” than “Ins” relative to baseline definitely has fewer people in the 65 DNL than the baseline, but no people currently at a specific dB level will be seeing less noise at the expense of other people getting more - noise is not being moved. All residents are going to be seeing more noise, but some options will minimize that increase. A better way to understand this is to simply to consider the number of people currently in the 65 DNL (the 2018 contour) compared to the number that would be in the 2026 options. We should be trying to minimize that number. In fact, this appears to be what is done in other 150 studies which only look at the "net" and not the ins/outs.

2: Assuming the FAA does not accept the use of the 2018 contour, If the noise increase is small (i.e. Sub 1.5 dB) is it still considered “moving of noise?”

3: Again assuming the FAA does not accept the use of the 2018 as the baseline contour, please explain Ryk’s statement where he roughly said: “if some people are moved into the 65 DNL, the FAA will reject the change unless there is a much greater number removed from the 65 DNL.” Effectively, this eliminates all the proposed options.

4. It is also important to realize that the estimates shown have a reasonably large uncertainty. I suspect that a change of two or three percent is well within the modelling error and perhaps should be indicated as such.

Date Received: June 23, 2020

From: RJ Herrin

Comment: Is it possible to "officially" make runway 27 the prefered nighttime noise abatement runway. We get the occasional early morning aircraft coming over OB from the north that requests a runway 9 landing for efficiency. Not sure if it is possible, but consider designating the Zzoo a noise abatement departure procedure, stipulating no early turns prior to the Zzoo waypoint, unless initiated by ATC in the interest of safety. Perhaps try to add verbiage to the procedure: "Departure heading/RNAV tracks/vectors are predicated on avoiding noise sensitive areas. Flight crew awareness and compliance is important in minimizing noise impacts on surrounding communities". Something to try to enhance compliance with the procedure? 10 PM Nighttime Departure - the 1987 letter that describes tower instructions after 10:00 pm. It only references the non-RNAV BORDER departure. Does anyone have any additional procedural material? I have never seen an actual aviation document detailing any sort of noise abatement procedure for SDIA such as a note stating "after 10:00 PM local, expect departure heading 290 for noise abatement". My knowledge of the actual procedure is only through my personal experience of operating out of SDIA after 10pm. I'd like to know if the Nighttime applies to all departing aircraft, or if it is at the discretion of the tower controller. If it applies to all aircraft departing between 10:00-11:30, I'm sure the airport and FAA would see this as a capacity restriction and like to change the present situation, maybe the reason for the Nighttime Alternative 4. The only alternative that was somewhat acceptable to me in the May 28presentation was 1A. However, I believe the anticipated dispersion and departure paths are not an accurate depiction of what I would anticipate. I think aircraft would be established on a direct course sooner, shifting the departure path and dispersion area slightly to the north. My preference is for an initial heading only departure procedure. Noise complaints seemed to focus on the shifting and concentration of overhead flights. Prior to the use of RNAV departures in San Diego the noise was spread more broadly over the community in my opinion. Historically, the San Diego departure

procedures to the northwest were based on an initial heading only and maintained to a point offshore. This "heading only" departure procedure dispersed the aircraft and its associated noise over a greater area than the current RNAV procedures. What I prefer about a heading only procedure verses the majority of the alternative procedures is the dispersion pattern of the tracks over time. A number of variables occur on this procedure which cause slight variations in the ground tracks as opposed to the more defined direct to a waypoint procedures. Some of the variables in the older departure: aircraft lift off point on the runway will vary by aircraft type and its weight (one aircraft could require 3000 ft another 6000ft) procedure had no minimum altitude (520 feet now) to start the initial turn to the departure heading. It was up to the discretion of the individual pilot to make that altitude determination. Usually 400 feet is considered a safe altitude, but could be lower or higher depending on local conditions. .the time it takes for the aircraft to get established on the initial departure heading will vary somewhat due to pilot input of the bank angle. local wind direction and speed will also impact the ground track on a heading departure (like rowing a boat across a flowing stream).all of the aircraft flying this "heading only" procedure flew dispersed parallel tracks till a few miles offshore, they did not converge at a waypoint before making a northbound turn. Therefore no repetitive concentration of over flights. There is still a version of PEBLE departure SID in use today for those aircraft not meeting RNAV requirements. Many other airports have RNAV departures that begin with only a heading. In contrast, the current PADRZ RNAV departure removes the altitude variable (fixed at 520ft), wind drift is removed by the direct clearance to WNFLD, leaving only pilot turn rate, and the liftoff point. This reduces the initial amount of aircraft dispersion at the beginning of the direct to WNFLD segment. Once the aircraft is established direct to WNFLD, the dispersion tracks converge or concentrate the aircraft over a small area, merging at the waypoint. The alternative 1A appears to be similar in design to the current Padrz. The other alternatives remove even more of the random dispersion by delaying the initial turn by the creation of the fly by and fly over waypoints, directing more traffic over the center of Point Loma/OB . This I imagine would shift the CNEL contour lines to the south into more populated areas. I wanted to touch on the vertical component of the departure. I think it would be great to get some input from the Santa Ana group. The challenge I see is the limited distance in San Diego compared to Orange County. We have about 2.7 nm from the end of the runway to the center of the dog beach shoreline and Orange County has approximately 4.5 nm to the shoreline. But I see no reason that it couldn't be implemented in San Diego other than the slow airspeed used in the procedure could be deemed a capacity constraint. A speed restriction of 220kts for instance to a certain altitude or distance, may allow the pilots to retract the flaps and slat, possibly decreasing drag noise yet keeping a higher angle of climb (greatest altitude gain in the shortest distance) than the present NADP2 profile.

Date Received: **June 23, 2020**
From: **Casey Schnoor**
Comment: **Part 150 CAC Meeting May 28, 2020 Comments provided by Casey Schnoor, CAC Member:**

1. Disappointingly, several CAC member requests for information\data prior to the meeting were not honored which reduced the productivity of the meeting, among others:

a. Status of Flight Procedure Analysis recommendations; summarize the initial list of ANAC recommendations, recommendations forwarded, current status, etc.

b. Waypoints and Noise Dot references in all route exhibits were requested for context

c. CAC member recommendations provided at workshop were not addressed d. Request for additional time for the Part 150 process

2. There was a disconnect between the November 29, 2019 meeting and the May 28,2020 meeting; November was a high level overview of the intent of the Part 150 while May jumped into various alternatives with mixed clarity as to their source, purpose, applicability to specific ANAC requests, goals, etc.

3. The connection and procedure to address "deferred" elements of the FPA, those outside of the Part 150 Scope of work (within the 65 dB CNEL), with the Part 150 was not address leaving significant concern about its omission

4. All submitted comments from CAC and TAC members should be distributed to ALL CAC\TAC members for their consideration; with or without authorship noted

5. Include a Contour overlay (rather than separate slides 7 & 8) of the 2018 contours and 2026 contours on a single slide (as discussed at the workshop) would have been more illustrative and useful to the CAC to graphically demonstrate the shift in contours over the forecast period

6. 2026 contour forecasts are distorted due to TRACON's current and frequent application of PADRZ in lieu of the Nighttime departure procedure (290 degrees); this distorts all subsequent Alternative modeling of contours as it over states the 2018 amount of traffic along the northerly side of route boundaries (295 ++ degrees)

7. Population and Housing Units (slides 9, 29, 30): The concept of the analysis in merited, however the analysis is flawed:

a. Material variance in population/unit (1.6 people/unit to 3.48 people/unit) across the dB contours casts significant doubt on the reliability of the base data for this analysis

b. Given the wide variety of multifamily and single-family units in the study area, using Census data defining buildings with 5 or greater living units as "1 unit" greatly distorts the analysis and leads to the unreliability of this analysis

c. Lack of consistency between the slides further adds to the doubt on the reliability of the base data for this analysis

8. ANAC and TAC/CAC Alternatives (slides 11, 12)

a. Maintaining the linkage of the ANAC recommendation # (as it is the primary source of Part 150 queries) with each alternative would have been informative, rather than the chart on slide 11 which is not consistently applied through the newly titled "Alternatives"

b. OMMISSIONS from the Part 150 analysis to date, as noted in the chart on slide 11 ANAC recommendations:

i. #12a: "conduct additional analysis"; Missed approaches and their impacts are clearly within the 65dB CNEL contour

ii. #12k: "track conformance to 290 degree heading for nighttime procedure"

iii. #14: "Revise PADRZ", the 15 degree alternative; consistent with "reposition FAA Noise Dot #1"; a 15 degree separation from JETTI at 275 degrees, results in a 290 degree limit for the northerly boundary clearly impacts those within the 65dB CNEL contour (as in the FPA deferral of ANAC recs #14 and #15)

iv. #14: "Revise PADRZ"; PROCEDURE SUGGESTIONS; some but not all bullet points addressed including "Do not move PADRZ SID further south to avoid negative noise impacts on the south side communities of Point Loma Peninsula"

v. #17: Misstates as "review the Nighttime ", rather than the original "increase current compliance in Nighttime…";

vi. The Alternatives offered do not address #17 correctly; The "Alternatives omit analysis of non-compliance with the current 290 nighttime procedure

vii. #17 must be separated within Alternatives as it was always intended as a separate independent analysis limited to nighttime procedures

viii. #20a: "reposition FAA Noise Dot #1"; routes involving Noise Dot #1 clearly impacts those within the 65dB CNEL contour (as in the FPA deferral of ANAC recs #14 and #15) ix. #20b: "reposition FAA Noise Dot #3"; routes involving Noise Dot #3 clearly impacts those within the 65dB CNEL contour

9. All consultant "Alternatives" should reference their source (by individual or group i.e. CAC, public workshop, etc.) and the specific purpose i.e. ANAC recommendation, TAC, CAC, Workshop, etc. the Alternative it is trying to address to understand their context ALTERNATIVES:

10. Alternative 1A (slides 13, 14):

a. Add all relevant waypoints and Noise Dots

b. Clarify "VA" and "DF"

c. Separate Alternatives as: Alt 1A; ANAC 14 (daytime), and Alt 1A; ANAC #17 (nighttime) (see 6.v., vi., vii. Above)

d. Provide clarity, purpose and alternatives to: "climb to 520 feet MSL at climb gradient of 500 feet per NM" ("Turn Axis"); note elevation at Point Loma High School is 180' plus 60' of building = 240'; 520' – 240' = 280' clearance over High School building

e. Clarify the wide variance in location and frequency of Turn Axis (most traffic arrives at Turn Axis before Catalina Street) and impacts to route

f. Relative location of A1 INT to Noised Dots and Waypoints

g. Population/Housing data is inconsistently applied (see 6. Above)

h. Representation of forecast contour redistribution is distorted due to TRACON; (see #5 above)

i. Alt 1A "Dispersion Version":

i. lacks direct control of Turn Axis location

ii. Does not address initial tracking north of 295 degrees\Mission Beach

11. Alternative 1B (slides 15, 16):

a. Add all relevant waypoints and Noise Dots

b. Clarify “VA” and “CF”

c. Separate Alternatives as: Alt 1B; ANAC 14 (daytime), and Alt 1B; ANAC #17 (nighttime) (see 6.v., vi., vii. Above)

d. Provide clarity, purpose and alternatives to: “climb to 520 feet MSL at climb gradient of 500 feet per NM”; note elevation at Point Loma High School is 180’ plus 60’ of building = 240’; 520’ – 240’ = 280’ clearance over High School building

e. Denote location of “intercept point located 0.98 NM from departure end of Runway 27” (“Turn Axis”);

i. presuming 0.98 NM at 275 degrees?

ii. Is this a waypoint? Fly Over\Flt By?

f. Relative location of A1 INT to Noised Dots and Waypoints; Fly By or Fly Over?

g. Population/Housing data is inconsistently applied (see 6. Above)

h. Representation of forecast contour redistribution is distorted due to TRACON; (see #5 above)

i. Alt 1B “Vector to Intercept”:

i. Does not necessarily address initial tracking north of 295 degrees\Mission Beach

ii. How is “Intercept Point” enforced?

12. Alternative 1C (slides 17, 18):

a. Add all relevant waypoints and Noise Dots

b. Clarify “DF”

c. Separate Alternatives as: Alt 1C; ANAC 14 (daytime), and Alt 1C; ANAC #17 (nighttime) (see 6.v., vi., vii. Above)

d. Provide clarity, purpose and alternatives to: “climb gradient of 500 feet per nautical mile”; note elevation at Point Loma High School is 180’ plus 60’ of building = 240’; 500’ – 240’ = 260’ clearance over High School building

e. Denote location of A1C FO (“Turn Axis”);

i. presuming 0.98 NM at 275 degrees?

ii. This is a Fly Over waypoint?

f. Relative location of A1 INT to Noised Dots and Waypoints

g. Population/Housing data is inconsistently applied (see 6. Above)

h. Representation of forecast contour redistribution is distorted due to TRACON; (see #5 above)

i. Alt 1C “Flyover Design”: i. May help to address initial tracking north of 295 degrees\Mission Beach

13. Alternative 2A (slides 19, 20):

a. Omits clarification of facts surrounding application of "ELSO"; 10-degree limited separation, FAA implementation

b. Add all relevant waypoints and Noise Dots

c. Clarify "VA and "DF"

d. Separate Alternatives as: Alt 2A; ANAC 14 (daytime), and Alt 2B; ANAC #17 (nighttime) (see 6.v., vi., vii. Above)

e. Provide clarity, purpose and alternatives to: "climb to 520 feet MSL at climb gradient of 500 feet per NM" ("Turn Axis"); note elevation at Point Loma High School is 180' plus 60' of building = 240'; 520' – 240' = 280' clearance over High School building

f. Clarify the wide variance in location and frequency of Turn Axis (most traffic arrives at Turn Axis before Catalina Street) and impacts to route

g. Relative location of A2 INT to Noised Dots and Waypoints

h. Population/Housing data is inconsistently applied (see 6. Above)

i. Representation of forecast contour redistribution is distorted due to TRACON; (see #5 above)

j. Alt 2A "ELSO Dispersion Version": i. lacks direct control of Turn Axis location

ii. Does not address initial tracking north of 295 degrees\Mission Beach

iii. How does this vary from PADRZ?

iv. Over shifts noise from MB to OB

v. Unacceptable as a nighttime alternative (#17)

14. Alternative 2B (slides 21, 22):

a. Omits clarification of facts surrounding application of "ELSO"; 10-degree limited separation, FAA implementation

b. Add all relevant waypoints and Noise Dots

c. Clarify "VI" and "CF"

d. Separate Alternatives as: Alt 2B; ANAC 14 (daytime), and Alt 2B; ANAC #17 (nighttime) (see 6.v., vi., vii. Above)

e. Provide clarity, purpose and alternatives to: "climb to 520 feet MSL at climb gradient of 500 feet per NM"; note elevation at Point Loma High School is 180' plus 60' of building = 240'; 520' – 240' = 280' clearance over High School building

f. Denote location of "intercept point located 0.98 NM from departure end of Runway 27" ("Turn Axis");

i. presuming 0.98 NM at 275 degrees?

ii. Is this a waypoint? Fly Over\Flt By?

g. Relative location of A2 INT to Noised Dots and Waypoints; Fly By or Fly Over?

h. Population/Housing data is inconsistently applied (see 6. Above)

i. Representation of forecast contour redistribution is distorted due to TRACON; (see #5 above)

j. Alt 2B "ELSO Vector to Intercept":

i. Does not necessarily address initial tracking north of 295 degrees\Mission Beach

ii. How is “Intercept Point” enforced?

iii. Over shifts noise from MB to OB

iv. Unacceptable as a nighttime alternative (#17)

v. This alt should be studied as a 290 heading

15. Alternative 3

a. This was not an ANAC recommendation

b. What was the source of this Alternative and why was it considered?

16. Alternative 4

a. This is incorrectly represents and conflicts with ANAC #17;

b. ANAC #17 was specifically directed at attaining “compliance” and conformance with the 290 heading within the existing procedure, specifically to address TRACON’s violations by inappropriately applying PADRZ in lieu of the 290 nighttime departure heading

c. Add all relevant waypoints and Noise Dots

d. Population/Housing data is inconsistently applied (see 6. Above)

e. Representation of forecast contour redistribution is distorted due to TRACON; (see #5 above)

17. Alternative 5

a. This was not an ANAC recommendation

b. What was the source of this Alternative and why was it considered?

18. Alternative 6

a. ANAC #21 states “… conduct an engineering analysis of modification to the NADP to assess the potential improvement to noise contours around the airport.”

b. ANAC Subcommittee discussion included Optimal Profile Climb Flight Procedures (Metroplex EA section 1.2.5.3);

c. “Modeled as part of previous 150 Study” is NOT an accurate statement; the previous Part 150 study was highly limited in scope to solely the unique John Wayne NADP, NOT other actively implemented NADP’s

d. The analysis needs to include among other elements:

i. ALL NADP’s currently implemented at SAN

ii. A thorough review of alternative NADP’s implemented at other US and Intl. airports

iii. Consistency of application and implementation of NADP’s at SAN iv. Comparison to “climb to 520 feet MSL at climb gradient of 500 feet per NM” and “climb gradient of 500 feet per nautical mile”

v. Departure Thrust Cutback (as referenced at Part 150 meeting 11/2019)

vi. Designated Noise Abatement Takeoff/Approach Paths (as referenced at Part 150 meeting 11/2019)

vii. NextGen: Performance Based Navigation (PBN) Required Navigation Performance (RNP) (as referenced at Part 150 meeting 11/2019)

viii. Power and Flap Settings/CDA procedure (as referenced at Part 150 meeting 11/2019)

19. Next Steps:

a. Correct or replace the Population to Housing data with reliable approach (see item 7 above)

b. Supplement with the Omitted data, analysis, etc. (see items 8b., 16, 18 and others above)

c. Address the "transfer of noise" restrictions

d. Expand opportunities for open discussion between committee members; cutting off discussion because "we need to move on to manage our time" is not a preferred approach

e. Provide a thorough summary of the FPA, detailing:

i. opening list of recommendations (per ANAC Recommendations list)

ii. concluding list of recommendations

iii. recommendations transferred to Part 150

iv. status of submitted recommendations

f. Provide the linkage and procedures to address between deferred FPA recommendations and Part 150

g. A thorough review and analysis of NADP alternatives.

Date Received: June 23, 2020

From: Casey Schnoor

Comment: As to todays discussion on the March 28, 2019 the Ricondo recommendations ("RIC Recommendations"), please see my comments and concerns below as I have compared the RIC Recommendations in their specific task to address the SDCRAA approved ANAC Subcommittee Recommendations:

RECOMMENDATION 13

RICONDO was engaged as third party consultant to provide "full and honest analysis and evaluation of the overall alignment of current SID's and STARs, Procedures and Agreements";

I believe that a thorough review of the RIC Recommendations against ALL of the specific and detailed elements, i.e. background/rational and procedure suggestions of the unanimously SDCRAA approved ANAC Subcommittee Recommendations (please see attached original) is merited by Riconco, TAC and CAC, as many of the details of the Subcommittee goals are not being addressed by Riconco nor included within the RIC Recommendations.

RECOMMENDATION 17

NIGHTTIME DEPARTURES: The Nighttime procedure proposals represented within the attached presentation have a material baseline flaw. Ricondo is using Recommendation 14 and 15 for Nighttime applications, however, these RIC Recommendations are mute on the application of Recommendation 17. The intent of Recommendation 17 was to maintain and enforce the Nighttime Noise Abatement Procedure (Letter Agreement; SCT\SAN\ATCT) that calls for a 290 departure heading for both left and right turns.

The RIC Recommendation 14/15 procedure specifically calls for PADRZ (295) SID departure routing for nighttime. This is in direct conflict with the intent of ANAC recommendation #17 and the Nighttime Noise Abatement Procedures (i.e. 290 degree departures). It also suggests a new but undefined waypoint that appears consistent with a 295 departure heading. The recently sent\posted "update on ANAC Recommendations" states that recommendation #17 is; "In Process; Consultant will be reviewing this in the Part 150 Study update." This is flawed reasoning\process as; a) the waypoints and departure rouites are clearly impacting area outside of the 65dB CNEL contour\Part 150 study, and b) the existing 290 heading of the Nighttime Procedure should be maintained in this Flight Procedure Analysis process as the existing "base line", and only changed, if deemed appropriate in conjunction with the Part 150 (as your memo states), not the reverse as proposed.

Please also note that Ricondo has previously been informed of this inconsistency with Recommendation #17.

RECOMMENDATION 14
Various portions of the detailed elements, i.e. background/rational and procedure suggestions in ANAC #14 have not been addressed or were quickly dismissed by Riconco

RIC Recommendation: 14 Alternative 1 Version 2 and 15 Alternative 2 Version 2 (slide 10 Nighttime) – Was not addressed in the final RIC Recommendations for undeclared reasons

RIC Recommendation ANAC 14 Alternative 4 (slide 18 Nighttime) – Proceed forward for further consideration (note: would require lifting 1.5 nautical mile early turn restriction at night);

RIC Recommendation ANAC 15 Alternative 4 (slide 18 Nighttime) – Proceed forward for further consideration (note: would require lifting 1.5 nautical mile early turn restriction at night)

I do not support these 2 RIC Recommendations for the following:

1. flawed base line using ZZOOO and PADRZ (slide 10 clearly shows this proposed procedure aligning with WNFLD\LANDN at 295 degrees) rather than 290 Nighttime Noise Abatement Procedure (Letter Agreement;

SCT\SAN\ATCT); Nighttime routing deteriorated by acceptance of PADRZ and ZZOOO departures in lieu of 290, negatively impacting OB, MB and BR (slide 16); this appears to be an attempt to eliminate the long standing 290 departure heading commitment

2. Undefined location of proposed Fly By Way Point; Fly By Way Point should be "Fly Over WP" to assure their statement of "a waypoint to provide a more predictable path" (as in the predictability of JETTI)

3. Left turns are clearly too close to shoreline at 0.5 NM; Nighttime routing deteriorated by turns allowed at 0.5 NM off shoreline versus 290 past JETTI, negatively impacting OB, MB and BR, but improvements to LJ (slide 22/23);

4. Noise comparison charts (slides 15/16) do not reflect turn closer to shoreline, do not reflect at 290 departure heading; creates a false "baseline" (at 295 vs. 290 degree headings) for noise comparisons; proposed left turns for a Fly By commencing prior to 0.5 NM from shoreline will predictably redirect jet wash noise toward Bird Rock and Mission Beach notably 1 full mile +- closer and therefore lower to shoreline, than a Fly Over WP in the same location (slide 16);

5. Validates a "new normal" for nighttime departures directed onto PADRZ, at 295 degrees

6. Memorializes the recent increased negative impact incurred by Mission Breach and Bird Rock from the ATC shift away from the Nighttime procedure to PADRZ.

RECOMMENDATION 15

Various portions of the detailed elements, i.e. background/rational and procedure suggestions in ANAC #14 have not been addressed or were quickly dismissed by Riconco, particularly the redirection of flights inside of ZZOOO and right turns over La Jolla

RIC Recommendation: 15 Alternative 1 (slide 27 - Daytime) – This was not offered in the final RIC Recommendations for undeclared reasons

I support reconsideration of this RIC Recommendation for the following:

1. The extension of the JETTI location farther west will allow for greater separation and potentially discourage ATC from releasing aircraft off of the ZZOOO SID, which allows routes inside of ZZOOO and over Point Loma; this elelment was not discussed by Riocondo
2. The extension of the JETTI location farther west will allow for the opportunity to gain greater altitude upon transiting ZZOOO
3. The intent of ANAC #15 has not been adequately addressed by the RIC Recommendations

RECOMMENDATION 16

RIC Recommendation: ANAC 16 Alternative 1 Version 3 (slide 36 - Daytime/Nighttime Arrivals) - Do not proceed forward due to substantial increase in noise in areas such as University City and Kearny Mesa

I do not support this RIC Recommendation for the following:

1. **To not proceed with any efforts offers ZERO improvements to current conditions impacting arrival communities (slide 44/45)**
2. **ANAC 16 Alt 1, Ver 3 offers SIGNIFICANT material improvement for LJ and Pacific Beach over recent FAA designed impacts**
3. **In FACT, it relocates noise BACK to where it RECENTLY was, over significant uninhabited area (NAS Miramar, Landfill), before FAA realigned STAR**
4. **This insufficient effort does not remotely come close to addressing ANAC #17**

In summary, I believe our work within the Flight Procedure Analysis Study to be significantly incomplete. Therefore, before any presentation to ANAC on RIC Recommendations, we must property assess this study's status as to ANAC Recommendations 14, 15, 16 & 17, to satisfy ANAC Recommendation #13.

It is therefore also appropriate that Ricondo compile a specific summary analysis and evaluation of how and where their current RIC Recommendations: 1) positively, 2) negatively or 3) do not address the specific and detailed elements, i.e. background/rational and procedure suggestions of the unanimously SDCRAA approved ANAC Subcommittee Recommendations regarding the overall alignment of current SID's and STARs, Procedures and Agreements (ANAC Recommendation #13).

Date Received: **June 23, 2020**
From: **Gary Wonacott**
Comment: **This 1987 LOA clearly states that between the 2200 and 0630 hours, aircraft on PEBLE at 275 degrees will be moved to 290 degrees, up the channel. And yet there is strong evidence that ATC continued to use two different nighttime departures, 290 and PEBLE, which, when the FAA implemented PADRZ, became 290 and PADRZ. Had all nighttime departures been put on 290, then much of the current push back from OB would not be happening.**

I have been reviewing older documents from the Port and the FAA, and while the implementation of ANCA changed the calculus, it should not have changed the attitude of the Airport Authority, which it has. I will be sending along language that clearly confirms this.

Date Received: June 23, 2020
From: Gary Wonacott
Comment: The criterion for a significant event or change is 1.5 dB. A 1 dB delta would result in a 17 percent change in the area of the contour. a 1.5 dB change would results in a 25 percent change in the area of the contour. It does not appear that any of the alternatives are resulting in a 25 percent change in the area of the 65. Also, no where have I found a criterion for " a shift" of the noise that would eliminate an alternative. Should you not be putting the actual contour areas on the graphs?

Date Received: June 25, 2020
From: Robin Taylor
Comment: One quick question related the Summary of Alternatives...

*Alt 3 (ANAC Rec #15)

This sounds like an interesting idea...is it going to be studied?

Let me know

Date Received: June 27, 2020
From: Gary Wonacott
Comment: I have every reason to believe that the baseline nighttime noise analyses assumed that all of the aircraft post 10 pm are on the PADRZ track, which you have never described. The effect of this assumption would be a larger lateral movement south of the aircraft, and therefore noise, for the alternatives analyzed. This resulted in a larger impact on the contours than it would have if only the actual nighttime departures on PADRZ were moved. There are far more nighttime departures on the 290 than on PADRZ year around, so the impact was pronounced.

I believe that you will be doing another round of analyses. This error should be corrected before you begin, because if it is not, it will end up costing you far more in the end. I have included two other residents of Mission Beach on this email.

Date Received: June 27, 2020
From: Len Gross
Comment: It would really speed things up if we could get these questions answered before the next formal meeting. It may even be that Sjohnna knows the answers already.
— Len

1) Within the CAC group there is a lot of discussion concerning the definition of "moving the noise." We have been unable, so far, to find one. What is the definition? In particular, are any of the options that are being onsidered nullified by the moving the noise concept? My guess is no, or they would have been dropped as options, but others are not sure.
2) if we were not doing a 150, and we submitted the options to be initiated this year (i.e not doing a five year projection) would they be accepted and not be considered as moving the noise?

Date Received: June 28, 2020
From: Len Gross
Comment: The noise contours along the "northern edge of the 65 DNL boundary" will be heavily influenced by the headings used in the analysis for:

1) daytime (PADRZ), and
2) nighttime (noise abatement with PADRZ.) What headings were used for each of these?

Date Received: July 1, 2020
From: Gary Wonacott
Comment: I submitted a PRR asking for the two routes used in the nighttime noise analyses, one for the 290 and one for PADRZ for the Part 150. But, the SDCRAA has not been nearly as accommodating as the Port. On the other hand, I did catch up on my reading of the FPA final report and now have my answers. Based on what is written below, your assumption for the 290 departures is Incorrect. Not only would the assumption degrade the quality of the FPA, but it has resulted to date in the wrong conclusions coming out of the Part 150 analyses.

I have had a number of the CAC members review the paragraphs and they concur with my interpretation. Whether the 290 nighttime noise abatement agreement is a proper SID or not, it is the real history going back to 2012 based on data collected. Your assumption would move the red lines to the yellow lines In the third chart, presumably using the yellow line dispersion.

I have also included crossing points on the Mission Beach coastline for both the 290 and PADRZ going back to 2012. There is about 0.25 miles difference between the nominal crossing point for the 290 versus PADRZ. These are shown by the two yellow pins on the MB coastline.

Given the 7-10 pm departures have a factor of 3 dB and from 10-11:30 a factor of 10 dB, I think you see that the effect of this error in the input could be very significant establishing the delta impact on the contour locations relative to the 2026 contour for the different alternatives analyzed.

My suggestion is that you correct the input, forward this to the CAC for review and concurrence, and rerun the baseline, then rerun one or more of the alternatives to quantify the effect of the errors. I believe that concurrence with new assumed input can be achieved at a relatively short meeting of the CAC.

Based on this information that I would hope you could prepare and present to the TAC/CAC, a decision can be made to rerun all of the cases or not.

proposed design concept model tracks.

Baseline noise model tracks representing RNAV procedures were selected based on the following criteria:

- Runway 27 Arrivals from the Northwest – baseline noise model tracks following the COMIX RNAV STAR flight path between the LNTRN and KLOMN waypoints
- Runway 27 Nighttime Departures to the Northwest – baseline nighttime noise model tracks following the PADRZ or CWARD RNAV SID flight path from Runway 27 to the WNFLD waypoint or the GWYNN waypoint
- Runway 27 Daytime Departures to the East – baseline daytime noise model tracks following the ZZOOO RNAV SID flight path from Runway 27 to the ZZOOO waypoint

[11] The average annual day (AAD) count was based on the total number of flights recorded in the ANOMS database between [illegible] 2017 and December 2017 divided by [illegible] days.

Because an RNAV SID does not exist for nighttime (10:00 p.m. to 6:30 a.m.[11]) departures to the east from Runway 27, no baseline noise model track represents an RNAV procedure for eastbound nighttime departures. A new noise model flight track was developed.

Baseline noise model tracks representing RNAV procedures were correlated with a corresponding proposed alternative design concept. For example, the baseline noise model track representing the COMIX RNAV STAR was linked to Recommendation 16, Alternative 1 Version 3, and departures between 10:00 p.m. and 6:30 a.m. from Runway 27 on the PADRZ RNAV SID were linked to Recommendation 14, Alternative 1 Version 2 and Recommendation 14, Alternative 4. The geometry for each baseline noise model track correlated with an alternative design concept was modified to represent the expected alternative design concept flight path. The FAA's TARGETS flight evaluator paths for each alternative design concept served as a reference in modifying the baseline noise model tracks. Starting with the baseline noise model track provided the ability to maintain consistency between the baseline and alternative scenarios (e.g., initial runway departure heading to the right from Runway 27, arrival track dispersion after passing the KLOMN waypoint to join the final approach to Runway 27).

For Runway 27 departures between 10:00 p.m. and 6:30 a.m. to the east, a new noise model track was developed using the PADRZ RNAV SID noise model tracks as a reference for the initial departure heading and the FAA's TARGETS flight evaluator path as a reference to locate the remainder of the backbone track after the first fly-by waypoint. Based on the proposed design, the noise model track dispersion assumed no more than 0.5 NM of dispersion along the left and right side of the backbone after the first fly-by waypoint.

Two options were related to assigning operations to the alternative design concept noise model tracks: (1) assign all operations (flights following an RNAV procedure, conventional procedures, or FAA ATC radar vectors) to an alternative design concept noise model track; or (2) assign only those operations on the baseline RNAV procedures to the alternative design concept noise model track. The first option assumes the FAA ATC will assign all flights to the alternative design procedure and will not vector the traffic off the procedure at any point. This assumption would provide both a higher level of decrease or increase in CNEL result compared to assigning only those operations that were on the existing RNAV procedure. The first option assumption is very unlikely to occur due to the FAA ATC's need to dynamically manage traffic to maintain an efficient and safe system. As a result, the decreases identified would be overestimated. The second option assumes the use of an alternative design concept would be the same as the existing RNAV procedure use. The advantage to this option is the ability to quantify the change in CNEL based only on relocating the RNAV track, and not possibly overestimating the potential decrease and increase in CNEL by assuming FAA ATC management techniques, such as radar vectoring, would continue. For purposes of this noise screening analysis, the second option was used to allocate operations to the alternative design concept noise model tracks.

For Runway 27 departures between 10:00 p.m. and 6:30 a.m. to the east, a new noise model track was developed using the PADRZ RNAV SID noise model tracks as a reference for the initial departure heading and the FAA's TARGETS flight evaluator path as a reference to locate the remainder of the backbone track after the first fly-by waypoint. Based on the proposed design, the noise model track dispersion assumed no more than 0.5 NM of dispersion along the left and right side of the backbone after the first fly-by waypoint.


A1C_INT
WNFLD
LANDN
A2_INT
A1_INT
JETTI
XMANS
15
23
22
24
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14
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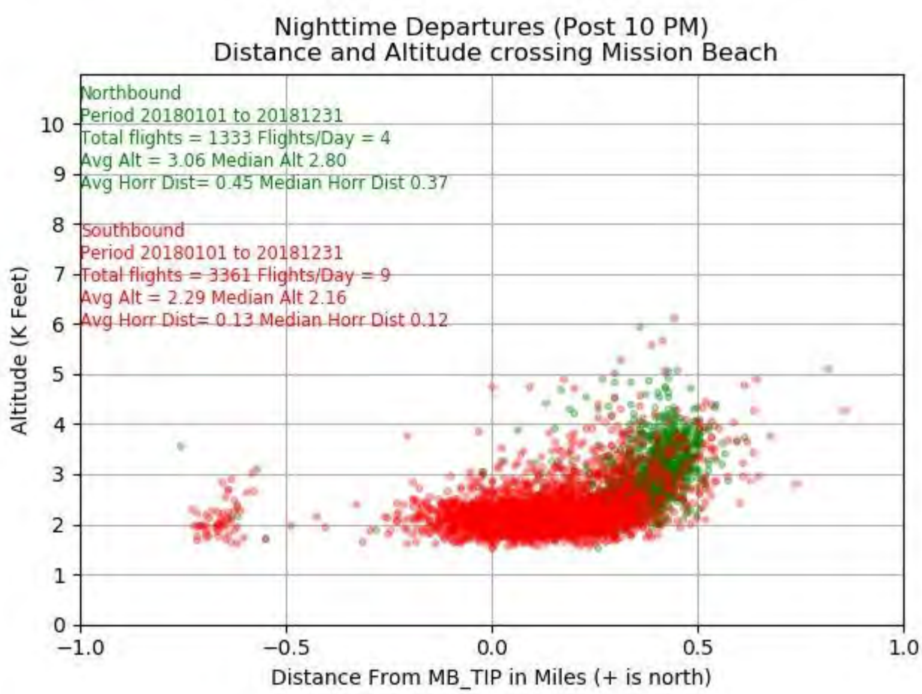
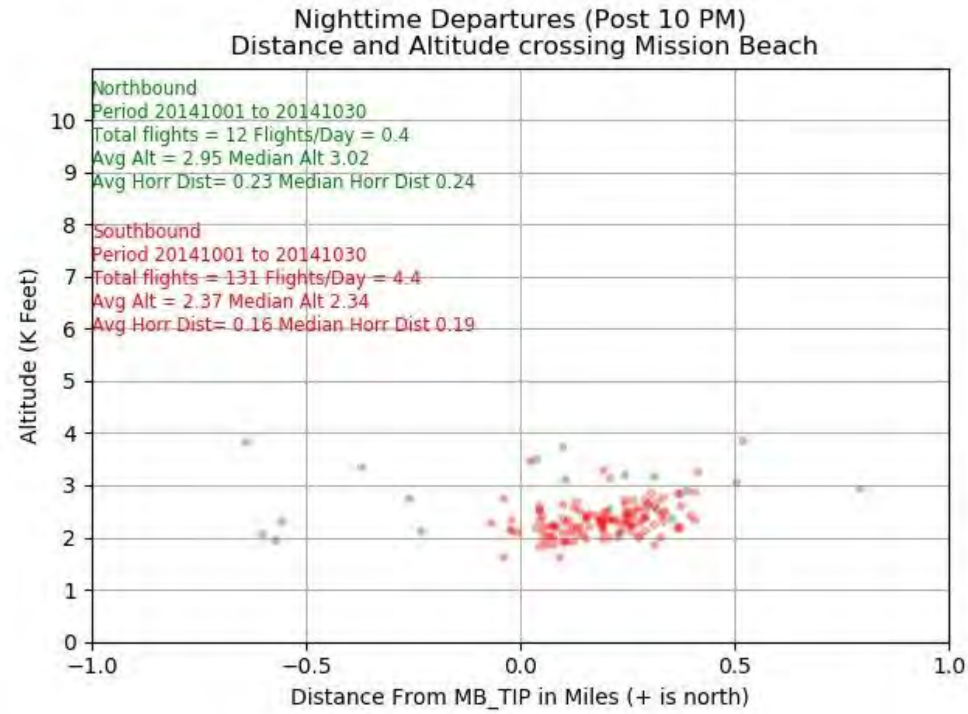
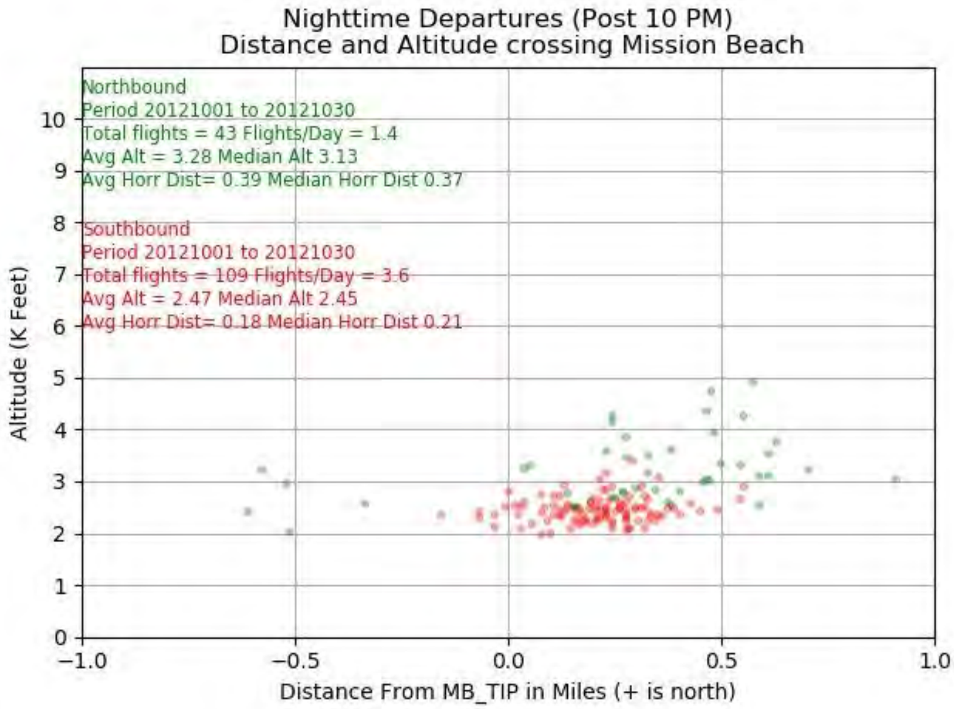
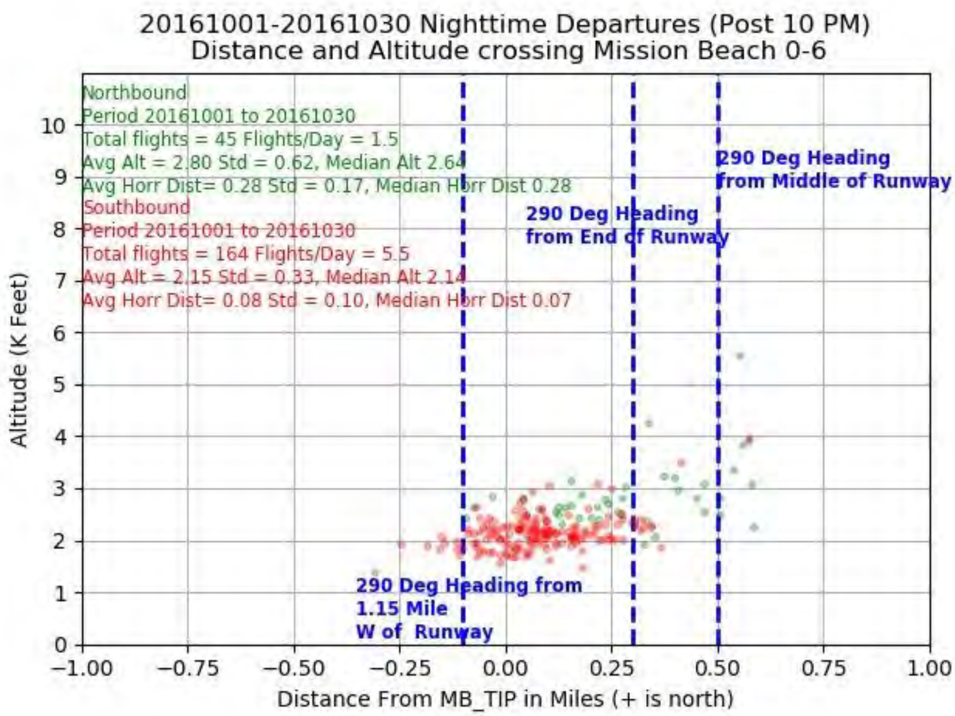
Data SIO, NOAA, U.S. Navy, NGA, GEBCO
Data CSUMB SFML, CA OPC

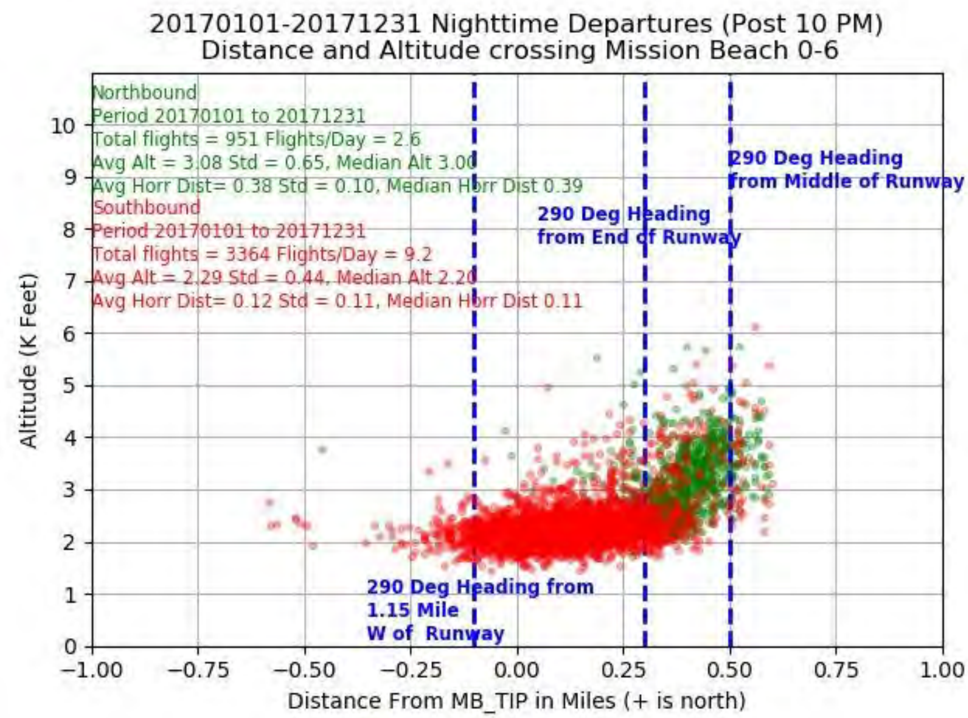

Nighttime Departures (Post 10 PM)
Distance and Altitude crossing Mission Beach
Northbound
Period 20180101 to 20181231
Total flights = 1333 Flights/Day = 4
Avg Alt = 3.06 Median Alt 2.80
Avg Horr Dist= 0.45 Median Horr Dist 0.37
Southbound
Period 20180101 to 20181231
Total flights = 3361 Flights/Day = 9
Avg Alt = 2.29 Median Alt 2.16
Avg Horr Dist= 0.13 Median Horr Dist 0.12
Altitude (K Feet)
Distance From MB_TIP in Miles (+ is north)
0
1
2
3
4
5
6
7
8
9
10
−1.0
−0.5
0.0
0.5
1.0

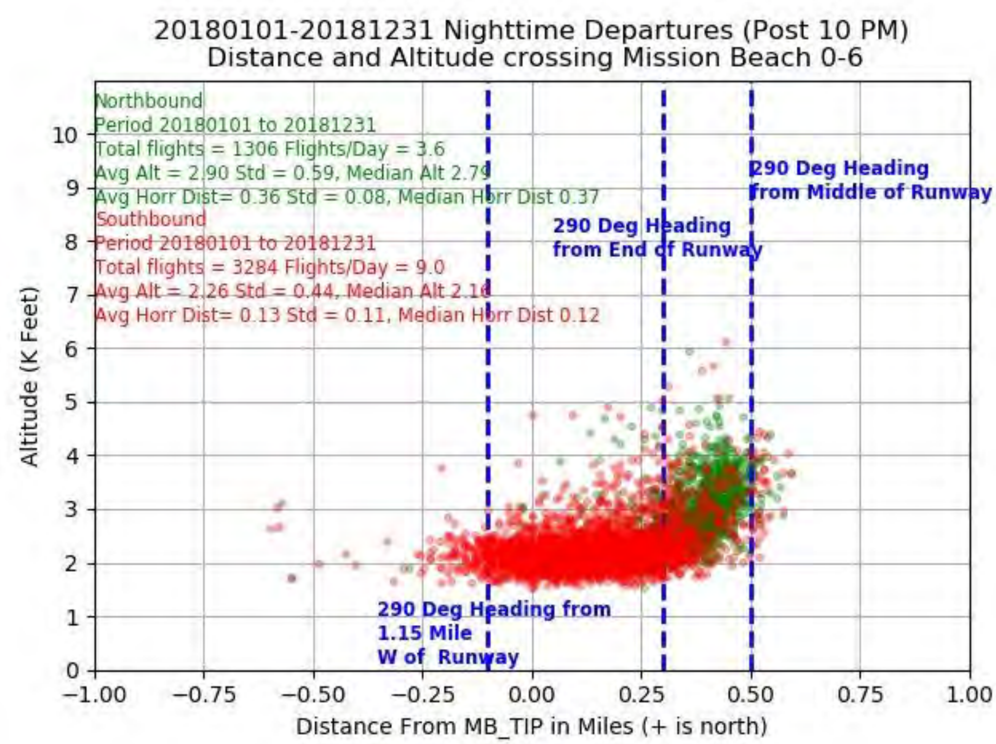


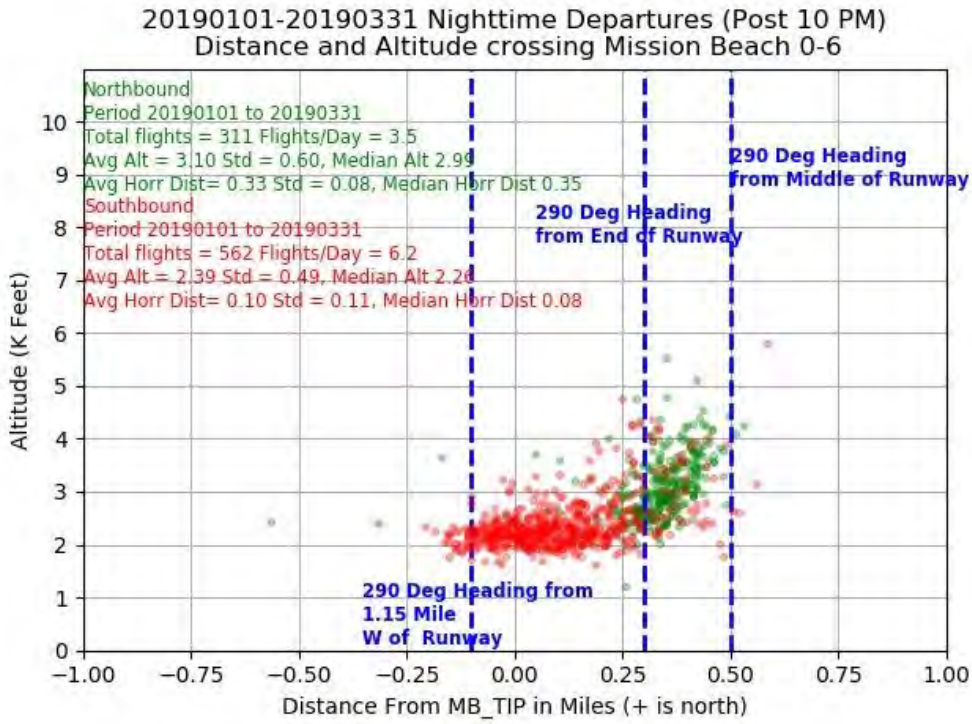
Nighttime Departures (Post 10 PM)
Distance and Altitude crossing Mission Beach
Northbound
Period 20141001 to 20141030
Total flights = 12 Flights/Day = 0.4
Avg Alt = 2.95 Median Alt 3.02
Avg Horr Dist= 0.23 Median Horr Dist 0.24
Southbound
Period 20141001 to 20141030
Total flights = 131 Flights/Day = 4.4
Avg Alt = 2.37 Median Alt 2.34
Avg Horr Dist= 0.16 Median Horr Dist 0.19
Altitude (K Feet)
0
1
2
3
4
5
6
7
8
9
10
−1.0
−0.5
0.0
0.5
1.0
Distance From MB_TIP in Miles (+ is north)


Nighttime Departures (Post 10 PM)
Distance and Altitude crossing Mission Beach
Northbound
Period 20121001 to 20121030
Total flights = 43 Flights/Day = 1.4
Avg Alt = 3.28 Median Alt 3.13
Avg Horr Dist= 0.39 Median Horr Dist 0.37
Southbound
Period 20121001 to 20121030
Total flights = 109 Flights/Day = 3.6
Avg Alt = 2.47 Median Alt 2.45
Avg Horr Dist= 0.18 Median Horr Dist 0.21
Altitude (K Feet)
Distance From MB_TIP in Miles (+ is north)


20161001-20161030 Nighttime Departures (Post 10 PM)
Distance and Altitude crossing Mission Beach 0-6
Northbound
Period 20161001 to 20161030
Total flights = 45 Flights/Day = 1.5
Avg Alt = 2.80 Std = 0.62, Median Alt 2.64
Avg Horr Dist= 0.28 Std = 0.17, Median Horr Dist 0.28
Southbound
Period 20161001 to 20161030
Total flights = 164 Flights/Day = 5.5
Avg Alt = 2.15 Std = 0.33, Median Alt 2.14
Avg Horr Dist= 0.08 Std = 0.10, Median Horr Dist 0.07
290 Deg Heading from Middle of Runway
290 Deg Heading from End of Runway
290 Deg Heading from 1.15 Mile W of Runway
Altitude (K Feet)
Distance From MB_TIP in Miles (+ is north)


20170101-20171231 Nighttime Departures (Post 10 PM)
Distance and Altitude crossing Mission Beach 0-6
Northbound
Period 20170101 to 20171231
Total flights = 951 Flights/Day = 2.6
Avg Alt = 3.08 Std = 0.65, Median Alt 3.00
Avg Horr Dist= 0.38 Std = 0.10, Median Horr Dist 0.39
Southbound
Period 20170101 to 20171231
Total flights = 3364 Flights/Day = 9.2
Avg Alt = 2.29 Std = 0.44, Median Alt 2.20
Avg Horr Dist= 0.12 Std = 0.11, Median Horr Dist 0.11
290 Deg Heading from Middle of Runway
290 Deg Heading from End of Runway
290 Deg Heading from 1.15 Mile W of Runway
Altitude (K Feet)
Distance From MB_TIP in Miles (+ is north)


20180101-20181231 Nighttime Departures (Post 10 PM)
Distance and Altitude crossing Mission Beach 0-6
Northbound
Period 20180101 to 20181231
Total flights = 1306 Flights/Day = 3.6
Avg Alt = 2.90 Std = 0.59, Median Alt 2.79
Avg Horr Dist= 0.36 Std = 0.08, Median Horr Dist 0.37
Southbound
Period 20180101 to 20181231
Total flights = 3284 Flights/Day = 9.0
Avg Alt = 2.26 Std = 0.44, Median Alt 2.16
Avg Horr Dist= 0.13 Std = 0.11, Median Horr Dist 0.12
290 Deg Heading from Middle of Runway
290 Deg Heading from End of Runway
290 Deg Heading from 1.15 Mile W of Runway
Altitude (K Feet)
Distance From MB_TIP in Miles (+ is north)


20190101-20190331 Nighttime Departures (Post 10 PM)
Distance and Altitude crossing Mission Beach 0-6
Northbound
Period 20190101 to 20190331
Total flights = 311 Flights/Day = 3.5
Avg Alt = 3.10 Std = 0.60, Median Alt 2.99
Avg Horr Dist= 0.33 Std = 0.08, Median Horr Dist 0.35
Southbound
Period 20190101 to 20190331
Total flights = 562 Flights/Day = 6.2
Avg Alt = 2.39 Std = 0.49, Median Alt 2.26
Avg Horr Dist= 0.10 Std = 0.11, Median Horr Dist 0.08
290 Deg Heading from Middle of Runway
290 Deg Heading from End of Runway
290 Deg Heading from 1.15 Mile W of Runway
Altitude (K Feet)
Distance From MB_TIP in Miles (+ is north)
0
1
2
3
4
5
6
7
8
9
10
−1.00
−0.75
−0.50
−0.25
0.00
0.25
0.50
0.75
1.00


A2 INT
A1 INT
Noise Dot 2
290 Nominal Crossing Point over Mission Beach
Sail Bay
Mission Bay
Fiesta Bay
Ski Islands
Alligator Rock
Google Earth

FAA Orders 5050.4B and 1050.1F

- FAA considers only those noise impacts that occur at 65 dB DNL/CNEL or greater
- Increases in noise levels for noise sensitive areas over 1.5 dB DNL/CNEL, within the 65 dB DNL/CNEL contour, are considered "significant"
- If an action causes a significant impact over noise sensitive areas, additional analysis should be conducted between 60 dB DNL/CNEL and 65 dB DNL/CNEL to determine if an increase of 3 dB DNL/CNEL occurs
- A 3-dB increase is not considered "significant", but must be disclosed for informational purposes

Recent Aviation Noise-Related Legislation

- Section 175. Addressing community noise concerns.
  - Requires the FAA to consider the feasibility of implementing dispersal headings for new RNAV departure procedures below 6,000 AGL if: (1) the airport requests it; (2) it would not have safety or efficiency implications, and (3) it would not significantly increase noise over other noise-sensitive areas.
- Section 176. Community involvement in FAA NextGen projects located in metroplexes.
  - Requires the FAA to prepare a review (within 180 days) of FAA's community involvement practices for NextGen projects located in Metroplex. That review is to be followed by a report (within 60 days) containing: (1) recommendations for improving community involvement for NextGen projects in Metroplexes; (2) discussion of how and when the FAA will engage airports and communities in PBN proposals, and (3) lessons learned from NextGen projects.

Source: Airports Council International – North America, October 2018

Recent Aviation Noise-Related Legislation

- Section 179. Airport noise mitigation and safety study.
  - Requires the FAA to conduct a study to review and evaluate existing studies and analyses of the relationship between jet aircraft approach and takeoff speeds and corresponding noise impacts on communities surrounding airports. It would also look at whether reduced approach or takeoff speeds would jeopardize aviation safety and/or: cause the National Airspace System (NAS) to operate less efficiently; impact capacity; and increase fuel burn.
- Section 180. Regional ombudsmen.
  - Requires the FAA to designate a Regional Ombudsman for each region who would serve as a liaison with the public to address "issues regarding aircraft noise, pollution, and safety" and make recommendations to the Regional Administrators to address concerns raised by the public.

Source: Airports Council International – North America, October 2018

ESA Airports Regulating Aviation Noise

Recent Aviation Noise-Related Legislation

- Section 187. Aircraft noise exposure.
  - Requires the FAA to conduct a review of the impact of noise exposure on communities around airports. The FAA would be required to submit a report to Congress on their findings within 2 years, including FAA's recommendations for revisions to their land use compatibility guidelines in Part 150 of Title 14 CFR.
- Section 188. Study regarding day-night average sound levels.
  - Directs the FAA to evaluate alternative metrics to the current average day-night level standard. (Note, this is similar to Section 173, except that it adds the requirement of consideration of actual noise sampling and other methods, and an accelerated schedule.)

Source: Airports Council International – North America, October 2018

ESA Airports Regulating Aviation Noise

ESA Airports

Regulating Aviation Noise

Recent Aviation Noise-Related Legislation

- Section 189. Study on potential health and economic impacts of overflight noise.
  - Requires the FAA to engage a university to conduct a health study in a number of metropolitan areas (Boston, Chicago, the District of Columbia, New York, the Northern California Metroplex, Phoenix, the Southern California Metroplex, Seattle, or such other area as may be identified by the FAA), focusing on "incremental health impacts on residents living partly or wholly underneath flight paths most frequently used by aircraft flying at an altitude lower than 10,000 feet, including during takeoff or landing"; and "an assessment of the relationship between a perceived increase in aircraft noise, including as a result of a change in flight paths that increases the visibility of aircraft from a certain location, and an actual increase in aircraft noise, particularly in areas with high or variable levels of non-aircraft-related ambient noise."

ESA Airports

Regulating Aviation Noise

Recent Aviation Noise-Related Legislation

- Section 190. Environmental mitigation pilot program.
  - Provides for FAA grants of up to $2.5 million to six airports to carry out pilot environmental mitigation programs that would "measurably reduce or mitigate aviation impacts on noise, air quality, or water quality at the airport or within 5 miles of the airport." The federal share of this project would be up to 50%, and projects must be carried out by a consortium of entities that includes two or more of the following: businesses, educational or research organizations, state or local governments, and/or federal laboratories.

airspace and procedure actions in a larger study area are described more fully in this guidance under the environmental consequences section. U.S. Census data may be supplemented by higher resolution data at the local municipality level, when available. Parcel level data may be available from the local property appraiser's office and is often updated at least once a year. Population and household information can be estimated at the parcel level provided that the local municipalities maintain current estimates of people per household and a housing unit count for multi-family parcels.

- The number of residences or people residing within each noise contour where aircraft noise exposure is at or above DNL 65 dB; or for a larger scale air traffic airspace and procedure action, the population within areas exposed at or above DNL 65 dB, at or above DNL 60 but less than DNL 65 dB, and at or above DNL 45 dB but less than DNL 60 dB.
- The location and number of noise sensitive uses in addition to residences (e.g., schools, hospitals, parks, recreation areas) that could be significantly impacted by noise; and
- Maps and other means to depict land uses within the noise study area. The addition of flight tracks may be helpful. Illustrations should be sufficiently large and clear to be readily understood.

The description of current noise conditions is usually confined to aircraft noise. However, the inclusion of other noise data, such as background or ambient noise or notable levels of noise in the study area from other sources (e.g., highways, industrial uses) is appropriate where such noise data is pertinent to understanding the affected environment and to considering the environmental impacts of the proposed action and alternative(s).

Noise and Noise-Compatible Land Use (last updated 2/2020) 11-8

Date Received: July 1, 2020

From: Gary Wonacott

Comment: Please redo the inputs for the FPA and the Part 150 separating the nighttime noise abatement 290 departures from the PADRZ departures and rerun all Part 150 analyses. The 290 nominal crossing point over Mission Beach is approximately -.25 miles south of the PADRZ nominal crossing point. Once corrected this will result in a smaller change in the 65 contours for all of the cases making them even less significant.

Date Received: July 1, 2020

From: Robin Taylor

Comment: Just a suggestion since there is a lot of information provided and being new to this it would be nice the latest presentation was color coded based on status....if the alternate has been eliminated make it red with X through it...the fact is was green confused me.

Date Received: July 3, 2020
From: Anthony Stiegler
Comment: In connection with our review and comments on the May 28, 2008 and June 25, 2020 presentations we have a request that will save time: Ricondo & Associates and Mead/Hunt provided graphics concerning the various procedure design alternatives in your PPTs. We respectfully ask whether you can please export those design alternatives into Google Earth so that we can download the designs into TARGETS for further evaluation. These are usually in .KMZ and/or .KML file format. Alternatively, if the designs were done in TARGETS, can you please just provide the TARGETS files for each proposed alternative? This will save time and effort, and accelerate the process for our ability to substantively provide comments on behalf of La Jolla.

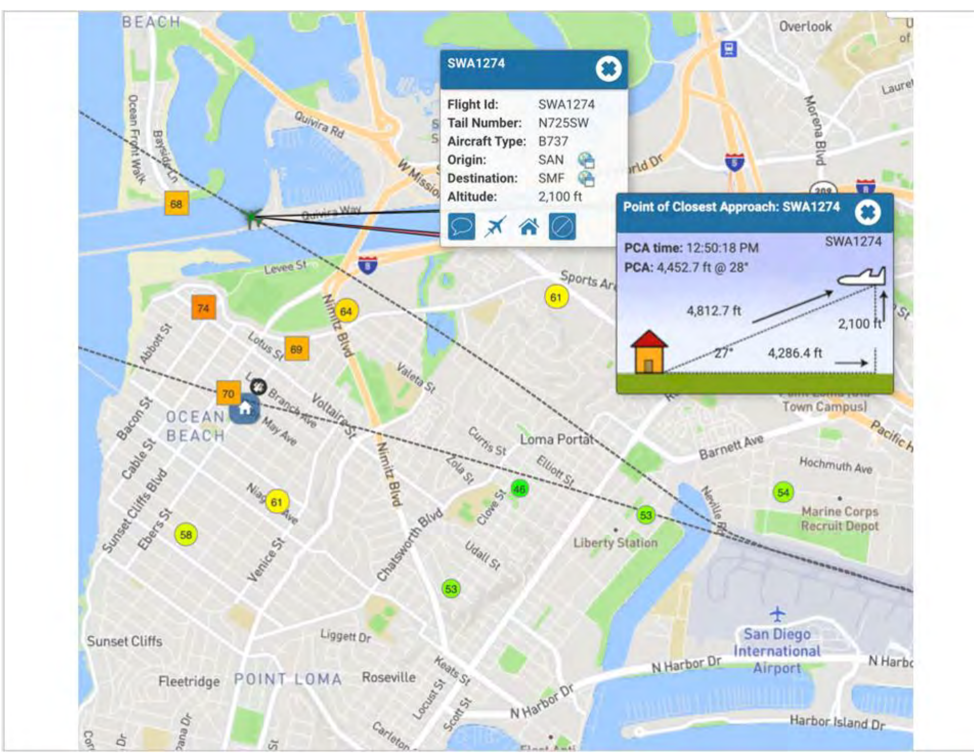
Please let us know whether you can accommodate our request.

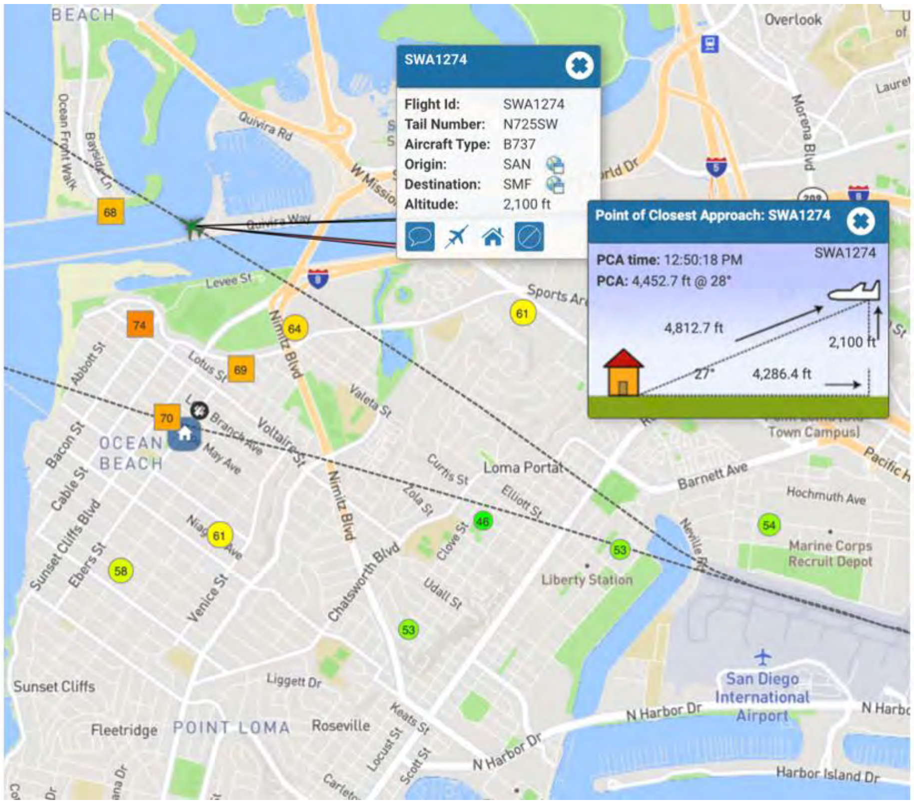
Date Received: July 6, 2020
From: Gary Wonacott
Comment: Please repeat the TAC and CAC studies with the agreed upon nighttime noise abatement 290 vector heading.

Date Received: July 6, 2020
From: Gary Wonacott
Comment:

ASSESSMENT OF NOT FOLLOWING THE REAL 290 TRACK

- I am going to put this data and information out mostly for enlightenment, but also trying to make my case. However, it also makes the OB case as well. First, everyone can look at the data and determine if the change is significant or not. I don't think there is a significant change in noise for those in the new area of the contour. The one point that I think we all agree on is that the satellite navigation results is a concentration of the departure tracks and therefore the noise for those living under the track, either ZZOOO or PADRZ. Now, I am pretty sure that JETTI has been a waypoint for some time which already concentrated that track before NexGen. More to come on this.
- The next two charts show actual tracks used on ZZOOO and PADRZ. I could add a 290, but there is so much dispersion, I am using the average from the scatter graphs Len prepared. An example of the 290 departure track is shown on the final chart, that is the bottom white line In Webtrax, I put the home location on top of the noise monitor on the 275 track. I was then able to use Webtrax to determine the closest point to the home and the peak noise level at the home noise monitor. I did this for several ZZOOO, 290, and PADRZ departures. You can pretty much draw a line perpendicular to the 275 and where it crosses the 290 and PADRZ is where the peak noise occurs. Not surprising, since this is the shortest distance. There is scatter around this intersection point due to engine characteristics and thrust time history. Note that these closest points for the three tracks are almost along the same line due to the small angle differences, 15 degrees and 20-25 degrees (Cosine ranges from 0.96 to 0.94).
- If you measure the distance fro the 275 along the perpendicular to the intercepts, you get about 0.4 miles for the 290 and about 0.65 miles for PADRZ. I then plotted the peak noise versus the distance from the home location that is in the next chart. In Excel I used a linear curve fit to the data and found the equation for the line. The slope of the line is about -17 dB per mile. The data shows a 6.8 dB decrease from ZZOOO to the 290 and another 3.7 dB decrease to PADRZ. Again more on this later.
- The main issue, however, is the noise change for those living directly under the flight track. In the next chart, I show the consultants design for Alt 1B, that has a more concentrated dispersion. This is effectively the noise abatement, or 290 track.
- The last chart shows a more detailed picture of the areas under the PADRZ and the 290 tracks. The top white line is PADRZ and the bottom one is a 290, which also happens to cross the coast at the same location as the Alt 1B. The top one also crosses the coast at the top yellow pin location. This issue and the Mission Beach issue should be examined in the FPA, which considers SENEL. But clearly Mission Beach was not looked at in detail because all of the nighttime departures were put on PADRZ. But, it looks to me that with dispersion that the number of affected homes and population is about the same for PADRZ and the 290.
- In any case, I believe that the consultant needs to go back and put in the nighttime noise abatement track and dispersion based on 2018-2019 actual data or use what I have identified as the 290 in the last chart.




SWA1274
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Tail Number: N725SW
Aircraft Type: B737
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Destination: SMF
Altitude: 2,100 ft
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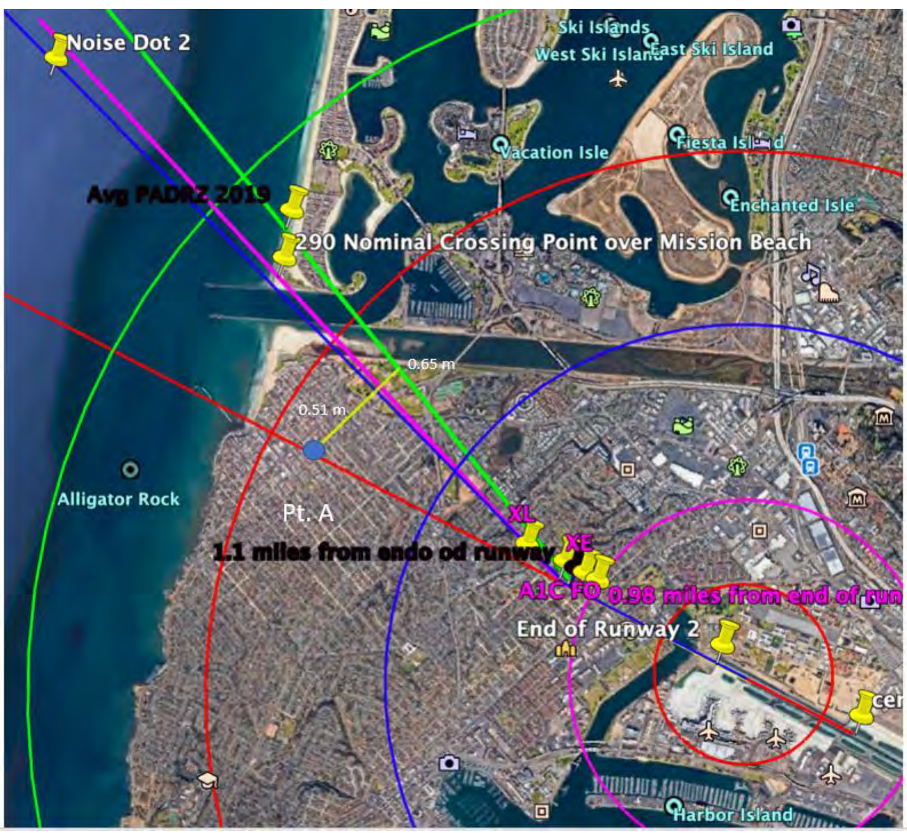
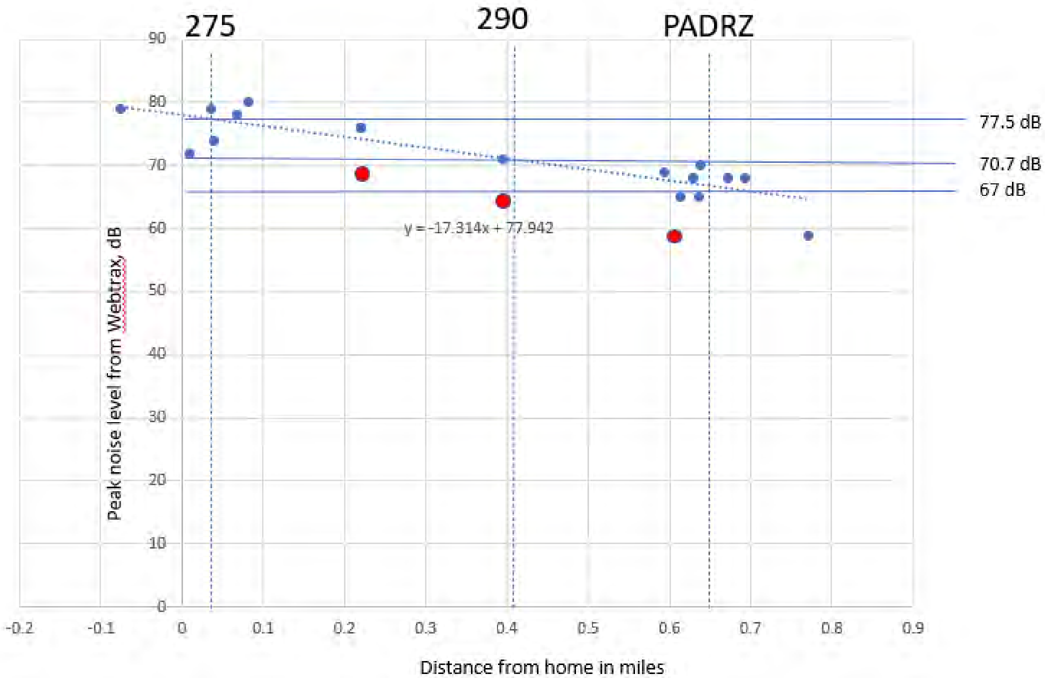
PCA: 4,452.7 ft @ 28°
SWA1274
4,812.7 ft
2,100 ft
27°
4,286.4 ft
OCEAN BEACH
POINT LOMA
Loma Portal
Liberty Station
San Diego International Airport
Sunset Cliffs
Fleetridge
Roseville


Noise Dot 2
Ski Islands
West Ski Island
East Ski Island
Vacation Isle
Fiesta Island
Enchanted Isle
Avg PADRZ 2019
290 Nominal Crossing Point over Mission Beach
0.65 m
0.51 m
Alligator Rock
Pt. A
1.1 miles from endo od runway
XL
XE
A1C FO
0.98 miles from end of run
End of Runway 2
Harbor Island



ALTERNATIVE 1B – Departures Over Mission Bay Channel with Concentration

If you believe you submitted a comment that has not been included, please send an email to
Jen.Wolchansky@meadhunt.com.

Public Comments from
July 7, 2020 to
January 8, 2021

Date Received: July 9, 2020
From: Mike Meyer
Comment: Airport 150 study-

As a resident of South Mission Beach. Why are all the late planes (after 10pm) being shifted to Mission Beach. When I first moved down here in 1973 the pattern was Mission Beach and Ocean Beach.

How did politicians Like Byron Wear shove all the planes out of his neighborhood in Pt. Loma over to MIssion Beach.

Move the planes to over the jetty late night. I will still hear them but at least they will not be flying 25%-33% of the time directly over my house.

Also, why can't the planes after 10 pm be stage 4 or 5. Which we all know they are more quieter. With the 14 flights after 10 pm going back to the midwest or east coast. During the day you have the east coast flying out of the airport then heading around the tip of Pt Loma. But why don't they follow the same pattern late at night for east coast flights.

The newer planes are more fuel efficient and quieter. Give them three years to make the change. Then go after the flight before 7 am. Give them five years to use stage 4 only. When the economy slows down they shift to more fuel efficient planes and park the gas guzzler. Lets get them to keep the quieter planes to use in San Diego.

Date Received: July 21, 2020
From: Anthony Stiegler and Chris McCann
Comment: Attached hereto are Chris McCann's and my comments and questions about the Alternatives presented at the May 28, 2020 Citizen Advisory Committee meeting, as supplemented by the June 25, 2020 CAC clarification meeting.

We also attach our Equivalent Lateral Spacing Operations (ELSO) proposal, slightly modifying Alternatives 2A and 2B, which we have privately commissioned through our consulting firm ABCX2. We believe this proposal is the optimal solution and is a win/win/win/win for the FAA, the SDCRAA, the airlines and the impacted communities, and urge that it should be given serious consideration and modeling.

We appreciate the time you have afforded us to provide this input, your timely provision of the requested data files, and we look forward to discussing them with you and the rest of the CAC members in due course. Our consultants can be made available to answer questions or engage with you if that would be helpful.

If there are difficulties receiving these two attachments, please advise and I will send them separately or send them via other means.

See attachments for this comment at the end of the document:
Attachment 1 - Stiegler and McCann Comments re May 28, 2020 TAC Presentation and SAN ELSO Proposal (Final)
Attachment 2 - NOISE AND OPERATIONAL CONSIDERATIONS FOR THE SAN DIEGO INTERNATIONAL AIRPORT PART 150 STUDY - ABCx2 20200716 Final

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Date Received: July 23, 2020
From: Maria Campbell
Comment: I would like the attached summaries color coded As follows

Yes this is important so I know what to focus on....I recommend the following

Green-open for discussion/proceeding to the next step
Yellow-pending analysis

No color-new proposal

Red-closed for discussion/eliminated

I think this is pretty straight forward do you think I can get something today? Again, it's presentation dated June 25 slides 19-21

19

Summary of Alternatives

Alternative Number	Title	Description
1A (1A – 1C are various alternatives to respond to ANAC recommendation 14 and 17)	Departures over Mission Bay Channel with Dispersion (to decrease noise in Mission Beach, Pacific Beach and La Jolla)	Create a path with **dispersion** over the Mission Beach inlet. Modify existing PADRZ RNAV to climb to 520' at 500' per NM proceed offshore aligned with Noise Dot #1
1B	Departures over Mission Bay Channel with Concentration (to decrease noise in Mission Beach, Pacific Beach and La Jolla)	Create a **concentrated** path over the Mission Beach inlet. Modify existing PADRZ RNAV to climb to 520' at 500' per NM to a point .98 NM from runway end then proceed on 293-degree heading
1C	Departures over Mission Bay Channel with a Fly-Over waypoint (to decrease noise in Mission Beach, Pacific Beach and La Jolla)	Provide a more predictable and repeatable initial jet departure path with very little to no dispersion along the path from Runway 27 that direct jet aircraft towards a fixed point on runway heading then a turn to the northwest to direct jet

20

Summary of Alternatives

Alternative Number	Title	Description
2A (2A – 2D are various alternatives response to ANAC recommendation #14)	Equivalent Lateral Spacing Operations (ELSO) for Departures with Dispersion	Provide a predictable and repeatable initial jet departure path with some dispersion along the path from Runway 27 that direct jet aircraft along a heading that diverges from the ZZOOO RNAV SID heading by at least 10-degrees
2B	Equivalent Lateral Spacing Operations (ELSO) for Departures with Concentration	Provide a predictable and repeatable initial jet departure path along the path from Runway 27 that direct jet aircraft along a heading that diverges from the existing heading by at least 10-degrees. Provides greater predictability and repeatability compared to Alternative 2A due to less dispersion
2C and D	Modified Equivalent Lateral Spacing Operations (ELSO) for Departures with Dispersion and Concentration	Refined Proposed ELSO Alternatives to move the ELSO heading from 10 degrees to 12 degrees (about halfway between 10 and 15 degree) based on committee discussion. Alternative 2C is a dispersion design; Alternative 2D is a concentration design
3 (ANAC recommendation #15)	Require all Departures to Fly Between 275 and 290 degree heading	Intended to reduce the total departure dispersion from approximately 250- and 310-degrees from Runway 27 to between 275 and 290-degrees. This would reduce the number of overflights heading south of 275 over areas in Point Loma and aircraft heading north of approximately 293-degrees
4 (4 is response to ANAC recommendation #17)	Nighttime (10 PM to 630 AM) Eastbound Departures on ZZOOO RNAV	Remove nighttime departure amendment (aircraft filing the ZZOOO fly 290-degree heading) and have aircraft fly as they do during the day either PADRZ or ZZOOO

Mead &Hunt Green denotes analyzed already; Yellow denotes analysis underway

Confidential Draft – For Discussion Purposes Only

Summary of Alternatives

Alternative Number	Title	Description
5 (Responding to CAC recommendation from November 2019 meeting)	All Cargo and international flights follow PADRZ SID	Analyze exposure levels by re-locating heavy jet departures conducted by cargo and international carriers on the right turn initial departure heading associated with the PADRZ RNAV SID
6 (Response to ANAC recommendation #21)	Modification to Noise Abatement Departure Procedure (NADP)	Review modifications to the FAA published (AC 91-53A) to see if there are any noise reduction benefits. Analyze recommended aircraft single event level to see if there would be benefits
7 (Response to ANAC recommendation #11)	Noise Barrier	Additional single event modeling to determine feasibility of noise barriers

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Date Received: August 2, 2020

From: Gary Wonacott

Comment: I have submitted multiple complaints to the FAA regarding the illegal original move from 275 to the 290 nighttime noise abatement agreement policy initiated by the City Council, supported by the Port Commission and implemented as a policy by Air Traffic Control. The comments by the Flight Procedures Analysis consultant in the final report simply confirm that the 290 is not a legal departure procedure. Had a NEPA assessment been performed by the FAA, the change would have been rejected as having too much of an impact on Mission Beach. Moving the 290 departures to the PADRZ SID for the FPA and the Part 150 were simply wrong and need to be redone with the correct inputs. With regard to the Part 150 analyses, once the the different recommendations are rerun with the corrected input, it will show a smaller effect of moving from PADRZ to the A1 and A2 options. The A1B appears to be the best option for all. There is some possibility of implementing the La Jolla 275, 285, 295 departure. First of all while I do see the likelihood of increased noise for those close in, I am not sure it will be a perceived difference. Second, I can see a compromise for this proposal that results in the possibility of a decrease in the length of the 275 with a possible increase in the width, but no shift. This would come by doing the following: 1. MOVE ALL PADRZ TO THE 295 2. MOVE SOME PERCENTAGE OF THE 275 TO THE 285; THE X PERCENT MOVED WILL RESULT IN THE LATERAL SHIFT BEING MOVED BACK TO THE RIGHT. Adopt a flight test program in cooperation with the carriers that evaluates the alternatives identified above. Adopt a final plan once the flight testing is complete. Many airports far less impacted by noise are conducting combined analysis and flight testing. Change the Fleet Quiet Score methodology to one based on the FAA AEM or an equivalent excel spreadsheet analysis taking into account equivalent number of operations including the evening and nighttime penalties. Perform a study to assess the potential phase out of Stage 3 aircraft from the carrier fleets. Implement a scheduled increase in number of operations at Lindbergh that limits the increase in the 65 dB CNEL Incompatible use area to no more than the 2018 value. The limit will be increased as more newer Stage 4 and 5 or equivalent aircraft are introduced to the carrier fleets. It is far easier to argue for this approach given that Lindbergh is near capacity, so the loss of commerce is far less impacted in this context compared to the noise impact on the communities. This would also be far more consistent with the State Variance.

Date Received: August 4, 2020

From: CAC Committee

Comment:

Pursuant to your July 24, 2020 letter to CAC members, please find attached a letter signed by the seven members of the Citizen Advisory Committee that live in Ocean Beach and Point Loma, requesting additional modeling and analysi s of alternatives, meeting your August 7, 2020 stated deadline for the consultants to accomplish additional analysis.

Given that SAN is a single runway airport with a single runway departure heading, the most effective, and perhaps the only ways to reduce noise impacts inside the 65 CNEL are to consider lateral and vertical dispersion along the runway departure heading. Moreover, those inside the 65 CNEL desire to disperse the departures such that the noise impact is shared and not concentrated under one narrow flight path.

Thus, we respectfully urge the SDCRAA and its consultants to give due diligence to the modeling and analysis proposed in the detailed letter attached. We believe our suggestions will coalesce on a solution that minimizes noise impacts across all impacted communities, while facilitating the FAAâ€™s interested in optimizing capacity and safety, and allowing for maximal airline efficiency; a true win for the SDCRAA and our surrounding communities.

Please let me know if you can't access the attachment.

Dennis Probst
Ms. Sjohnna Knack
Ms. Heidi Gantwerk
San Diego County Regional Airport Authority

Via Email August 4, 2020

Dear Dennis, Sjohnna and Heidi,

Pursuant to your July 24, 2020 letter to CAC members, we submit the following request for additional modeling and analysis of alternatives, meeting your August 7, 2020 stated deadline for the consultants to accomplish additional analysis.

1. Examine and analyze new departure procedures that will disperse the noise within the 65 CNEL laterally;
2. Complete a meaningful analysis of NADP options, well beyond the single example dismissed in the prior Part 150 study, that would add both lateral and vertical dispersion to the current ZZOOO and PADRZ departures;
3. Explore alternatives that result in more Stage 4 and Stage 5 aircraft at SAN using either regulation or carrier incentives;
4. Ensure "compliance" with the current 290 degree Nighttime Noise abatement Procedure, as was the intent of ANAC recommendation 17, versus eliminating it; and
5. Analyze ways to ensure maximum compliance with nighttime landing to the west unless safety dictates otherwise.

Background

As members of the Citizen Advisory Committee ("CAC") that live in Ocean Beach and Point Loma, many of us inside the 65 CNEL contours, the specific constituents of the Part 150 Study, have unified concerns with the current direction of the Part 150 Study. As stated in the presentation given by Mead & Hunt at the May 28, 2020 CAC meeting, the purpose of the Part 150 study is to **(a)** reduce noncompatible land uses and **(b)** Develop a balanced and cost-effective program to reduce noise impacts inside the 65 CNEL contours.

To date, we do not believe any of the proposed operational alternatives being modeled as part of the 150 Study by the Airport Authority and their consultants accomplish these goals. In fact, the proposals appear to focus primarily on noise mitigation outside of the 65 CNEL while pushing noise inside the 65 CNEL south of the San Diego River and further into the heart of Ocean Beach. Further, we believe input from CAC members (especially those Part 150 constituents within the 65 CNEL) that could help complete a meaningful Part 150 study have thus far been dismissed.

Specifically, given SAN is a single runway airport with a single runway departure heading, the most effective, and perhaps the only ways to reduce noise impacts inside the 65 CNEL are to consider lateral and vertical dispersion along the runway departure heading. Moreover, those inside the 65 CNEL desire to disperse the departures such that the noise impact is shared and not concentrated under one narrow flight path.

NADP Options to create dispersion and reduce noise impacts with the 65 CNEL:

As members of the CAC that live within the 65 CNEL contour, we absolutely disagree with the conclusion presented on May 28, 2020 by Mead and Hunt which stated there *was "No perceivable noise reduction on the most extreme NADP to offset cost issues."* Given the success of the NADP implemented in Orange County, and more importantly, it's ongoing refinement today, as well as NADP's successfully implemented at airports around the world, the CAC members believe there is significant merit in developing innovative NADP alternatives in San Diego that decrease overall noise. As an example, merely adding a maximum departure speed, similar to the one in place at JW Airport, would increase climb rate on initial takeoff and simultaneously reduce overall noise due to airspeed related airframe noise and increased altitude which would generate additional noise reductions due to distance from all citizens within the 65 CNEL. Vectoring off of the current ZZOOO and PADRZ departures, while within JETTI, LANDN and WINFLD to "headings" versus "direct to (existing) waypoint" would create dispersion under the flight path within the 65 CNEL and benefit everyone inside the 65 CNEL. Adding a third departure heading within the current departure flight path footprint, equidistant between ZZOOO and PADRZ with an offshore "flyover" waypoint would disperse noise more evenly within the 65 CNEL and mitigate some of the NextGen flight path concentration due to RNAV. Finally, none of the suggestions above would shift any noise contours laterally but would truly benefit everyone inside the current contours.

Thus, as the CAC members who live within the 65 CNEL and therefore parties for whom the Part 150 is specifically directed, we strongly request the Airport Authority explore in great detail NADP alternatives that address ANAC recommendation 21 and Part 150 Alternative 6. This review should include but not be limited to:

a) ALL NADP's currently implemented at SAN,

b) A thorough review of alternative NADP's implemented at other US and Intl. airports,

c) Consistency of application and implementation of NADP's at SAN,

d) Departure Thrust Cutback (as referenced at Part 150 meeting 11/2019),

e) Designated Noise Abatement Takeoff/Approach Paths (as referenced at Part 150 meeting 11/2019),

f) NextGen: Performance Based Navigation (PBN) Required Navigation Performance (RNP) (as referenced at Part 150 meeting 11/2019),

g) Power and Flap Settings/CDA procedure (as referenced at Part 150 meeting 11/2019),

h) Speed restrictions on initial climb out, and

i) Dispersion of flight paths using "heading only" versus the current "direct to waypoint" departures.

k) Dispersion of flight paths using 3 SIDs with headings (275, 285, 295) after an initial VA/DF climb to 520 feet leg (omits 1.2 mile concentration along 275 degrees as has been proposed by ABCX2), but subject to strict allocation provisions between the three SID options.

<u>Alternatives that result in more Stage 4 and Stage 5 aircraft at SAN</u>:

As members of the CAC that live within the 65 CNEL contour, we respectfully request additional information, study, and alternatives addressing a move to 100% Stage 4 and Stage 5 certified aircraft at SAN. Given the Congressional requirement in Section 175 of the FAA Reauthorization Act of 2018 for the FAA to address the phaseout timing for Stage 3 aircraft, we believe much like the Quieter Home Program, increased compliance could be highly beneficial to those under the 65 CNEL. Thus, we request the Airport Authority define options and alternatives using either regulation or incentives to drive toward this goal and present them at the next CAC meeting. Stage 4 and 5 aircraft are markedly quieter than Stage 3 aircraft and would truly benefit everyone inside the current contours without shifting them laterally. Thus, monetary incentives as well as FAA regulations should both be considered.

Nighttime Noise Abatement Procedure Details:

We believe the Part 150 Study options presented on May 28, 2020 meant to address ANAC recommendation 17, Nighttime Noise Abatement Procedures are: a) being blurred once again by combining daytime and nighttime alternatives into one, in direct conflict with individual ANAC recommendations 14 and 17, and b) the calculations of the respective impacts have a material baseline flaw. The intent of Recommendation 17 was to maintain and enforce the Nighttime Noise Abatement Procedure (Letter Agreement; SCT\SAN\ATCT) that calls for a 290 departure heading for both left and right turns. All alternatives presented by Mead & Hunt specifically call for variations on the PADRZ (295) SID departure routing for nighttime. This is in direct conflict with the intent of ANAC recommendation #17 and the Nighttime Noise Abatement Procedures meant to "***increase current compliance***" with the existing 290 degree Nighttime Agreement.

The ANAC Subcommittee recommendation 17 as stated below was crafted to ensure conformance to the 290 degree departure. But, in the Flight Procedures Analysis there was no discussion regarding ways to increase adherence to, or decrease dispersion of, aircraft on the 290 vector. In fact, there was no work on this issue at all in the Flight Procedures Analyses as it was deferred to the Part 150 Study. Now that the Part 150 Study is underway, the consultants have lost the intent of the original ANAC 17 recommendation as shown below.

17	**Review the Nighttime Noise Abatement Procedure to improve the noise impacts for affected communities. Specifically:** • Ensure ATC is turning aircraft off this procedure only for safety reasons • Ensure that the procedure is monitored for adherence • Determine if the current nighttime procedures are still appropriate and if different procedures would reduce impacts on residential communities

Thus, the CAC members from the OB and Point Loma constituency urge the Airport Authority to relook at the intent and provide additional study alternatives that specifically address compliance rather than elimination or incorporation into the existing PADRZ SID.

Additionally, we request the committee address nighttime landing procedures to ensure maximum compliance with landing to the west unless safety dictates otherwise, versus ATC's election to allow nonweather related eastbound arrivals.

Finally, it has been noted by the CAC members that prior data used by the consultants is materially flawed in the baseline analysis, as: 1) the 65 CNEL contours were created using non nighttime 290 degree departures, and 2) the census data provides materially skewed and inaccurate baseline population data. Therefore, we would like the baseline reaccomplished with accurate data.

Ocean Beach and Point Loma Concerns with SAN-PBN ABCX2 ELSO Report:

Finally, having received copies of the SAN-PBN ABCX2 ESLO Report submitted by Quiet Skies La Jolla CAC Members, we would like to go on record as strongly opposing the three modified ELSO options in the report as proposed. While we do believe there is wisdom in looking at three potential depart paths as referenced in NADP option "k" above, we also believe the options as proposed in the report decrease total dispersion and shift a large quantity of noise from Mission Beach to Ocean Beach and Point Loma. The statement in the ABCX2 Report that: "Due to various aircraft types and performance, the time it takes to reach 520 feet MSL varies," is misleading at best. Nearly all aircraft reach 520 feet MSL before the end of the runway, so changing the departure from a VA/DF to a VI/CF initial procedure with a turn at 1.02NM DER will drive aircraft on the proposed CWARD/PADRZ or ECHO/MMOTO departure a full mile further into Point Loma on the initial 275 degree heading and will result in a shift of approximately 0.4 miles south at the coastline of all departure paths affecting all of Ocean Beach. This increases noise substantially for both Point Loma residents who live off the western departure end of the runway, and for all OB and Point Loma residents that live under the new ZZOOO, CWARD/PADRZ, and ECHO/MMOTO flight paths, due to decreased flight path dispersion.

However, as stated in "k" above, we do believe there is merit in looking at multiple departure paths for increased dispersion, just not the current ELSO recommendation from ABCX2. Thus, we do support looking at three departure headings (275, 285, 295) as proposed by ABCX2. But only with the change from ELSO back to VA/DF initial leg construction where all aircraft initiate their turn at 520 feet and proceed direct to a waypoint (or a to be identified NADP). These three waypoints should be modeled using both current JETTI, WNFLD, and LANDN and the ABCX2 proposed JETTI (extended further offshore), WNFLD-NEW, and LANDN-NEW.

Additionally, for maximum benefit to the residents of Mission Beach, Point Loma and Ocean Beach, when the SDCRAA models this new scenario, we would like to see departures equally distributed to the maximum extent possible, and subject to strict allocation provisions between the three SID options, without sacrificing throughput.

Conclusion:

We respectfully urge the SDCRAA and its consultants to give due diligence to the modeling and analysis proposed herein. We believe our suggestions will coalesce on a solution that minimizes noise impacts across all impacted communities, while facilitating the FAA's interested in optimizing capacity and safety, and allowing for maximal airline efficiency; a true win for the SDCRAA and our surrounding communities.

Respectfully submitted,

_____________/s/_______________
Michael Tarlton, CAC Member
_____________/s/_______________
Robert Herrin, CAC Member
_____________/s/_______________
Nancy Palmtag, CAC Member
_____________/s/_______________
Robin Taylor, CAC Member

___________/s/_____________
Marc Adelman, CAC Member
___________/s/_____________
David Kujawa, CAC Member
___________/s/_____________
Casey Schnoor, CAC Member

Date Received: August 7, 2020

From: Anthony Stiegler

Comment: Attached please find the Reply comments from CAC members Chris McCann, Len Gross, Alan Harris and me, responding to the Point Loma/Ocean Beach comments dated August 4, 2020. We appreciate their constructive feedback and we look forward to further engagement, modeling and dialogue in anticipation of the

next CAC meeting.

I spoke with Heidi last week about trying to schedule that meeting by Doodle poll or other means to ensure that all CAC members can attend, and we all hope this will be the plan. It is very important that all CAC members are able to participate in the next conversations at this important juncture in the Part 150 Study.
Heidi, if you would please confirm your receipt of these comments, I would appreciate it.

Part 150 Study Reply Comments to Ocean Beach/Loma Portal Resident's Letter of August 4, 2020 re: Consultants' Citizen Advisory Committee and Technical Advisory Committee Presentation of May 28, 2020 and Proposal for Modified Equivalent Lateral Spacing Operations (ELSO) Option

Anthony M. Stiegler, CAC Member, and Chris McCann, TAC Member
Len Gross, CAC Member, Alan Harris, CAC Member
August 7, 2020

These reply comments are made by Citizen Advisory Committee ("CAC") member Anthony M. Stiegler of The Muirlands, Technical Advisory Committee ("TAC") and CAC member, Chris McCann of La Jolla Shores, Len Gross, CAC Member of Bird Rock, and Alan Harris, CAC member of Pacific Beach and supported by Dr. Matthew Price of the Airport Noise Advisory Committee ("ANAC") and Quiet Skies La Jolla and Quiet Skies San Diego, in response to the letter dated August 4, 2020 from other members of the CAC living in Ocean Beach and Point Loma. We appreciate the constructive spirit in which the comments were offered and we seek consensus and compromise.

We note that all of the proposals and input provided by the CAC members are for the SDCRAA and its technical consultants, who have the experience, skills and judgment to reconcile community differences into practical and reasonable recommendations to the FAA. We note that the SAN-PBN-ABCX2 ELSO proposal is only a slight variation of the consultants' Alternatives 2A and 2B, that a moderately "tilted up ELSO" has been discussed and that minor additional modifications may be suggested or recommended to arrive at an optimal solution for all involved. We appreciate the consultants' time and dedication to making recommendations that will provide meaningful relief for those on the ground while at the same time recognizing and working within the FAA's technical requirements and operational framework.

Areas of Agreement Between the Communities

We are in agreement with the Ocean Beach and Point Loma CAC members that there are additional steps that could be considered and modeled to mitigate noise within the 65 CNEL, and we fully support at least the following proposals:

1. Study and model vertical Noise Abatement Departure Procedures ("NADPs") such as those implemented at John Wayne International Airport in Orange County.
2. Explore, require, incentivize and implement quieter Stage 4 and Stage 5 engine aircraft at SAN.
3. Analyze ways to ensure maximum compliance with nighttime landings to the west unless safety dictates otherwise.

Specifically, we are supportive of vertical NADPs that are focused on thrust, climb rate and maximum departure speed. However, we are opposed to the suggestion to model "vectors off the current ZZOOO and PADRZ departures to headings, rather than directly to fixed new waypoints, such as LANDN NEW and WNFLD NEW." Such vectors off of PADRZ have progressively moved north to impact Mission Beach, Pacific Beach and La Jolla, flying over Mission Beach and too close to the shoreline of the communities north of SAN. We advocate for new "direct to fix" waypoints that keep flights further offshore. Accordingly, we are opposed to the Ocean Beach and Point Loma proposal denominated "(i)":

> 'i) dispersion of flight paths using "heading only" versus the current "direct to waypoint" departures".

We are also supportive of the request for additional information, study and alternatives addressing a move to 100% Stage 4 and Stage 5 certified aircraft at SAN. This, of course, would be of benefit to the entire San Diego community, but understandably will take longer to implement and will necessitate airline cooperation and investment.

The SAN-PBN ABCX2 ELSO Proposal

We reiterate the many merits of the SAN-PBN ABCX2 ELSO report and proposal and urge that it be modeled and considered by the SDCRAA and the FAA. The proposal makes use of the FAA's preferred state of the art Performance Based Navigation technology, embraces the central noise "dispersion" principle, reduces noise across all impacted communities, saves fuel, carbon emissions and money for the airlines, SDCRAA and the FAA. It is a practical and efficient step towards noise mitigation and is a "win/win/win/win".

The SAN-PBN ABCX2 ELSO proposal does not, in our view, "push more noise into the heart of Ocean Beach", "increase noise substantially for both Point Loma residents and OB residents" and indeed, we believe that modeling will show either a neutral or net diminution of the size of the 65 CNEL contour, without shifting noise from one community to another.

In the spirit of compromise we are open to the modeling proposed by Ocean Beach and Point Loma implementing the SAN-PBN ABCX2 ELSO plan immediately off the end or the runway, as opposed to 1.02 NM from "Direct End of Runway" ("DER") for the new 285 degree CWARD/PADRZ SID and the new 295 degree ECHO/MMOTO SID, if that is feasible under FAA rules and procedures. As we understand it from ABCX2 the acoustic difference between a VA/DF departure versus a VI/CF departure as proposed for SAN is very small and likely not perceptible to the human ear, but we do support modeling it and implementing the proposal if it provides benefits to those in the 65 CNEL, and if the FAA can accept it. We note the input from ABCX2 that a VA/DF procedure is not in compliance with TERPS, has not been acceptable to the FAA in the past and that turns are apparently not permitted until reaching approximately 1 NM off the runway's end. In particular, we understand that (1) there is no specific FAA authorization for a VA/DF leg combination used for ELSO for turns of 10 degrees or more; (2) there have not been any changes to the ELSO standard in this respect since its inception; (3) the initial ELSO MITRE Study and Safety Risk Management Document ("SRMD") were conducted using the VA/CF leg construction, which has since been replaced by the VI/CF leg construction because it is more accurate and resolved navigational issues with VA/CF; and (4) that the current construction used by procedure designers for RNAV Off-the-Ground operations is VA/DF for turns of less than 10 degrees and VI/CF for turns of 10 degrees or more. However, if the FAA will accept the Ocean Beach and Point Loma suggestion, while preserving the proposed new CWARD/PADRZ SID with the WNFLD NEW waypoint and new ECHO/MMOTO SID with the LANDN-NEW waypoint, this is a compromise that all communities could likely accept.

We note the request to model departures "equally distributed to the maximum extent possible and subject to strict allocation provisions between the three SID options". Departures would and should be assigned to ELSO SIDS based on their ultimate destinations, with eastbound and southbound flights departing on the ZZOOO SID and northbound or westbound flights departing on the CWARD/PADRZ or ECHHO/MMOTO SIDS as practically determined by destination. As contemplated under ELSO, departures would be staggered and alternated based on destination to achieve optimal or maximum throughput.

<u>**The Quiet Home Program**</u>

We note that the SDCRAA's Quiet Home Program is specifically designed and intended to address and mitigate noise within the 65 CNEL and we advocate for that program to continue addressing the noise for those living in the 65 CNEL, and particularly for those near the end of the busiest commercial single runway airport in the U.S. The Quiet Home Program was designed and intended to address extreme noise for homes and structures that are in the most severely impacted zones of the nation's airports. This program is the optimal solution for those within the 65 CNEL around SAN.

<u>**Night Time Noise Abatement**</u>

We note that there is uncertainty, controversy and a potential legal challenge to what has been referred to as the Nighttime Noise Abatement Procedure. In reality, this is a Nighttime Noise Exacerbation Procedure for those living in Mission Beach, Pacific Beach and La Jolla, in which <u>all</u> flights departing between 10:00 p.m. and 11:30 p.m. are placed on a vaguely defined course somewhere in the neighborhood of 285 degrees, 290 degrees or PADRZ, with leakage north towards 300 degrees. We reiterate that there is apparently no binding documentation or agreement between the FAA, the SDCRAA or any other stakeholder regarding this procedure, which would have required a CEQA or NEPA review and approval. We urge that both day and nighttime procedures, like ELSO, be implemented to address this very significant problem.

We note the text of ANAC recommendation 17 and specifically the third bullet point saying "*Determine if the current nighttime procedures are still appropriate and if different procedures would reduce impacts on residential communities*":

17	Review the Nighttime Noise Abatement Procedure to improve the noise impacts for affected communities. Specifically: • Ensure ATC is turning aircraft off this procedure only for safety reasons • Ensure that the procedure is monitored for adherence • Determine if the current nighttime procedures are still appropriate and if different procedures would reduce impacts on residential communities

It is, therefore, within the parameters of ANAC 17 to assess whether a different procedure would reduce the impact on residential communities, such as Mission Beach, Pacific Beach and La Jolla, which bear the current brunt and burden of all nighttime departures. We further note the SDCRAA consultants' analysis that moving southbound and eastbound nighttime flights to 275 will have little, if any, effect on the 65 CNEL contour.

Specifically we urge the consideration of the SAN-PBN ABCX2 ELSO proposal for both day and nighttime departures and alternatively, we respectfully request that flights departing to the east or south during night time hours be routed on the ZZOOO SID (with an adjusted JETTI waypoint further offshore) and that north or westbound flights be routed on the adjusted PADRZ SID consistent with daytime operations, but routing planes further offshore to direct to fix waypoints situated 2.0, 2.5 or 3.0 nautical miles offshore as measured from the centerline of the Mission Bay Jetty.

The Parameters of the Part 150 Study

We note that the Part 150 Study is explicitly designed and authorized to also consider recommendations and proposals emanating from the parallel Flight Path & Procedure Study, because some of those recommendations would be implemented off the end of the runway, within the 65 CNEL. Accordingly, it is incorrect to characterize the Part 150 Study as only focused on the 65 CNEL. Recommendations from the prior study were rolled into the Part 150 Study.

Respectfully submitted,

____/AMS/___________	________/CM/_____________
Anthony M. Stiegler, Esq. CAC Member	Chris McCann, Ret. U.S. Air Force TAC Member
_____/LG/_____________	_______/AH/___________________
Len Gross CAC Member	Alan Harris CAC Member

Date Received: August 17, 2020
From: Gary Wonacott
Comment: Can you tell me the current plans for the Subject studies, including when the next meetings are planned.

Date Received: August 27, 2020
From: Gary Wonacott
Comment: My name is Gary Wonacott. I am a resident of Mission Beach in San Diego. Currently, we have studies underway at SDIA to evaluate candidate noise abatement approaches that might offset increased noise from implementation of the FAA NexGen. According to the Noise Abatement Office, the Flight Procedures Study is complete, but from my perspective that is in dispute.

First, there is a record of the nighttime noise abatement departure that goes back at least to 1987, as shown in the document below. It is my understanding that the San Diego City Council requested this change, which was supported by the Port Commission, which had purview over the airport at that time. And then FAA ATC implemented the departure under the LOA. This change resulted in substantial noise increase over Mission Beach. The was no NEPA performed; there is no other documentation at the FAA.

The difference between the nominal crossing point between the 290 departures and the others, currently PADRZ, at nighttime is about 0.34 miles, based on public domain data we have collected. In the Flight Procedures Analyses, the Airport Authority consultants moved all of the departures from the 290 on to PADRZ. The rationale is that 290 is not an approved FAA procedure. This move would again result in substantial noise increase over Mission Beach. But, the Airport Authority is trying to slip this through to make it a legal procedure.

I have been and continue to file complaints at the FAA, since the original noise abatement action was not performed according to NEPA. I hope this information is helpful to you.

(d) "DM" all non-beacon IFR departures.

(e) Unless otherwise advised, issue aircraft the appropriate clearance from Los Angeles West configuration.

(2) Notify the TRACON, via the FDEP, of the current ATIS letter and of all pertinent hourly and special weather reports.

(3) When the Tower FDEP is out of service, the TRACON shall, upon receipt, forward flight data information for all aircraft departing Lindbergh to the Tower.

(4) When the TRACON FDEP is out of service, issue all clearances (except for Mexican flights) and advise the TRACON of clearance issued.

(5) Assign initial altitudes and routes as depicted in Attachment 1 or 2. When the altitude requested is higher, issue "EXPECT (the filed altitude or SO-CAL as appropriate) 10 MINUTES AFTER DEPARTURE," unless otherwise advised.

(6) Assign heading 275 for vector to BORDER SID in lieu of the BORDER SID.

(7) When SAN is landing Runway 27 assign J/M class aircraft heading 290 degrees, in lieu of the SCORP departure, for radar vectors to:

a. SOCAL - first radial/airway after the MZB 300R.
b. all others - first fix outside TRACON airspace.

(8) Between the hours of 2200 and 0630 local, turbojet/turboprop departures normally assigned a BORDER SID/275 degree heading, shall be assigned a 290 degree heading for vectors to the first fix.

b. Radar.

(1) Control positions.

(a) The ARTS control position S is assigned to Lindbergh Tower.

(b) Positions A, E, N, W and Z are TRACON ARTS control positions bordering Lindbergh's airspace.

Date Received: August 30, 2020
From: Gary Wonacott
Comment: What is this waypoint?

Date Received: September 9, 2020
From: Gary Wonacott
Comment: It is NOT OK to move the nighttime departures to Mission Beach. We have been here 30 years.
First, it is important to know that this is preliminary data that we continue to vet, but given that consideration, thought it would still be important to get this to you and your consultants.

Setting aside the opposition from the Loma Portal and the OB residents, I think moving PADRZ south of the Mission Beach peninsula yields the best compromise. By this I mean either going with Alt 1A,B or ELSO at 295 degrees would resolve the illegal 290 nighttime noise abatement agreement and reduce the noise impact over Mission Beach. The scatter graphs that follow support this concept.

The primary opposition from Loma Portal residents is that going out 1.1 miles would add substantial noise over a new set of residents. And the primary opposition from OB residents is that it would increase noise in OB. Let described why this would be minimal impact on OB at most and why there would be no discernible difference in noise for those in Loma Portal close in. The scatter graphs below are for:

1) One, two and three miles.
2) ZZOOO, PADRZ for 6:30 to 10 pm, and
3) 290 and PADRZ for 10 pm to 11:30 pm.

Important horizontal statistics are based off of the ZZOOO (275) departure line from the end of the runway to JETTI with positive sign being the northerly direction (the coast is at 3 miles). Important vertical statistics are the same as horizontal. These vertical statistics indicate the the weight of the aircraft with heavier aircraft achieving lower altitudes, in large part because the farther away destinations require more fuel. In general the lower the altitude, the noisier the flight on the ground.

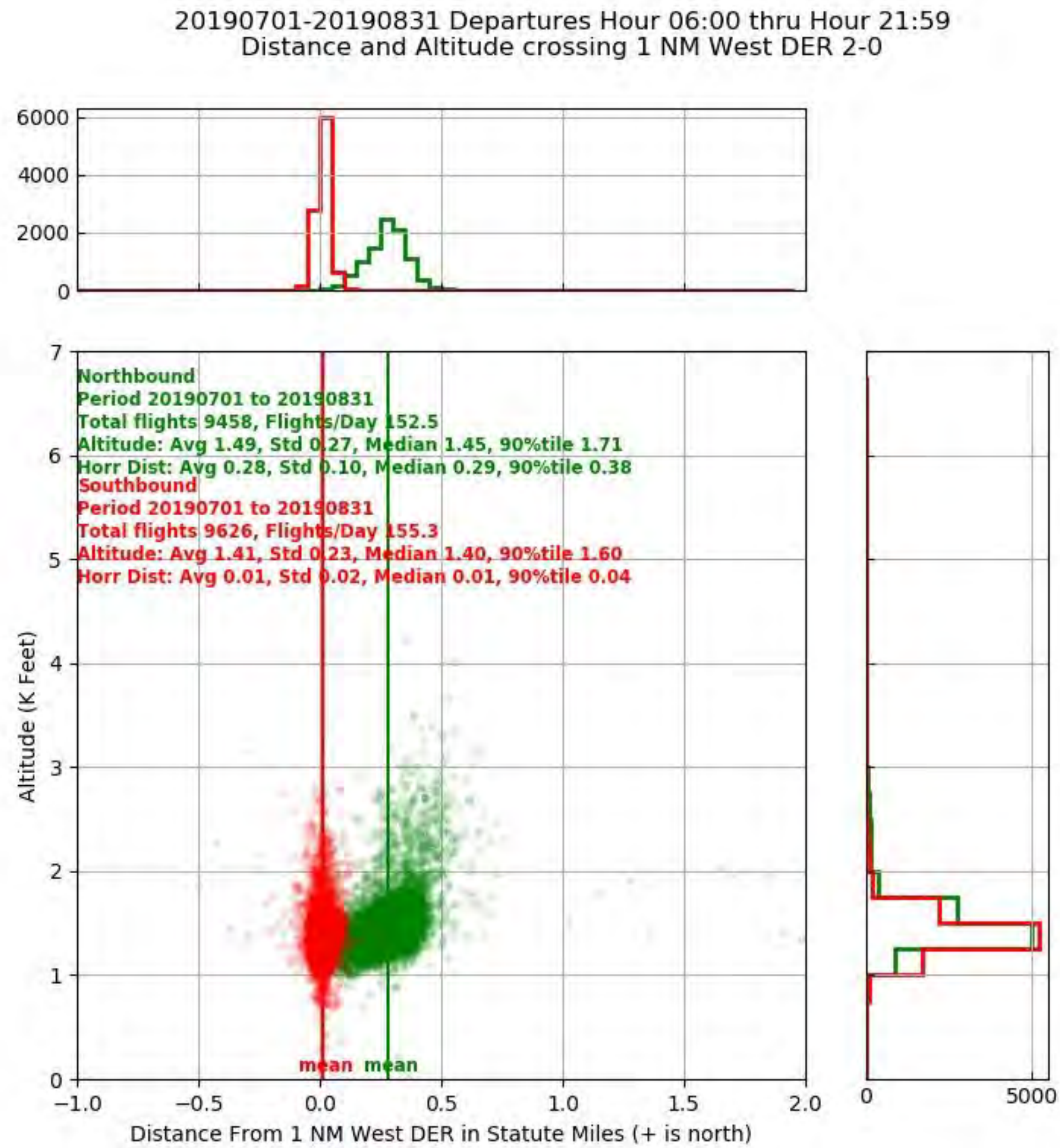
Chart 1 below compares ZZOOO and PADRZ for one mile from the end of the runway. While the average difference in altitude, 1.49 compared to 1.41Kft, is not substantial, it is nevertheless noticeable. Also, it is clear that many of

the aircraft at lower altitude on PADRZ are turning more slowly towards the waypoint. In fact, except for the aircraft type, which is probably the single most important factor for noise levels, the noise levels at one mile out whether they are on ZZOOO or PADRZ are not discernible. Independently, I determined that the average distance between the ZZOOO and the PADRZ departure tracks follow the equation, lateral distance equals 0.25 times the longitudinal distance along the ZZOOO departure line.

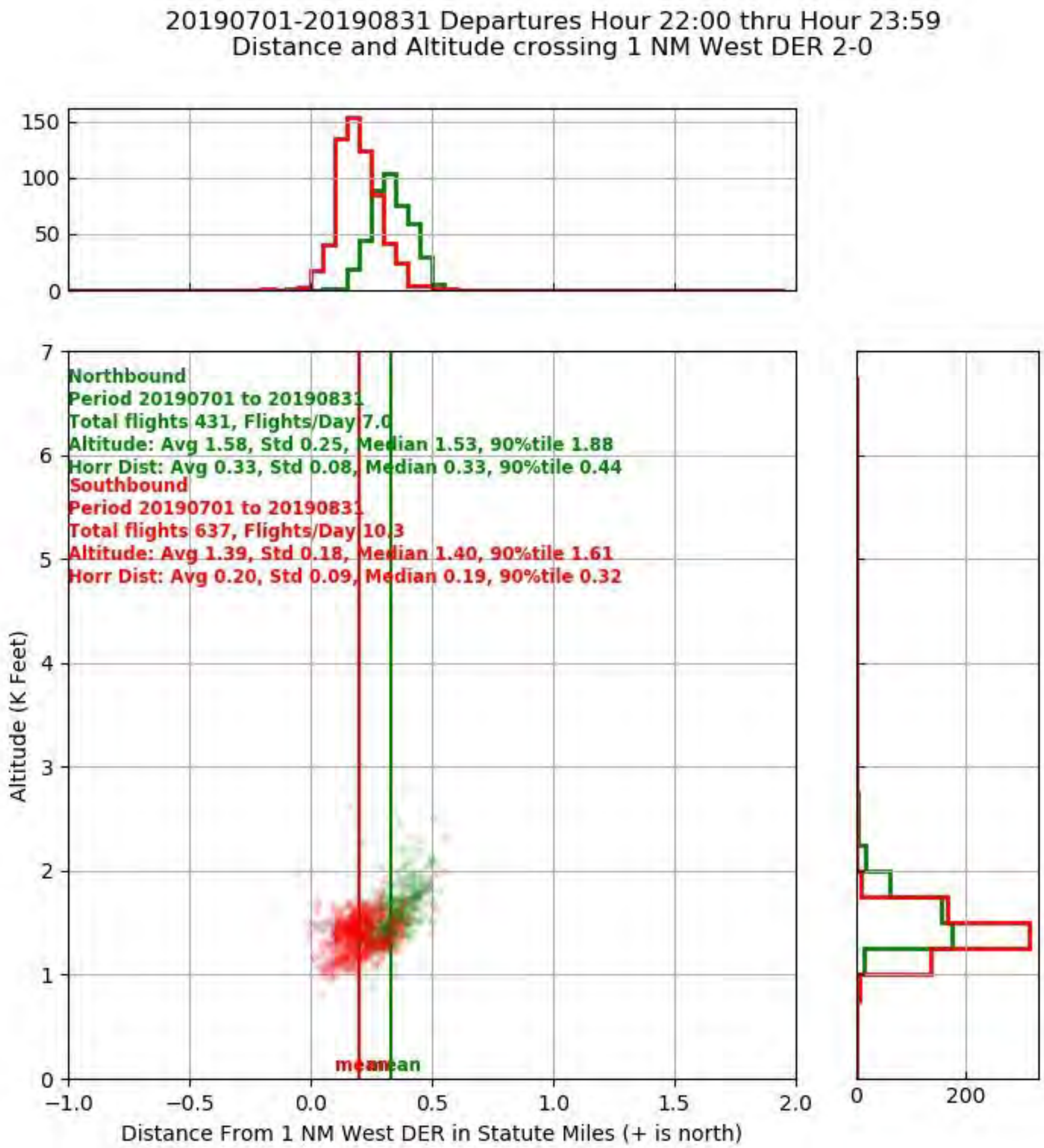
The second chart shows the 290 and the PADRZ departures scatter graph for one mile out. For some unknown reason, the average PADRZ horizontal distance is 0.28 in the day/evening time, and 0.33 miles at night. The average vertical altitude also increases from 1.49 Kft to 1.58 Kft. The point is that at one mile out, there is significant overlap between the 290 and PADRZ, and so, I believe that moving the PADRZ to the 290 track, will have little or no impact on noise close in.

The charts described above are repeated for 2 and 3 miles out on ZZOOO. What is most important in these charts is for the departures between 10 pm and 11:30 pm. The average distances between the PADRZ and 290 for two and three miles out is 0.22 miles and 0.26 miles, respectively. So, moving the departures on PADRZ to the 290, which is roughly equivalent to Alt 1A,B or ELSO 295 would have very little impact on OB and Pt. Loma, but would provide a very significant benefit to Mission Beach. Note at 3 miles out there is a substantial difference in altitude between the aircraft on PADRZ versus the 290, again resulting in less noise impact on OB with this move.

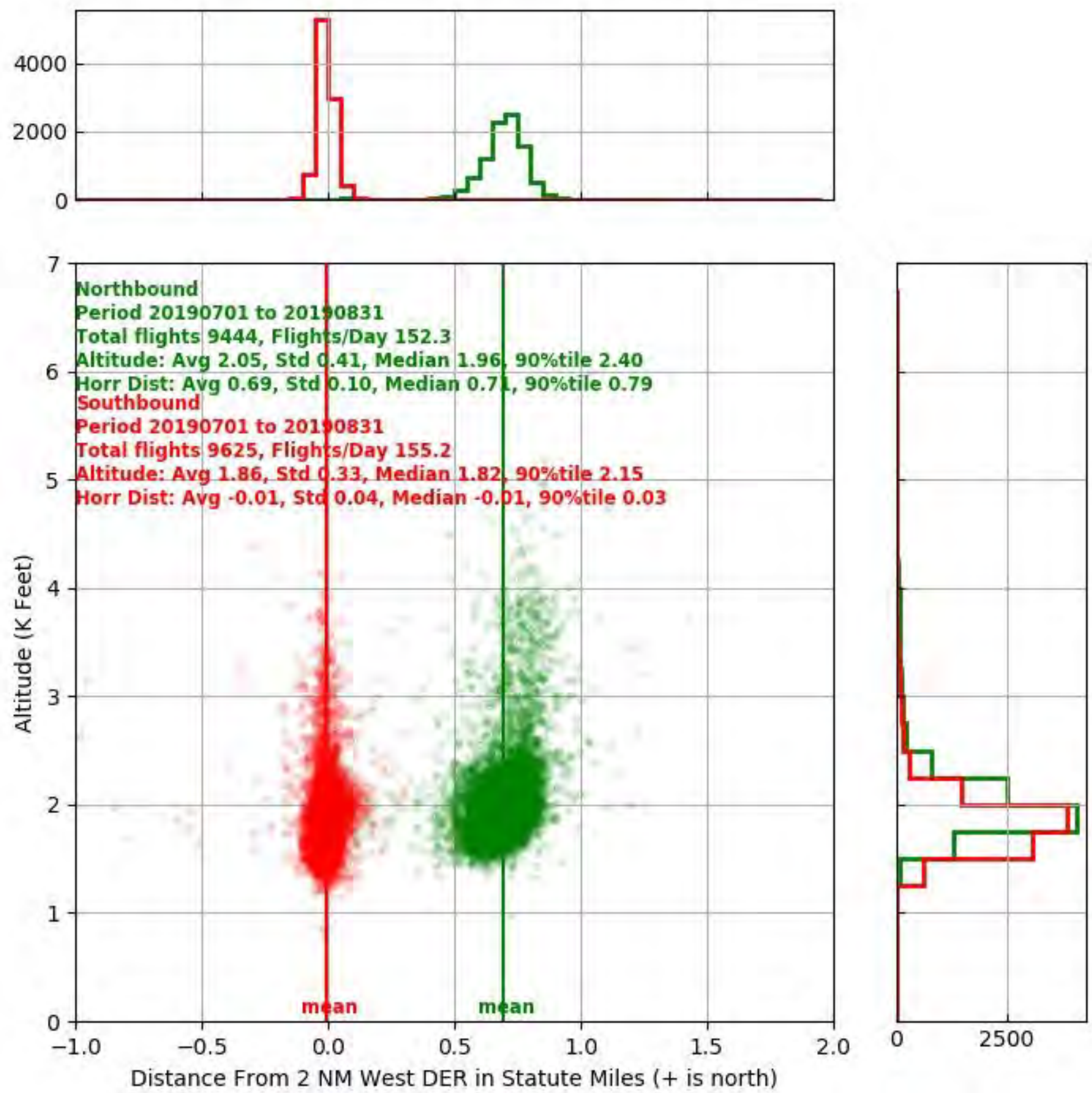
Based on these data, I believe that any work performed by the Airport Authority consultants will confirm that moving the PADRZ south is a very reasonable compromise for all. However, this will require the FPA and Part 150 analyses to be repeated with the 290 in the correct location as opposed to including it on PADRZ.



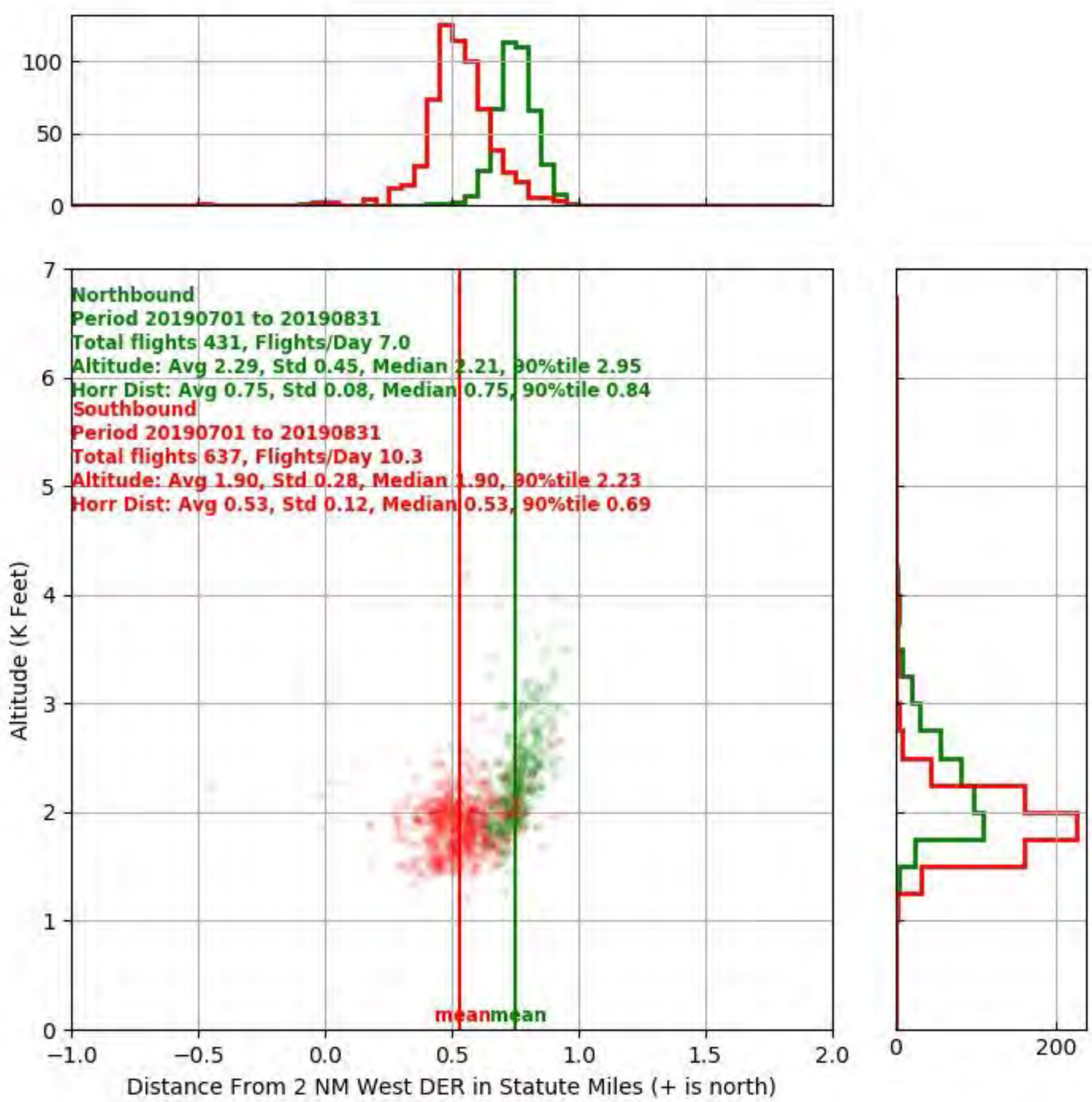
20190701-20190831 Departures Hour 06:00 thru Hour 21:59
Distance and Altitude crossing 1 NM West DER 2-0
Northbound
Period 20190701 to 20190831
Total flights 9458, Flights/Day 152.5
Altitude: Avg 1.49, Std 0.27, Median 1.45, 90%tile 1.71
Horr Dist: Avg 0.28, Std 0.10, Median 0.29, 90%tile 0.38
Southbound
Period 20190701 to 20190831
Total flights 9626, Flights/Day 155.3
Altitude: Avg 1.41, Std 0.23, Median 1.40, 90%tile 1.60
Horr Dist: Avg 0.01, Std 0.02, Median 0.01, 90%tile 0.04
mean
mean
Altitude (K Feet)
Distance From 1 NM West DER in Statute Miles (+ is north)

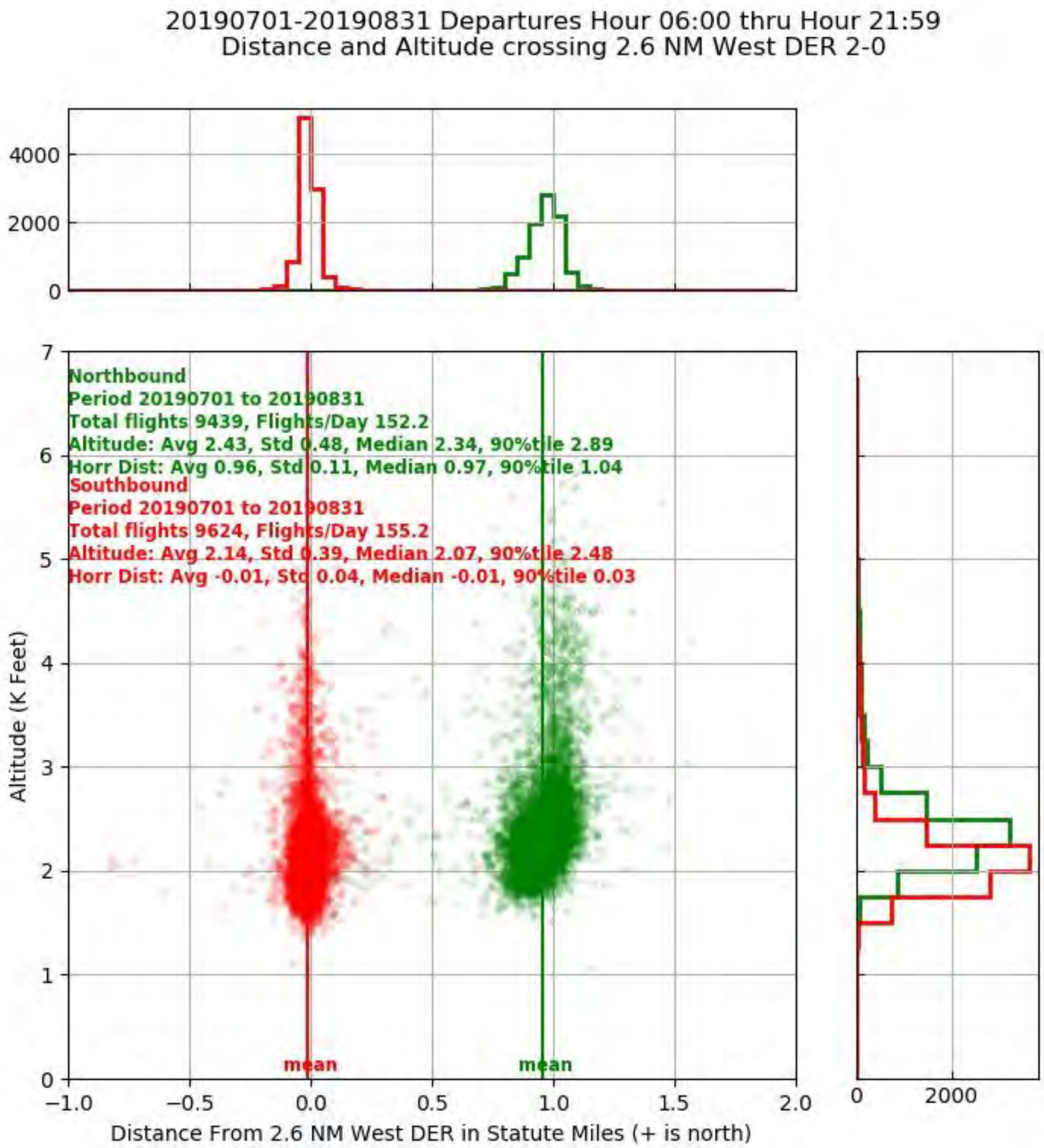

20190701-20190831 Departures Hour 22:00 thru Hour 23:59
Distance and Altitude crossing 1 NM West DER 2-0
Northbound
Period 20190701 to 20190831
Total flights 431, Flights/Day 7.0
Altitude: Avg 1.58, Std 0.25, Median 1.53, 90%tile 1.88
Horr Dist: Avg 0.33, Std 0.08, Median 0.33, 90%tile 0.44
Southbound
Period 20190701 to 20190831
Total flights 637, Flights/Day 10.3
Altitude: Avg 1.39, Std 0.18, Median 1.40, 90%tile 1.61
Horr Dist: Avg 0.20, Std 0.09, Median 0.19, 90%tile 0.32
mean
mean
Altitude (K Feet)
Distance From 1 NM West DER in Statute Miles (+ is north)
150
100
50
0
7
6
5
4
3
2
1
0
−1.0
−0.5
0.0
0.5
1.0
1.5
2.0
0
200

20190701-20190831 Departures Hour 06:00 thru Hour 21:59
Distance and Altitude crossing 2 NM West DER 2-0

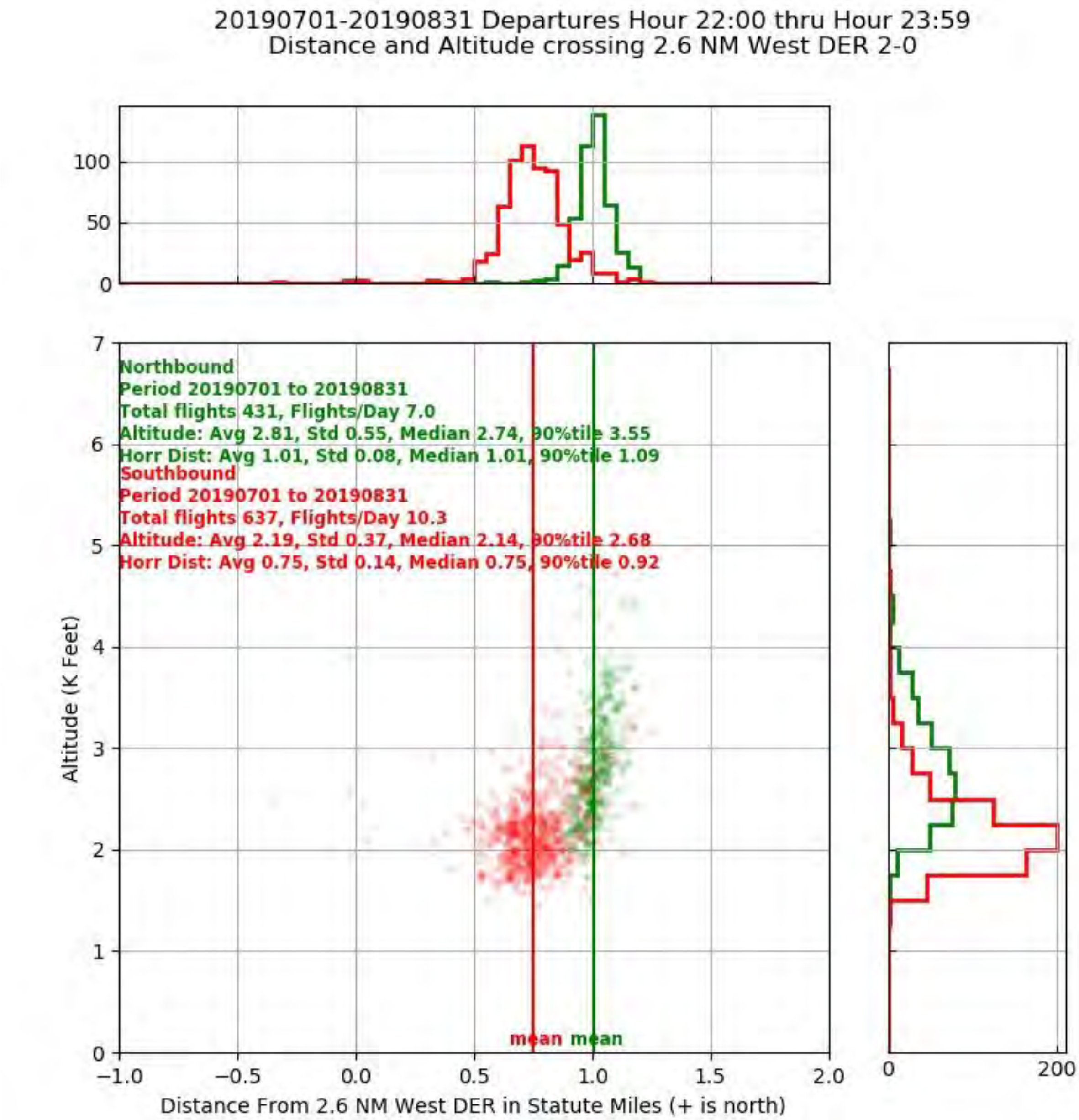


20190701-20190831 Departures Hour 22:00 thru Hour 23:59
Distance and Altitude crossing 2 NM West DER 2-0





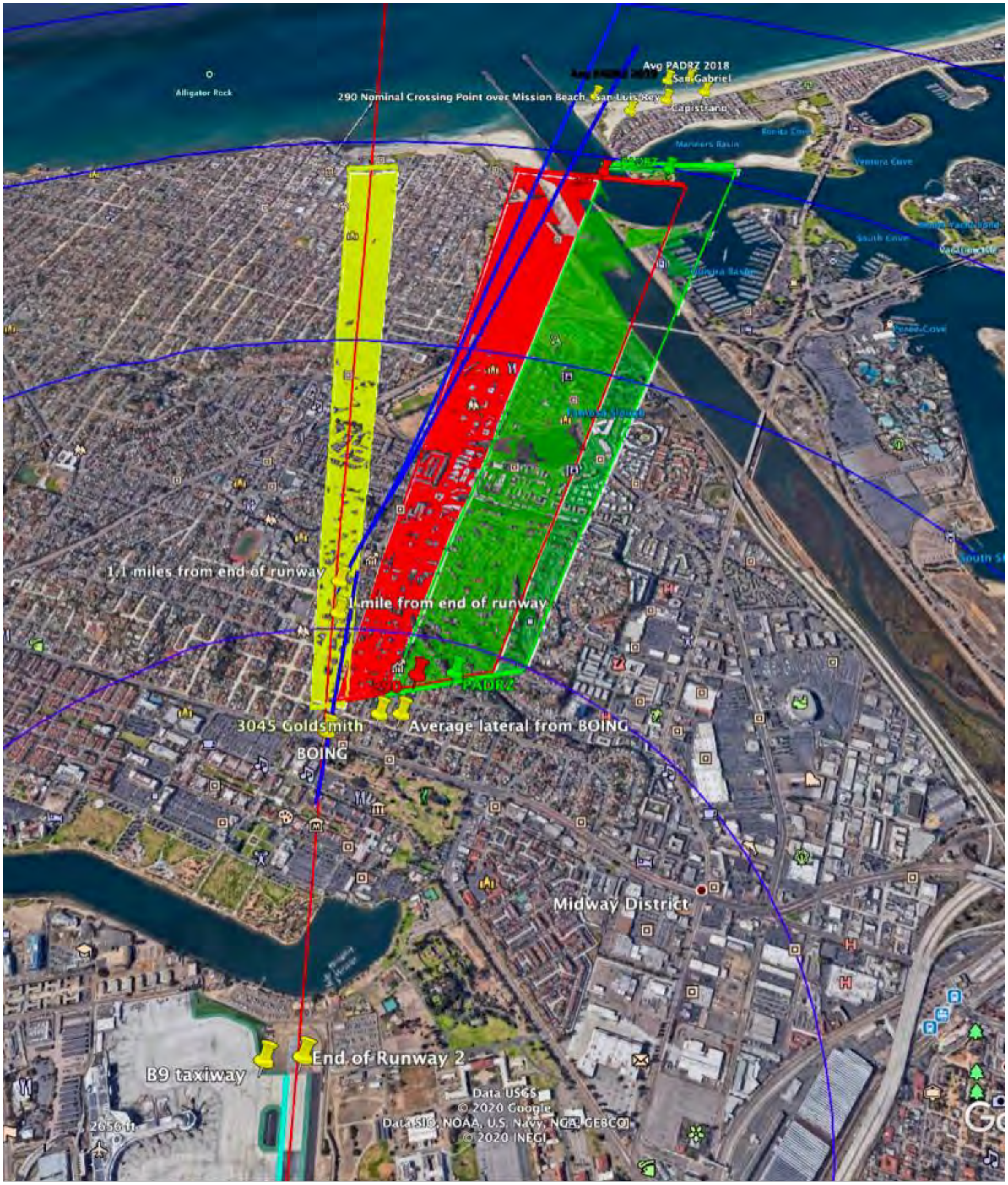
20190701-20190831 Departures Hour 06:00 thru Hour 21:59
Distance and Altitude crossing 2.6 NM West DER 2-0
Northbound
Period 20190701 to 20190831
Total flights 9439, Flights/Day 152.2
Altitude: Avg 2.43, Std 0.48, Median 2.34, 90%tile 2.89
Horr Dist: Avg 0.96, Std 0.11, Median 0.97, 90%tile 1.04
Southbound
Period 20190701 to 20190831
Total flights 9624, Flights/Day 155.2
Altitude: Avg 2.14, Std 0.39, Median 2.07, 90%tile 2.48
Horr Dist: Avg -0.01, Std 0.04, Median -0.01, 90%tile 0.03
mean
mean
Altitude (K Feet)
Distance From 2.6 NM West DER in Statute Miles (+ is north)


20190701-20190831 Departures Hour 22:00 thru Hour 23:59
Distance and Altitude crossing 2.6 NM West DER 2-0
Northbound
Period 20190701 to 20190831
Total flights 431, Flights/Day 7.0
Altitude: Avg 2.81, Std 0.55, Median 2.74, 90%tile 3.55
Horr Dist: Avg 1.01, Std 0.08, Median 1.01, 90%tile 1.09
Southbound
Period 20190701 to 20190831
Total flights 637, Flights/Day 10.3
Altitude: Avg 2.19, Std 0.37, Median 2.14, 90%tile 2.68
Horr Dist: Avg 0.75, Std 0.14, Median 0.75, 90%tile 0.92
mean mean
Altitude (K Feet)
Distance From 2.6 NM West DER in Statute Miles (+ is north)

Date Received: September 18, 2020

From: Gary Wonacott

Comment: This is a Google Earht Pro picture looking west with the end of the runway shown by the yellow pins at the bottom of the picture. The yellow corridor is the current dispersion for ZZOOO. Similarly, the red corridor is the dispersion for the 290 nighttime noise abatement agreement departure and the green corridor is the same for the PADrZ SID. I attribute the wider than expected dispersion for PADRZ to the strange track design which takes anything but a direct route to the first waypoint, WNFLD. It seems ironic that the illegal move of the nighttime departures from the ZZOOO to the 290 vector many decades ago, which has resulted in substantial noise increase for those close in, particularly considering the 10X penalty. This move now would seem to justify the move of PADRZ to that same red corridor, which I believe represents the consultants ALT 1B, with a much tighter dispersion. I also continue to believe until shown otherwise that moving the nighttime noise abatement departures to PADRZ to establish the baseline in the FPA and Part 150 was wrong, since in ALT 1B, for example, it just move these same nighttime departures back to the near 290 corridor. Any analysis performed by the consultants that concludes there is wrong input had no effect will be scrutinized very closely. Perhaps this visual will help.


Avg PADRZ 2018
San Gabriel
Alligator Rock
290 Nominal Crossing Point over Mission Beach
San Luis Rey
Capistrano
Mariners Basin
Ventura Cove
PADRZ
1.1 miles from end of runway
1 mile from end of runway
3045 Goldsmith
BOING
Average lateral from BOING
Midway District
End of Runway 2
B9 taxiway
Data USGS
© 2020 Google
Data SIO, NOAA, U.S. Navy, NGA, GEBCO
© 2020 INEGI

Date Received: September 25, 2020

From: Gary Wilson

Comment: It is not ok to direct night time flights over Mission Beach. Can't a more northerly path over uninhabited parts of Mission Bay Park that will attain enough elevation when passing over north Mission/ Pacific beaches to mitigate annoyance from air traffic. Thank you

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Date Received: September 25, 2020

From: DebiNegus

Comment: It is NOT OK to move the nighttime departures to Mission Beach. We have been here 30 years.

Date Received: September 25, 2020

From: Gary Katz

Comment: How is it fair to route all night departures over just one area like Mission Beach. It is noisy, loud, and smells. All departures should be equally done every neighborhood of San Diego coast and inland.

Date Received: September 25, 2020

From: d2ksurf

Comment: The airplane noise in South Mission Beach has become pretty much unbearable. I was down at Harbor Island today with my mom who used to have a boat down there and she said the plane noise is so much better now. Why would they push the routes further north so quickly where there is so much more population. When we bought our house in 1997 there was very little noise. Please reroute back over the jetty, down south further where you always have. cutting up north quicker might save a little fuel and a minute of time, but isn't worth all of the headaches that residents are incurring (noise and air (soot) pollution).

Date Received: September 25, 2020

From: Stewart Shaw & Vicki Heins-Shaw

Comment: We live in Mission Beach and also rent out an apartment. Our house and apt are original 1928 Mission Beach houses. If you reroute nightime flights over Mission Beach will you be retrofitting all the old houses to meet todays environmental noise standards?

Date Received: September 25, 2020

From: JonathanRodley

Comment: It is NOT ok to move the nighttime departures to Mission Beach (to PADRZ).

Date Received: September 25, 2020

From: alohamarta

Comment: Hello, I am very concerned about the airplane noise in South Mission Beach. I will do anything I can to minimize the airplane noise in South Mission Beach. Please let me know what I can do.

Date Received: September 25, 2020

From: Dustine

Comment: Please consider a different route. It is not OK to move the nighttime departures to Mission Beach, to PADRZ. The planes fly so low over MB it causes vibrations and rattles the house!

Date Received: September 26, 2020

From: brass

Comment: Do not, do not allow air traffic to fly over Mission Beach at night. Traffic should be flown down the jetty and out over the Ocean before making any turns.

Date Received: September 26, 2020
From: BouTiki
Comment: Please is not OK to move the nighttime departures to Mission Beach, to PADRZ. We live here! It's already so noisy with vacationing parties and fireworks. We need to be able to sleep. This is where most people visiting San Diego stay... they will here airplanes? This makes no sense and not fair!

Date Received: September 29, 2020
From: LCorpus
Comment: I request that you do NOT move the night time departures to Mission Beach or PADRZ. Please minimize the noise over our beach communities by adopting noise mitigation policies using lower thrust. Thank you.

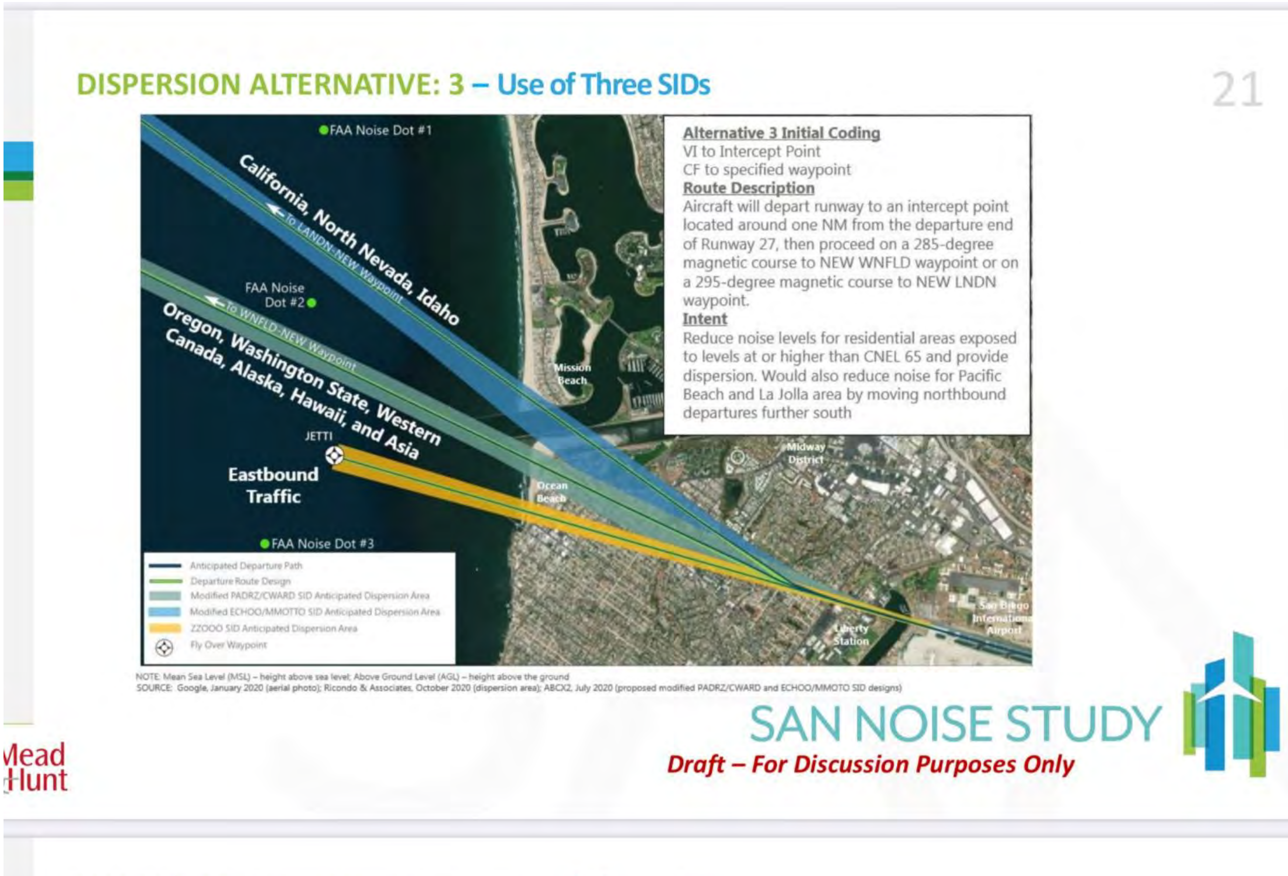
Date Received: September 30, 2020
From: blecker
Comment: We live approx. 1 mile north of Belmont Park and the airport noise has been increasing steadily each year and it is most annoying after 10pm and/or early in the morning - don't need an alarm clock. Recently the last few weeks in Sept. we have noticed an increase in helicopter traffic during the day and night. It is not military either. They really fly low and one can not hear anything whether sitting inside home and/or outside. Sometimes even wonder if they are going to land on our roof. Thank you.

Date Received: October 6, 2020
From: Gary Wonacott
Comment: Please provide a ZOOM link to meeting today.

Date Received: October 10, 2020
From: Gary Wonacott
Comment: 1. Please provide details of all changes and the results from each of the changes made in the refined versus the baseline (i.e., if two changes were made, what is the effect of each change individually?) Was the 290

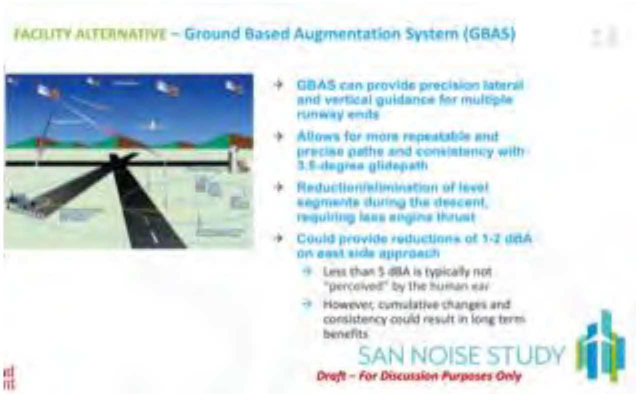
corrected to its own departure track compared to PADRZ? 2. A comparison of 2015/2016 Q165 dB CNEL with the 2018 dB CNEL from the Quarterly reports shows a shift to the north for the 2018 data, which may in part be due to the implementation of the FAA NexGen PADRZ route. 3. When NexGen was implemented, the consultants calculated less than a 1.5 dB change in grids in La Jolla, and there fore, any proposed changes were rejected. The same criterion should be applied for the Alternatives evaluated. If the shifts in noise are less than 1.5 dB, tenth proposed alternatives should not be rejected. 4. The proposed alternatives will provide immediate benefit in Mission Beach and to a lesser degree farther north and should therefore be submitted to FAA for consideration. 5. It is not clear that more than one person on the CAC resides within the 65 dB CNEL. If this is the case, then it calls into question the validity of the whole study as representation is critical to the Part 150.

Date Received: **October 12, 2020**
From: **Robin Taylor**
Comment: **For Alt 3 the one we proposed? who determined the which flights used each individual SID and how many flights per day per SID? I need this before the meeting**



Date Received: October 12, 2020
From: Debbie Watkins
Comment: The Powerpoint presentation page 14 depicts a noise contour map. It erroneously shows 2 noise monitoring sites in Mission Beach -- Nos. 15 and 23. No. 15 as removed many years ago. Why is it depicted on this map?

Date Received: October 13, 2020
From: Gary Wonacott
Comment: Virtually every technical manual in the world says that less than 3 dB, not 5 dB is not perceived by the human ear. The statement that cumulative changes could result in benefits is a large understatement. Keep in mind the going from Stage 3 to 4 is about a 5 dB decrease.



Date Received: October 13, 2020
From: Nancy Palmtag
Comment: In going over the materials for Thursday's meeting, I don't really understand the population and housing unit numbers. How are multi-family units counted?

Date Received: October 14, 2020
From: Mike Tarlton
Comment: I just got this data from Robin...he got it from you.

"Alternative 3 that you reference in the graphic from your e-mail on Monday was suggested by CAC members Chris McCann and Anthony Stiegler. The distribution of all jet departures from Runway 27 on the three tracks is 52.3% on ZZOOO SID (all eastbounds), 24.6% on the modified PADRZ/CWARD SIDs and 23.2% on the modified MMOTO/ECHHO SIDs.""

I have to honestly say I am shocked. Can I ask a very direct question of the AA team? Are you intentionally bending to the LJ contingent at the expense of those who actually live in the 65 CNEL because of the lawsuit threat from Tony?

I can't begin to understand what is going, but nearly all alternatives those of us inside the 65 put forward seem to be ignored and everything the LJ contingent puts forward seems to be modeled. And everything the LJ team has put

forward to date hurts those of us inside the 65 CNEL which is exactly the opposite of what is supposed be the intent of the study.

From the ELSO suggestion, which eliminates nearly 50% of the departure course dispersion, taking the farthest North PADRES course from ~293 to 285, to this new allocation"" where 50% of the flights that use to go North on the PADRZ would now shift south 10 degrees and go out on the ""ELSO-like"" 285 all impact OB and PL negatively...it all smells very wrong.

I hope this is just an oversight on the part of the AA, but it looks a lot like undo and unjustified influence by those who should actually have zero say in a part 150 study.

I am very frustrated with the direction this study appears to be heading.

Date Received: **October 14, 2020**
From: **Nancy Palmtag**
Comment: **Thank you for your response. As I was trying to be sure I understood the numbers, more questions have come to mind. I think this was discussed before, but I am not sure what the answer was. What census data is being used? How is the number of people within each single family and multi family unit determined? What is the breakdown between single family and multi family units in the various contours? The population numbers are broken down between CNEL contours. What is the purpose of that, and what is done with that data?**

Obviously, I have a lot of questions. And I think this speaks to the criticism which has been raised before that we have not been able in the past to have ample opportunities for discussion in our meetings. And it looks like going forward that same situation will be followed. Framing the meetings with delivering information without adequate time for spontaneous questions is frustrating. Only allowing written comments is unacceptable. Communication is supposed to be two way, and although I appreciate the difficulties associated with large amounts of data to cover and the challenges meeting via Zoom present, I still think more time should be allocated for committee questions and answers.

Date Received: October 15, 2020
From: Casey Schnoor
Comment: I am writing solely to you, in respect of you and of your role as moderator – as in aiding the process by presiding over both sides of the issue, with the presumption that fairness, equity and accuracy are inherent in the role.

I. I concur with my neighbors in the complete dissatisfaction with how the Part 150 process has been\is being administered. For starters, to omit full and complete discussion of issues and alternatives from the process by relying solely upon written responses is a disservice and burden to the process, the communities, the commitment of the committee members contributions.

II. I view the fact that the AA and consultants have been accepting offline guidance from particular communities without the solicitation of the full committee members\communities input as simply disrespectful, irresponsible, unacceptable and a waste of what has already been a waste of precious time, given the AA's forced timeline.

III. The consultants adherence to the unanimously approved ANAC recommendations, which I view to be the base document representing ANAC's direction to the Part 150 process, appears to have drifted away.

IV. Please also be aware that the word "railroading" and "steamrolling" frequently comes up in conversations on the Part 150 process.

In sum, these actions continue it to foster "distrust".

Separately, as to today's presentation, and in the interest of, as noted, the strict limitation on time for committee members to comment, please note;

1. Page 8; When looking at the variance between the previously presented population and housing units data (5/28/2020) "Base Case" and the "Redefined Base Case"; population values for 2018 and 2026 dropped 4,388 and 6,188 respectively, while unit counts increased 35 and 96. This defies logic. Further, I am very hard pressed to conclude that the "sliver of geographic area" representing the 2026 change on page 7 equates to a reduction of 6,188 people. Once again, as demonstrated by the consultants data, using US Census data as the sole metric to evaluate variances between Alternatives is highly flawed, misrepresentative and irresponsible.

2. Page 11 presentation is inadequate; I expect significant efforts from the consultants to expand upon the merits of this single option, as well as to expand upon multiple other similar options. To date they and the AA have misrepresented and done a complete disservice to this viable concept.

3. Page 11 and 21; Please provide ASAP Latitude\Longitude coordinates for:

a. "A1 intercept"

b. "NEW" LANDN waypoint

c. "NEW WNFLD waypoint

d. "VA 500 2C" waypoint

4. Page 24; If I understand the presentation correctly, the table presented on page 24 is in error as the population and housing values presented are to represent the impact variance between Alt 4 and Base Case. However, these are the same values as those presented on page 8 which represents variances between the "redefined Base Case" and the former "Base Case". These cannot be the same.

5. Page 25; Please note that ALL of the alternatives pursued and offered by the consultants and presented at this late stage in the process (and after another year of our time and efforts), represent a material shift of noise and many other unacceptable impacts into the residential hearts of Ocean Beach\Loma Portal and away from commercial and open space areas to the north (and BTW, further into the Part 150 65 dB CNEL contour and away from the non-Part 150 geographic areas of LJ, BR, PB, MB)

6. Time has not allowed my review of the Draft Alternatives Development Screening Memo; however, I am confident that there will be multiple issues with the consultants explanations as to why most if not all of the Ocean Beach\Loma Portal comments and recommendations were disregarded and\or eliminated.

7. Given QHP is the sole mitigating factor offered by AA, please request the AA to promptly provide our committee a thorough financing plan as to how they intend to fund the $365 million dollars in additional increased QHP refurbishment costs for the 9,134 housing units added to the 65 dB CNEL contour over the next five years?

Therefore, as indicated by the above issues, I view that, regardless of the community efforts, the Part 150 process has been improperly and unfairly managed and nothing - repeat nothing - has been accomplished to fulfill the specific AA obligations to mitigate noise, with the exception of their desired "optics" of community involvement and to promptly issue a "Part 150 report".

I sincerely hope that in your role as moderator, you can facilitate a better, more productive, accurate and equitable direction for the Part 150 process before it is too late. Those 18,575 Ocean Beach residents newly entering into the 65 dB CNEL, along with 10's of thousands of their neighbors are dependent upon it.

Date Received: October 17, 2020

From: Gary Wonacott

Comment: The FAA recognizes that AEDT, rev D, like the other versions are approximations, and as a result, have released several revisions to increase the accuracy of the predictions. These approximations result in errors greater than the magnitude of the population changes from the baseline to the alternatives, thus rendering the results within the range of the errors.

Date Received: October 17, 2020

From: Gary Wonacott

Comment: If you used the same track shape for both the 290 and PADRZ, then that is incorrect, or flawed, particularly close in and about half way to the coast. The distance between the two tracks varies throughout the departure. These two tracks are different and need to be run in their correct form. 6. FLIGHT TRACK GEOMETRY AND USE Model tracks were developed using a standard method, which entailed analyzing all radar data from SAN's ANOMS and splitting the flight tracks into similar and manageable groups. This was first done by separating tracks by phase of flight (e.g., arrival or departure) and then by runway. Following this, the flights were separated by destination direction, such as north, south, or west. Finally, at this point, radar flight tracks were analyzed and split into groups according to their degree of similar geometry. Model tracks were developed for each geometrically similar group. For example, Runway 27 Departures with a northerly destination were split into a geometrically similar group, and a 'backbone' track was developed. Each of these backbone tracks were then assigned one or two 'dispersion' sub tracks on either side of the backbone, for a total of three or five tracks (one backbone and two or four dispersion) for each geometrically similar group. The nighttime noise abatement condition that exists at SAN was taken into consideration by modeling eastbound traffic issued a 290-degree heading and northbound traffic on the PADRZ Standard Instrument Departure (SID) as separate tracks to account for slight differences in these paths between 10 p.m. and 6:30 a.m. Tables 7 and 8 presents the utilization rates for each group of the developed model tracks for 2018 and 2026, respectively. Default INM dispersion percentages were used to assign utilization of the backbone and subtracks within a given track group.

Date Received: October 17, 2020
From: Gary Wonacott
Comment: As I assume you are aware, you have not included a picture of the 290 and the PADRZ tracks anywhere in your presentations or reports. without this, it is nearly impossible to assess the alternatives. It does appear that the baseline and the Alternative 1D contours are incorrect. Of course this depends on the tracks you have assumed for the 290 and PADRZ. These analyses were performed only for nighttime operations. In this case for the baseline, both 290 and PADRZ nighttime are included. The baseline contour is too far south, and therefore wrong. When The aircraft on the 290 dominate this case, because these aircraft are larger and more loaded with fuel for a trip to the midwest or east coast. The PADRZ aircraft should have little effect on the shift of the contours. Both the baseline and the 1D contours are too far south relative to ZZOOO. It appears that the inputs used are wrong.

Date Received: October 17, 2020
From: Gary Wonacott
Comment: "While a little old, I don't think out of date. With one runway and three departures within a 20 degree range, the analytical assessment must much more detailed and accurate to ensure that benefits are being maximized.

https://www.academia.edu/28132233/Contemporary_measures_for_noise_reduction_in_airport_surroundings
"

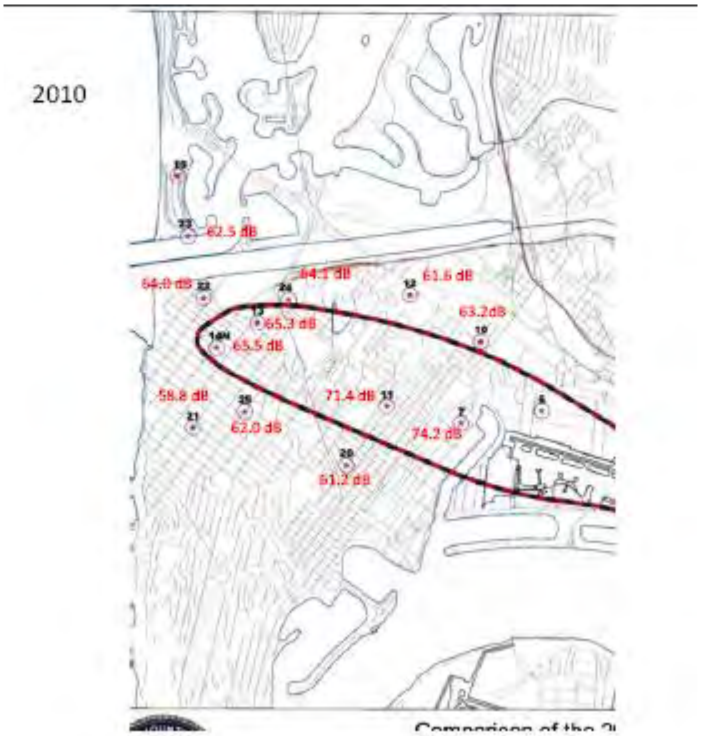
Date Received: October 17, 2020
From: Gary Wonacott
Comment: It was stated that it is the intent of the FAA to do away with the 290 vector departure. There are only three alternatives. Add Alt 1D, while flawed, is still the best answer. But there is concern that the FAA will not be happy with three having PADRZ and the new noise abatement SID so close to one another. So, they are inclined to move the 290 departures to PADRZ, or pursue Alt 1D (in spite of the shift in the 65 contour), or move all of the departures from PADRZ to 1D. "

Date Received: October 18, 2020

From: Gary Wonacott

Comment: "I have plotted the annual CNEL values for the noise monitors on the departure side of the runway for 2010, 2014, 2016, 2018 and 2019. I have then compared the values for both sides of the 65. The trends do not make sense. The Mission Beach noise monitor, which is on the jetty was pretty consistent with the noise monitor on the south side of the contour, but then in 2017+ it increased to close to a value of 65 dB CNEL. This could put parts of MB in the 65 dB CNEL, no?

WHY IS THE CONTOUR NOT FARTHER NORTH? There is a substantially higher percent of acrft operations on PADRZ plus the 290 than on ZZOOO for the day. Why does the 65 contour not point predominantly toward MB????"



Date Received: October 19, 2020

From: Gary Wonacott

Comment: "I have included below multiple charts addressing different issues and questions:

The FAA, the Noise Abatement Office and their consultants would all love us to buy into their Part 150 AEDT analyses no questions asked. But, we have already seen discrepancies and I am fairly sure there are more. For example, Steve stated in the meeting that two different tracks are being used for the 290 and PADRZ. That was a half truth, or maybe a ,,,,. The way the PADRZ was modeled is described in the analysis appendix. Supposedly radar tracks are used to determine the nominal track that becomes the backbone, and then bundles are created that are the same shape as the backbone, but some undefined distance off of the backbone. Apparently, this is how the 290 was identified, as a bundle, again, some undefined distance away from the PADRZ backbone. We need Steve to provide a picture that shows not only the backbone, but also all of the bundles including the one used for the 290. But to be clear, the 290 and PADRZ do not have the same shape.

In the first picture, there are two white lines, one is a PADRZ track and one is a 290 track. The aircraft on the 290 reach 290 at about one mile from end of runway (purple circle). I have broken the PADREZ track early on into segments 1-8 and show below the heading for the different segments which are shown on the picture.

Heading (degrees)
Segment 1 279
Seg 2 285
Seg 3 288
Seg 4 292
Seg 5 295
Seg 6 298
Seg 7 299
Seg 8
296

As you can see, segment 8 ends at almost the 2 mile blue circle. There is nominally a 0.3 mile difference between the 290 and PADRZ at the coast. So first, the shapes are not the same particularly early in the flight, which strongly impacts Loma Portal. I think there is some error associated with using the same shape. We don’t know what that error is, but the differences in contours between the different cases is very small, so virtually any error is important.

My second issue is covered by the second picture. This shows contours for Case 1 D nighttime only. So the baseline is nighttime only (not clear if this is to 11:30 pm or 7 am) with aircraft departing on both PADRZ and the 290. I show one line at the bottom that is the runway is at 275 degrees. we have substantial data that confirms that both the 290 and the PADRZ departures at night cross over the coast north of the jetty and yet the baseline case here appears, by drawing a straight line through the peak of the contour, to cross the coast below the jetty at Dog Beach. I don't know how it is possible for this peak to be aimed where it is given the inputs, unless, there is something wrong with the model.

Lastly, the last four picture are from SDCRAA quarterly reports to the State of California, more specifically the fourth quarter report for 2014, 2016, 2017 and 2018. I have drawn best guess lines through the peaks for both the southerly and the northerly departures. It is difficult to understand and reconcile the 2014 data compared to the other years shown. There is no second peak and the offset from the 275 is only 1 degree. The year 2016 now jumps to a quasi-second peak at 7 degrees, while for 2017 is 10 degrees and 2018 is down to 6 degrees. We know they are making approximations, including substantial averaging of the types of aircraft, weights, and destinations over a one year period. From an analysis perspective, it is my opinion that it is nearly impossible to achieve "perfect" consistency from year to year, which leads me to conclude that the consultants are "tweaking" the model to achieve the minimum correlation with previous results.

My other point associated with these charts is the lack of correlation of noise monitor data with the 65 dB CNEL. In 2017 and 2018, the annual CNEL values for the SMB noise monitor are 64. 7 and 65 dB. At the same time, those noise monitors south of the 65, are substantially less than 65dB?

The FAA admits that there are either errors in the early models, AEDT a, or improvements made along the way to AEDT d. I came across recent litigation that references use of AEDT and have copied some of the sections after the pictures. I have also referenced the document below. One of the issues addressed in the litigation is similar to the implied track for PADRZ presented by the FAA at one of the workshops in 2017 that I attended, as did Ms. Watkins. We discussed the issue at the time, but decided to wait to see if the airlines followed the prescribed track. They did not.

My overall point is that these alternatives that were put together by the ANAC Subcommittee do according to physics move the noise south, but I think that the changes are far less than what the consultants have shown in part because of the assumptions and simplifications they have made in the analyses. .

Gary

https://www.culvercity.org/home/showdocument?id=14132

VI. THE SOCAL METROPLEX EA'S ANALYSIS VIOLATES NEPA AS WELL AS FAA'S OWN RULES AND REGULATIONS
A. FAA's Noise Analysis Defies FAA's Own Regulations by Failing to Use the Required AEDT Model
On March 21, 2012, FAA officially adopted the AEDT as the required model for environmental modeling and analysis metrics (noise, fuel burn and emissions) output for regional airspace redesign/analysis projects. See U.S. Department of Transportation, Federal Aviation Administration, Order 1050.1E, Change 1, Guidance Memo No. 4 (March 21, 2012), p .1 [AR 9-A-13 at 1; JA ____]; followed by publication in the Federal Register on March 27, 2012, 77 Fed. Reg. 18297-18298:7
7 FAA describes the AEDT model as follows:
AEDT is a software system that models aircraft performance in space and time to estimate fuel consumption, emissions, noise, and air quality consequences. AEDT is a comprehensive tool that provides information to FAA stakeholders on each of these specific environmental impacts. AEDT facilitates environmental review activities required under NEPA by consolidating the modeling of these environmental impacts in a single tool.
AEDT is designed to model individual studies ranging in scope from a single flight at an airport to scenarios at the regional, national, and global levels. AEDT leverages geographic information
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Prior to March 2012, FAA required the use of the NIRS model. Id. FAA has explained that AEDT 2a, the original version, was selected "to replace NIRS as the required tool to analyze noise and fuel burn for air traffic airspace and procedure actions." Id.; see also FAA Order 1050.1E, Change 1, Guidance Memo No. 4, March 21, 2012, p. 1 [AR 9- A-13 at 1; JA ____] ["AEDT 2a replaces NIRS, and is now the required FAA NEPA compliance tool for modeling aircraft noise, as well as fuel burn and emissions, for air traffic airspace and procedure actions that meet one or more of the above-quoted criteria." [Emphasis added]].8
FAA has offered the following explanation regarding AEDT's superiority to NIRS:
system (GIS) and relational database technology to achieve this scalability and offers rich opportunities for exploring and presenting results. Versions of AEDT are actively used by the U.S. government for domestic aviation system planning as well as domestic and international aviation environmental policy analysis.
U.S. Department of Transportation, Federal Aviation Administration, AEDT FAA Web Page; (https://nam10.safelinks.protection.outlook.com/?url=https%3A%2F%2Faedt.faa.gov%2F&data=04%7C01%7C%7Cf40c860576c749009fea08d873d5a3d4%7C84df9e7fe9f640afb435aaaaaaaaaaaa%7C1%7C0%7C637386708690225283%7CUnknown%7CTWFpbGZsb3d8eyJWIjoiMC4wLjAwMDAiLCJQIjoiV2luMzIiLCJBTiI6Ik1haWwiLCJXVCI6Mn0%3D%7C1000&sdata=ptBZPnd1AU1dUVvpmAGugOPumyHGtiZl0ZrogUfLcIc%3D&reserved=0) [Addendum A, p. 322].
8 See also FAA Order 1050.1E, Change 1, Guidance Memo No. 4, March 21, 2012, p. 3 [AR 9-A-13 at 3; JA ______].
["'[A]ir traffic airspace and procedure actions' means such actions for which the study area is larger than the

immediate vicinity of an airport, incorporates more than one airport, and/or includes actions above 3.000 feet above ground level (AGL).”]

AEDT 2a has the capability to model aircraft performance based on fleet mix, airport configuration, and operations schedule. These data are used to compute aircraft noise, fuel burn and emissions simultaneously. By standardizing these data, AEDT 2a will help FAA stakeholders make more informed decisions on specific environmental impacts of aviation.

77 Fed. Reg. 18297-18298, Air Traffic Noise, Fuel Burn, and Emissions Modeling Using the Aviation Environmental Design Tool Version 2a, March 27, 2012 [emphasis added] [Addendum A, p. 156].9

At the time that FAA adopted AEDT 2a as the required model, it also interjected a single caveat to its required use, “the use of AEDT 2a is not required for projects whose analysis began before the effective date of this policy” [i.e., March 21, 2012]. Id. [Addendum A, p. 157] (emphasis added). Here, the record clearly demonstrates that FAA’s noise analysis did not begin until November 2013 at the earliest. See FEA at p. 4-1 [AR 1-B-5 at 1; JA ____]. This is readily apparent from the EA’s identification of “December 1, 2012 through November 30, 2013” as the relevant time period during which data was collected to

9 FAA has expressly mandated the use of the most current version of the AEDT model since its first implementation in 2012. See FAA Order 1050.1E, Change 1, Guidance Memo No. 4, March 21, 2012, p. 1 [AR 9- A-13 at 1; JA ______].

perform the noise analysis. See FEA at p. 4-1 [AR 1-B-5 at 1; JA ____]. The EA specifically states that “December 1, 2012 through November 30, 2013” was selected for the noise analysis because it “was the most recent year of data available.” See FEA at p. 4-1 [AR 1-B-5 at 1; JA ____]. The EA explains how this data was used:

Radar data obtained from the FAA’s Performance Data Analysis and Reporting System (PDARS) identified 1,242,614 IFR-filed flights to and from the Study Airports from December 1, 2012 through November 30, 2013. The 365 days of usable data span all seasons and runway usage configurations for the Study Airports. The FAA used this data to develop the average annual day (AAD) fleet mix, time of day and night, and runway use input for NIRS.

See FEA at p. 4-7 [AR 1-B-5 at 7; JA ____]. Thus, since the noise analysis could not have been performed prior to FAA’s collection of the data needed to perform the analysis, the record shows that the SoCal Metroplex noise analysis had not begun prior to March 21, 2012. See FEA at p. 4-1 [AR 1-B-5 at 1; JA ____].

Federal agencies are required to “follow their own rules, even gratuitous procedural rules that limit otherwise discretionary actions.” Steenholdt, supra, 314 F.3d at 639 (citing United States ex rel. Accardi v. Shaughnessy, 347 U.S. 260, 268 (1954), superseded on other grounds). Here, the fact that FAA’s noise analysis began after

March 21, 2012 means FAA was required by its own rules to use AEDT 2a. See FAA Order 1050.1E, Change 1, Guidance Memo No. 4, p. 1 [AR 9-A-13 at 1; JA ____] (requiring use of the AEDT 2a model for analyses that begin after March 21, 2012). Thus, the SoCal Metroplex EA's use of the outdated NIRS model violated FAA's rules that had been implemented with the express purpose of "help[ing] FAA stakeholders make more informed decisions on specific environmental impacts of aviation." See 77 Fed. Reg. 18297-18298, Air Traffic Noise, Fuel Burn, and Emissions Modeling Using the Aviation Environmental Design Tool Version 2a, March 27, 2012 [Addendum A, p. 157].

Although an agency may amend or repeal its own regulations, "an agency is not free to ignore or violate its regulations while they remain in effect." Nat'l Envtl. Dev. Ass'ns Clean Air Project v. EPA, 752 F.3d 999, 1009 (D.C. Cir. 2014) (quoting U.S. Lines, Inc. v. Fed. Mar. Comm'n, 584 F.2d 519, 526 n.20, (D.C. Cir. 1978)); see also Battle v. FAA, 393 F.3d 1330, 1336 (D.C. Cir. 2005) ["The Accardi doctrine stands for the proposition that agencies may not violate their own rules and regulations to the prejudice of others."]. As a result, an agency's action is "arbitrary and capricious if the agency fails to comply with its

own regulations." Eco Tour Adventures, Inc. v. Zinke, 249 F. Supp. 3d 360, 373 (D.D.C. 2017) (internal citations omitted).

McLouth Steel Prods. Corp. v. Thomas, 838 F.2d 1317, 1320-21 (D.C. Cir. 1988) is instructional here. In that case, the court held that because the EPA had announced its intent to require a certain model of waste analysis, EPA was bound to follow its own rule mandating the use of that model. EPA argued that its decision to use the model (the "VHS Model") was merely a "non-binding statement of agency policy" that is "not solely determinative of EPA's action," but rather is "one of many tools" the EPA uses in evaluating certain petitions. Id. EPA had also expressly provided for exceptions to the VHS rule under "compelling" circumstances. Id. at 1321.

Ultimately, EPA had drafted a letter regarding the mandatory use of the VHS model, stating, "Since the VHS landfill model was made final on November 27, 1986, and all comments received in the proposal for the model were incorporated, [the company challenging the use of the model's] comments will not be entertained." Id. [Emphasis added]. The court found that the letter clearly indicated that use of the VHS model was a mandatory rule, rather than a mere musing about what

EPA might do. Id. The court reasoned that the "agency's past characterizations, and more important, the nature of its past applications of the model, are what count." Id. The firm language contained in EPA's letter was sufficient for the court to find that the EPA had promulgated a binding rule mandating the use of the VHS model. Id.
Here, FAA has failed to heed the overwhelming weight of its own authority mandating the use of AEDT in this case, including its own statement, in its then governing U.S. Department of Transportation, Federal Aviation Administration, Order 1050.1E, Change 1, Environmental Impacts: Policies and Procedures, March 20, 2006 ("Order 1050.1E") [AR 9-A-11].10 See also FAA Order 1050.1E, Change
10 FAA Order 1050.1E has since been superseded by U.S. Department of Transportation, Federal Aviation Administration, Order 1050.1F, Environmental Impacts: Policies and Procedures, July 16, 2015 ("Order 1050.1F,") [FAA Order 1050.1F, § 1-5, p. 1-1 [Addendum A, p. 240]]. FAA Order 1050.1F remains consistent with FAA Order 1050.1E with respect to the exclusive use of AEDT to replace NIRS. [FAA Order 1050.1F, § 4-2.b ["The latest FAA-approved model must be used for both air quality and noise analysis"] [Addendum A, p. 248]; see also Federal Aviation Administration, Office of the Environment and Energy, 1050.1F Desk Reference, July 2015 ("1050.1F Desk Reference"), Appendix C, p. C-1, ["For air traffic airspace and procedure actions, AEDT 2b replaces AEDT 2a, which was released by the FAA in March 2012."]] [Addendum A, p. 293]].
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1, Guidance Memo No. 4, March 21, 2012, p. 1 [AR 9-A-13 at 1; JA ____] ["AEDT 2a replaces NIRS, and is now the required FAA NEPA compliance tool for modeling aircraft noise, as well as fuel burn and emissions, for air traffic airspace and procedure actions that meet one or more of the above-quoted criteria." [Emphasis added.]].
FAA's attempted justification for ignoring its own rules is limited to a single footnote on page 5-3 of the EA. That footnote states: "The Aviation Environmental Design Tool (AEDT) became FAA's required noise model for air traffic actions in March 2012 (current version 2b was released in March 2015). However, when the SoCal Metroplex EA Project noise methodology development process began NIRS was the noise model required by FAA for analysis of air traffic actions." SoCal Metroplex FEA at p. 5-3 [AR 1-B-6 at 3; JA ____] (emphasis added). This purported "explanation" entirely fails to address FAA's "departure from established precedent," Jicarilla, supra, 613 F.3d at 1119, for at least two reasons. 11
11 This case mirrors the Court's analysis and finding in Jicarilla. In that case, the Court found the agency's decision arbitrary and capricious where the agency analyzed actions occurring between 1984 and 1988 using a model that was not implemented until 1988, thus making it inapplicable in the prior years. Here, FAA is attempting to
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First, there is no such thing as a "noise methodology development process." FAA has invented that phrase out of thin air in an attempt to justify its failure to use AEDT. Indeed, the noise methodology that was being developed prior to

March 2012 was the AEDT 2a model, which FAA admits it did not use for this project. See SoCal Metroplex FEA at p. 5-3 [AR 1-B-6 at 3; JA ____]. Likewise, the NIRS model that was used for this project was developed in 1998. See FAA Website, Noise Integrated Routing System (NIRS) & NIRS Screening Tool (NST) (https://nam10.safelinks.protection.outlook.com/?url=https%3A%2F%2Fwww.faa.gov%2Fabout%2Foffice_org%2Fheadquarters_offices%2Fapl%2Fresearch%2F&data=04%7C01%7C%7Cf40c860576c749009fea08d873d5a3d4%7C84df9e7fe9f640afb435aaaaaaaaaaaa%7C1%7C0%7C637386708690225283%7CUnknown%7CTWFpbGZsb3d8eyJWIjoiMC4wLjAwMDAiLCJQIjoiV2luMzIiLCJBTiI6Ik1haWwiLCJXVCI6Mn0%3D%7C1000&sdata=92OuFHpVtakVSFUSrf3X24zuKbJt3lF0c%2BulTR2h2nU%3D&reserved=0 models/nirs_nst/) [Addendum A, p. 323]. This begs the question: what noise methodology does FAA claim it was developing for this project? The EA is devoid of any explanation on this point.

Second, even if FAA could support its contention that it had begun its "noise methodology development process," as of March 2012, FAA's own policy statements make it clear that this would still be an inadequate excuse for failing to use the AEDT 2a model, because the

analyze agency actions taking place after 2016, using a model that was superseded and taken out of use, in early 2012, thus making its use inapplicable in the years after 2012 during which the SoCal Metroplex EA noise analysis was developed. Either way, FAA's arbitrary and capricious actions were patently prejudicial to Petitioners.

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actual analysis must have begun prior to March 21, 2012 in order to invoke the exception to the rule requiring AEDT. See 77 Fed. Reg. 18297-18298, Air Traffic Noise, Fuel Burn, and Emissions Modeling Using the Aviation Environmental Design Tool Version 2a, March 27, 2012 [Addendum A, p. 157] ["the use of AEDT 2a is not required for projects whose analysis began before the effective date of this policy" [i.e., March 21, 2012]]. Here, there is no question that FAA began its noise analysis after March 21, 2012 because FAA admits that the input data used to perform this analysis was collected from December 2012 to November 2013. See FEA at p. 4-7 [AR 1-B-5 at 7; JA ____]. Thus, it would have been impossible for FAA to analyze this data prior to December 2012. See FEA at p. 4-7 [AR 1-B-5 at 7; JA ____].

In sum, FAA acted arbitrarily and capriciously when it violated its own rules by failing to use the required AEDT 2a model. See FAA Order 1050.1E, Change 1, Guidance Memo No. 4, March 21, 2012 [AR 9-A-13; JA ______]; see also Eco Tour Adventures, Inc., supra, 249 F. Supp. 3d at 373. By thumbing its nose at the required AEDT model, and using the outdated NIRS model, FAA has failed to take the "hard look" at the Project's noise impacts required by its own governing actual analysis must have begun prior to March 21, 2012 in order to invoke the exception to the rule requiring AEDT. See 77 Fed. Reg. 18297-18298, Air Traffic Noise, Fuel Burn, and Emissions Modeling Using the Aviation Environmental Design Tool Version 2a, March 27, 2012 [Addendum A, p. 157] ["the use of AEDT 2a is not required for projects whose analysis began before the effective date of this policy" [i.e., March 21, 2012]]. Here, there is no question that FAA began its noise analysis after March 21, 2012 because FAA admits that the input data

used to perform this analysis was collected from December 2012 to November 2013. See FEA at p. 4-7 [AR 1-B-5 at 7; JA ____]. Thus, it would have been impossible for FAA to analyze this data prior to December 2012. See FEA at p. 4-7 [AR 1-B-5 at 7; JA ____].

In sum, FAA acted arbitrarily and capriciously when it violated its own rules by failing to use the required AEDT 2a model. See FAA Order 1050.1E, Change 1, Guidance Memo No. 4, March 21, 2012 [AR 9-A-13; JA ______]; see also Eco Tour Adventures, Inc., supra, 249 F. Supp. 3d at 373. By thumbing its nose at the required AEDT model, and using the outdated NIRS model, FAA has failed to take the "hard look" at the Project's noise impacts required by its own governing

orders, and, thus, cannot "make a convincing case for its finding of no significant impact." TOMAC, supra, 433 F.3d at 861. In addition, FAA's conclusions fall far outside the parameters of "reasoned decisionmaking" insofar as FAA has utterly failed to provide any explanation, let alone an adequate one, "for its departure from established precedent," Jicarilla, supra, 613 F.3d at 1119, in the form of the use of the AEDT model for the analysis of airspace changes.

In the final analysis, the existence of prejudice to Petitioners from FAA's error is clear. Beginning as early as September 8, 2015, Petitioner Culver City catalogued the "portions of the documents it objects to," Myersville Citizens, supra, 783 F.3d at 1327, where it stated

It should be noted at the outset that these comments are necessitated by the discomfort and confusion of Cities' citizens with respect to the Project's potential noise and other environmental impacts. The Cities' citizens are already suffering demonstrable increases in overflights at low altitudes, and resulting noise impacts. They are now being asked to become the recipients of the Project's additional noise, overflight, and other environmental impacts, the precise degree of which is as yet unascertainable, because the precise projected flight paths to be implemented by the Project cannot be deduced from the information provided to define them.

Culver City September 8, 2015 "Comments re: SoCal Metroplex OAPM – Environmental Assessment," p. 1 [[AR 6-A-1 at 1534-1541; JA ____].

Thus, Culver City made painfully clear the nature of the deviations from NEPA and FAA's own requirements that it would have been able to evaluate, and to which it would have been able to respond, if given the opportunity. Myersville, supra, 783 F.3d at 1327. Petitioners were clearly prejudiced by being deprived of the opportunity to ensure that "the agency's eyes are open to the environmental consequences of its actions and [that it] considers options that entail less environmental damage, [so that] it may be persuaded to alter what it proposed." Lemon, supra, 514 F.3d at 1315.

Several commenters on the Draft EA pointed out this lack of adherence to the congressional mandate expressed in Vision 100. In those comments, they pointed out that the FAA had not given appropriate consideration to the reduction of noise and emissions in developing the approach and departure flight paths. FEA, Appendix F, p. F-385. [AR 1-B-12 at 391; JA ____]. As a result, the comment continued, the proposed approach and departure flight paths do not meet the goals that Congress defined for NextGen, Id., i.e., a non- discretionary, congressionally-mandated duty when designing airport approach and departure flight paths to "take into consideration, to the

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greatest extent practicable ... to reduce exposure of noise and emissions pollution on affected residents." Vision 100, § 709(c)(7) [Addendum A, p. 82]. (emphasis added).

However, even when given the opportunity to directly address the goals mandated by Congress, the FAA failed to tackle the issue head on. Instead, the FAA fell back on the fact that it defined the purpose of the proposed action as "optimiz[ing] procedures serving the Study Airports, while maintaining or enhancing safety, in accordance with the FAA's mandate under federal law." FEA, Appendix F, p. F-385. [AR 1-B-12 at 391; JA ____]. Further, the FAA stated that it believed it was sufficient to conclude that "the Proposed Action, when compared to the No Action Alternative, would not result in any significant environmental impacts." Id.

In summary, in addition to its statutory obligations under NEPA, in developing the SoCal Metroplex, the FAA has ignored its statutory and regulatory duty to control and abate "aircraft noise and sonic boom," 49 U.S.C. § 44715(a)(1)(A), in addition to the similar goals which form the foundation of NEPA. Those statutory obligations require FAA to balance safety and efficiency concerns with the protection of persons

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on the ground. See Helicopter Ass'n International, supra, 722 F.3d at 434. Since FAA failed to perform the mandated balancing of the Project's goal of increasing operational efficiency with the public health issues created by noise and emissions from aircraft, its action was arbitrary and capricious.

The inescapable conclusion is that FAA's failure in its design of the SoCal Metroplex Project's approach and departure flight routes to consider "to greatest extent practicable" the reduction of noise and emissions pollution on affected residents was arbitrary and capricious. See James V. Hurson Associates, Inc. v. Glickman, 229 F.3d 277, 284 (D.C. Cir. 2000) [an agency's action is "arbitrary, capricious, an abuse of discretion, or otherwise not in accordance with law" if "it failed to consider factors made relevant by Congress"]. Indeed, FAA's failure to even attempt to gather the information necessary to make a claim that it had considered the reduction of noise and emissions when it designed the flight routes is the very definition of arbitrary and capricious decision-making. See Oregon Natural Desert Ass'n v. BLM, 531 F.3d 1114, 1142 (9th Cir. 2008) ["We cannot defer to a void" in record]. The FAA has thumbed its nose at Congress by ignoring its express purpose

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to consider the reduction of noise and emissions when developing NextGen flight routes such as those in the SoCal Metroplex Project.
Thus, FAA's error is the quintessence of both "arbitrary" and "prejudicial," and may be set aside on those bases alone.
B. The SoCal Metroplex Noise Analysis is Founded on an Inapplicable Metric
Compounding and further complicating its error, FAA used in its environmental modeling a noise metric, "Day-Night Sound Level" or "DNL" that dramatically understates the noise from the SoCal Metroplex Project. FEA, p. 4-6 [AR 1-B-5 at 6; JA ____]. As a substitute, the "Cumulative Noise Equivalency Level," or "CNEL," metric is favored for use in California. See, FAA Order 1050.1F, Appendix B, ¶ B-1, p. B-1 [Addendum A, p. 262].
CNEL is the time-varying noise over a 24-hour period, with a 5 dBA weighting factor applied to the hourly continuous sound level for noises occurring from 7:00 p.m. to 10:00 p.m. (defined as evening hours) and a 10 dBA weighting factor applied to noise occurring from 10:00 p.m. to 7:00 a.m. (defined as sleeping hours).
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Despite FAA's seemingly equivocal endorsement,12 this failure to use the CNEL metric strikes at the heart of the SoCal Metroplex EA noise analysis. As the CNEL metric "adds a 5 dB penalty for each aircraft operation during evening hours (7:00 p.m. to 10:00 p.m.)," Federal Aviation Administration, Environmental Desk Reference for Airport Actions, October 2007, Chapter 17, § 1.c(3) [Addendum A, p. 109], which does not exist in the DNL metric, to the extent that the noise impacts from the Project at LAX and other airports at least partially arise from operations during those hours, the noise impacts set forth in the SoCal Metroplex EA are indisputably understated.
This additional lapse materially increases the adverse impact of FAA's improper use of the NIRS model, because it adds certainty to the underestimation of noise impacts. It thus further deprives Petitioners of the opportunity to evaluate the noise impacts of the SoCal Metroplex Project, as those impacts are normally analyzed in their community. As a result, FAA's additional deviation from normal procedures,
12 Ironically, FAA requires the use of the CNEL noise metric in the evaluation of the noise impacts of airport development projects in California. FAA Order 5050.4B, Chapter 1, § 9.n., p. 8 [Addendum A, p. 93].
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unmitigated, see Jicarilla, supra, 613 F.3d at 1119, also falls comfortably within the scope of "arbitrary and capricious."

Finally, but not least important, the use of the DNL metric, rather than CNEL, adversely impacts any effort to perform a legitimate cumulative noise impact analysis. This is because noise from all the other runway, taxiway and terminal projects with which the SoCal Metroplex Project may have synergistic impacts, at LAX, as well as other airports throughout the region, have been evaluated using the CNEL metric required for use in California airport projects, including runway, taxiway and terminal improvements. U.S. Department of Transportation, Federal Aviation Administration, Order 5050.4B, National Environmental Policy Act (NEPA) Implementing Instructions for Airport Actions, April 28, 2006 ("Order 5050.4B), Chapter 1, § 9.n., p. 8 [Addendum A, p. 93]. Therefore, adding the noise impacts of those projects, properly evaluated using CNEL, to those of the SoCal Metroplex Project, constitutes nothing more than adding "apples to oranges" and continues the long trend of "departure from established precedent" without explanation, and consequent abuse of discretion, in

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addressing both the cumulative and independent noise impacts of the SoCal Metroplex Project.

C. The SoCal Metroplex Noise Analysis is Based on Inaccurate Flight Paths

Finally, adding injury to injury, FAA fails to provide, in the EA, an accurate representation of the paths anticipated for aircraft overflights, making it impossible for potentially affected citizens to anticipate the existence of the overflight impacts, or the degree of their impacts.

Specifically, the TARGETS Distribution Package for LAX was distributed on August 25, 2015, FEA, Appendix F, Volume II, p. F-817- 819 [AR 1-B-13 at 65-67; JA ____], little more than a week before the original due date for comments on the SoCal Metroplex EA. It reveals that FAA CLIFY waypoint, a principal marker for arriving aircraft at LAX, was relocated from its initial position in the Draft EA, at a point north of the Santa Monica Airport ("SMO") VORTAC, upon which affected parties based their analyses and comments, to a point collocated with the VORTAC, which is further south and closer to certain areas of Culver City. FEA, Appendix F, Volume II, p. F-817-819 [AR 1-B-13 at 65-67; JA ____]. While this does not appear to represent

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a substantial distance from an absolute perspective, about one-half mile, the movement is significant from a noise modeling perspective, because the SoCal Metroplex EA's noise modeling appears to have been based on the more northerly location. Id.

From a human perspective, this error has potentially serious, but as yet technically undocumented, impact on surrounding residents and businesses. This is because, even though an additional comment period was granted, no further analysis was performed on the new location.

If the flight paths subject to the original modeling were misplaced to the north, the noise impacts on Culver City and other affected communities were materially understated. Their movement to the south should have been accommodated in a reanalysis of the noise data using the current waypoint locations and attributes reflected in the TARGETS Distribution Packages. As it was not, when taken together with the utilization of an incorrect noise metric, i.e., DNL instead of CNEL, and outdated noise model, the NIRS vs. the AEDT, the errors conclusively vitiate the "hard look" at environmental impacts required by the NEPA, and contravene any claim by FAA of "reasoned decisionmaking."

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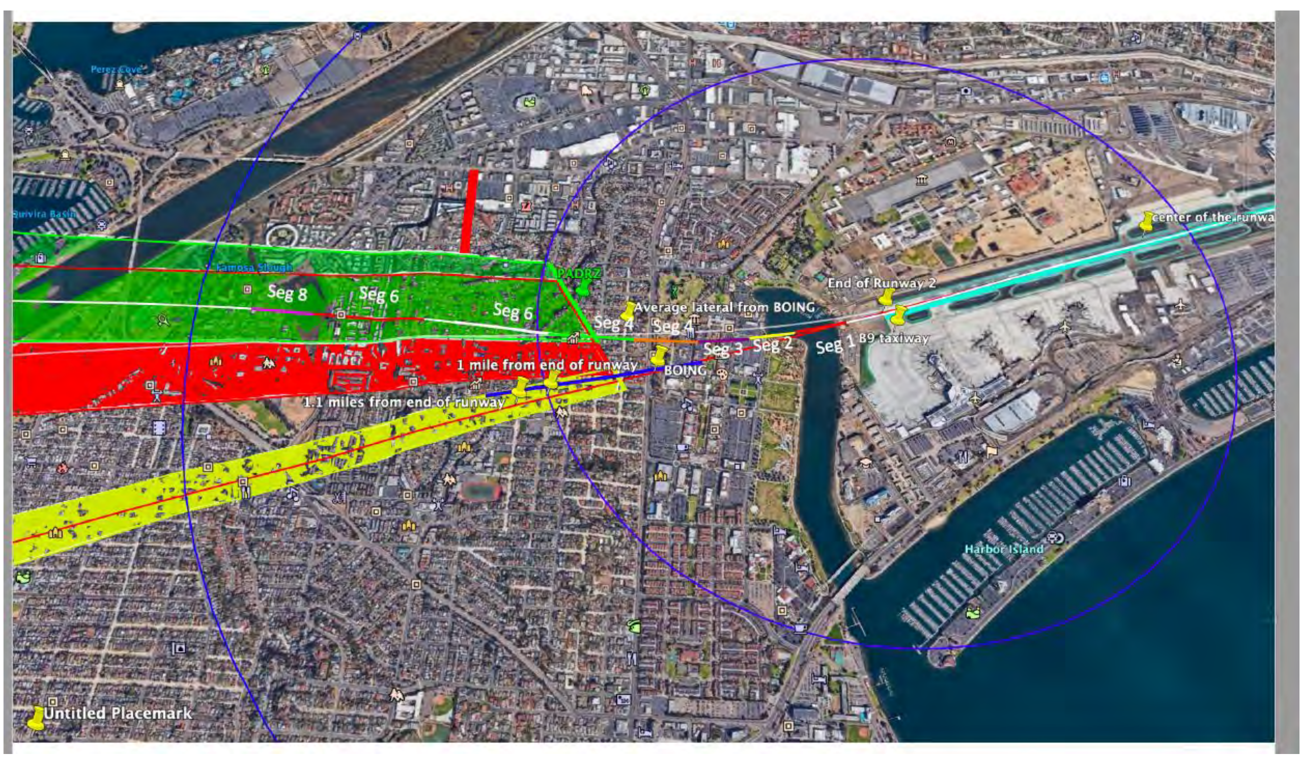
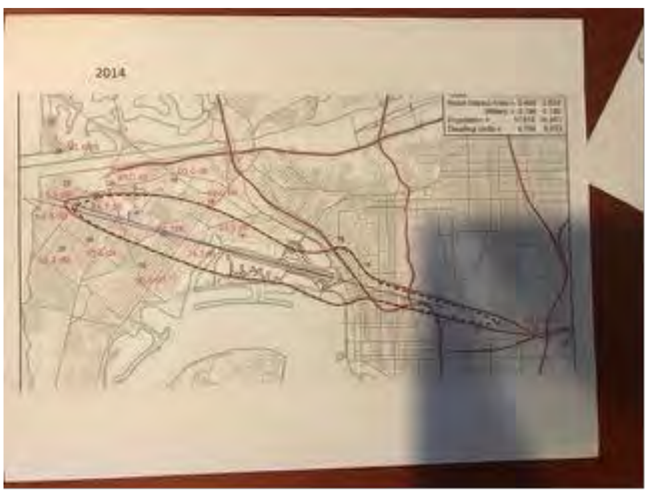
VII. FAA IMPROPERLY INVOKED A PRESUMPTION OF CONFORMITY TO AVOID EVALUATION OF THE AIR QUALITY IMPACTS OF THE PROJECT

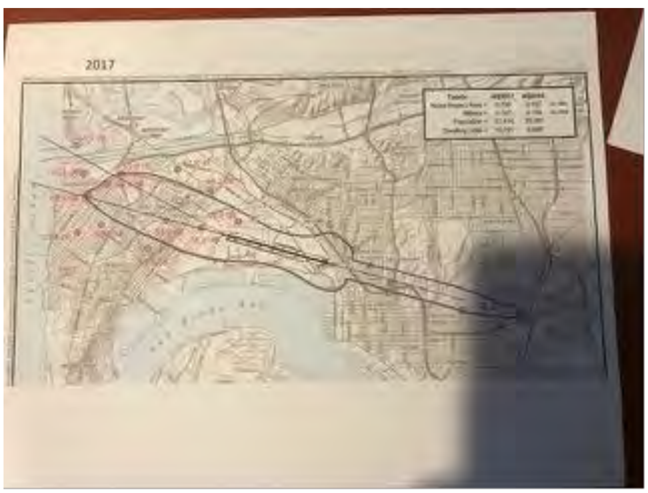
Rather than fulfilling its responsibility to evaluate the Project's conformity with the emissions requirements of the CAA, and NEPA, FAA chose to shrug off those requirements, and, instead, depend on a "Presumption of Conformity," 40 C.F.R. § 93.153(f)-(h), applicable to aircraft operating at or above 3,000 feet above ground level ("AGL") (sometimes referred to as the "mixing height"), or even below that altitude where there are "modifications to routes and procedures . . . designed to enhance operational efficiency (i.e., to reduce delay)." FAA's Federal Presumed to Conform Actions Under General Conformity, 72 Fed. Reg. 41565-41580 (July 30, 2007) [AR 9-D-6; JA ______] ("PTC




CONCENTRATION ALTERNATIVE: 1D – Departures Over Mission Bay Channel
with Concentration (Alternative 1B with Nighttime Only Operations)
PRELIMINARY DRAFT
SAN NOISE STUDY
Mead & Hunt


2014


2016


2017

Date Received: October 21, 2020
From: Gary Wonacott
Comment: The 2018-2019 State of California Quarterly reports include results from noise monitors around the airport, including noise monitor #23. This noise monitor is located at the southern end of Mission Beach on Mission Blvd. It is in proximity to addresses with many noise complaints to the noise abatement office since the implementation of NexGen. And, I believe it is for good reason. This noise monitor summary for the quarter has registered at 65 dB CNEL, which raises several questions, one being eligibility for the QHP. In addition it further confirms the negative impact of the post 10 pm departures that are directed from ZZZOOO to the 290. Please address this issue for those living within what appears to be the 65 dB CNEL in Mission Beach.

Date Received: October 21, 2020
From: Gary Wonacott
Comment: The comments made by consultants in the FPA and Part 150 studies only confirm that the nighttime noise abatement agreement is not a recognized FAA departure procedure, but was only established by a letter of agreement between the City of San Diego, the San Diego Port Commissioners and FAA/ATC. No flight plans are ever filed for this post 10 pm departure, again because none exists. The ANAC Subcommittee requested documentation on the nighttime noise abatement agreement; the answer was none exists. Therefore this agreement has no foundation in the NEPA process and needs to be addressed by the FAA, or ATC must stop directing pilots on ZZOOO to turn to 290 and ....

Date Received: October 22, 2020
From: Gary Wonacott
Comment: Since I don't have access to you via the TAC or CAC, and not being aware of your plans, I feel it is necessary to send you analysis results. While at most airports, I think you can look at the problems from 30,000 feet, but not so at Mission Beach.

There are several key questions that we would like to have answered as final decisions are made with regard to possible noise mitigation approaches off-setting noise increases purportedly from the NexGen implementation in 2017. These questions are:

- To what degree did the NexGen concentrate the flights over Mission Beach and can this increased concentration be converted into a noise increase?
- Is there a difference between the amount of dispersion before and after NexGen was implemented with the 290, a vector departure, and PADRZ, which is a RNAV SID.
- There is scatter of both the 290 data as well as the PADRZ crossing points over the coast; does statistical analysis of this data reveal a repeatable spread between the 290 and the PADRZ departure?
- The aircraft on the 290 turn left and then head to the midwest or back east. These aircraft are typically longer range, larger, and carry more fuel. Is there evidence of this from the data and is there a way to quantify differences in noise levels for those on the ground for these aircraft?

To answer these questions, we used public domain data to compute scattergrams for aircraft as they crossed the coast, as in the picture below. Each aircraft is tracked as it crosses over the coast and its altitude and horizontal distance from a reference point are calculated. The horizontal distance is approximately parallel to the coastline. From this information, the average horizontal and vertical (altitude) values can be determined from which an average, mean and standard deviation can be computed.

The picture below is of South Mission Beach, the jetty channel is to the left side and Ocean Beach is further to the left (not shown). The black pin in the jetty water is the reference point for horizontal north south measurements along a longitudinal line. The first and second red lines are 0.19 and 0.33 miles respectively from the reference and the blue line is Alternative 1D. The two red lines represent the predicted PADRZ dispersion that was presented at the 2016 FAA Metroplex workshop. The single white line, a typical PADRZ departure, is 0.39 miles up the beach from the reference.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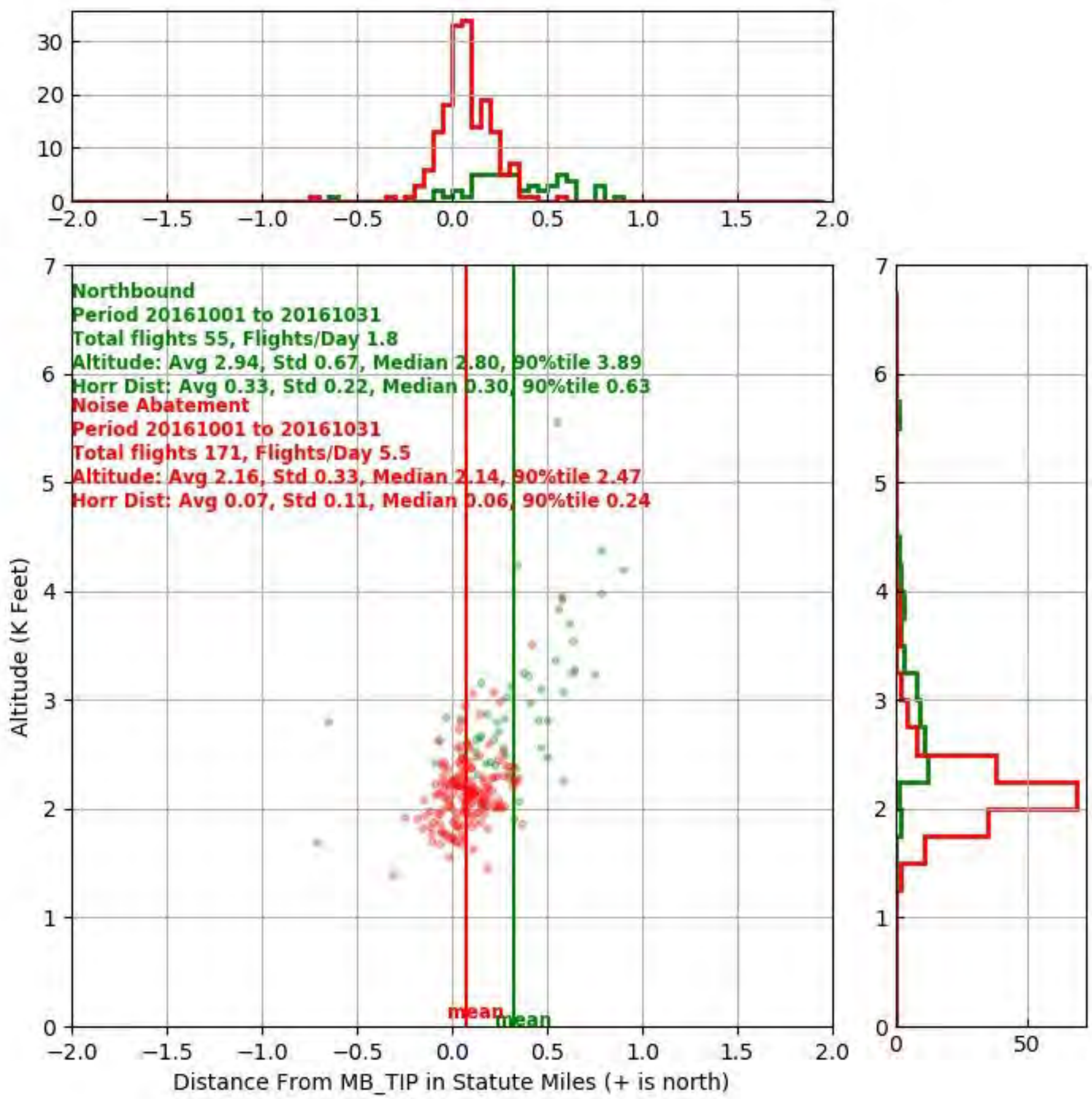
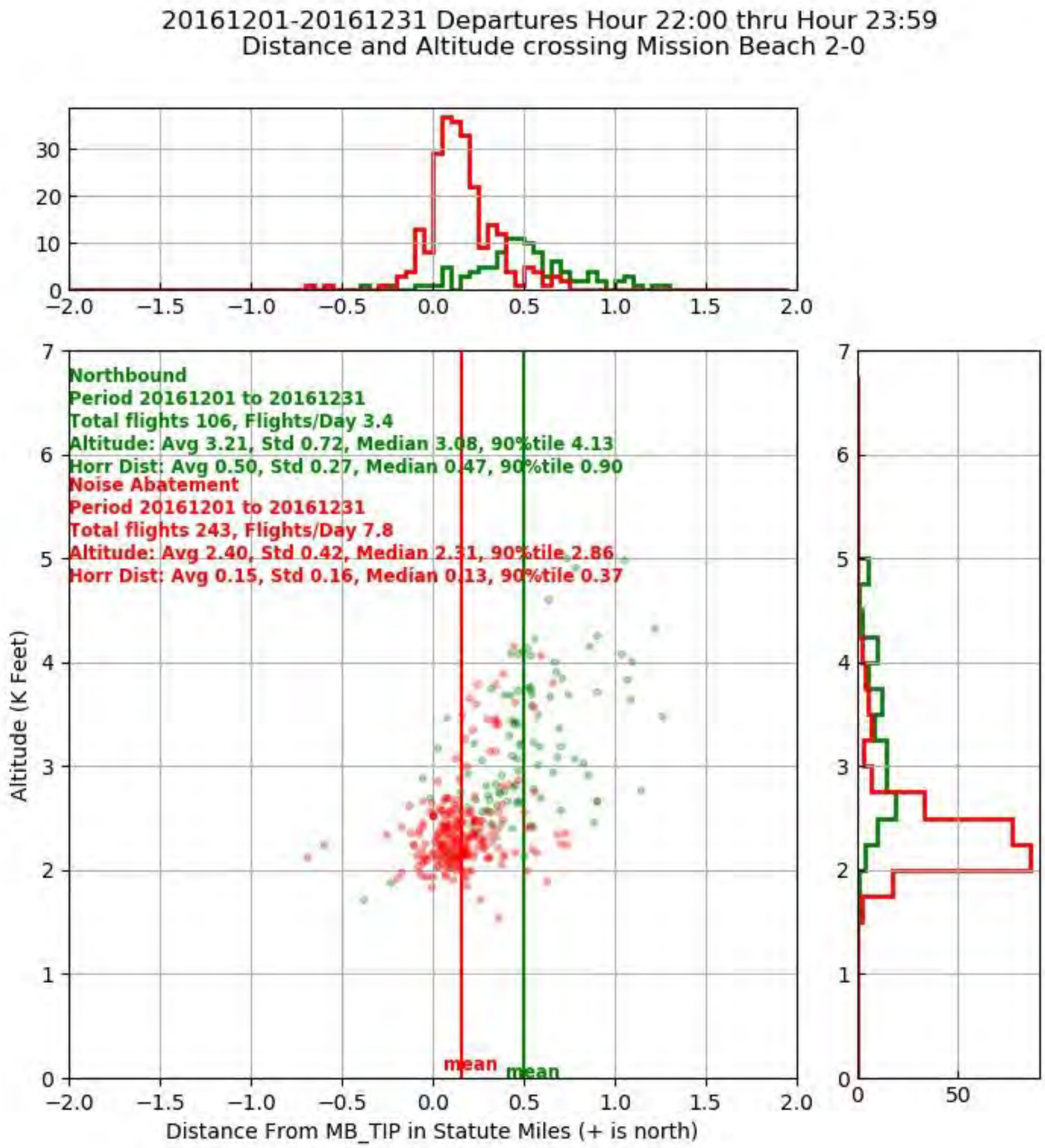
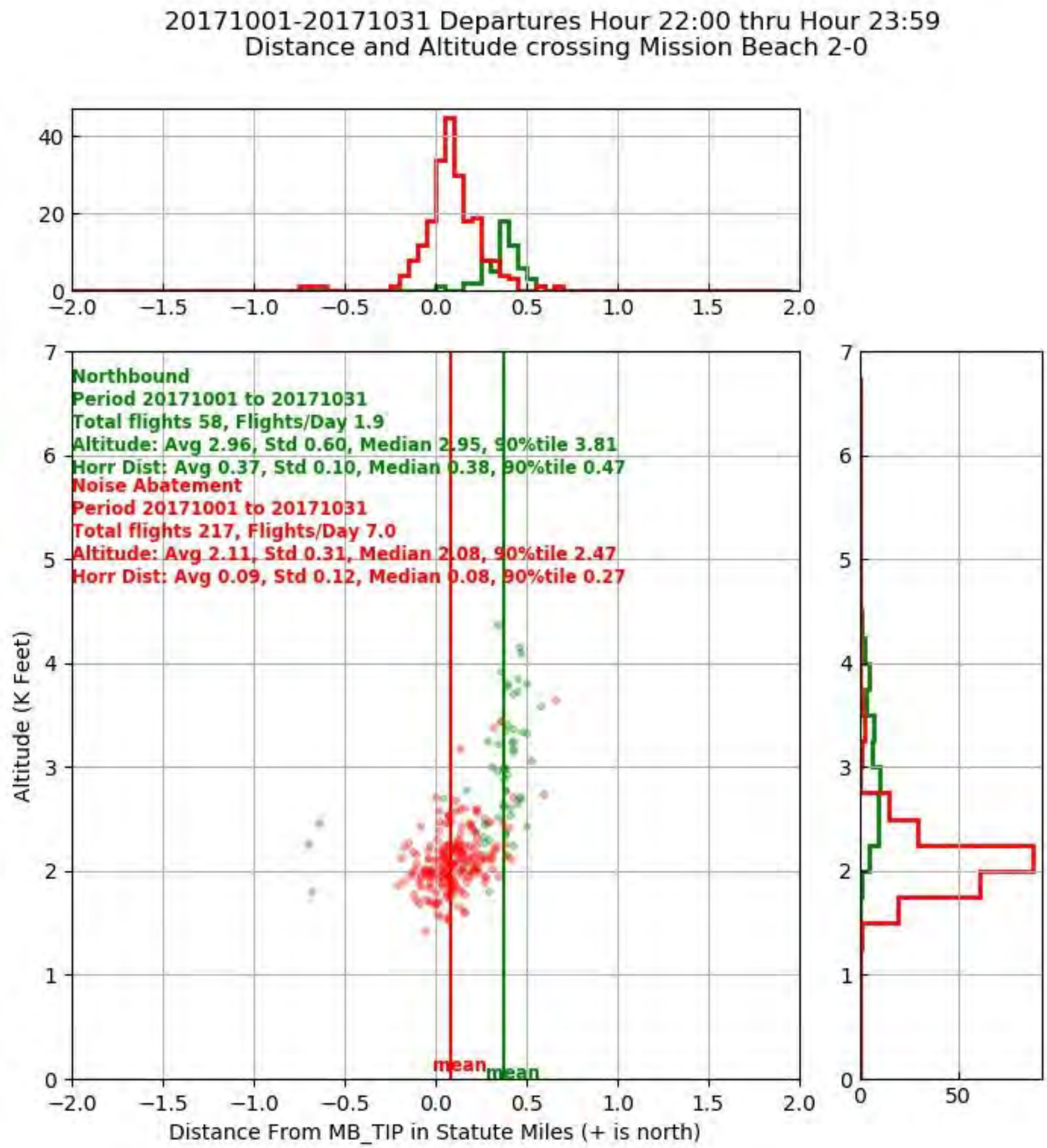
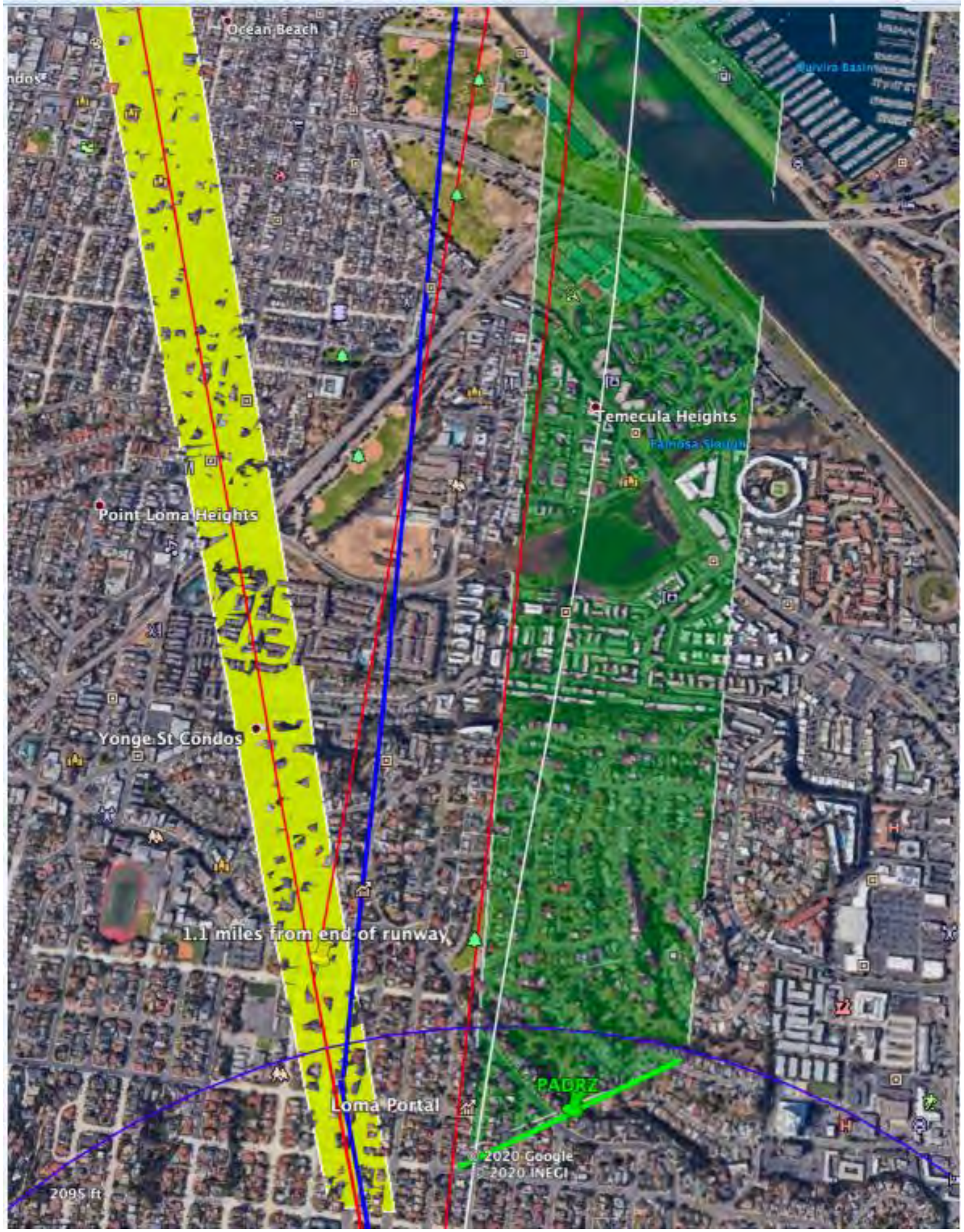
Google Earth

20161001-20161031 Departures Hour 22:00 thru Hour 23:59
Distance and Altitude crossing Mission Beach 2-0




20161201-20161231 Departures Hour 22:00 thru Hour 23:59
Distance and Altitude crossing Mission Beach 2-0
Northbound
Period 20161201 to 20161231
Total flights 106, Flights/Day 3.4
Altitude: Avg 3.21, Std 0.72, Median 3.08, 90%tile 4.13
Horr Dist: Avg 0.50, Std 0.27, Median 0.47, 90%tile 0.90
Noise Abatement
Period 20161201 to 20161231
Total flights 243, Flights/Day 7.8
Altitude: Avg 2.40, Std 0.42, Median 2.31, 90%tile 2.86
Horr Dist: Avg 0.15, Std 0.16, Median 0.13, 90%tile 0.37
mean
mean
Altitude (K Feet)
Distance From MB_TIP in Statute Miles (+ is north)


20171001-20171031 Departures Hour 22:00 thru Hour 23:59
Distance and Altitude crossing Mission Beach 2-0
Northbound
Period 20171001 to 20171031
Total flights 58, Flights/Day 1.9
Altitude: Avg 2.96, Std 0.60, Median 2.95, 90%tile 3.81
Horr Dist: Avg 0.37, Std 0.10, Median 0.38, 90%tile 0.47
Noise Abatement
Period 20171001 to 20171031
Total flights 217, Flights/Day 7.0
Altitude: Avg 2.11, Std 0.31, Median 2.08, 90%tile 2.47
Horr Dist: Avg 0.09, Std 0.12, Median 0.08, 90%tile 0.27
mean
mean
Altitude (K Feet)
Distance From MB_TIP in Statute Miles (+ is north)


Ocean Beach
Temecula Heights
Point Loma Heights
Yonge St Condos
1.1 miles from end of runway
PADRZ
Loma Portal
© 2020 Google
© 2020 INEGI
2095 ft

Date Received: October 27, 2020
From: Gary Wonacott
Comment: It was stated that it is the intent of the FAA to do away with the 290 vector departure. There are only three alternatives. Add Alt 1D, while flawed, is still the best answer. But there is concern that the FAA will not be happy with three having PADRZ and the new noise abatement SID so close to one another. So, they are inclined to move the 290 departures to PADRZ, or pursue Alt 1D (in spite of the shift in the 65 contour), or move all of the departures from PADRZ to 1D.

Date Received: November 2, 2020
From: Anthony Stiegler
Comment: Attached please find our comments following the Oct. 15, 2020 CAC/TAC meeting and the subsequent ANAC meeting and posting by the consultants.

Please confirm receipt of this email, the two attachments, and that you will distribute these to the appropriate members of the SDCRAA team and your consultants.

Many thanks and please let us know whether further dialog with Jim Allerdice and J.P. Clarke of ABCx2 would be desired and useful.

Part 150 Study Comments to San Diego County Regional Airport Authority and Consultants' Citizen Advisory Committee and Technical Advisory Committee Presentation of October 15, 2020

Anthony M. Stiegler, CAC Member, and Chris McCann, TAC Member
Len Gross, Ph.D. CAC Member, Alan Harris, CAC Member
Nov. 2, 2020

These comments are made by Citizen Advisory Committee ("CAC") member Anthony M. Stiegler of La Jolla, Technical Advisory Committee ("TAC") and CAC member, Chris McCann of La Jolla Shores, Len Gross, Ph.D. CAC Member of Bird Rock, and Alan Harris, CAC member of Pacific Beach and supported by Dr. Matthew Price of the Airport Noise Advisory Committee ("ANAC") and Quiet Skies La Jolla and Quiet Skies San Diego, in response to the San Diego Regional Airport Authority's Consultants' CAC/TAC presentation of October 15, 2020.

I. <u>The Wrong Standard Was Applied to Determine Whether any of the Alternatives Could and Should be Recommended to the SDCRAA and Advanced to the FAA; All the Alternatives are Qualified to Advance</u>

When the consultants were asked during the CAC/TAC meeting whether "any change in the 65 dBA contour disqualified a proposal, the consultants said "yes" and that "in all case alternatives the contour shifted, which does not meet the intent of Part 150". We respectfully disagree and request that the consultants cite the specific policies and/or rules on which they rely to support that conclusion.

We believe that the consultant's preliminary conclusion and basis for it presented at the Oct. 15, 2020 CAC/TAC meeting is clearly erroneous and misstates law and policy related to Part 150 studies, and yet it is also the basis on which the consultants are indicating an intent to decline to recommend advancing community supported proposals to mitigate commercial noise in San Diego. The FAA should be given the opportunity to consider the community's requests and proposal because there is no statutory or policy basis to foreclose consideration by terminating the proposal before the Part 150 recommendations are advanced to the FAA. The SDCRAA has discretion to move the proposal forward for the FAA's consideration, and we urge it to do so.

The consultants erroneously applied the incorrect test to evaluate whether any of the alternatives could be recommended for further consideration. The correct standard for assessing noise shifting in a Part 150 Study is the <u>net change</u> (increase or decrease) of people in the 65 dB contour, and not whether there are <u>any</u> new people or households in the 65 dB contour. The disqualification of noise mitigation solutions because there were any new people brought within the 65 dB contour is an error and frustrates the essential purpose of the Part 150 Study to the communities' disadvantage and prejudice. When the correct test is applied *all* of the alternatives are qualified and worthy of becoming recommendations to the SDCRAA and the FAA. The best of those alternatives should be advanced and recommended in the consultants' upcoming report.

The consultants stated at the October 15, 2020 CAC/TAC meeting that "*in all alternatives there was some noise shift where new people or households were brought within non-compatible land uses*". The consultants further stated that "*all the operational alternatives were disqualified and rejected from advancement as recommendations to the SDCRAA due to this noise shifting of new people "In" compared to "Out"*. They reiterated that point by saying that they would not recommend any operational alternatives that "*create any newly impacted people*" and that "*if there were any new set of homes or population impacted, the alternative would not move forward*". The consultants' conclusion was that "*In all cases [of the operational alternatives] there is a shift of noise, and accordingly none will move forward*". The consultants, however, applied a standard that is incorrect as a matter of law.

After conducting comprehensive research, we confirm that there is no FAA or other federal law or policy that categorically prohibits or disqualifies a FAR Part 150 proposed noise mitigation solution because some new people are added to the 65 DNL noise, or greater. *ABCx2 Report, October 25, 2020 at pp. 1 and 3, attached hereto as Exhibit A.* Rather, the FAA is to consider the **net impact**, meaning whether there is an increase in the **total** number of people within the 65 dB contour. "Proposed changes in flight procedures should be deemed acceptable if they result in a decrease in the total number of people within the DNL 65 dBA and DNL 75 dBA contours, and there is no increase of 1.5dBA for any individual, no disproportionate impact on low-income populations, minority populations or Indian tribes." *ABCx2 Report, October 25, 2020 at pp. 1 and 3, attached hereto as Exhibit A.* It stands to reason that changes in flight procedures would be even more acceptable if they provide a net decrease in the total number of people within the DNL 65 dBA and DNL 75 DBA contours. The "ins" and "outs" are relevant only to assessing the net result, rather than disqualifying a noise mitigation strategy if there any new "ins".

In the San Diego County Regional Airport Authority Part 150 Study, the Consultants' Alternatives 1B (Departures Over Mission Bay Channel) and 1D (Departures Over Mission Bay Channel with Concentration with Nighttime Only Operations) should be advanced as recommendations to the SDCRAA and advanced to the FAA because the modeling results in a **net decrease** of 289 persons in the 65 dBA contour and at least 1 less person in the 75 dB contour, according to the 2026 base case assumptions and modeling used by the consultants. We note that the Mission Beach representative on the TAC noted that "1D is excellent for Mission Beach and would help Ocean Beach as well". She asked whether there would be any significant dB change for Ocean Beach and the consultant's response was "there would be no increase of 1.5 dB or more" and as confirmed above, there would be a net decrease in the number of persons in the 65 dB contour. Indeed, the consultants confirmed that Alternative 1D was the best option for moving night time departures off the PADRZ SID back to 290 degrees and that it was a viable option, "but for new people being brought into the 65 dB contour".

Similarly, Alternative 2C, Equivalent Lateral Spacing Operations (ELSO) for Departures with Concentration, can be recommended to the SDCRAA and advanced to the FAA because there is a net decrease of at 155 persons in the 65 dBA contour and at least 1 person in the 75 dBA contour, according to the 2026 base case assumptions and modeling used by the consultants.

Likewise, Alternative 2D, Equivalent Lateral Spacing Operations (ELSO) for departures with Concentration, can be recommended to the SDCRAA and advanced to the FAA because there is a net decrease of at least 234 persons in the 65 dBA contour and at least 1 person in the 75 dBA contour, according to the 2026 base case assumptions and modeling used by the consultants.

Similarly, Dispersion Alternative 3—Use of Three SIDs, should be recommended to the SDCRAA and advanced to the FAA because there is a net decrease of at least 555 persons in the 65 dBA contour and at least 1 person in the 75 dBA contour, according to the 2026 base case assumptions and modeling used by the consultants.

Likewise, Nighttime Alternative 4—Nighttime (10:00 p.m. to 6:30 a.m.) Eastbound departures on ZZOOO RNAV SID, should be recommended to the SDCRAA and advanced to the FAA because there is a net decrease of at least 74 persons in the 65 dBA contour and at least 1 person in the 75 dBA contour, according to the 2026 base case assumptions and modeling used by the consultants.

The consultants' assertion that each of the above alternatives is disqualified because *"A shift in the contour will result in some housing units that will be newly included in the 65 CNEL while others will fall out"* is a substantial, but curable, error. The misinterpretation results in an incorrect application of the FAA's rules and policies to the tremendous prejudice of San Diego at large, and the residents within the 65 dB contour or higher.

II. The Communities' Request for Supplemental Modeling of the SAN-PBN ABCX2 ELSO Proposal

During the Airport Noise Advisory Committee ("ANAC") meeting on October 21, 2020, the Consultants confirmed that they are conducting supplemental modeling of at least the PBN-SAN ELSO "3 SIDS" proposal based on CAC/TAC member comments made during the October 15, 2020 CAC/TAC meeting. The comments from the CAC and TAC members uniformly asked the consultants to "try a little harder", "sharpen their pencils" and adjust their assumptions to identify viable alternatives from among those presented that would not result in any new persons being included in the modeled 65 dBA contour compared to the 2026 base case assumptions.

Representatives from at least Point Loma, Ocean Beach, Mission Beach and La Jolla all agreed and asked the consultants to reconsider and modify their assumptions, such as placing different percentages of departure traffic on the three SIDS to eliminate any change in the 65 dB contour. A Point Loma member asked for modeling in which departures are distributed 25% on the 275-degree SID, 25% on the 285-degree SID and 50% on the most northern 295-degree SID. Modeling at a less extreme value than 50% should accomplish the desired impact: yielding a 65 dB contour for the 2026 projected population that is identical to the 2018 base case under the

3 SIDs Alternative. The Consultants have the discretion to adjust parameters in their model to show how the Alternative can work, even under their incorrect conclusion that there can be no new people brought into the 65 dB contour.

We acknowledge and appreciate the "TAC & CAC Advisory Meeting Follow Up—October 2020" notice (published on October 28, 2020), indicating that *"Based on the feedback received from CAC/TAC members, both at the meeting and via emails, additional modeling will be conducted for the alternative that looks at three dispersed flight headings. The refined percentage spread by track that will be modeled will be 26.2% (ZZOOO), 26.2% (New Route) and 47.8% (PADRZ)"*. We note that the percentages do not total 100% and should be adjusted to avoid confusion or error.

Of greater importance is to ensure that the full scope of the "three dispersed flight headings" proposal (SAN PBN ABCX2 ELSO) be considered and implemented, including the extension of the JETTI waypoint further offshore to mitigate noise for Point Loma and Ocean Beach, a WNFLD-NEW waypoint further offshore and the LANDN-NEW waypoint further offshore to mitigate noise for the coastal communities north of the airport, including Mission Beach, Pacific Beach and La Jolla. There is nothing to preclude implementation of noise mitigation measures outside the 65 dB contour as long as they also comply with Part 150 requirements. The proposal was summarized in our comments dated July 21, 2020 and should be incorporated into recommendations made to the SDCRAA and advanced to the FAA. The communities request that the Consultants and SDCRAA establish the SAN-PBN-ELSO waypoints in collaboration with the TAC/CAC prior to submission to the FAA to maximize the opportunity for everyone to be on the same page. A summary from our July 21, 2020 comments follows:

> *The SAN PBN ABCX2 ELSO Report SIDs are designed to the following specifications:*
>
> *1. ZZOOO remains unchanged with a VA/DF initial leg construction resulting in a runway heading (275-degrees) departure to 520 feet MSL then direct to the JETTI waypoint. Per prior proposals in this Part 150 Study, the JETTI waypoint could be extended further offshore to mitigate noise for the Point Loma community, which is a modification that we support.*
> *2. New CWARD/PADRZ SIDs are designed with a VI/CF initial leg construction. Initial heading is 275 degrees to 1.02NM from DER then intercept course 285-degrees to the WNFLD-NEW waypoint.*
>
> *3. New ECHHO/MMOTO SIDs are designed with a VI/CF initial leg construction. Initial heading is 275 degrees to 1.02NM from DER then intercept course 295-degrees to the LANDN-NEW waypoint.*

III. The Consultants' Conclusions Are Mistaken Due to Modeling Assumptions and Statistical Margins of Error

Significant questions exist about the assumptions and ranges of statistical error used in the Consultants' modeling, which cast doubt on all of the operational alternative conclusions regarding whether any new people would be brought into the 65 dB contour whatsoever.

Statistical uncertainty exists caused by approximations and assumptions regarding at least:

- Population changes between the 2018 base case and the 2026 base case projection.
- The number of flight operations in 2026. Clearly, the uncertainty in projections is much greater given the impact of COVID-19 but notwithstanding that, even in normal times the projections have significant potential errors.
- The mix of aircraft flown in 2026, particularly in context of the fleet changes occurring now in context of the COVID-19 pandemic.
- Economic changes especially those affecting air travel.

If the operations count is off by a mere 1% there is likely a dramatic change in the number of people projected to be in or out of the 65 dB contour. A sensitivity table could be produced that illustrates the range of speculation and uncertainty underlying the 2026 base case assumptions, and therefore, the impact of each of the alternatives on the 65 dB contour.

Due to estimates for its input parameters and approximations within the AEDT tool itself, every contour generated has a spatial uncertainty in shape and orientation, and a CNEL level of uncertainty.

There are also apparent errors in the consultants' input data which result in impossible results. For example, under Alternative 4 in the Consultant's October 15, 2020 CAC/TAC report there are 146 fewer Housing Units but only 74 fewer People in the 65 dB contour. How can there not be at least one person per household? And if a household is empty, why should it matter?

There are additional irregularities. For example, under the Night Time Alternative 4, it is projected that there would be about 15,000 housing units in the 65 dB contour in 2026 and 30,976 people. The decrease in the number of people in the 65 dB contour is projected to be 74 people, which is less than ½ of one percent of the change in growth. Relative to the uncertainty and questions about the statistical assumptions underlying the number of people who will live in the 65 dB in 2026, or the number of flight operations per year in 2026, this is insignificant and is likely erroneous.

IV. Night Time Noise Abatement

We reiterate that there is uncertainty and a potential challenge to what has been referred to as the Nighttime Noise Abatement Procedure. There is apparently no binding documentation or agreement between the FAA, the SDCRAA or any other stakeholder regarding this procedure, which would have required a CEQA or NEPA review and approval. We urge that both day and nighttime procedures, like the ELSO 3 SIDs alternative, be implemented to address this issue. Specifically we urge the consideration of the SAN-PBN ELSO proposal for both day and nighttime departures and alternatively, we respectfully request that flights departing to the east or south during night time hours be routed on the ZZOOO SID (with an adjusted JETTI waypoint further offshore) and that north or westbound flights be routed on the adjusted SID consistent with daytime operations, but routing planes further offshore to direct to fix waypoints situated 2.0, 2.5 or 3.0 nautical miles offshore as measured from the centerline of the Mission Bay Jetty.

Respectfully submitted,

____/AMS/___________ Anthony M. Stiegler, Esq. CAC Member	________/CM/_____________ Chris McCann, Ret. U.S. Air Force TAC Member
_____/LG/_____________ Len Gross. Ph.D. CAC Member	_______/AH/___________________ Alan Harris CAC Member

Date Received: November 19, 2020
From: Casey Schnoor (CAC Consortium Letter)
Comment: As you are aware, we are members of the San Diego Airport Part 150 Citizen Advisory Committee ("CAC") that live in Ocean Beach, Loma Portal and Point Loma. The undersigned bring a wealth of knowledge and experience to the discussions and include those of us who reside within the 65 CNEL contour on the southwest side of the airport; the specific "constituents" of the Part 150 Study. As you are also aware, over the course of the Part 150 study (including the latest October 15, 2020 meeting), we have shared significant unified concerns about the lack of viable noise mitigation alternatives being evaluated as well as the process and the general direction of the Part 150 Study.

PART 150 PROCESS
As previously stated, the purpose of the Part 150 study is to:
(a) Reduce the number of individuals and noncompatible land uses within the 65 dB CNEL
(b) Develop a balanced and cost-effective program to reduce noise impacts within the 65 dB CNEL contours, while recognizing that
benefits for sensitive areas exposed to noise levels lower than 65 CNEL are not relevant for the purposes of 14 CFR Part 150.

We have consistently objected to the Alternative routes offered by the Airport Authority ("AA") and its consultants because they didn't meet the basic requirements of the Part 150 study to reduce noise impacts within the 65 dB CNEL contours. Most if not all AA proposals pushed the flight paths to the south and west which in turn drove the noise contours into non-compatible areas of Ocean Beach. Instead, the modeling should have been directed to ideas that actually reduce noise within the CNEL 65 and within the immediately adjacent communities.

Unfortunately, over the two + years, we consistently felt that our input was cut short, shut down and usually dismissed in meetings when we questioned the validity of the data and the proposals.

Further, the ongoing rush with AA's forced schedule and with each and every meeting prefaced with the need to "get through a lot of information", the process has precluded in depth discussion and idea generation forcing the time consuming and inefficient burden of letter writing onto the committee members, which again denied discussion of merits or issues

In May 2020, after seeing the latest set of data and the AA's rejection of the only alternative supported by the OB/PL contingency, and the alternative NADP's, a thoroughly frustrated OB/PL contingent once again continued to evaluate the options presented and develop new alternatives for consideration. However, we were later surprised to see that our neighbors to the north provided an unsolicited proposal to the AA consultants and the local news outlets, without consultation with us, and clearly not consistent with the Part 150 requirements nor the interests of Ocean Beach. While we did not support their specific proposal, we did see merits in adding a third route between ZZOOO and PADRZ to provide some of level of "dispersion" without compromising throughput and capacity. After submitting our proposal, we were under the impression that once it was reviewed by the consultants that there would be a level of coordination to clarify and nail down the traffic allocations across the three routes.

Unfortunately, none of this happened. Upon our receipt of the Oct 2020 the CAC\TAC presentation packet, the OB/PL contingent were shocked to see our proposal had been rejected and the AA consultants had embraced the La Jolla proposal with their modeling instead (Alternative #3), again showing the flight tracks unevenly and inexplicably distributed to the south to overburden OB and benefit communities to the north.

As the consultants have recently acknowledged most of the alternatives have not focused on reducing the size of the 65 CNEL and greater contours. Instead, the focus has been on addressing noise concerns outside the 65 CNEL. contour. As such, we continue to believe that inputs from OB and PL CAC/TAC members that could help complete a meaningful Part 150 study have thus far not been given their proper due diligence.

Therefore, for the consultants to also state that "prioritization of the requested modeling runs was based on potential to decrease non-compatible land uses in the 65 CNEL and greater contour (without shifting noise)" does not ring true.

But even more impactful, every alternative that has been presented throughout the process has shown movement of the noise outside of the current base contour without any clarifying comment from the consultants regarding its disqualifying elements. As of the October 2020 meeting, the consultants have only now stated that in their opinion, even the slightest shift in CNEL contour will disqualify any alternative routing proposal from their consideration. This became clearly acknowledged when the consultants finally made the statement that all the alternatives would more than likely be rejected by the FAA for not meeting the 150 criteria to not move noise into new non compatible areas.

Consequently, it has now, at this late date, become fully apparent that NONE of the proposed routing alternatives offered over the past two years, as modeled for the Part 150 Study by the AA consultants satisfy the Part 150 requirements. This sadly demonstrates the squandering of time and money over the Part 150 process.

PART 150 PROPOSED ROUTE ALTERNATIVES

Alternatives 1B, 1D, 2C, 2D, and 4 do not favorably impact the any of the 65 dB or greater Part 150 contours that establish the CNEL study area. Therefore, we must restate that those of us living within and just south or west of the 65 CNEL study area do not accept nor support these alternatives as presented and encourage further refinement that would disburse the noise within the baseline 65 dB CNEL contour.

FLAWED DATA

On several occasions it has been brought to the attention of the AA and their consultants that the Baseline data reliant upon Census data is materially flawed. This has been clearly and consistently demonstrated by the consultant's own tables, as presented.

Therefore, it is easy to conclude that drawing any material conclusions that severely impact thousands of residents from any re-crafted contours supported by these flawed population and housing unit variances – whether a "newly impacted" or the "net change" approach is applied - is not reliable at best. The reliance upon this inconsistent data is a tremendous prejudice against the residents within the Part 150 study area and to those living within Loma Portal and Ocean Beach, adjacent to and the 65 dB contour. To base material changes to flight paths that will severely impact thousands of residents solely upon this flawed data is unacceptable.

Regardless of the AA consultant representation that the Census Data is "industry standard", it is incumbent upon the Part 150 process to pursue alternatives to "reduce noise impacts inside the 65 CNEL contours" based upon realistic and reliable data. Therefore, we again ask the AA to consider alternative metrics to substantiate or enlighten the flawed Census Base data. This will ultimately ensure the best possible outcome for the constituents of the Part 150 study area.

UPDATED SPECIFIC REQUESTS

Fortunately, as a result of our consistent push back, the AA consultants have agreed to pursue two promising avenues: a detailed analysis of the NADP and a modified version to Alternative #3.

We additionally reiterate our requests that were submitted on August 4, 2020 for additional modeling and analysis of alternatives:

1. Examine and analyze new departure procedures that will disperse the noise within the 65 CNEL laterally

2. Complete a meaningful analysis of NADP options, well beyond the single example dismissed in the prior Part 150 study, that would add both lateral and vertical dispersion to the current ZZOOO and PADRZ departures

3. Explore alternatives that result in more Stage 4 and Stage 5 aircraft at SAN using either regulation or carrier incentives

4. Ensure "compliance" with the decades long 290-degree Nighttime Noise abatement Procedure, as was the intent of ANAC recommendation 17, versus eliminating it, and

5. Analyze ways to ensure maximum compliance with nighttime landing to the west unless safety dictates otherwise

As of the October 15, 2020 meeting, we believe these recommendations, while addressed superficially, have not been modeled nor considered thoroughly and in a way that could highlight their true benefit to those inside the 65 CNEL or those threatened to be further impacted by the Proposals.

FLIGHT PROCEDURE ANALYSIS \ PART 150 OVERLAP

To date the relationship of the Flight Procedure Analysis ("FPA") recommendations "tabled" for the Part 150 process have not been addressed. For the upcoming meeting, please provide detailed information of the linkage between the two studies and the go forward plan for their respective recommendations to FAA.

ALTERNATIVE #3

Alt. 3, as proposed, is not consistent with our recommendations and as noted in our August 4, 2020 letter. Given the chosen allocation of traffic counts, the alternative was doomed for failure from "the get go". The "Alternative 3" analysis completed to date only increased the burden on those within the 65 CNEL and adjacent to the south.

a) As currently proposed, the three SID allocation by destination does not allocate traffic fairly between ZZOOO (left turn) and PADRZ (right turn) and relocates LANDN south. Re-distribution of 25% of traffic currently using PADRZ south to the middle route effectively moves 50% of the current PADRZ traffic 10 degrees south, thus concentrating noise in OB.

b) The "NEW LANDN" fix appears to be south of the current "LNDN" fix effectively shifting PADRZ traffic south, concentrating noise in OB. Please clarify.

c) On initial departure, nearly all aircraft reach 520 feet MSL before the end of the runway, so changing the departure from a VA/DF to a VI/CF initial procedure with a turn at 1.02NM DER drives aircraft on the proposed CWARD/PADRZ or ECHO/MMOTO departure a full mile further into Point Loma on the initial 275 degree heading before any dispersion can begin resulting in a large shift of approximately 0.4 miles south for noise. Although it is readily evident from the CNEL modeling contours, it would be hugely apparent if modeled using the Lmax approach. An alternative to the "intercept point at 1 NM" is required to mitigate the initial concentration of noise along the initial departure route.

d) The analysis should also recognize the potential of the extension of JETTI to the west

e) The analysis should also recognize the potential of the NADP alternatives

To restate, one of our ongoing recommendations\requests is to model vertical and lateral dispersion along the runway departure headings that: (i) exclude the fixed initial 1.0+ miles from the end of the runway and (ii) creates three disbursed departure routes (275, 285, 295) forcing greater dispersion withing the 65 CNEL when compared to current traffic. If this is not possible, as stated in the "Draft Alternatives Development Screening Memo" Alternative D5 dismissal, we do not support three departure SIDs. Without strict allocation across the three departure paths, and if a VI/CF initial procedure turning at 1.02NM DER is required, this alternative only exacerbates the noise concerns of those inside the 65 CNEL.

We suggest that the AA consultants rerun the D3 analysis with the following allocations:
(1) Spit the Eastbound traffic equally between ZZOOO (26.2%) and WNFLD (26.2%) and then send the remaining traffic (47.8%) to the proposed New LNDN route
(2) Create a new analysis again splitting the Eastbound traffic equally between ZZOOO (26.2%) and WNFLD (26.2%) and then send the remaining traffic to the existing PADRZ route (47.8%) and utilize the existing right-hand turn of 520ft. This is an attempt to give the communities just off the runway some relief that a 1 NM intercept would impose and should be incorporated with NADP alternatives

NADP
At this point, the one high point of the entire Part 150 is the NADP potential. Subject to our outstanding requests, it now appears that the only viable alternative approved for further review is the NADP. This option was presented in May 2020 as "dead on arrival" by the consultants, who defended this position by relying upon misleading pretenses related to the previous Part 150 study and its highly limited NADP review. Therefore, as supported in our August 4, 2020 letter, we appreciate the renewed analysis of NADP options and we request continued modeling and refinement of the of the NADP options as we believe they enable further noise dispersion in the vertical axis. In line with ANAC Recommendation #21 and the goals of this Part 150 study, we strongly request the AA to explore in great detail multiple NADP alternatives. This review should include but not be limited to:
a) A thorough review of alternative NADP's implemented at other US and Intl. airports,
b) Departure Thrust Cutback (as referenced at Part 150 meeting 11/2019),
c) Designated Noise Abatement Takeoff/Approach Paths (as referenced at Part 150 meeting 11/2019),
d) NextGen: Performance Based Navigation (PBN) Required Navigation Performance (RNP) (as referenced at Part 150 meeting 11/2019),
e) Power and Flap Settings/CDA procedure (as referenced at Part 150 meeting 11/2019),
f) Alternatives for Speed restrictions on initial climb out, and
g) Dispersion of flight paths using "heading only" versus the current "direct to waypoint" departures.
h) Dispersion of flight paths using 3 SIDs with headings (275, 285, 295) after an initial VA/DF climb to 520 feet leg (omits 1.2 mile concentration along 275 degrees as has been proposed by ABCX2), but subject to strict allocation provisions between the three SID options (Alt 3)

STAGE 5 AIRCRAFT

We again request additional information, study, modeling, and alternatives to implement a move to 100% Stage 4 and Stage 5 certified aircraft at SAN. Given the Congressional requirement in Section 175 of the FAA Reauthorization Act of 2018 for the FAA to address the phaseout timing for Stage 3 aircraft, we believe increased compliance could be highly beneficial to those under the 65 CNEL. This would include defined options and alternatives using either regulation or incentives.

NIGHTTIME PROCEDURE

With respect to the longstanding Nighttime Noise Abatement Agreement, the intent of ANAC Recommendation 17 was to specifically ensure "compliance" with the current Nighttime Noise abatement Procedure that calls for a 290 departure heading for both left and right turns. All alternatives presented to date specifically call for material variations of the Agreement. This is in direct conflict with the specific statement and intent of ANAC recommendation #17 and the Nighttime Noise Abatement Procedure meant to "increase current compliance", not eliminate it. We do not support ANY variations to the current decades long standing agreement. Rather, we would like to develop procedures to ensure that the Nighttime Noise Abatement Agreement is followed.

NIGHTTIME LANDINGS

We strongly request the AA explore in great detail ways to ensure maximum compliance with nighttime landings to the west unless safety dictates otherwise. This analysis should include multiple GBAS alternatives to honor ANAC recommendation #16 and Part 150 goals. This review should include but not be limited to:

a) A thorough review of alternative GBAS's implemented at other US and Intl. airports,

b) Designated Noise Abatement Approach Paths (vertically\glide path and horizontally 260-280) that provide dispersion from the set 270 approach

c) NextGen: Performance Based Navigation (PBN) Required Navigation Performance (RNP)

QHP

Given at this point, QHP is the sole mitigating factor offered by AA. Therefore, we specifically request the AA to promptly provide our committee a thorough financing plan (specific revenue and cost forecasts) as to how they intend to fund the $365 million dollars in additional increased QHP refurbishment costs for the 9,134 housing units added to the 65 dB CNEL contour over the next five years.

SUMMARY

As indicated above, we view that to date, regardless of the community efforts, the Part 150 process has yielded no benefit to the constituents that reside inside the 65 CNEL. Our mutual commitment to reduce individual and noncompatible land uses within the 65 dB CNEL has not been fulfilled.

However, we strongly believe there is potential in the recommendations we have stated previously and reiterated above. Further, we believe our recommendations are consistent with the Part 150 mission as well as the ANAC Recommendations. Thus, we request that these further proposals be pursued, modeled, and thoroughly discussed openly within the CAC and TAC, PRIOR to settling on any AA recommendations as you have proposed for the December 2020 meeting.

Thank you.

Respectfully submitted,

Michael Tarlton, CAC\TAC Member
Marc Adelman, CAC Member
Robin Taylor, CAC Member
Casey Schnoor, CAC Member
Robert Herrin, CAC Member
David Kujawa, CAC Member
Nancy Palmtag, CAC Member

CC: Kim Becker SDCRAA CEO
U.S Senator Diane Feinstein
U.S. Congressman Scott Peters
San Diego City Mayor Kevin Faulconer
San Diego Mayor Elect Todd Gloria
San Diego District 2 City Councilmember Dr. Jennifer Campbell
San Diego District 1 City Councilmember Barbra Bry

Date Received: December 13, 2020

From: Anthony Stiegler

Comment: 12/13/20 - Please substitute this final version of our Reply for the one sent on Friday afternoon. This version corrects a typographical error and clarifies several sentences. Please do confirm receipt of this email and the attachment.

12/11/20 - Attached please find La Jolla's, Mission Beach's and Pacific Beach's reply comments to the letter submitted on Nov. 19, 2020 by Ocean Beach, Loma Portal and Point Loma. We were only recently provided with a courtesy copy.

Please confirm receipt of this email and that you will distribute the attached letter to the appropriate members of the SDCRAA team and your consultants. We ask that the consultants include and embrace these points and requests in the materials to be circulated on Dec. 23rd and that you will lead a discussion about the status of the Part 150 Study at next week's ANAC meeting.

Reply of Mission Beach, Pacific Beach and La Jolla to Point Loma, Ocean Beach and Loma Portal Citizen Advisory Committee Member Letter of Nov. 19, 2020

Submitted to: Mr. Dennis Probst, Ms. Sjohnna Knack, Ms. Heidi Gantwerk, San Diego County Airport Authority

Submitted by: Anthony M. Stiegler, CAC Member, and Chris McCann, TAC Member Len Gross, Ph.D. CAC Member, and Alan Harris, CAC Member

December 11, 2020

These reply comments are made by Citizen Advisory Committee ("CAC") member Anthony M. Stiegler of La Jolla, Chris McCann, Technical Advisory Committee ("TAC") and CAC member from La Jolla Shores, Len Gross, CAC Member of Bird Rock, and Alan Harris, CAC member of Pacific Beach, in response to the Nov. 19, 2020 letter submitted by CAC members of Ocean Beach, Loma Portal and Point Loma. These reply comments are further supported by Deborah Watkins of the Airport Noise Advisory Committee ("ANAC") and TAC member from Mission Beach, and Dr. Matthew Price of ANAC and Quiet Skies La Jolla and Quiet Skies San Diego.

I. The Equivalent Lateral Spacing Operations ("ELSO")/ "Three SIDS" Proposal Should be Advanced to the FAA Because it Will Result in a Net DECREASE in the Number of People Experiencing Incompatible Noise in the 65 dB Contour and Mitigates Noise for the Entire Community

a. The ELSO Noise Mitigation Proposal is "Win/Win/Win/Win"

The ELSO/Dispersion Alternative 3 proposal, also described as" Three SIDs", should be recommended to the SDCRAA and advanced to the FAA because it is the best commercial jet noise mitigation solution in the entire Part 150 Study, and there is a net decrease of at least 555 persons in the 65 dBA contour and at least 1 person in the 75 dBA contour, according to the 2026 base case assumptions and modeling used by the consultants.

The assertions in the letter from Point Loma/Ocean Beach that "nothing is being done for the 65 group" and that "noise would be driven into the heart of Ocean Beach" are incorrect. Those living inside the 65 dB contour will benefit from the Quiet Home Program, the Noise Abatement Departure Procedures ("NADP") study and a significant reduction in the number of people living within that contour if the ELSO/Three SIDS solution is implemented.

The ELSO departure system will reduce harmful jet noise for all residents living near the coast, including Point Loma, Ocean Beach, Mission Beach, Pacific Beach and La Jolla. The proposal makes use of the FAA's preferred state of the art "Performance Based Navigation" technology, embraces the central noise "dispersion" principle, saves jet fuel, reduces carbon emissions and is a win/win/win/win for the airlines, the SDCRAA, the FAA and all communities around the airport.

b. Laterally Dispersing Aircraft Immediately Off the End of the Runway, Versus One NM Off the End of the Runway, May Not be Practically Acceptable to the FAA and Would Likely Not Further Reduce Noise for Those Living Directly Adjacent to the Airport in the 65 dB Contour.

While we support the principles of noise dispersion and moving noise further offshore, it is questionable at best whether Ocean Beach's proposed modification of the ESLO proposal would improve conditions for those under the flight path immediately off of Runway 27. The acoustic difference between a "VA/DF" departure versus a "VI/CF" departure is likely not perceptible to the human ear and, let alone close to the 1.5 dB threshold test for any individual in the 65 dB contour.[1] That means that the residents of Ocean Beach are unlikely to perceive a difference between the same plane flying on a 275-degree, 285-degree or 295-degree heading within one nautical mile off the end of Runway 27.

However, in the spirit of compromise in response to the Point Loma/Ocean Beach requests in their Nov. 19, 2020 letter, we are open to the modeling the ELSO plan immediately off the end or the runway, as opposed to 1.02 NM from "Direct End of Runway" ("DER") for the proposed new 285-degree CWARD/PADRZ SID with the WNFLD NEW waypoint and the proposed new 295-degree ECHO/MMOTO SID with the LANDN-NEW waypoint, <u>if that is feasible under FAA rules and procedures</u>. Point Loma/Ocean Beach's request should not, and cannot, however be a conditional requirement for implementation, given the FAA's responsibility and authority over safety and operational efficiency. If the FAA can accept the Ocean Beach proposed modification, we are fine with it too, but if it is not acceptable to the FAA then the 1.02 NM from DER leg should be used.

II. <u>The Three New Proposed Waypoints Offshore are Key to a Successful Noise Mitigation Solution</u>

The SDCRAA and FAA should embrace San Diego International Airport's geographic advantage situated next to the Pacific Ocean as a first design principle, by routing departures further off

[1] We confirm that there is no FAA or other federal law or policy that prohibits or disqualifies a FAR Part 150 proposed noise mitigation solution because some new people are added to the 65 DNL noise, or greater. *ABCx2 Report, October 25, 2020 at pp. 1 and 3.* Rather, the FAA is to consider the net impact, meaning whether there is an increase in the total number of people within the 65 dB contour. "**Proposed changes in flight procedures should be deemed acceptable if they result in a decrease in the total number of people within the DNL 65 dBA and DNL 75 dBA contours, and there is no increase of 1.5dBA for any individual, no disproportionate impact on low-income populations, minority populations or Indian tribes.**" *ABCx2 Report, October 25, 2020 at pp. 1 and 3.*

shore before turning right or left. Routing departures further off the coast by another mile or two will yield significant noise mitigation for all coastal communities. Our beaches and coastal communities are a significant draw for San Diego tourism and they should be protected against disruptive and unhealthy commercial jet noise.

The ELSO/Three SIDS proposal should include the extension of the JETTI waypoint further offshore to mitigate noise for the communities south and west of the airport, including Point Loma and Ocean Beach. Extending the JETTI waypoint will mitigate and likely moot the Point Loma concern about night time departures that interfere with residents' sleep. The essential point is to fly departure routes slightly further offshore so as not to interfere with the residents' quiet enjoyment of their homes, businesses, schools, parks, and places of worship. Likewise, the ELSO proposal should include the WNFLD-NEW and LANDN-NEW waypoints further offshore to mitigate noise for the coastal communities north of the airport, including Mission Beach, Pacific Beach and La Jolla.

Nothing precludes implementation of noise mitigation measures outside the 65 dB contour as long as they also comply with Part 150 requirements. We request that the Consultants and SDCRAA identify the waypoints in collaboration with the TAC/CAC prior to final submission to the FAA to maximize consensus. A summary from our July 21, 2020 comments follows:

> *The SAN PBN ABCX2 ELSO Report SIDs are designed to the following specifications:*
>
> *1. ZZOOO remains unchanged with a VA/DF initial leg construction resulting in a runway heading (275-degrees) departure to 520 feet MSL then direct to the JETTI waypoint. Per prior proposals in this Part 150 Study, the JETTI waypoint could be extended further offshore to mitigate noise for the Point Loma community, which is a modification that we support.*
>
> *2. New CWARD/PADRZ SIDs are designed with a VI/CF initial leg construction. Initial heading is 275 degrees to 1.02NM from DER then intercept course 285-degrees to the WNFLD-NEW waypoint.*
>
> *3. New ECHHO/MMOTO SIDs are designed with a VI/CF initial leg construction. Initial heading is 275 degrees to 1.02NM from DER then intercept course 295-degrees to the LANDN-NEW waypoint.*

III. The Consultants' Alternatives IB (Departures Over Mission Bay Channel) and 1D (Departures Over Mission Beach Channel with Concentration with Nighttime Only Operations) Should Also be Advanced to the FAA Because the Modeling Results in a Net Decrease in the Number of People Experiencing Incompatible Noise in the 65 dB Contour

Proposed route alternatives have been reviewed under the San Diego County Regional Airport Authority's Part 150 Study and the 2026 base case assumptions and modeling used by the consultants for Alternatives 1B (Departures Over Mission Bay Channel) and 1D (Departures Over Mission Bay Channel with Concentration with Nighttime Only Operations) demonstrate a **net decrease of 289 persons** in the 65 dBA contour and at least 1 less person in the 75 dB contour, and should be advanced as recommendations to the SDCRAA and advanced to the FAA.

The Mission Beach representative on the TAC noted that "Alternative 1D is excellent for Mission Beach and would help Ocean Beach as well". She asked whether there would be any significant dB change for Ocean Beach and the consultant's response was "there would be no increase of 1.5 dB or more" and as confirmed above, there would be a net decrease in the number of persons in the 65 dB contour. Indeed, the consultants confirmed that Alternative 1D was the best option for moving night time departures off the PADRZ SID back to 290 degrees and that it was a viable option, "but for new people being brought into the 65 dB contour". In light of the correct standard, that it is the net decrease in the number of people in the 65 dB contour, rather than whether there are "any new people in it", both of these proposed flight procedure Alternatives provide the FAA reasonable options to analyze the efficacy of moving forward with its own analysis.

IV. Night Time Noise Abatement

We reiterate that there is uncertainty and a potential challenge to what has been referred to as the Nighttime Noise Abatement Procedure. In reality, this is a "Nighttime Noise Exacerbation Procedure" for those living in Mission Beach, Pacific Beach and La Jolla, because ***all*** flights departing between 10:00 p.m. and 11:30 p.m. are directed to a course somewhere in the neighborhood of 285- degrees, 290-degrees or PADRZ, with leakage north towards 300-degrees. It is an unfair noise shifting burden that all nighttime departures are routed directly at the northern coast. This is particularly troubling when Eastbound flights on the ZZOOO departure track are first sent north during a substantial portion of their departures at low altitude before doubling back south to rejoin the ZZOOO SID. Why should all flights depart to the north? Why should there not be at least an equal distribution?

There is no binding documentation or agreement between the FAA, the SDCRAA or any other stakeholder regarding the so called "Night Time Noise Abatement" procedure, which would have required a CEQA or NEPA review and approval. We urge that both day and nighttime procedures, like the ELSO Three SIDs Alternative 3, be implemented to address this issue. Specifically, we urge the consideration of the ELSO/Three SIDS proposal for both day and nighttime departures. Alternatively, we request that flights departing to the east or south during night time hours be routed on the ZZOOO SID with the adjusted JETTI waypoint further offshore and that north or westbound flights be routed on the adjusted SID consistent with daytime operations, but routing planes further offshore to the WNFLD-NEW and LNDN-NEW direct to fix waypoints situated 2.0, 2.5 or 3.0 nautical miles offshore as measured from the centerline of the Mission Bay Jetty.

We respectfully disagree with the Point Loma/Ocean Beach contention about what is claimed to be the "intent of ANAC recommendation 17", to "continue enforcing" and "ensuring compliance with the Night Time Noise Abatement Procedure". The text of ANAC recommendation 17 says <u>directly otherwise</u> and requires consideration of whether a different procedure is warranted. ANAC recommendation 17 specifically says "**Determine if the current nighttime procedures are still appropriate and if different procedures would reduce impacts on residential communities**":

17	Review the Nighttime Noise Abatement Procedure to improve the noise impacts for affected communities. Specifically: • Ensure ATC is turning aircraft off this procedure only for safety reasons • Ensure that the procedure is monitored for adherence • Determine if the current nighttime procedures are still appropriate and if different procedures would reduce impacts on residential communities

It is, therefore, within the parameters of ANAC 17 to assess whether a different procedure would reduce the impact on residential communities, such as Mission Beach, Pacific Beach and La Jolla, which bear the current brunt and burden of all nighttime departures. We further note the SDCRAA consultants' analysis that moving southbound and eastbound nighttime flights to a 275-degree heading will have little, if any, effect on the 65 dB contour.

V. <u>New Noise Dot at the Latitude of the Village of La Jolla</u>

La Jolla's representative on ANAC, Dr. Matthew Price, has specifically called for a new noise dot to be located offshore and at the latitude of the Village of La Jolla to address recent overflights and "early turns". This request should be advanced and considered by the FAA. No commercial flights should be departing directly over Pacific Beach and/or La Jolla, absent a safety reason. This is especially true when departures are supposed to be on the ZZOOO SID flying south around the tip of Point Loma before connecting to their next eastbound waypoint.

VI. <u>The Time is Now to Get Commercial Jet Noise Mitigation Right in San Diego and to Engage with the FAA</u>

There is strong potential for these noise mitigation measures to become a model for FAA/community collaboration and success to address community noise concerns while preserving FAA operational flexibility, safety and throughput. We suggest that the time is right to invite the FAA to the table to have transparent dialogue about what is possible and practical. The FAA has considerable discretion and is, of course, primarily charged with the responsibilities for safety and operational efficiency, which we respect. We propose as a next step a ZOOM meeting including the FAA, the SDCRAA, the communities and their consultants to assess what is possible.

VII. <u>Conclusion</u>

We urge the SDCRAA to advance the ELSO/Three SIDS Alternative 3 with new waypoints proposal and the Alternative 1B and 1D proposals to the FAA and that all parties, including the

FAA, the SDCRAA and the impacted communities meet together to address concerns, ideas and the FAA's operational challenges and discretion. The time is right now to engage.

Respectfully submitted,

Anthony M. Stiegler, Esq. CAC Member, La Jolla	Chris McCann, Ret. U.S. Air Force TAC Member, La Jolla Shores
Len Gross. Ph.D. CAC Member, Bird Rock	Alan Harris CAC Member, Pacific Beach

Supported by: Dr. Matthew Price, M.D (ANAC Member) and Ms. Deborah Watkins (ANAC Member).

CC: Kimberly Becker, SDCRAA, CEO
U.S. Senator Diane Feinstein
U.S. Congressman Scott Peters
U.S. Congressman Mike Levin
U.S. Congressman Juan Vargas
U.S. Congress Person Elect, Sara Jacobs
San Diego City Mayor Kevin Faulconer
San Diego City Mayor Elect Todd Gloria
San Diego District 1 City Councilmember, Barbara Bry
San Diego District 2 City Councilmember, Dr. Jennifer Campbell
San Diego District 1 City Councilmember Elect, Joe LaCava
Dr. Matthew Price, M.D., Director Cardiac Catheterization Lab, Division of Cardiovascular Diseases, Scripps Clinic and Airport Noise Advisory Committee, Member
Ms. Deborah Watkins, Airport Noise Advisory Committee, Member

ABCx2, LLC Comments Concerning Shifting Noise

October 25, 2020

Overview

To our knowledge, there are no Federal regulations, guidelines, or policies that categorically prohibit changes to the flight procedures near airports if they result in a shift in the aircraft noise exposure (as measured in terms of the associated noise contours) from one location to another. In fact, the National Environmental Policy Act (NEPA) does not preclude increasing noise exposure. It simply states that noise exposure must be rigorously considered when determining the course of action.

While the decision regarding the best option to implement will incorporate a wide range of considerations, our analysis indicates that changes in flight procedures should be deemed acceptable if they result in a decrease in the total number of people within the DNL 65 dBA and DNL 75 DBA contours; no increase greater than 1.5 dBA for any individual; and no disproportionate impact on low-income populations, minority populations, or Indian tribes. These standards are consistent with both FAR Part 150 and NEPA.

Required Considerations

There are two critical issues that must be considered before changes to the flight procedures near airports may be deemed acceptable. Note that these are necessary but not sufficient considerations when exploring changes to flight procedures, i.e., they merely represent factors and thresholds for determining when a factor warrants additional scrutiny or should be a basis for rejecting an option under consideration.

Threshold of significance for noise impacts under the National Environmental Policy Act

In 1976, the Secretary of Transportation and the Administrator of the FAA issued the Aviation Noise Abatement Policy (ANAP), the first comprehensive aviation noise abatement policy in the U.S. In defining the "aircraft noise problem," this policy characterized aircraft noise exposure of DNL 65 to 75 dBA in residential areas as "significant" and DNL 75 dBA or more as "severe," and related these noise exposure levels to previously used interpretations of expected community actions based on case studies.

The ANAP also identified DNL 65 dBA as the noise exposure level above which aircraft noise "create[s] a significant annoyance for most residents," but it did not provide any additional information supporting this characterization. Since the issuance of the ANAP, the FAA has used the DNL 65 dBA threshold as the basis for its "noise goal" of reducing the number of people exposed to "significant aircraft noise" around U.S. airports.

The National Environmental Policy Act (NEPA) requires federal agencies to consider the impacts of their proposed actions on the environment. If a proposed federal action would significantly affect the environment, then NEPA requires the agency to prepare an Environmental Impact Statement (EIS) [1]. In its policies and procedures implementing NEPA [2,3], the FAA has exercised its discretion to specify DNL 65 dBA as the "significance threshold" for the noise effects of its actions. FAA further defines a "significant impact" due to noise as any location exposed to noise greater than DNL 65 dBA and experiencing a 1.5 dBA or greater increase in noise due to an action [4].

The FAA's adoption of DNL 65 dBA in the NEPA significance threshold was based on the "significance" of aviation noise exposure at or above that level, as described in "general guidelines for noise compatibility" and reflected in the Part 150 land use compatibility guidelines. Accordingly, the NEPA significance threshold applies only in noise sensitive areas (e.g., residential, schools, health care facilities) where the Part 150 guidelines are relevant to the land use.

Environmental Justice

The Council on Environmental Quality (CEQ) guidance [5] for consideration of environment justice states that a reasonable range of alternatives be identified and developed, and that all reasonable alternatives, including a "no action" alternative, must be analyzed rigorously and objectively to determine whether impacts on low-income populations, minority populations, or Indian tribes may lead to the identification of disproportionately high and adverse human health or environmental effects that are significant and that otherwise would be overlooked [6]

The guidance does not change the prevailing legal thresholds and statutory interpretations under NEPA and existing case law. For example, for an EIS to be required, there must be a sufficient impact on the physical or natural environment to be "significant" within the meaning of NEPA. That said, the identification of such an effect should heighten agency attention to alternatives (including alternative sites), mitigation strategies, monitoring needs, and preferences expressed by the affected community or population.

Analysis and Conclusions

Given the considerations described above, and consistent with federal policy and practice, we conclude that changes in flight procedures should not raise undue concern if:

1. No individual experiences an increase in noise exposure greater than 1.5 dBA;
2. There is no increase in the number of persons exposed to "significant" levels of aircraft noise exposure (as defined by FAA and NEPA), i.e., there is no increase in the number of people within the DNL 65 dBA contour;
3. There is no increase in the number of persons severely impacted by aircraft noise (as defined by both FAA and NEPA), i.e., there is no increase in the number of people within the DNL 75 dBA contour;
4. There are no impacts on low-income populations, minority populations, or Indian tribes that are disproportionately high.

Thus, changes in flight procedures should be deemed acceptable if they result in no increase in the total number of people within the DNL 65 dBA and DNL 75 DBA contours; does not increase the noise impact for any individual by more than 1.5 dBA; does not disproportionately impact on low-income populations, minority populations, or Indian tribes. It stands to reason that changes in flight procedures would be even more acceptable if they provide a net decrease in the total number of people within the DNL 65 dBA and DNL 75 DBA contours.

References

[1] 40 C.F.R. § 1502 – Environmental Impact Statement. https://www.law.cornell.edu/cfr/text/40/part-1502
[2] FAA Policies and Procedures for Considering Environmental Impacts https://www.faa.gov/documentLibrary/media/Order/FAA_Order_1050_1F.pdf
[3] FAA Airport Noise and Compatibility Planning https://www.law.cornell.edu/cfr/text/14/part-150
[4] FAA History of Noise. https://www.faa.gov/regulations_policies/policy_guidance/noise/history/
[5] Final Guidance for Consideration of Environmental Justice in Clean Air Act 309 Reviews US Environmental Protection Agency/Office of Federal Activities (2252A) July 1999
[6] Title VI of the Civil Rights Act of 1964, U.S.C. 2000d et seq., and agency implementing regulations, prohibit recipients of federal financial assistance from taking actions that discriminate on the basis of race, color, or national origin... If an agency is aware that a recipient of federal funds may be taking action that is causing a racially discriminatory impact, the agency should consider using Title VI as a means to prevent or eliminate that discrimination.

Date Received: December 24, 2020
From: Len Gross
Comment: I don't know if this was answered for the triple ELSO proposal:

1. Assuming the 275 and the 285 are running concurrently, does the 285 have to go way out before turning south? (the convergence issue.)
2. Again, assuming concurrent operation, after the 285 turn south, will there then be significant complication in that two SIDs (275 and 285) are both going around Pt Loma?

A possibility, is that it is assumed that the 275 and the 285 are not run simultaneously, something like 275 in the AM and 285 in the PM?

Date Received: January 7, 2021
From: Gary Wonacott
Comment: *See attachment for this comment at the end of the document:*

Attachment 3 - FPA-NEM Letter - Wonacott

If you believe you submitted a comment that has not been included, please send an email to Jen.Wolchansky@meadhunt.com.

Part 150 Comments to Consultants' Citizen Advisory Committee and Technical Advisory Committee Presentation of May 28, 2020
and Proposal for Modified Equivalent Lateral Spacing Operations (ELSO) Option

Anthony M. Stiegler, CAC Member, and Chris McCann, TAC Member
Quiet Skies San Diego
Quiet Skies La Jolla
July 20, 2020

I. Introduction

These comments are made by Citizen Advisory Committee ("CAC") member Anthony M. Stiegler and Technical Advisory Committee ("TAC") member, Chris McCann of La Jolla and Quiet Skies La Jolla, supported by Dr. Matthew Price of the Airport Noise Advisory Committee ("ANAC") and Quiet Skies La Jolla.

We thank the San Diego County Airport Authority ("SDCRAA") and its consultants for their substantial work on the proposed alternatives presented in the PowerPoint ("PPT") presentation at the May 28, 2020 CAC and TAC meetings, as supplemented by their June 25, 2020 CAC meeting clarifications. We further thank the SDCRAA for providing the requested data files from the consultants that accelerated the time for these comments and the associated suggested Equivalent Lateral Spacing Operations ("ELSO") proposal.

We appreciate the consultants' and SDCRAA's acknowledgements that the PPT presentations were preliminary, that informed community feedback and ideas are sought, and that additional modeling is anticipated. We present our comments and requests for additional modeling here in the spirit of a win/win/win/ for the communities impacted by noise around the San Diego International Airport ("SAN"), the SDCRAA, the Federal Aviation Administration ("FAA") and the airlines who use our airport.

These comments fall into two categories:

- Our proposal for a modified ELSO implementation leveraging the Performance Based Navigation ("PBN") objectives that are the heart of the FAA's NextGen implementation; and alternatively;
- Our comments about the existing Alternatives 1A, 1B, 1C, 2A, 2B and 4 as presented on May 28, 2020 and clarified on June 25, 2020.

II. The SDCRAA Should Model and Advance a Slightly Modified Equivalent Lateral Spacing Operations ("ELSO") Proposal to the FAA

A. The SAN Performance Based Navigation ELSO Report by ABCX2

We privately commissioned a study and set of recommendations for the San Diego International Airport (SAN) by ABCX2, an aeronautical engineering flight path and noise consulting firm, whose members worked with the FAA and the Atlanta Hartsfield-Jackson International Airport on the Performance Based Navigation System NextGen Metroplex ELSO implementation in Atlanta (KATL) addressing optimum operational capacity and surrounding community noise mitigation.

We present here ABCX2's and our proposed ELSO solution for SAN, which is based on the SDCRAA consultants' Alternatives 2A and 2B. Our proposal would reduce noise for the impacted communities around SAN while simultaneously optimizing operational throughput and capacity, all without increasing workload or burden on Air Traffic Control ("ATC").

Four central design principles underly this proposal: (1) avoiding any negative impact on the airport's operational throughput, capacity or safety concerns; (2) dispersing noise and avoiding concentration over any single community; (3) not shifting noise from one community to another; and (4) making effective use of the Pacific Ocean offshore to minimize noise on communities beyond the 65 CNEL.

The core recommendation is to disperse departures off Runway 27 at SAN across three distinct paths, thereby reducing the noise impact on any one of the impacted communities. The proposal is to use three Standard Instrument Departure protocols ("SIDS"), each separated by 10 degrees, graphically depicted below in Fig. 9, and detailed in the attached ABCX2 report, entitled "*Noise and Operational Considerations for the San Diego International Airport Part 150 Study*" hereinafter referred to as the "SAN-PBN ABCX2 ELSO Report":

Fig. 9 from the SAN-PBN ABCX2 ELSO Report:

Fig. 9 – ABCx2 Proposed Tracks (Three tracks in red) within the current splay. Blue shaded area includes existing CWARD/PADRZ SIDs and yellow is the additional area covered by the existing ECHHO/MMOTO SIDs.

The SAN PBN ABCX2 ELSO Report SIDs are designed to the following specifications:

1. ZZOOO remains unchanged with a VA/DF initial leg construction resulting in a runway heading (275-degrees) departure to 520 feet MSL then direct to the JETTI waypoint. Per prior proposals in this Part 150 Study, the JETTI waypoint could be extended further offshore to mitigate noise for the Point Loma community, which is a modification that we support.
2. New CWARD/PADRZ SIDs are designed with a VI/CF initial leg construction. Initial heading is 275 degrees to 1.02NM from DER then intercept course 285-degrees to the WNFLD-NEW waypoint.
3. New ECHHO/MMOTO SIDs are designed with a VI/CF initial leg construction. Initial heading is 275 degrees to 1.02NM from DER then intercept course 295-degrees to the LANDN-NEW waypoint.

When taken together the three ELSO tracks proposed in the SAN PBN ABCX2 ELSO Report promote operational efficiency at SAN, are well within the current splay of aircraft, disperse air traffic over and between all of the impacted communities, while simultaneously mitigating noise exposure both north and south of the Mission Bay Jetty inlet.

The change in overall track miles for the proposed ELSO SID designs are negligible when compared to existing SID designs. (See Table 1 Below from the SAN PBN ABCX2 ELSO Report)

SAN RNAV SIDs - Track Mile Comparison

Procedure	**Existing**	**ABCx2**	**Difference**	**Route – Runway to Common Fix**
ECHHO	17.22	17.37	0.15	ECHHO
MMOTO	17.22	17.37	0.15	ECHHO
CWARD	33.13	33.17	0.04	GYWNN
PADRZ	33.13	33.17	0.04	GYWNN

This ELSO proposal can be implemented without any increase in workload to the Air Traffic Controllers while maintaining FAA Safety Standards, remaining within prescribed TERPS Criteria, and operating within the guidelines of FAA Orders 7110.65 and 7210.3 as amended. Finally, the offshore benefits of these proposed ELSO SIDS are helpful, moving noise further away from the coast over the ocean without shifting it to other communities. *See* for example Fig. 3 of the *SAN ELSO ABCX2 Report*, depicting the CWARD/PADRZ SIDS:

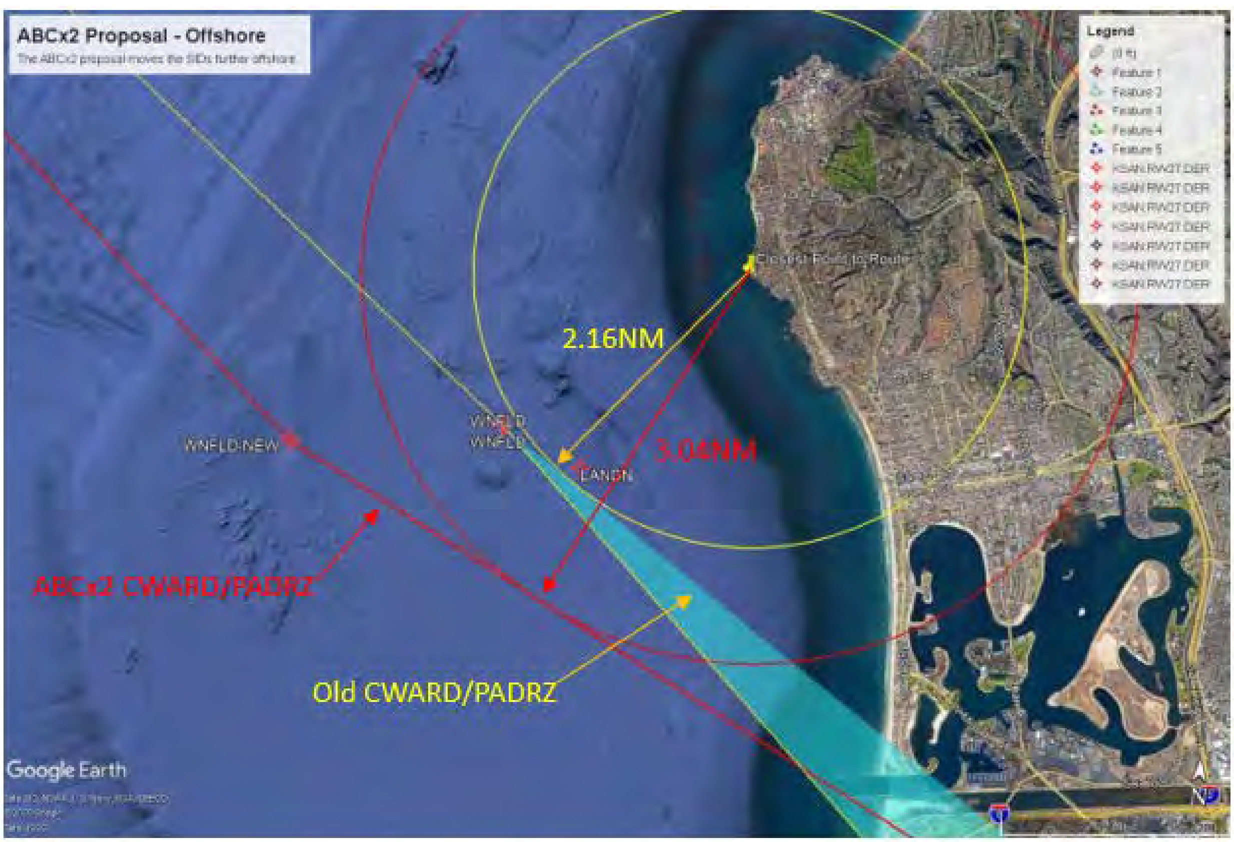


Fig. 3 – Offshore Benefits

The SAN PBN ELSO ABCX2 Report includes the full TARGET Distribution Packages that would be required for implementation, ELSO background materials and portions of the FAA Reauthorization Act of 2018 contemplating and requiring just this type of analysis and recommendation for airports like SAN using the NextGen Performance Based Navigation System.

This type of ELSO solution has already been implemented at several airports within the United States and is the preferred state of the art associated with NextGen's Performance Based Navigation system.

In light of all of these operational, noise mitigation and federal policy reasons, we respectfully request that this ELSO proposal be seriously considered and modeled by the SDCRAA's consultants. We offer to make the ABCX2 consultants available for further explanation and consultation at a subsequent CAC/TAC meeting and/or with the SDCRAA's consultants. We urge that this proposed ELSO plan be advanced in this Part 150 Study.

B. ELSO is a Preferred and Approved FAA National Air System Solution to Leverage the Advantages of the NextGen Performance Based Navigation System

In 2014, the FAA prioritized Performance-Based Navigation (PBN) capabilities of its Next Generation Air Transportation System (NextGen) and committed to implementing high-priority innovations within the next three years. In 2015, the commitments included the issuance of a national standard for PBN-enabled Equivalent Lateral Spacing Operation departures and implementations at airports throughout the United States National Airspace System (NAS). Beginning in 2011, flight validations of ELSO-based reduced-divergence procedures at The Hartsfield-Jackson Atlanta International Airport (KATL) demonstrated operational benefits and validated the ELSO concept for the development of the standard. The standard enables the NAS-wide use of PBN departure procedures with a reduced minimum divergence of 10 degrees instead of the 15 degrees currently required to conduct simultaneous parallel <u>and successive</u> departure operations. *See, "Development and Operational Transition of the First PBN-Enabled Departure Separation Standard", Ralf H. Mayer, Dennis J. Zondervan, Center for Advanced Aviation System Development, The MITRE Corporation, McLean, Virginia, Brian M. Crow, James Allerdice, Jr., Federal Aviation Administration, Atlanta TRACON, Peachtree City, Georgia, H. Madison Walton, Jr., Federal Aviation Administration, Washington D.C., 2015 Integrated Communications Navigation and Surveillance (ICNS) Conference, April 21-23, 2015,* attached as Appendix 3 to the SAN PBN ABCX2 ELSO Report herein.

Performance-Based Navigation serves as a cornerstone for transforming the United States National Airspace System from a system that primarily relies on ground-based navigation and radar surveillance to a satellite-based system. To further capitalize on PBN-enabled capabilities and enable safe implementation of more closely spaced flight paths, the FAA committed to developing standards for reduced separation and divergence *See, Id. and FAA, October 2014 NextGen Implementation Plan, Washington, D.C.*

The commitments include the issuance of a standard for PBN-enabled ELSO departures and ELSO implementations at airports throughout the United States. *See SAN PBN ABCX2 ELSO Report and FAA, October 2014 NextGen Priorities Joint Implementation Plan Executive Report to Congress".*

Applications of the ELSO standard deliver benefits by providing PBN procedure design options to more effectively address terrain, obstacle, or airport noise sensitivity constraints and enable diverging operations to increase departure capacity, reduce departure delay, decrease fuel burn, and lessen aircraft emissions. *See SAN PBN ABCX2 ELSO Report at 1.* The SAN PBN ABCX2 ELSO Report describes the process applied to successfully transition ELSO into operation at the Atlanta Hartsfield Field Airport (KATL) as the first PBN enabled departure separation standard into the National Air System. *See id, at 1.*

ELSO improves economics at implementing airports. A 2012 MITRE Corporation report commissioned by the FAA assessed the annual airport operator benefits associated with implementing ELSO in Atlanta at approximately $20M. *SAN PBN ABCX2 ELSO Report at 6.*

ELSO is safe and the FAA has already implemented a "Document Change" to its Air Traffic Control Handbook, FAAO JO 7110.65, addressing and accepting ELSO:

> "In 2012, FAA commenced a multi-phased initiative to update its Air Traffic Control Handbook, FAAO JO 7110.65. Update recommendations included changes to Section 5-8-3 (Successive or Simultaneous Departures) to enable NAS-wide application of the ELSO standard. The FAA tasked MITRE CAASD to perform a NAS-wide survey of candidate implementation airports. The survey results suggested the potential for beneficial application of reduced-divergence departure operations at other airports and supported the decision to propose a national policy change. In 2013, the FAA tasked MITRE CAASD to develop a single divergence requirement for uniform application throughout the NAS. The adoption of a single divergence requirement forgoes the complexities of leveraging runway layout characteristics and solely capitalizes on PBN-enabled improvements in navigational performance. FAA technical review by AFS-400 determined a single reduced value of 10 degrees appropriate for all PBN (RNAV 1) departure operations and for achieving a level of safety equal to or better than that experienced by conventional departures using 15 degrees divergence. A SRMP was convened in 2014 to analyze the hazards and unintended consequences of introducing the proposed NAS-wide change. The work of the panel centered on examining KATL's operational experience conducting reduced divergence departure operations **and found no evidence to suggest that the reduction of divergence to 10 degrees has introduced risk into the NAS**. **In 2014, the FAA Terminal Procedures Office (AJV-822) initiated a Document Change Proposal (DCP) and drafted language to authorize a minimum of 10**

> **degrees of course divergence between successive and simultaneous RNAV SID departures. Following a review and comment period, FAA Air Traffic Procedures (AJV-8) approved the document change for publication in FAAO JO 7110.65 with an effective date of 25 June 2015**.
>
> *See, SAN PBN ABCX2 ELSO Report at 7.*

ELSO is, therefore, a permitted and recommended implementation across the entire Nationwide Air System, and leverages the benefits contemplated by the FAA's NextGen system:

> "The scheduled inclusion of the reduced divergence standard in FAAO JO 7110.65 permits PBN procedure implementations with reduced divergence at eligible locations throughout the NAS. Capitalizing on improved navigational precision of PBN operations, these reduced-divergence departure paths provide benefit by improving the ability of parallel and same runway operations to do the following: address terrain, obstacle, or noise sensitivity constraints; increase departure capacity or throughput during peak demand periods; reduce departure delay associated with taxi-out time; and reduce fuel burn and emissions. The new standard provides additional options for procedure designers as they seek to provide increased efficiency, safety, and environmentally friendly alternatives. The FAA plans to use the Metroplex 2 process along with single-site implementation to deploy the capability. The FAA Metroplex process currently serves to apply the standard in redesigns of departure procedures and to beneficially deploy reduced-divergence departure operations at airports throughout the NAS."

See, SAN PBN ABCX2 ELSO Report at 7.

In addition to Atlanta (KATL), ELSO has already been implemented at Detroit International Airport (DTW) and will soon be implemented in Miami International Airport (MIA) and Fort Lauderdale-Hollywood International Airport (FLL). SAN is the busiest single runway airport in the United Stats and is an optimal candidate airport to implement ELSO.

C. Congress Mandated the Study of Noise Dispersion Associated with NextGen in the FAA Reauthorization Act of 2018.

When Congress reauthorized the FAA in 2018 it required the advancement of dispersal headings and lateral track variations like ELSO to address community noise concerns.

Section 175 of the Reauthorization Act provides:

> "When proposing a new area navigation procedure, or amending an existing procedure that would direct aircraft between the surface and 6,000 feet above ground level over noise sensitive areas, the Administrator of the Federal Aviation Administration shall consider the feasibility of dispersal headings or other lateral track variations to address community noise concerns, if:
>
> (1) The affected airport operator, in consultation with affected community, submits a request to the Administrator for such a consideration;
> (2) The airport operator's request would not, in the judgment of the Administrator, conflict with the safe and efficient operation of the national airspace system; and
> (3) The effect of a modified departure procedure would not significantly increase noise over noise sensitive areas, as determined by the Administrator".

Accordingly, modeling, considering and advancing our SAN PBN ABCX2 ELSO proposal will evidence the FAA's compliance with Congress' directives under the FAA Reauthorization Act of 2018.

III. General Comments About Existing Alternatives in the Consultants' May 28, 2020 Presentation

We strongly urge the SDCRAA to model and advance the ELSO proposal contained in the *SAN PBN ABCX2 ELSO Report* as our preferred first priority. However, we further offer the following comments addressing the preliminary alternatives presented at the May 28, 2020 TAC and CAC meeting and the associated Power Point, as clarified in the June 28, 2020 CAC meeting.

A. Waypoint Placements:

We note the consultants observation that "we can put the waypoints anywhere you want within reason" and we, therefore, would urge the consultants to anchor their designs and modeling on this central principle: use waypoints that are furthest west offshore as possible, measured from the center of the Mission Bay Jetty, routing planes as far away from our coastlines as possible. For clarification purposes, the coordinates for the suggested A2 INT waypoint should be placed as far west of the shoreline, and as far south of the WNFLD waypoint, as possible. The following Fig. 4 was created based on coordinate data provided by the consultants to a CAC member showing in concept the location of the waypoints as we understand them to be presently conceived:

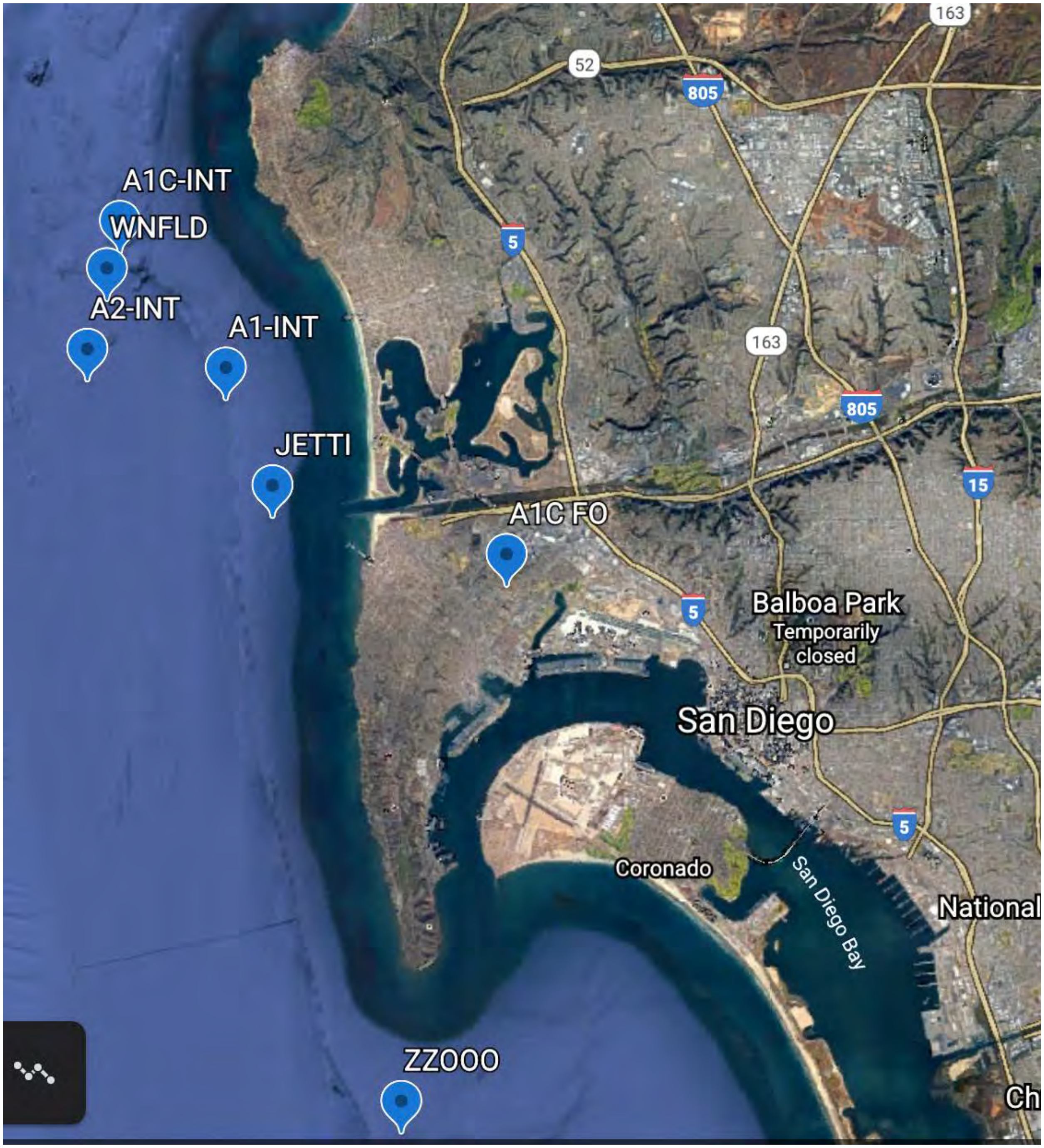


Fig. 4.

B. Day and Night Time Noise Mitigation:

We are strongly in favor of the principle that both day and nighttime noise be mitigated along the northern coastal communities of Mission Beach, Pacific Beach and La Jolla as embodied in the Alternatives 1A, 1B and 1C, 4, ELSO 2A and 2B. We note and agree with the observation by the consultants that Alternatives presented so far can be combined, such as Alternative 1B and Alternative 4. The communities north of the airport have borne an increasingly intolerable burden of all night time traffic between the hours of 10:00 p.m. and 11:30 p.m.

C. Performance Based Vectoring vs. Magnetic Headings:

We appreciate and understand the consultant's recommendations to use performance-based vectoring, as opposed to magnetic headings. We provide feedback here based on magnetic headings to clarify our preferences and requests.

D. FAA Consideration of Secondary Consequences:

We note the consultants' observations that "the FAA can consider secondary consequences in a Part 150 Study, that go beyond the 65 CNEL", such as the Flight Path & Procedures Study. We support that principle and advocate that these considerations be advanced to the FAA.

IV. Specific Comments and Questions re: Alternatives Presented at May 28, 2020 CAC Meeting

A. Alternative 1A (Dispersed Traffic)

1. How far offshore is the A1 INT flyby waypoint and what are its coordinates? We respectfully request that it be modeled at 2.0, 2.5 and 3.0 nautical miles offshore, as measured from the center of the Mission Bay jetty channel, and that the proposed waypoint be plotted on the Alt 1A proposal. We further request that the A1 INT be positioned at least as far northwest as the contemplated A2-INT, southwest of WNFLD. We note the consultants' acknowledgment that the 1A waypoint is further south than WNFLD, which is an important design principle for La Jolla, Pacific Beach and Mission Beach.

2. Per slide 14 of the PPT, the 65 dB contour shifts appear to cover only several blocks of Ocean Beach but would include 509 fewer people and 256 fewer housing units in the 65 CNEL. We note the consultants' observation that this change in the noise contour is likely not significant for FAA purposes. We agree with that premise both as it relates to the number of people and households affected, and because any shift occurs only within a single community already within the 65 CNEL, and therefore does not shift noise from one community to another.

3. We note the consultants' intent to center departures over the Mission Bay Jetty Inlet, which is a compatible noise area with no residents or households. We agree that the intent is correct.

B. Alternative 1B (Concentrated Traffic Over Mission Bay Jetty):

1. How far offshore is the A1 INT flyby waypoint and what are its coordinates? We respectfully request that it be modeled at 2.0, 2.5 and 3.0 nautical miles offshore, as measured from the center line of the Mission Bay Channel and that the proposed waypoint be plotted on the Alt 1B proposal. We further request that the A1 INT be positioned at least as far northwest as the contemplated A2-INT, southwest of WNFLD.

2. We request that a new BROCK waypoint be considered located at the proposed A1-INT coordinate, with a vector to intercept located at or near the A2-INT waypoint. The intent of this concept is to create a gate between JETTI and BROCK through which planes would depart before proceeding to a vector to intercept point further offshore before turning right or left to reach the next course waypoint. A similar new intercept waypoint should be placed on the ZZOOO departure path further offshore to keep flights further from the coast of Point Loma and Sunset Cliffs.

3. We request that the schematic depicting Alt 1B be expanded to include the coast of La Jolla, permitting constituents to visualize the proposed flight path compared to the PADRZ/WNFLD path.

4. Alternative 1B is also preferred over 1A because the 65 CNEL contour is smaller, and fewer people and households are impacted. Per slide 16 of the PPT, we note that the 65 dB CNEL contour shifts marginally and results in 735 fewer people and 370 fewer housing units inside the 65 CNEL.

5. Alternative 1B is better for the overall community and is particularly better for Mission Beach, Pacific Beach and La Jolla. We note the consultants' observation that Alternative 1B "is optimal" and the "best you'll be able to get". We advocate for it as the best among the three current Alternative 1 options.

6. We note that the concentrated departure is a "vector to intercept" at 293 degrees, which is preferred because it yields more predictability as to aircraft location. Accordingly, Alternative 1B is likely preferred and superior to Alternative 1A from the perspective of the FAA, airlines and pilots.

7. We note that Alt. 1B is superior to Alt. 1C because the A2 INT is south of WNFLD, while A1C INT is placed north of WNFLD.

C. Alternative 1C: (Mission Bay Channel with a 300 Degree Course)

1. We are strongly opposed to Alternative 1C and urge that it not be advanced for further consideration. As designed, Alt. 1C INT is situated <u>north</u> of the WNFLD waypoint, and therefore, comes much closer to the coastline of Mission Beach, Pacific Beach and La Jolla.

2. Alternative 1C conflicts with one of the fundamental principles of the Flight Path & Procedures Study, which was to reduce noise in La Jolla. As observed by the consultants, "Alt 1C brings with it a big cost", which should be avoided. As further observed by the consultants, "Alt 1C may also raise concerns by the FAA about airfield capacity", which should be avoided.

3. A dispersal between 275-300 degree puts some northbound departing planes even <u>closer</u> to the shore than the 295-degree course or the PADRZ SID. We advocate that it be omitted from the alternatives recommended by the consultants to advance to the SDCRAA and the FAA.

D. Alternative 2A ELSO with Dispersion

As noted above, we urge the SDCRAA and consultants to consider and model the SAN PBN ABCX2 ELSO alternative proposed herein, which is better than either Alt. 2A or 2B. However, if that proposal is rejected, we have the following comments on the existing alternative 2A:

1. How many nautical miles offshore is the A2 INT waypoint and what are its coordinates? We respectfully request that it be modeled at 2.0, 2.5 and 3.0 NM offshore as measured from the centerline of the Mission Beach Channel jetty, and that the proposed waypoint be plotted on the ELSO 2A proposal.

2. We note the consultant's statement that the location of A2 INT is "even further south from WNFLD", which is important for La Jolla. Creating a gateway framed by JETTI and A2 INT as far offshore as possible is viewed as optimal for La Jolla and Point Loma.

3. We note the consultants' observation that Alt 2B ELSO with concentration is superior to Alt 2A with dispersion, because it is more predictable for pilots, airlines and the FAA. As predictability is a strong factor supporting safety, we would be in favor of Alt. 2B, rather than 2A.

4. Per slide 20 of the PPT, the current modeling projects 119 more people and 118 more housing units in the 65 CNEL contour, all of whom would reside at the end of Runway 27. This is a *de minimis* number of people and households in largely single resident apartments who have voluntarily chosen to live at the end of a busy airport runway. The difference in noise they will perceive whether at 65 dB or 64 dB is likely imperceptible, and these residents understood the noise implications of choosing this location when they rented or purchased these properties. The FAA and the surrounding communities of Point Loma, Mission Beach, Pacific Beach and La Jolla should not be precluded from the opportunity to mitigate noise based on the impact to a very small number of people directly off the end of a runway and directly under the long existing flight path.

5. We are open to modeling ELSO 2A with a slight adjustment by "tilting" or "angling" the path a degree or two to the north, which would likely eliminate the increase of <u>any</u> individuals or households in the 65 CNEL, without having a material impact on Mission Beach, Pacific Beach and La Jolla. The route design might be adjusted to center between 277 and 280 degrees, keeping the 10 degrees of separation, or expanding the cone to 11 degrees.

6. In any choice between advancing Alternatives 2A or 2B, we are in favor of 2B, and oppose 2A.

E. Alternative 2B (ELSO with Concentration)

As noted above, we urge the SDCRAA and consultants to consider and model the SAN PBN ELSO alternative proposed by ABCX2, which is better than either Alt. 2A or 2B. However, if that proposal is not advanced, we have the following comments about Alternative 2B:

1. How many nautical miles offshore is the A2 INT waypoint and what are its coordinates? We respectfully request that it be modeled at 2.0, 2.5 and 3.0 NM offshore, as measured from the centerline of the Mission Beach Channel jetty, and that the proposed waypoint be plotted on the next version of the ELSO 2B proposal.

2. Slide 22 of the PPT forecasts 22 more people and 77 more housing units in the 65 CNEL. As described above this is a *de minimis* number of people and households and all occurs within the same community. Therefore, we advocate that the proper interpretation is that it would not constitute shifting noise from one community to another.

3. However, we are open to shifting the 10-degree cone of departures slightly north to eliminate any such burden on people directly under the flight path off the runway. We are open to modeling the center of the cone at 286 degrees, (rather than 285 degrees) which we predict will eliminate all increases in people and households within the 65 CNEL.

F. Alternative 4 East Bound Night Time Noise Abatement

1. What is the "generalized path" of PADRZ RNAV SID? It appears to be greater than 295 degrees and that has been confirmed by the consultants. We request that it be modeled at 290 degrees or less.

2. We note the TAC member's comments from Mission Beach that it is an important principle to distribute and disperse noise at night between Ocean Beach and Mission Beach, and the member's comments that residents of South Mission Beach "are being hammered". La Jolla agrees with that principle and with our Mission Beach neighbors on this point.

3. There is uncertainty, controversy and a potential legal challenge to what has been referred to as the Nighttime Noise Abatement Procedure. We note the SDCRAA's comment that "the SDCRAA has looked for documentation memorializing the nighttime noise abatement practice, but there is none in our possession". We believe that no such binding documentation exists between the FAA, the SDCRAA, or any other stakeholders memorializing a procedure where all nighttime traffic departs only to the north, thereby shifting noise from Point Loma to Mission Beach, Pacific Beach and La Jolla. Such a change might have legally required a California Environmental Quality Act (CEQA) and National Environmental Policy Act (NEPA) review, which did not take place. The impact of the practice of directing all nighttime departures towards the northern coastal communities was exacerbated by the implementation of NextGen/Metroplex and the use of the PADRZ SID. The change was and is prejudicial to La Jolla and we respectfully request that flights departing to the East during night time hours be routed on the ZZOOO SID (with an adjusted JETTI waypoint further offshore) and that north or westbound flights be routed on the adjusted PADRZ SID consistent with daytime operations. On the assumption that the consultants can recommend flight path changes that route planes further offshore to waypoints situated 2.0, 2.5 or 3.0 nautical miles offshore as measured from the centerline of the Mission Bay Jetty, the impact to all communities from nighttime noise should be mitigated.

4. We note that slide 25 of the PPT indicates that there would be 60 fewer people and 43 fewer households in the 65 CNEL by implementing Alternative 4.

G. "Shifting Noise"

We note that there is a policy interpretation question regarding the concept of "shifting noise". We advocate that it is most correctly and properly interpreted in context of shifting noise "from one community to another" as opposed to concerns about shifting noise from one resident or household to another within the <u>same</u> community.

Several of the alternative proposals mildly shift noise <u>within</u> the community of Ocean Beach, by several streets in one direction or another. None of the noise would shift to "another community", which is the standard the SDCRAA and the FAA have articulated as a preclusion factor in the past. We believe that *de minimis* shifting of noise inside a community already within the 65 dB CNEL does not preclude implementation of noise mitigation alternatives and should not affect the FAA's consideration.

We further note that the forecasted estimates of the number of homes and people inside the 65 CNEL in 2026 are possibly, and quite likely, within a statistical margin of error in all Alternative scenarios. Comparing the alternatives based on an evaluation of the absolute numbers would, therefore, be erroneous. Comparing the Alternatives based on confidence intervals would be more statistically accurate and will likely show that there are statistically insignificant differences between the estimates.

We note the consultants' observation and comment that "there is no magical cut off or magic line regarding shifting noise from one community to another, that "shifting noise is a policy decision for the FAA" and that "none of the alternatives would likely be viewed by the FAA as significantly impacting people within the 65 CNEL contour. We agree with those observations. We further note the consultants' observation that the FAA's policy is not to "shift noise from one population to another". Unless an individual or a household is interpreted as a "population", any *de minimis* shifting of noise <u>inside</u> Ocean Beach should not be regarded as a determining factor.

We also note and agree with the comment by one of the TAC members that "residents in or near the 65 CNEL will not hear a difference" if the contour is slightly changed or shifted as described in the PPT.

The *SAN PBN ABCX2 ELSO* proposal and Alternatives 1A, 1B & 1C and ELSO 2A and 2B do not shift noise from "one community to another". The additional "ins" versus "outs" as described in the May 28, 2020 PowerPoint presentation are essentially neutral and affect very few people or households, all of whom already live either in or directly adjacent to the existing 65 dB CNEL.

H. PADRZ RNAV SID Should Be Adjusted to Preclude Flight Tracks Above 295 Degrees

The PADRZ RNAV SID should not be used for any of the Alt 1A, 1B, 1C, 2A or 2B departure flight paths under consideration in any of the noise mitigation alternatives unless courses are adjusted to fly no further north than 295 degrees. Flying north of 295 degrees creates unnecessary noise for Mission Beach, Pacific Beach and La Jolla under the existing proposals in the May 28, 2020 Power Point. All departing flights should be routed to the proposed ALT 1B or ELSO A2 INT waypoint, situated preferably 2.5NM or 3NM offshore, or more.

We note and agree with the comments by the Mission Beach TAC member that nighttime northbound departures should all be on a heading of not more than 290 degrees, and certainly not on PADRZ at above 295 degrees.

We note that PADRZ is not set at 295 degrees, and instead is defined by reaching "520" and then proceeding to the WNFLD waypoint, which is presently too far north from La Jolla's perspective. We advocate for modeling a move of PADRZ to a position south of its current longitude and latitude, perhaps at 290 degrees.

I. Alternative 5: Cargo and Heavy Jets:

No cargo and international heavy jet flights should be routed on the PADRZ RNAV SID. We concur with the conclusion of the consultants to not advance this Alternative due to traffic convergence and safety issues.

J. Noise Barriers:

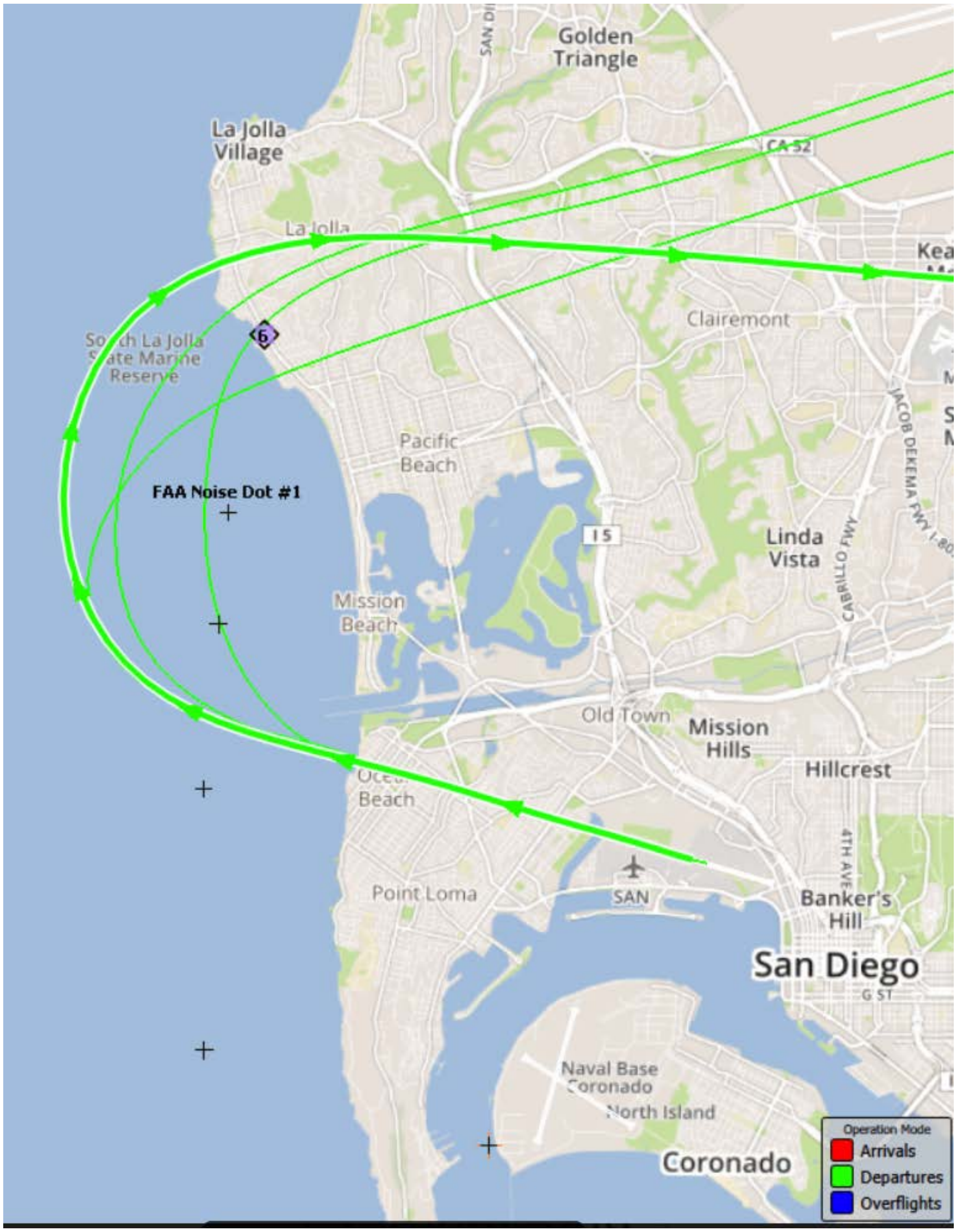
We do not believe that noise barriers will provide any substantial improvement for noise to the communities, other than perhaps the Marine Corp Recruitment Depot or other areas directly adjacent to the SAN airfield in the 65 CNEL.

K. Noise Abatement Departure Procedures:

We note the request of certain community members to further study Noise Abatement Departure Procedures (NADP), such as those implemented at John Wayne Airport addressing vertical climb and thrust parameters. We support modeling those potential solutions, especially if they provide relief to communities immediately adjacent to the airport like Ocean Beach and Mission Beach, as long as there are no adverse impacts to La Jolla. We note, however, the consultants' observations that thrust reduction and management potentially pose safety issues and excessive climb profiles. We are strongly opposed to any NADP that would trigger a Part 161 Study or would have any potential impact on the established Noise Curfew at San Diego.

L. Eliminating/Minimizing Flight Paths Directly Over La Jolla:

Beginning in at least May 2020 flights were authorized and vectored by the FAA to fly directly over La Jolla on eastbound departures, as evidenced by the following screenshot from around May 15-20, 2020. These unacceptable flight paths have continued through July 20, 2020.



The Airport Noise Office responded to the inquiry of Mr. Don Kordich (Ref# 607325-606625), indicating "*We have reviewed the operations and determined that all four flights departed in full conformance with the FAA noise dot agreement. Because there are fewer flights heading south down the coast and the airspace is open, they are using the open airspace for departures*".

Upon inquiry the FAA responded that these flight paths were authorized due to recreational parachutist traffic. However, given the times of these overflights, including late at night, recreational parachuting cannot explain these flight paths.

These new overflights exacerbate the problem of noise for La Jolla and we request that a noise mitigation alternative be advanced that would preclude such overflights absent emergency or extenuating circumstances. In particular, we respectfully request that a new fifth noise dot be positioned north of La Jolla Village.

M. Proposed and Requested Schedule Going Forward:

1. Reasonable Time Requested

Reasonable time is required going forward to allow for informed community engagement, modeling by the consultants and feedback from the community about the *SAN PBN ABCX2 ELSO* proposal and revised alternatives. Shortchanging the schedule at this juncture would prejudice the noise impacted communities, particularly in context of the 21 months taken by the Part 150 Study so far, most of which was consumed by input by the FAA and the SDCRAA.

2. No Formal Deadline

There is to our knowledge no deadline by which the SDCRAA is required to complete the Part 150 Study. At the outset of the Part 150 Study the SDCRAA informed the TAC and CAC members that the Part 150 Study could potentially take years to complete, mainly due to the time allowed and often required by the FAA to review, approve or reject Noise Exposure Maps and Noise Compatibility Plans. Accordingly, there is no external deadline imposed by the FAA or other agency law to our knowledge requiring that the time allotted to community members for CAC and TAC comments, be abbreviated, truncated or shortened to their prejudice.

3. Consideration of the Noise Exposure Maps

Other community members have requested revised modeling of the Noise Exposure Maps, which we support, particularly in light of the reduction in air travel globally and at SAN caused by the COVID-19 pandemic. Additional time could permit revised forecasts.

Preparing and submitting revised forecasts will likely substantially reduce the 65 dB CNEL, which will have a significant impact on the viability of the Alternatives presented in the consultant's presentation. Questions to be answered include whether Is it still reasonable to project an increase of 7,305 housing units in Ocean Beach by 2026, which is a 94% increase? Likewise, is it reasonable to forecast 14,937 more people living in Ocean Beach by 2026, an increase of 77%? If those assumptions are incorrect, they misstate the potential impact of all noise mitigation alternatives in Ocean Beach and incorrectly lead to the projection of increases in the size and location of the 65 dB CNEL and the population and housing units within it. We also note that a smaller 65 CNEL contour would substantially reduce the anticipated cost and timeline of the Quiet Homes Program, by many millions of dollars and years.

4. Proposed Schedule

The majority of members of the CAC proposed a schedule going forward by letter dated June 15, 2020. We request that the time frames and events identified in that schedule be adopted. In summary the proposed schedule is:

July 28, 2020: Last day for the CAC/TAC members and the communities to submit written comments regarding the consultants' preliminary presentations of May 28, 2020 as augmented by the June 25, 2020 presentation.

July 29, 2020—September 15, 2020: Time allowed for the CAC/TAC members to engage with experts and their communities to gather additional input and feedback, while also allowing sufficient time for the SDCRAA consultants to conduct additional analysis and modeling, with results published preferentially by August 28, 2020.

September 16, 2020: Set the next TAC/CAC meeting for the SDCRAA's consultants to present their results and refined modeling results to the *SAN PBN ABCX2 ELSO* proposal and the comments received about the Alternatives presented on May 28, 2020, and to address noise barrier options and land use/administrative alternatives.

October 30, 2020: Deadline for the receipt of additional TAC/CAC and public comments following the September 16, 2020 meeting;

November 1, 2020—December 18, 2020: Time period during which the SDCRAA consultants shall endeavor to finalize their recommendations.

January 13, 2021: CAC/TAC meeting to present the consultants' final recommendations.

February 26, 2021: Last day to receive public comments on the consultant's final recommendations;

March 2021: SDCRAA to submit preliminary Noise Exposure Maps (NEMs), Noise Compatibility Plan (NCP) including the SDCRAA's draft noise mitigation recommendations to the FAA, including the public comments on the consultant's final recommendations;

April 2021: SDCRAA to present the consultants' final recommendations to ANAC;

June 2021: SDCRAA to submit final NEMs and NCP to the FAA for review, acceptance and approval.

V. Conclusion

We respectfully urge the SDCRAA and its consultants to give serious high priority consideration to the SAN PBN ABCX2 ELSO proposal herein. It is a win/win/win/win for the FAA, the airlines, the SDCRAA and the impacted communities, minimizing noise impacts while facilitating the FAA's interests in optimizing capacity and safety and allowing for maximal airline efficiency. We believe the time invested in modeling the proposal, which is a minor adjustment from the current ELSO 2A and 2B proposals, will lead to a consensus among all or substantially all stakeholders and serve as a basis to expeditiously move forward to resolve noise concerns and litigation.

In the event that the ABCX2 proposal is not advanced, we respectfully request that the SDCRAA prioritize Alternative 1B or ELSO 2B for further modeling as described herein with an A2- INT waypoint placed at 3NM offshore.

Respectfully submitted,

____/AMS/___________	________/CM/______________
Anthony M. Stiegler, Esq.	Chris McCann, Ret. U.S. Air Force
CAC Member	TAC Member

NOISE AND OPERATIONAL CONSIDERATIONS FOR THE SAN DIEGO INTERNATIONAL AIRPORT PART 150 STUDY

By James K. Allerdice, Jr. and John-Paul Clarke, ScD, ABCx2, LLC

July 16, 2020

PROVIDING THE ABCs OF NEXTGEN

Executive Summary

Communities surrounding the San Diego International Airport (SAN) have raised significant concerns about aircraft noise since the completion of the Southern California Metroplex Project. Their concerns are being addressed as part of the Part 150 Study that has recently been commissioned by the Airport.

While it is very important to adequately address noise impacts to the communities caused by airport operations, it is equally as important to ensure the safety and efficiency of airport operations while providing as much relief as possible to the surrounding communities.

The Federal Aviation Administration (FAA) will not accept alternatives that minimize the effects of noise upon a community if it results in operational inefficiencies. Therefore, any solution must consider the effects on the operation as well as the effects on the surrounding communities.

This report, and supporting documentation, will provide a design alternative that we believe addresses the broader areas of concern on both sides of the issue, thereby providing a win-win scenario that we believe everyone can live with – recognizing of course, that there is no perfect solution that will make everyone happy.

In the first section of the report, we will address the concerns of the noise impacts to the communities surrounding the airport giving special attention to the Congressional Mandate (See Appendix 1) to consider noise dispersion in any new Performance Based Navigation (PBN) procedure designs. Consideration was given to disperse noise over the widest possible areas within the confines of criteria and without "moving" existing noise from one community to another. Operating within these parameters west of the SAN Airport is challenging as there is very little land area to work with to resolve noise impact issues. At the widest point of dispersion, the distance from centerline to centerline of the proposed flight tracks is only approximately 5½ miles along the shoreline. Given the confines of the space available to work with, dispersing noise over the impacted area becomes increasingly important as well as increasingly difficult. This is because from an observer's point of view on the ground, an aircraft flying ½ mile away is still perceived to be "overhead." Therefore, dispersion, what little is available, may not result in an audibly perceptible change in sound, although, technically, there will be a measurable difference.

In the second section of the report, we will address the operational concerns of the proposed designs. We will show how deploying the Equivalent Lateral Spacing Operations (ELSO) concept will allow for optimal airport efficiency while, at the same time, addressing noise issues. We will show that ELSO can be implemented without an increase in workload to the Air Traffic Controllers while maintaining FAA Safety Standards, remaining within prescribed TERPS Criteria, and operating within the guidelines of FAA Orders 7110.65 and 7210.3 as amended.

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Noise Considerations

The primary noise consideration for communities in proximity to the airport is the relationship between the thrust, the speed, and the orientation of the aircraft. This complex relationship ultimately determines the noise being generated by the aircraft and the three-dimensional (3-D) position of the aircraft, both as a function of time. Note that the noise being generated by the aircraft as a function of time will be henceforth referred to as the source noise trajectory, and the 3-D position of the aircraft as a function of time will be henceforth referred to as the flight trajectory. For all practical purposes, the source noise trajectory is a consequence of the flight trajectory that is specified, thus we will focus our discussion below on the flight trajectory.

Eliminating Differences between the Depicted and the Actual Ground Track

The desired flight trajectory for an aircraft is specified via a Standard Instrument Departure (SID) or via controller instructions. The Southern California Metroplex Project (SoCal Metroplex) has resulted in an increased used of SID's, as a way in principle to more closely control the path of aircraft. However, while a SID might appear on paper to specify a particular ground track (path over the ground), the way that SID is implemented within the Flight Management System (FMS) of the aircraft can have significant consequences in terms of the actual ground track and thus the noise that is observed on the ground. If the initial segment of a SID is specified using a VA/DF designation, the aircraft will turn directly to the second fix in the SID once it has achieved a specified altitude. Given the variation in climb performance of a fleet of aircraft, the point at which aircraft will turn from the extended runway centerline will also vary. Thus, instead of aircraft flying along the specified track over the ground, they could (as depicted in Fig. 1) be on a ground track that is anywhere within a triangle with vertices at: (1) the earliest point along the extended runway centerline where aircraft can attain the specified altitude; (2) the latest point along the extended runway centerline where aircraft can attain the specified altitude; and (3) the second fix in the SID. If, however, the SID is specified using a VI/CF designation, the aircraft will turn directly to the second fix in the SID only when is it in close proximity with the first fix in the SID. Thus, the actually path over the ground will be very close to the path that is depicted.

(See Fig. 1 on Page 9)

Noise Principle 1

With these considerations in mind, we believe that the first thing we can do for noise is to specify the SID's in terms of VI/CF legs, so that the ground tracks that are depicted are the ground tracks that are flown. This will thus enable full control of the position and noise being generated by aircraft as a function of time. And, once the difference between the depicted and actual paths has been eliminated, we can turn our attention to optimizing the trajectory.

Optimizing the Source Noise and Flight Trajectories

The noise that is observed at a specific location on the ground is a function of the distance between the aircraft and the observer, the elevation of the aircraft (the angle of the aircraft above the horizon as seen from the location of the observer), and the orientation of the aircraft relative to the observer.

Distance is the primary determinant of the noise that is observed at a given location. Specifically, the noise intensity (noise level per unit area) at a given location decreases with increasing distance between the source of the noise (in our case the aircraft) and the receiver of the noise, i.e., the observer on the ground. To an observer on the ground, a stationary source that only subtends part of the field of view may be considered to be a point source, i.e., the noise may be modeled as coming from a single point in space. Every time the distance between the source and the receiver is doubled, the noise at the location of the receiver will be decreased by a factor of 4, which in acoustic terms is referred to as a reduction of 6 decibels (dB). For a point source that is moving along a straight line, every time the distance between the source and the receiver is doubled, the noise at the location of the receiver will be halved, which in acoustic terms is referred to as a reduction of 3 decibels (dB). Thus, in the case of an aircraft that is moving through the air, the attenuation in noise as a function of distance will be approximately 3dB per doubling of the distance between the aircraft and observer.

Elevation has a significant effect on the observed noise level. Specifically, when noise is propagating at low angles, the rate at which the noise decreases per unit distance that it travels (the rate of attenuation) is greater than when the noise is propagating directly downwards. This is the result of ground attenuation due to the introduction of an impedance boundary, in this case the ground surface, into a given aircraft-to-receiver geometry. Specifically, sound propagation near the ground is affected by absorption and reflection of the sound waves by the ground. Sound can either leave a source and follow a straight path to a receiver or be reflected and/or absorbed by the ground. How the sound wave reacts with the ground is influenced by the ground impedance which relates pressure and speed. Interestingly, water is acoustically hard, i.e., it reflects sound more than dirt. Thus, maneuvers made just offshore could actually be more detrimental to residents near the coast than maneuvers made prior to the shoreline.

Orientation also has a significant effect on the observed noise level. The noise generated by jet engines has a number of discrete sources. These discrete sources include the fan, the compressor and turbine machinery, the combustor, and primary (jet) and secondary (fan) exhausts. These noise sources tend to be directional. The fan noise generally propagates forward, the machinery and combustor noise propagate perpendicularly, and the exhaust noise tends to propagate to the rear. Engine installation effects include shielding and reflections from aircraft structures, aerodynamic refraction of sound, and jet shielding due to closely spaced jet engine exhausts. When aircraft with tail-mounted engines are perpendicular to the receiver at low angles (8 to 20degrees), the farthest engine is completely shielded by the fuselage or the vertical stabilizer. With complete shielding of the farthest engine(s), the noise would be reduced (relative to the noise when the aircraft is directly overhead and at the same distance) by up to 3 dB for a two-engine aircraft and up to 4.8 dB for a three-engine aircraft in the limiting case of closely-spaced, co-linear engines. There may also be additional attenuation due to the scattering of the engine noise as it passes through the wing down-wash and the wingtip vortices. At mid-range elevation angles (20 to 60 degrees), the farthest engine of aircraft with tail-mounted engines may be visible under the fuselage. As such, the aircraft with tail-mounted engines tend to show an increase (relative to the noise when the aircraft is directly overhead and at the same distance) of up to 2dB. This augmentation may be due to the combination of the incomplete shielding of the farthest engine and the reflection of the noise from the closest engine off the relatively flat horizontal and vertical stabilizers. For aircraft with wing-mounted engines, the tapered wing provides a fairly broad and flat surface from which to reflect the noise generated by the engine(s) on the side of the aircraft that is furthest from the observer. Noise from the engine(s) furthest from the observer may also reflect off the underside of the fuselage. These reflections, when combined with the fact that there is no shielding of the engine(s), may account for an increase (relative to the noise when the aircraft is directly overhead and at the same distance) of as much as 8dB at elevation angles below 60 degrees.

Noise Principle 2

Given the increasing dominance of aircraft with wing-mounted engines, it is thus more important than ever that aircraft maneuvers such as turn be conducted at the lowest possible altitude over ground, or after the aircraft is well offshore. Turns at intermediate locations will significantly increase the noise to the side of the depicted path over the ground.

Noise Summary

The principles described above have been incorporated in the operational discussion that follows and in the designs that will ultimately be presented at the end of this report. While it is impossible to say that the proposed solution will reduce the area of any given contour without having access to the input data that were used to develop the existing noise impact estimates, we believe that the proposed design will not have adverse impact on the communities closest to the airport.

Operational Considerations

Our approach to achieving noise benefits while simultaneously enabling operational benefits is to employ the use of ELSO – Equivalent Lateral Spacing Operations.

Equivalent Lateral Spacing Operations (ELSO)

The ELSO Standard was originally developed by the MITRE Corporation based upon a concept for reduced divergence departure separation created at Atlanta TRACON. (See Appendix 3)

The concept allowed for both parallel and <u>successive</u> departures to utilize reduced divergence to facilitate an additional departure path while taking into consideration the needs of the communities surrounding the ATL Airport. In this regard, we realized a win-win scenario whereby the airport achieved a departure capacity increase while the communities surrounding the airport had more say as to where the departure track was ultimately placed to minimize noise impact.

From the airport perspective, it was predicted that by adding one additional departure path that operations would increase by 8-13 departures per hour. After implementation of ELSO, it was determined that during departure pushes, ELSO equaled or exceeded expectations.

From the community perspective, having the option to have as little as 10-degrees divergence between departure routes allowed the community to specify a track that kept aircraft well south of the Woodward Academy and to pinpoint a bridge that they wanted the route to overfly. It truly was a win-win.

Of course, the SAN application will not involve parallel runways. But ELSO is designed to add efficiency for <u>successive</u> departures off of a single runway as well.

In the case of the San Diego communities, the ELSO designs recommended by ABCx2 will also give communities an opportunity to realize benefits from aircraft being <u>dispersed over three tracks</u> while at the same time removing aircraft from overflying some of the previously impacted populations north of the proposed ECHHO/MMOTO ground track.

From an ATC perspective, there is no more workload than when separating aircraft by 15-degrees or more. Once the appropriate RNAV SIDs are implemented, the Tower simply has to alternate SIDs via sequencing of airplanes for departure. Then aircraft can depart with minimum separation (1NM) except for when wake turbulence separation is required.

Controller training for ELSO, especially for a single runway operation, is minimal. The TRACON will be required to modify their video maps to depict the ELSO departure tracks. But other than that, there is very little impact to ATC operations to implement ELSO.

We believe that the ELSO designs provide the best option for an optimal solution for the airport, ATC, and the surrounding communities.

ELSO SID Construction

The SIDs are designed to the following specifications:

1. ZZOOO remains unchanged with a VA/DF initial leg construction resulting in a runway heading (275-degrees) departure to 520 feet MSL then direct to the JETTI waypoint.
2. The new CWARD/PADRZ SIDs are designed with a VI/CF initial leg construction. Initial heading is 275 degrees to 1.02NM from DER then intercept course 285-degrees to the WNFLD-NEW waypoint.
3. The new ECHHO/MMOTO SIDs are designed with a VI/CF initial leg construction. Initial heading is 275 degrees to 1.02NM from DER then intercept course 295-degrees to the LANDN-NEW waypoint.

NOTE- *See Appendix 2 for full design specifications – TARGETS Distribution Packages.*

ELSO Track Mile Comparison

The change in overall track miles for the proposed ELSO SID designs are negligible when compared to existing SID designs. (See Table 1 Below)

SAN RNAV SIDs - Track Mile Comparison

Procedure	**Existing**	**ABCx2**	**Difference**	**Route – Runway to Common Fix**
ECHHO	17.22	17.37	0.15	ECHHO
MMOTO	17.22	17.37	0.15	ECHHO
CWARD	33.13	33.17	0.04	GYWNN
PADRZ	33.13	33.17	0.04	GYWNN

Table 1 – Track Mile Comparison

The ZZOOO SID

ABCx2 reviewed the ZZOOO RNAV SID and we have proposed no changes to the existing SID. CAC, TAC, or other Community Groups have recommended that the JETTI waypoint on the ZZOOO SID be moved further offshore, which remains a possibility. For purposes of the recommendations herein the existing ZZOOO SID will serve as the baseline SID for ABCx2's recommendations.

The existing ZZOOO SID is constructed with a VA/DF initial leg combination from the DER. The ground track from the DER to JETTI waypoint is 275-degrees Magnetic. The other recommendations within this study will base ATC separation standards off of this baseline heading.

The CWARD/PADRZ SIDs

Both the CWARD and PADRZ RNAV SIDs utilize the same initial ground track, as currently published. The existing SIDs are constructed with the VA/DF leg combination from the DER. After aircraft reach an altitude of 520 feet MSL, they proceed direct to the WNFLD waypoint. Due to various aircraft types and performance, the time it takes to reach 520 feet MSL varies which results in aircraft flying anywhere within the blue shaded area as depicted in Fig. 1 below.

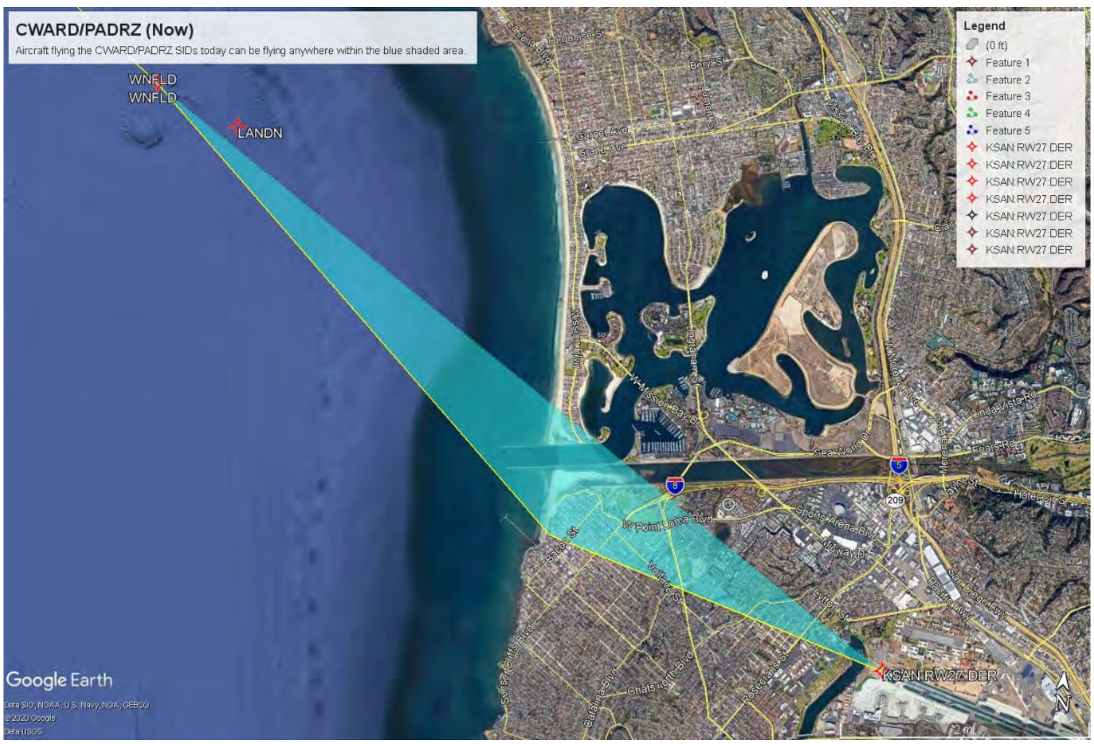


Fig. 1 – CWARD/PADRZ Possible Ground Track Splay Today

ABCx2 has reviewed the Part 150 Alternatives 2a and 2b. With only slight modification to the proposed SID construction, we concur that these alternatives represent a viable track for the future CWARD/PADRZ SIDs.

ABCx2 recommends that the initial leg combination be constructed as a VI/CF leg from the DER. This leg combination allows the use of ELSO rules for ATC separation and provides the necessary 10-degrees of divergence from the ZZOOO SID baseline track of 275-degrees resulting in a ground track of 285-degrees for the new CWARD/PADRZ SIDs.

The new track lies well within the current CWARD/PADRZ splay as depicted by the red line in Fig.2 below.

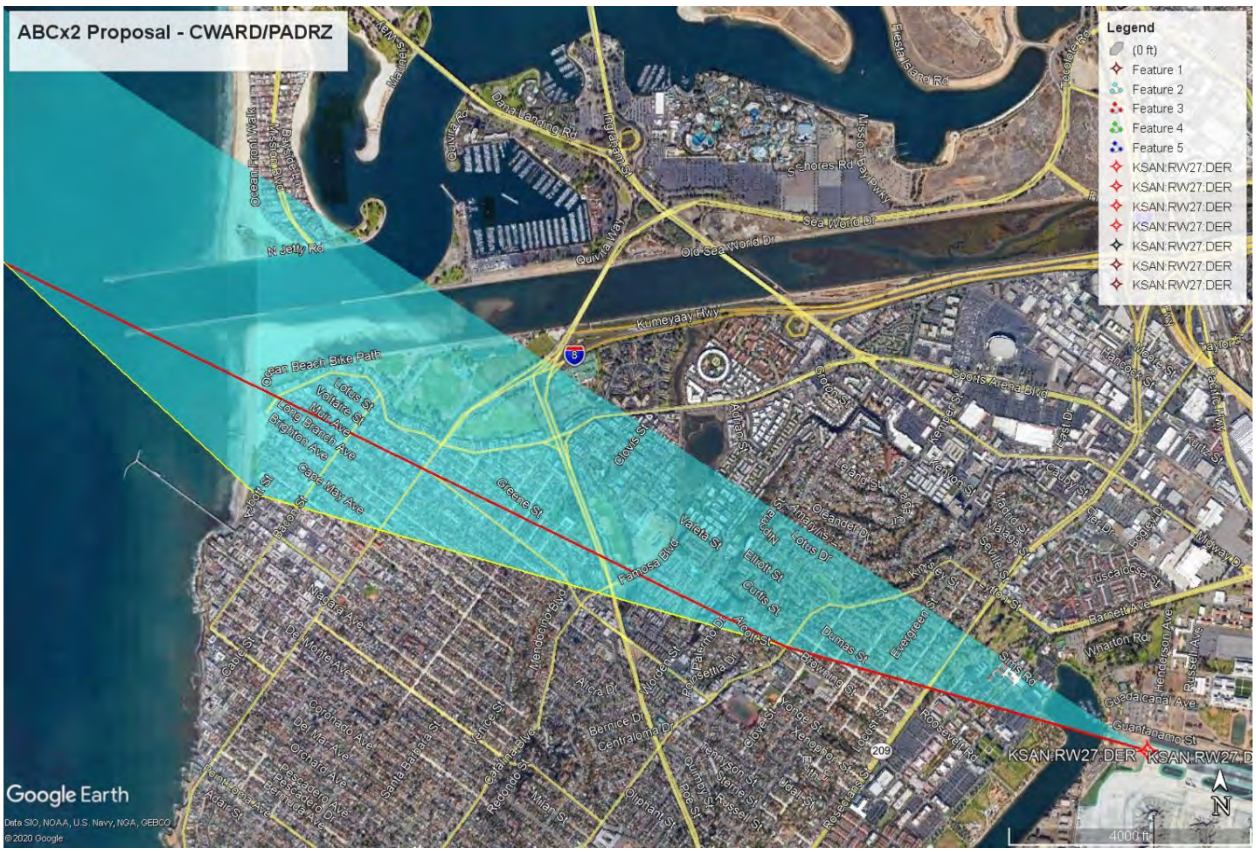


Fig. 2 – ABCx2 Proposal for CWARD/PADRZ Ground Track

Additional benefits of this ground track are that the flight track of aircraft offshore would be moved further from other noise sensitive areas as depicted in Fig. 3 below.

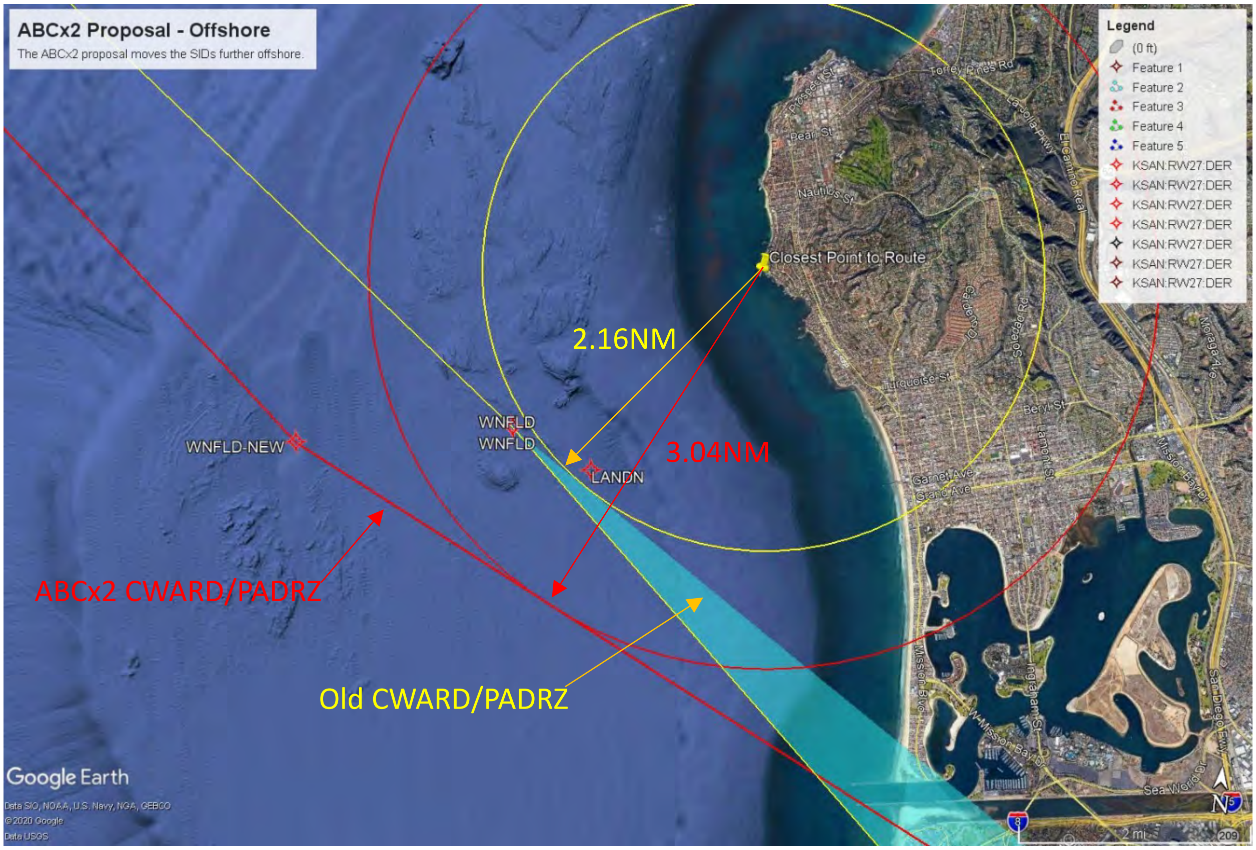


Fig. 3 – Offshore Benefits

The ECHHO/MMOTO SIDs

Both the ECHHO and MMOTO RNAV SIDs utilize the same initial ground track, as currently published. The existing SIDs are constructed with the VA/DF leg combination from the DER. After aircraft reach an altitude of 520 feet MSL, they proceed direct to the LANDN waypoint. Due to various aircraft types and performance, the time it takes to reach 520 feet MSL varies which results in aircraft flying anywhere within the yellow shaded area as depicted in Fig. 4 below.

Fig. 4 – ECHHO/MMOTO Possible Ground Track Splay Today

Although not specifically stated in the Part 150 documentation available to ABCx2, the Part 150-1c alternative could be a candidate for the ECHHO/MMOTO SIDs but for concerns about it being too far north and impacting new residences over South Mission Beach. Alternative 1c is depicted by the blue line within the yellow splay in Fig. 5 below.

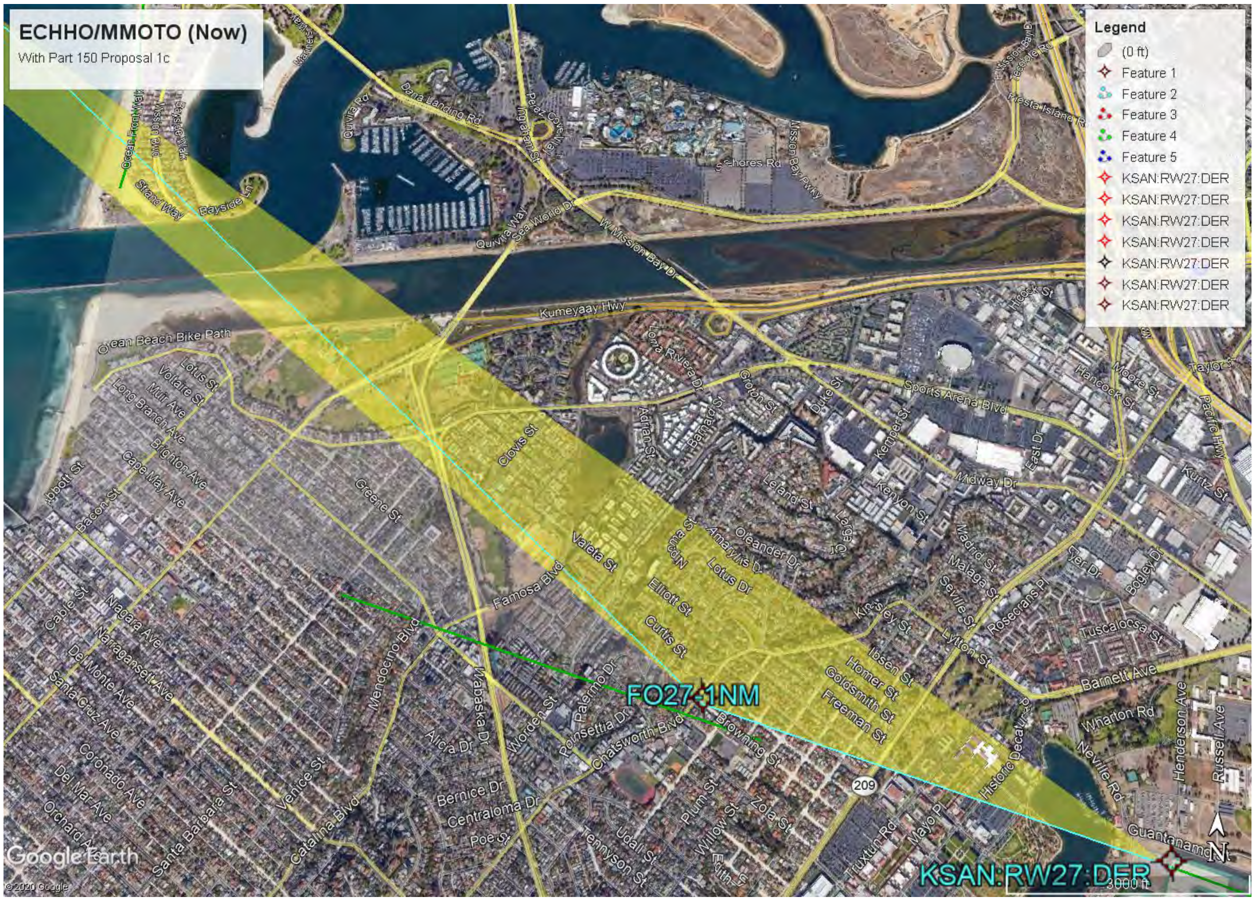


Fig. 5 – ECHHO/MMOTO SIDS Splay with Part 150 Alternative 1c (Blue Line)

Aircraft flying these SIDs are already proceeding at least this far north based upon analysis of the existing designs, which has been problematic from a noise perspective. Therefore, ABCx2 recommends that new ECHHO/MMOTO SIDs be designed south of the existing splay which will result in reducing impact to communities north of the inlet.

ABCx2 recommends that the initial leg combination be constructed as a VI/CF leg from the DER. This leg combination allows the use of ELSO rules for ATC separation and provides the necessary 10-degrees of divergence from the CWARD/PADRZ SID's new ABCx2 recommended track of 285-degrees, resulting in a ground track of 295-degrees for the new ECHHO/MMOTO SIDs. The new recommended track is depicted with the red line in Fig. 6 below.

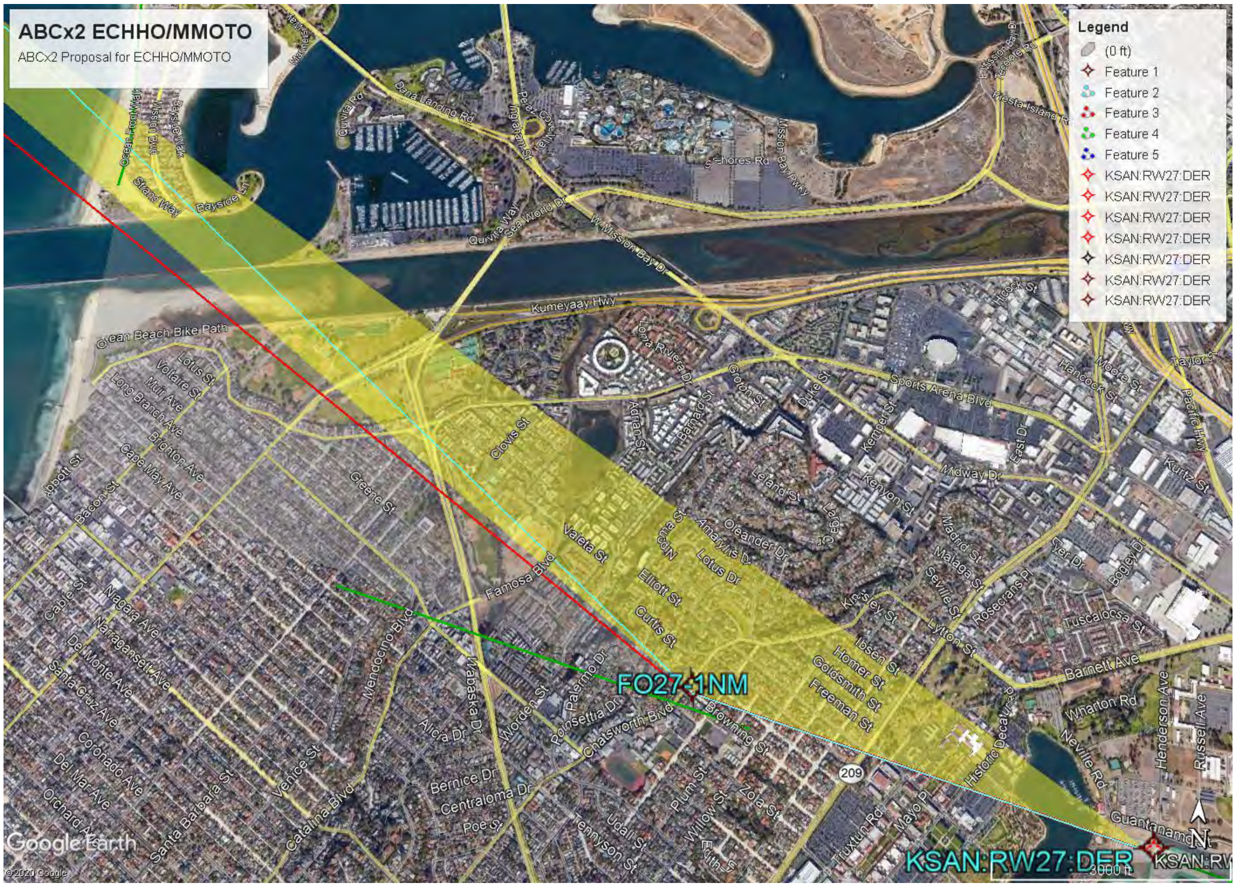


Fig. 6 – ABCx2 Recommended ECHHO/MMOTO Ground Track (Red Line)

ABCx2 also evaluated the Part 150 Alternatives 1a and 1b as depicted by the southernmost blue line in Fig. 7 below. However, the location of Alternatives 1a/1b would not have allowed for the use of the ELSO separation standard and would have reduced the efficiency of the airport, something that we believe would cause the FAA to reject the proposal.

Fig. 7 – Part 150 Alternatives 1a/1b – (Southernmost blue line)

Additional benefits of the proposed ground track are that the flight track of aircraft offshore would be moved further from other noise sensitive areas as depicted in Fig. 8 below.

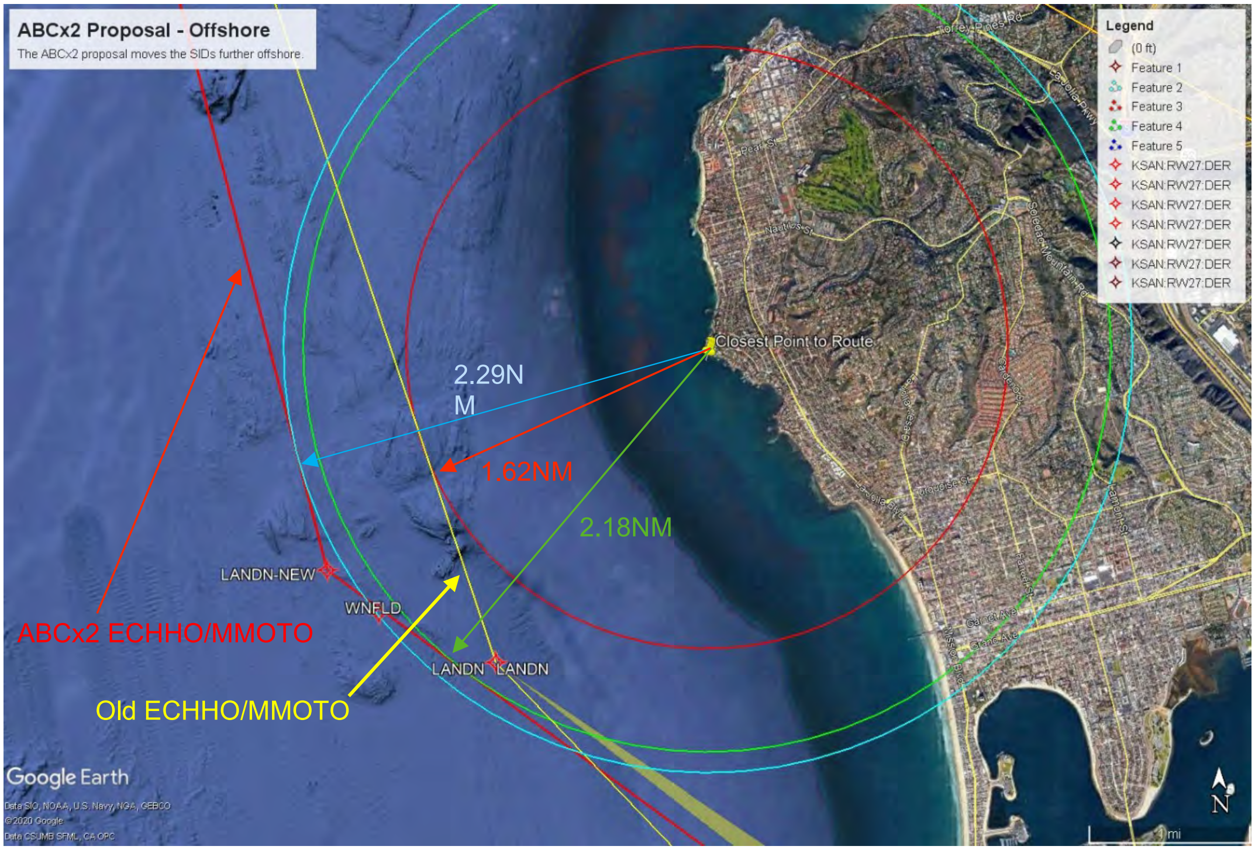


Fig. 8 – Offshore Benefits

Design Summary

When taken together, the three ELSO tracks proposed by ABCx2 promote operational efficiency at SAN, are well within the current splay of aircraft (See Fig. 9 below), disperse air traffic over and between all of the impacted communities (which addresses all communities' concerns), while simultaneously mitigating noise exposure both north and south of the Mission Bay Jetty inlet. This proposal provides three departure paths that are separated by 10-degrees (275 ZZOOO, 285 CWARD/PADRZ, 295 ECHHO/MMOTO) thereby optimizing the departure throughput of the airport without increasing controller workload. We believe this proposal provides a win-win scenario for both the local community residents and the FAA. We believe that this is the optimal solution for both noise and efficiency for west departures from the SAN Airport.

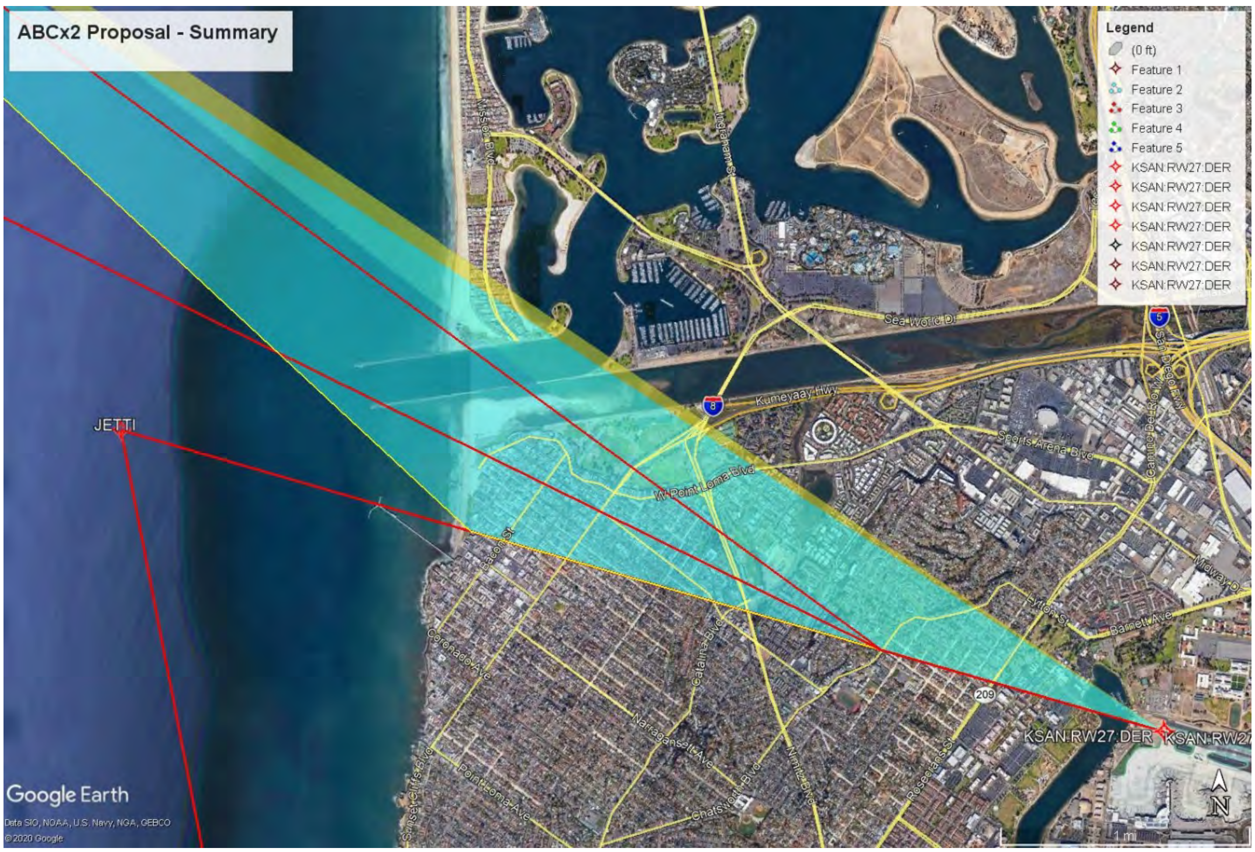


Fig. 9 – ABCx2 Proposed Tracks (Three tracks in red) within the current splay. Blue shaded area includes existing CWARD/PADRZ SIDs and yellow is the additional area covered by the existing ECHHO/MMOTO SIDs.

Glossary

ATC – Air Traffic Control

ATL – The Atlanta Hartsfield-Jackson International Airport

CAC – Community Advisory Committee

DER - Departure End of Runway

DME/DME/IRU - An RNAV system that utilizes multiple Distance Measuring Equipment sources as well as an internal Inertial Reference Unit for navigation

ELSO – Equivalent Lateral Spacing Operations – A special FAA separation standard whereby departing aircraft may diverge by as little as10-degrees as long as all aircraft participating are, and will remain, established on an RNAV SID until standard separation is achieved.

FAA – Federal Aviation Administration

GPS – Global Positioning System

MSL - Altitude above Mean Sea Level

RNAV – Area Navigation – Normally by use of GPS or DME/DME/IRU

SAN – The San Diego International Airport

SID - Standard Instrument Departure

TAC - Technical Advisory Committee

TRACON – Terminal Radar Approach Control

VA/DF - Vector or Heading to Altitude leg followed by a Direct to Fix leg

VI/CF - Vector or Heading to Intercept leg followed by a Course to Fix leg

Appendix 1 – FAA Reauthorization Act of 2018

FAA REAUTHORIZATION ACT OF 2018
SEC. 175. ADDRESSING COMMUNITY NOISE CONCERNS.

When proposing a new area navigation departure procedure, or amending an existing procedure that would direct aircraft between the surface and 6,000 feet above ground level over noise sensitive areas, the Administrator of the Federal Aviation Administration shall consider the feasibility of **dispersal headings or other lateral track variations** to address community noise concerns, if—

(1) the affected airport operator, in consultation with the affected community, submits a request to the Administrator for such a consideration;

(2) the airport operator's request would not, in the judgment of the Administrator, conflict with the safe and efficient operation of the national airspace system; and

(3) the effect of a modified departure procedure would not significantly increase noise over noise sensitive areas, as determined by the Administrator.

Appendix 2 – TARGETS Distribution Packages

NOTE- *The TARGETS Files are included herein by reference and will be distributed separately.*

CWARD2 2-ABCX2

Point Of Contact

Organization Name - ABCx2

POC's Name - James K Allerdice Jr

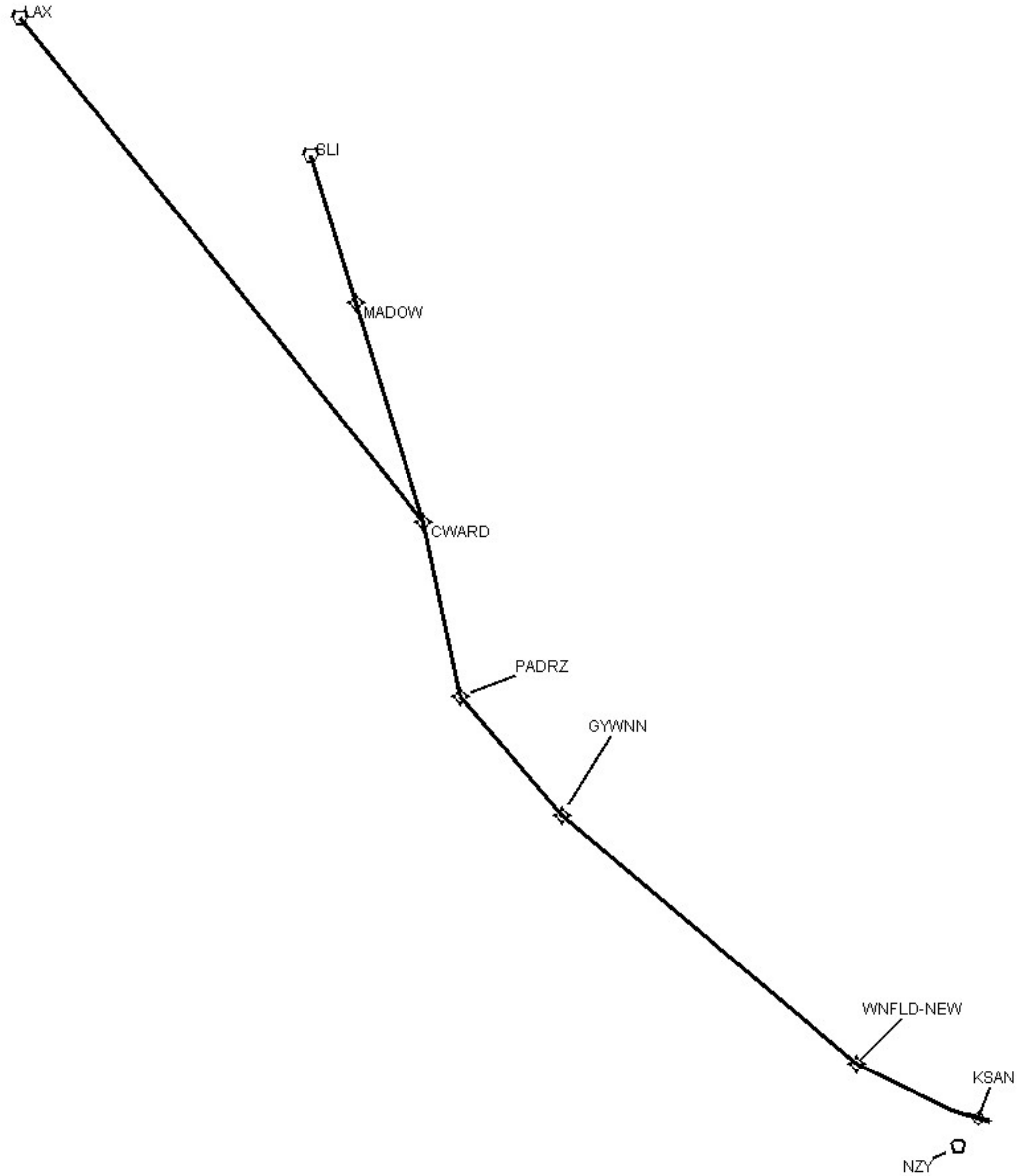
Telephone Number - 678-485-0852

FAX Number -

Email Address - j.allerdice@abcx2.com

TARGETS Distribution Package

Version:6.1.0
Date: Tue Jul 14 12:11:03 EDT 2020



CWARD2 2-ABCX2

Runway Transition Data - KSAN:RW27

DB	End Point	Latitude (D° M' S.ss")	Longitude (D° M' S.ss")	FO/ FB	Leg	TC	MC	Dist.	Altitude	Speed	MEA	MOCA	Turn Dir	Arc Center Lat (D° M' S.ss")	Arc Center Lon (D° M' S.ss")	Arc Radius (NM)
CIFP:FUL L	DER RW27	N32 44 13.65	W117 12 15.68													
					VI	286.00	275.00	1.02								
	WNFLD-NEW WP	N32 47 35.42	W117 20 53.52	FB	CF	296.00	285.00	7.00								
CIFP:FUL L	GYWNN WP	N33 03 48.44	W117 43 45.23	FB	TF	310.17	299.17	25.14	+6000							

Common Route Data - GYWNN

DB	End Point	Latitude (D° M' S.ss")	Longitude (D° M' S.ss")	FO/ FB	Leg	TC	MC	Dist.	Altitude	Speed	MEA	MOCA	Turn Dir	Arc Center Lat (D° M' S.ss")	Arc Center Lon (D° M' S.ss")	Arc Radius (NM)
CIFP:FUL L	GYWNN WP	N33 03 48.44	W117 43 45.23		IF				+6000							
CIFP:FUL L	PADRZ WP	N33 11 38.00	W117 51 43.00	FB	TF	319.47	308.47	10.28								
CIFP:FUL L	CWARD WP	N33 23 02.45	W117 54 33.38	FB	TF	348.20	337.20	11.63	-12000							

En Route Transition Data - LAX

DB	End Point	Latitude (D° M' S.ss")	Longitude (D° M' S.ss")	FO/ FB	Leg	TC	MC	Dist.	Altitude	Speed	MEA	MOCA	Turn Dir	Arc Center Lat (D° M' S.ss")	Arc Center Lon (D° M' S.ss")	Arc Radius (NM)
CIFP:FUL L	CWARD WP	N33 23 02.45	W117 54 33.38		IF				-12000							
CIFP:FUL L	LAX VORTAC	N33 55 59.34	W118 25 55.25	FB	TF	321.62	310.62	42.04			3600	3600				

En Route Transition Data - SLI

DB	End Point	Latitude (D° M' S.ss")	Longitude (D° M' S.ss")	FO/ FB	Leg	TC	MC	Dist.	Altitude	Speed	MEA	MOCA	Turn Dir	Arc Center Lat (D° M' S.ss")	Arc Center Lon (D° M' S.ss")	Arc Radius (NM)
CIFP:FUL L	CWARD WP	N33 23 02.45	W117 54 33.38		IF				-12000							
CIFP:FUL L	MADOW WP	N33 37 24.97	W117 59 47.04	FB	TF	343.08	332.08	15.00			2500	2500				
CIFP:FUL L	SLI VORTAC	N33 46 59.88	W118 03 17.13	FB	TF	343.03	332.03	10.00			2500	2500				

Point Data

DB	Point	Arc Center	Lat-Long (DMS.S)	Latitude (Deg)	Longitude (Deg)	Latitude (D°, M.mm')	Longitude (D°, M.mm')	Latitude (D° M' S.ss")	Longitude (D° M' S.ss")
CIFP:FULL	CWARD WP		332302.45N-1175433.38W	N 33.3840139	W 117.9092722	N33 23.041	W117 54.556	N33 23 02.45	W117 54 33.38
CIFP:FULL	GYWNN WP		330348.44N-1174345.23W	N 33.0634556	W 117.7292306	N33 03.807	W117 43.754	N33 03 48.44	W117 43 45.23
CIFP:FULL	LAX VORTAC		335559.34N-1182555.25W	N 33.9331500	W 118.4320139	N33 55.989	W118 25.921	N33 55 59.34	W118 25 55.25
CIFP:FULL	MADOW WP		333724.97N-1175947.04W	N 33.6236028	W 117.9964000	N33 37.416	W117 59.784	N33 37 24.97	W117 59 47.04
NFDC	NZY TACAN		324209.13N-1171258.43W	N 32.7025361	W 117.2162306	N32 42.152	W117 12.974	N32 42 09.13	W117 12 58.43
CIFP:FULL	PADRZ WP		331138.00N-1175143.00W	N 33.1938889	W 117.8619444	N33 11.633	W117 51.717	N33 11 38.00	W117 51 43.00
CIFP:FULL	SLI VORTAC		334659.88N-1180317.13W	N 33.7833000	W 118.0547583	N33 46.998	W118 03.285	N33 46 59.88	W118 03 17.13
	WNFLD-NEW WP		324735.42N-1172053.52W	N 32.7931717	W 117.3482009	N32 47.590	W117 20.892	N32 47 35.42	W117 20 53.52

RS Results CWARD2 2-ABCX2

Last Evaluation: 14-Jul-2020 11:43:30
Reference Software Version: 2.5.0
Project Chart Date: 04/26/2018

Controlling Obstacles for RW27 Runway Evaluation

CG Controlling Obstacle

Name:	06-187045	
Obstacle Type:	UTILITY POLE	
Height (ft) AMSL:	241	
Location:	N32° 44' 16.06",W117° 13' 30.48"	
Accuracy Code (H/V (ft) AMSL):	4D (+250/+50)	
Applied Horizontal Accuracy (ft) AMSL:	250	
Applied Vertical Accuracy (ft) AMSL:	50	
	Original Values	Adjusted Values
Effective Height (ft) AMSL:	241	291
Primary Evaluation Point:	N32° 44' 16.06",W117° 13' 30.48"	N32° 44' 15.38",W117° 13' 27.66"
Tieback Distance (ft):	0	0
Primary Evaluation Distance (ft):	6208.9	5958.9
Secondary Evaluation Distance (ft):	0	0
Level Surface ROC (ft):	2000	2000
Amount of Penetration (ft):	-154.8	-89.6
Required Termination Altitude (ft) AMSL:	312	377.8
Required Climb Gradient (ft/NM):	289.5	368.7
OCS Altitude (ft) AMSL:	395.8	380.6
Minimum Aircraft Altitude (ft) AMSL:	515.8	495.7

En Route Controlling Obstacles

MOCA

Start Pt	End Pt	Name	Source	Obstacle Type	AC (H/V (ft))	Lat	Long	Height (ft)	Height (ft) AMSL	Mnts Area	Pri/Sec Area	ROC (ft)	Worst Case Veg Ht (ft)	Leg MOCA (ft)	Min OCA (ft)	TARGETS Instance Date	Man-Made Obstacle
CWARD	LAX	06-000413	DOF	TOWER	4D (+250/+50)	N33° 44' 46.00"	W118° 20' 07.00"	1543.00	1543.00	true	P	2000.00	0	3543	3543.00	Sun Jul 05 13:22:51 EDT 2020	false
CWARD	MADOW	06-000307	DOF	TOWER	4D (+250/+50)	N33° 37' 55.77"	W117° 56' 16.20"	425.00	425.00	true	P	2000.00	0	2425	2425.00	Sun Jul 05 13:22:50 EDT 2020	false
MADOW	SLI	06-000307	DOF	TOWER	4D (+250/+50)	N33° 37' 55.77"	W117° 56' 16.20"	425.00	425.00	true	P	2000.00	0	2425	2425.00	Sun Jul 05 13:22:50 EDT 2020	false

No MCA Obstacles

Runway Evaluation for RW27

LNAV Engagement CG (ft/NM):	-
LNAV Engagement Termination Altitude (ft):	-
Obstacle Climb Gradient (ft/NM):	-
Obstacle CG Termination Altitude (ft):	-
Inhibit controlling obstacles within ICA Extended 3SM Area:	false

Route Evaluation for KSAN:RW27:GYWNN:LAX

Required Engagement Climb Gradient (ft/NM): 489.00

KSAN:RW27:GYWNN:LAX Evaluation Results Part 1/2

Leg Tp	End Pt	Turn Tp	Alt Restr	Alt Restr 2	Spd Restr	Min CG Calc Alt	Turn Ang	Leg Length	Min Seg Length
VI						221.00	10.08	1.02	1.02
CF	WNFLD-NEW	FLY_BY				1621.83	14.17	7.0	1.98
TF	GYWNN	FLY_BY	+6000.00			6651.70	9.5	25.14	1.72
TF	PADRZ	FLY_BY				8708.95	28.81	10.28	2.84
TF	CWARD	FLY_BY	-12000.00			11036.46	26.56	11.63	5.67
TF	LAX	FLY_BY				19449.72		42.04	2.84

KSAN:RW27:GYWNN:LAX Evaluation Results Part 2/2

Leg Tp	End Pt	Turn Tp	DTA1	DTA1 Turn Rad	DTA1 Turn Alt	DTA1 Turn Spd	DTA1 Bank Ang	DTA1 Tailwind	DTA1 True Airspd	DTA1 vGround	DTA2	DTA2 Turn Rad	DTA2 Turn Alt	DTA2 Turn Spd	DTA2 Bank Ang	DTA2 Tailwind	DTA2 True Airspd	DTA2 vGround
VI					0.0	0.0					0.25	2.89	528.27	265.0	25.0	30.0	273.95	303.95
CF	WNFLD-NEW	FLY_BY	0.25	2.89	528.27	265.0	25.0	30.0	273.95	303.95	1.72	13.85	4030.57	265.0	7.09	54.98	288.77	343.75
TF	GYWNN	FLY_BY	1.72	13.85	4030.57	265.0	7.09	54.98	288.77	343.75	0.0	32.42	12000.0	300.0	5.0	70.76	370.41	441.17
TF	PADRZ	FLY_BY	0.0	32.42	12000.0	300.0	5.0	70.76	370.41	441.17	2.84	11.04	12000.0	300.0	14.4	70.76	370.41	441.17
TF	CWARD	FLY_BY	2.84	11.04	12000.0	300.0	14.4	70.76	370.41	441.17	2.84	12.02	12000.0	300.0	13.28	70.76	370.41	441.17
TF	LAX	FLY_BY	2.84	12.02	12000.0	300.0	13.28	70.76	370.41	441.17	0.0		26726.1	300.0	0.0	99.92	476.63	552.68

KSAN:RW27:GYWNN:LAX Criteria Failures and Warnings

No failures.

Route Evaluation for KSAN:RW27:GYWNN:SLI

Required Engagement Climb Gradient (ft/NM): 489.00

KSAN:RW27:GYWNN:SLI Evaluation Results Part 1/2

Leg Tp	End Pt	Turn Tp	Alt Restr	Alt Restr 2	Spd Restr	Min CG Calc Alt	Turn Ang	Leg Length	Min Seg Length
VI						221.00	10.08	1.02	1.02
CF	WNFLD-NEW	FLY_BY				1621.83	14.17	7.0	1.98
TF	GYWNN	FLY_BY	+6000.00			6651.70	9.5	25.14	1.72
TF	PADRZ	FLY_BY				8708.95	28.81	10.28	2.84
TF	CWARD	FLY_BY	-12000.00			11036.46	5.1	11.63	2.84
TF	MADOW	FLY_BY				14038.20	0.0	15.0	1.0
TF	SLI	FLY_BY				16039.74		10.0	1.0

KSAN:RW27:GYWNN:SLI Evaluation Results Part 2/2

Leg Tp	End Pt	Turn Tp	DTA1	DTA1 Turn Rad	DTA1 Turn Alt	DTA1 Turn Spd	DTA1 Bank Ang	DTA1 Tailwind	DTA1 True Airspd	DTA1 vGround	DTA2	DTA2 Turn Rad	DTA2 Turn Alt	DTA2 Turn Spd	DTA2 Bank Ang	DTA2 Tailwind	DTA2 True Airspd	DTA2 vGround
VI					0.0	0.0					0.25	2.89	528.27	265.0	25.0	30.0	273.95	303.95
CF	WNFLD-NEW	FLY_BY	0.25	2.89	528.27	265.0	25.0	30.0	273.95	303.95	1.72	13.85	4030.57	265.0	7.09	54.98	288.77	343.75
TF	GYWNN	FLY_BY	1.72	13.85	4030.57	265.0	7.09	54.98	288.77	343.75	0.0	32.42	12000.0	300.0	5.0	70.76	370.41	441.17
TF	PADRZ	FLY_BY	0.0	32.42	12000.0	300.0	5.0	70.76	370.41	441.17	2.84	11.04	12000.0	300.0	14.4	70.76	370.41	441.17
TF	CWARD	FLY_BY	2.84	11.04	12000.0	300.0	14.4	70.76	370.41	441.17	0.0	32.42	12000.0	300.0	5.0	70.76	370.41	441.17
TF	MADOW	FLY_BY	0.0	32.42	12000.0	300.0	5.0	70.76	370.41	441.17	0.0		17253.58	300.0	0.0	81.16	403.91	485.07
TF	SLI	FLY_BY	0.0		17253.58	300.0	0.0	81.16	403.91	485.07	0.0		20756.93	300.0	0.0	88.1	428.77	493.34

KSAN:RW27:GYWNN:SLI Criteria Failures and Warnings

No failures.

Evaluation Input

Name:	RS Results CWARD2 2-ABCX2
Project:	La Jolla 20200708a
Last Evaluated:	14-Jul-2020 11:43:30
Evaluated Obstacles?:	true
Obstacle Database:	DOF (14.0nm query)
Evaluated Terrain?:	false
Evaluated Precipitous Terrain?:	false
Worst Case Vegetation Height (ft) AGL:	0
Converted 9I Accuracies to 4D?:	true
MVA Prior to the IF (ft) MSL:	-
Maximum Aircraft Category:	D

Airport

Name:	KSAN [CIFP:FULL]
Location:	N32° 44' 00.80",W117° 11' 22.80"
Elevation (ft):	17
Magnetic Variation (degs):	11 ()

AAO Exempt Airports

Name	Location	Elevation (ft)
KCRQ [NFDC]	N33° 07' 41.70",W117° 16' 48.30"	330.5
KLAX [NFDC]	N33° 56' 32.99",W118° 24' 28.98"	127.8
KLGB [NFDC]	N33° 49' 04.55",W118° 09' 06.81"	60.4
KMYF [NFDC]	N32° 48' 56.60",W117° 08' 22.40"	427.3
KNZY [NFDC]	N32° 41' 53.51",W117° 12' 47.20"	25.9
KONT [NFDC]	N34° 03' 21.60",W117° 36' 04.30"	944
KRNM [NFDC]	N33° 02' 21.00",W116° 54' 54.90"	1394.6
KSAN [CIFP:FULL]	N32° 44' 00.80",W117° 11' 22.80"	17
KSAN [NFDC]	N32° 44' 00.80",W117° 11' 22.80"	16.8
KSDM [NFDC]	N32° 34' 20.20",W116° 58' 48.60"	526.1
KSEE [NFDC]	N32° 49' 34.40",W116° 58' 20.80"	387.5
KSMO [NFDC]	N34° 00' 56.96",W118° 27' 04.70"	169.8
KSNA [NFDC]	N33° 40' 32.40",W117° 52' 05.60"	56.1

Runways

Name	Airport	Location	Elevation (ft)	TDZE (ft)	True Course (degs)	Survey?
RW09	KSAN [CIFP:FULL]	N32° 44' 10.92",W117° 12' 04.43"	16	16	106	NONE
RW27	KSAN [CIFP:FULL]	N32° 43' 52.94",W117° 10' 50.26"	15	15.5	286	NONE

Criteria Failures and Warnings

RDO70: [Waiver Required] In the leg from CWARD to MADOW, an MEA was not provided. An MEA must be established on each leg of an En route Transition.
RDO73: [Information] In the route beginning at RW27 and ending at LAX, the Fix GYWNN, has a Minimum Climb Gradient Calculation Altitude 6651.702151969075 that is greater than the Altitude Restriction 6000.0.
RDO70: [Waiver Required] In the leg from CWARD to LAX, an MEA was not provided. An MEA must be established on each leg of an En route Transition.
RDO70: [Waiver Required] In the leg from MADOW to SLI, an MEA was not provided. An MEA must be established on each leg of an En route Transition.
RDO73: [Information] In the route beginning at RW27 and ending at SLI, the Fix GYWNN, has a Minimum Climb Gradient Calculation Altitude 6651.702151969075 that is greater than the Altitude Restriction 6000.0.

Software Evaluation Failures, Warnings, and Notes

CEW19: KLGB does not have all the required runways to construct the AAO area.
CEW19: KMYF does not have all the required runways to construct the AAO area.
No terrain evaluation was performed.
In the leg from CWARD to MADOW the MEA was set to 2500.0 based on evaluated MOCA.
CEW19: KCRQ does not have all the required runways to construct the AAO area.
CEW19: KSMO does not have all the required runways to construct the AAO area.
CEW19: KSEE does not have all the required runways to construct the AAO area.
CEW19: KLAX does not have all the required runways to construct the AAO area.
RW27: Minimum VI segment leg was applied.
CEW19: KSDM does not have all the required runways to construct the AAO area.
CEW19: KRNM does not have all the required runways to construct the AAO area.
CEW19: KNZY does not have all the required runways to construct the AAO area.
In the leg from CWARD to LAX the MEA was set to 3600.0 based on evaluated MOCA.
CEW19: KONT does not have all the required runways to construct the AAO area.
CEW19: KSNA does not have all the required runways to construct the AAO area.
In the leg from MADOW to SLI the MEA was set to 2500.0 based on evaluated MOCA.

Obstacles Requiring Accuracy Code Verification

[06-000275 [DOF], 06-000308 [DOF], 06-001163 [DOF], 06-002237 [DOF], 06-002238 [DOF], 06-002499 [DOF], 06-006030 [DOF], 06-006032 [DOF], 06-006035 [DOF], 06-006036 [DOF], 06-006037 [DOF], 06-006045 [DOF], 06-006056 [DOF], 06-006245 [DOF], 06-006254 [DOF], 06-020050 [DOF], 06-020074 [DOF], 06-038543 [DOF], 06-229418 [DOF]]

Ignored Obstacles

None.

Procedure Notes

None.

Database Effective Dates

Database	Date
UddfObstacle	07/13/2017
Tiled IFPA	N/A
OEAAA	N/A
DOF	06/18/2020
NFDC	07/16/2020
IFP_OFFLINE	N/A
AVNII_OFFLINE	N/A
CIFP	06/18/2020

Notes:

1. **The only changes made in this SID were on the RWY 27 Runway Transition.**
2. **The intended use of this TARGETS Distribution Package is for evaluation purposes in the SAN Airport Part 150, July 2020, as an alternative design proposal.**

PADRZ2 2-ABCX2

Point Of Contact

Organization Name - ABCx2

POC's Name - James K Allerdice Jr

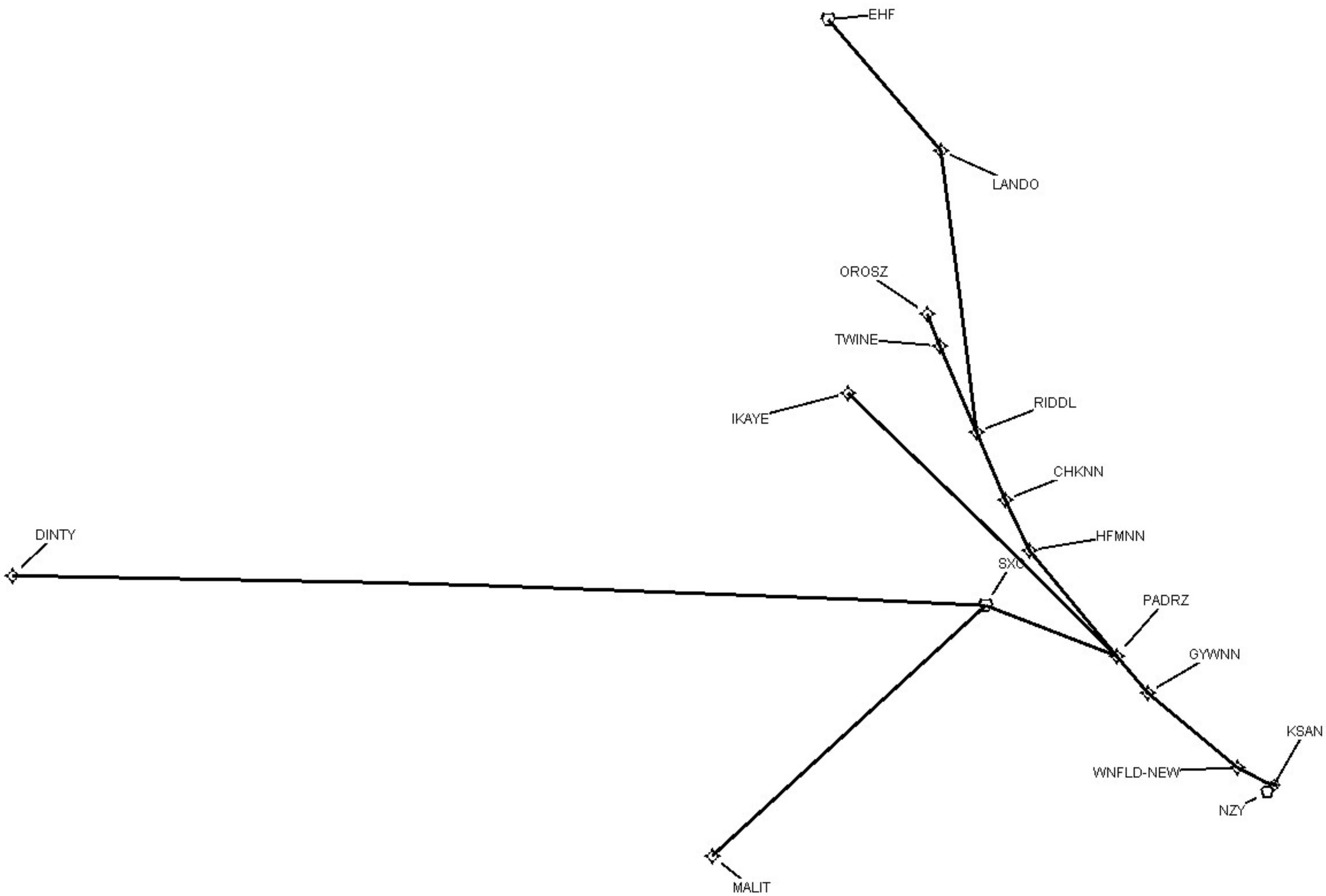
Telephone Number - 678-485-0852

FAX Number -

Email Address - j.allerdice@abcx2.com

TARGETS Distribution Package

Version:6.1.0
Date: Tue Jul 14 13:48:14 EDT 2020



PADRZ2 2-ABCX2

Runway Transition Data - KSAN:RW27

DB	End Point	Latitude (D° M' S.ss")	Longitude (D° M' S.ss")	FO/ FB	Leg	TC	MC	Dist.	Altitude	Speed	MEA	MOCA	Turn Dir	Arc Center Lat (D° M' S.ss")	Arc Center Lon (D° M' S.ss")	Arc Radius (NM)
CIFP:FUL L	DER RW27	N32 44 13.65	W117 12 15.68													
					VI	286.00	275.00	1.02								
	WNFLD- NEW WP	N32 47 35.42	W117 20 53.52	FB	CF	296.00	285.00	7.00								
CIFP:FUL L	GYWNN WP	N33 03 48.44	W117 43 45.23	FB	TF	310.17	299.17	25.14	+8000							
CIFP:FUL L	PADRZ WP	N33 11 38.00	W117 51 43.00	FB	TF	319.47	308.47	10.28								

En Route Transition Data - CHKNN

DB	End Point	Latitude (D° M' S.ss")	Longitude (D° M' S.ss")	FO/ FB	Leg	TC	MC	Dist.	Altitude	Speed	MEA	MOCA	Turn Dir	Arc Center Lat (D° M' S.ss")	Arc Center Lon (D° M' S.ss")	Arc Radius (NM)
CIFP:FUL L	PADRZ WP	N33 11 38.00	W117 51 43.00		IF											
CIFP:FUL L	HFMNN WP	N33 34 33.14	W118 14 10.12	FB	TF	320.69	309.69	29.61			2200	2200				
CIFP:FUL L	CHKNN WP	N33 45 30.18	W118 20 12.29	FB	TF	335.28	324.28	12.04			3700	3600				

En Route Transition Data - DINTY

DB	End Point	Latitude (D° M' S.ss")	Longitude (D° M' S.ss")	FO/ FB	Leg	TC	MC	Dist.	Altitude	Speed	MEA	MOCA	Turn Dir	Arc Center Lat (D° M' S.ss")	Arc Center Lon (D° M' S.ss")	Arc Radius (NM)
CIFP:FUL L	PADRZ WP	N33 11 38.00	W117 51 43.00		IF											
CIFP:FUL L	SXC VORTAC	N33 22 30.20	W118 25 11.68	FB	TF	291.29	280.29	30.09			4400	4200				
CIFP:FUL L	DINTY WP	N33 28 58.49	W122 35 02.38	FB	TF	272.92	261.92	209.19			4400	4200				

En Route Transition Data - EHF

DB	End Point	Latitude (D° M' S.ss")	Longitude (D° M' S.ss")	FO/ FB	Leg	TC	MC	Dist.	Altitude	Speed	MEA	MOCA	Turn Dir	Arc Center Lat (D° M' S.ss")	Arc Center Lon (D° M' S.ss")	Arc Radius (NM)
CIFP:FUL L	PADRZ WP	N33 11 38.00	W117 51 43.00		IF											
CIFP:FUL L	HFMNN WP	N33 34 33.14	W118 14 10.12	FB	TF	320.69	309.69	29.61			2200	2200				
CIFP:FUL L	CHKNN WP	N33 45 30.18	W118 20 12.29	FB	TF	335.28	324.28	12.04			3700	3600				
CIFP:FUL L	RIDDL WP	N34 00 07.30	W118 27 35.28	FB	TF	337.19	326.19	15.83			3700	3600				
CIFP:FUL L	LANDO WP	N35 00 44.74	W118 36 58.94	FB	TF	352.73	341.73	61.02			10000	5600				
CIFP:FUL L	EHF VORTAC	N35 29 04.40	W119 05 50.26	FB	TF	320.26	309.26	36.86			10000	5200				

En Route Transition Data - IKAYE

DB	End Point	Latitude (D° M' S.ss")	Longitude (D° M' S.ss")	FO/ FB	Leg	TC	MC	Dist.	Altitude	Speed	MEA	MOCA	Turn Dir	Arc Center Lat (D° M' S.ss")	Arc Center Lon (D° M' S.ss")	Arc Radius (NM)
CIFP:FUL L	PADRZ WP	N33 11 38.00	W117 51 43.00		IF											
CIFP:FUL L	IKAYE WP	N34 08 35.00	W119 00 37.00	FB	TF	314.99	303.99	80.86			5200	3600				

En Route Transition Data - MALIT

DB	End Point	Latitude (D° M' S.ss")	Longitude (D° M' S.ss")	FO/ FB	Leg	TC	MC	Dist.	Altitude	Speed	MEA	MOCA	Turn Dir	Arc Center Lat (D° M' S.ss")	Arc Center Lon (D° M' S.ss")	Arc Radius (NM)
CIFP:FUL L	PADRZ WP	N33 11 38.00	W117 51 43.00		IF											
CIFP:FUL L	SXC VORTAC	N33 22 30.20	W118 25 11.68	FB	TF	291.29	280.29	30.09			4400	4200				
CIFP:FUL L	MALIT WP	N32 28 32.13	W119 35 28.25	FB	TF	228.00	217.00	80.00			4400	4200				

En Route Transition Data - OROSZ

DB	End Point	Latitude (D° M' S.ss")	Longitude (D° M' S.ss")	FO/ FB	Leg	TC	MC	Dist.	Altitude	Speed	MEA	MOCA	Turn Dir	Arc Center Lat (D° M' S.ss")	Arc Center Lon (D° M' S.ss")	Arc Radius (NM)
CIFP:FULL	PADRZ WP	N33 11 38.00	W117 51 43.00		IF											
CIFP:FULL	HFMNN WP	N33 34 33.14	W118 14 10.12	FB	TF	320.69	309.69	29.61			2200	2200				
CIFP:FULL	CHKNN WP	N33 45 30.18	W118 20 12.29	FB	TF	335.28	324.28	12.04			3700	3600				
CIFP:FULL	RIDDL WP	N34 00 07.30	W118 27 35.28	FB	TF	337.19	326.19	15.83			3700	3600				
CIFP:FULL	TWINE WP	N34 18 34.90	W118 36 59.32	FB	TF	337.10	326.10	20.01			6000	5600				
CIFP:FULL	OROSZ WP	N34 25 36.18	W118 40 27.01	FB	TF	337.78	326.78	7.57			6000	5600				

Point Data

DB	Point	Arc Center	Lat-Long (DMS.S)	Latitude (Deg)	Longitude (Deg)	Latitude (D°, M.mm')	Longitude (D°, M.mm')	Latitude (D° M' S.ss")	Longitude (D° M' S.ss")
CIFP:FULL	CHKNN WP		334530.18N-1182012.29W	N 33.7583833	W 118.3367472	N33 45.503	W118 20.205	N33 45 30.18	W118 20 12.29
CIFP:FULL	DINTY WP		332858.49N-1223502.38W	N 33.4829139	W 122.5839944	N33 28.975	W122 35.040	N33 28 58.49	W122 35 02.38
CIFP:FULL	EHF VORTAC		352904.40N-1190550.26W	N 35.4845556	W 119.0972944	N35 29.073	W119 05.838	N35 29 04.40	W119 05 50.26
CIFP:FULL	GYWNN WP		330348.44N-1174345.23W	N 33.0634556	W 117.7292306	N33 03.807	W117 43.754	N33 03 48.44	W117 43 45.23
CIFP:FULL	HFMNN WP		333433.14N-1181410.12W	N 33.5758722	W 118.2361444	N33 34.552	W118 14.169	N33 34 33.14	W118 14 10.12
CIFP:FULL	IKAYE WP		340835.00N-1190037.00W	N 34.1430556	W 119.0102778	N34 08.583	W119 00.617	N34 08 35.00	W119 00 37.00
CIFP:FULL	LANDO WP		350044.74N-1183658.94W	N 35.0124278	W 118.6163722	N35 00.746	W118 36.982	N35 00 44.74	W118 36 58.94
CIFP:FULL	MALIT WP		322832.13N-1193528.25W	N 32.4755917	W 119.5911806	N32 28.536	W119 35.471	N32 28 32.13	W119 35 28.25
NFDC	NZY TACAN		324209.13N-1171258.43W	N 32.7025361	W 117.2162306	N32 42.152	W117 12.974	N32 42 09.13	W117 12 58.43
CIFP:FULL	OROSZ WP		342536.18N-1184027.01W	N 34.4267167	W 118.6741694	N34 25.603	W118 40.450	N34 25 36.18	W118 40 27.01
CIFP:FULL	PADRZ WP		331138.00N-1175143.00W	N 33.1938889	W 117.8619444	N33 11.633	W117 51.717	N33 11 38.00	W117 51 43.00
CIFP:FULL	RIDDL WP		340007.30N-1182735.28W	N 34.0020278	W 118.4598000	N34 00.122	W118 27.588	N34 00 07.30	W118 27 35.28
CIFP:FULL	SXC VORTAC		332230.20N-1182511.68W	N 33.3750556	W 118.4199111	N33 22.503	W118 25.195	N33 22 30.20	W118 25 11.68
CIFP:FULL	TWINE WP		341834.90N-1183659.32W	N 34.3096944	W 118.6164778	N34 18.582	W118 36.989	N34 18 34.90	W118 36 59.32
	WNFLD-NEW WP		324735.42N-1172053.52W	N 32.7931717	W 117.3482009	N32 47.590	W117 20.892	N32 47 35.42	W117 20 53.52

RS Results PADRZ2 2-ABCX2

Last Evaluation: 14-Jul-2020 13:44:18
Reference Software Version: 2.5.0
Project Chart Date: 04/26/2018

Controlling Obstacles for RW27 Runway Evaluation

CG Controlling Obstacle

Name:	06-187045	
Obstacle Type:	UTILITY POLE	
Height (ft) AMSL:	241	
Location:	N32° 44' 16.06",W117° 13' 30.48"	
Accuracy Code (H/V (ft) AMSL):	4D (+250/+50)	
Applied Horizontal Accuracy (ft) AMSL:	250	
Applied Vertical Accuracy (ft) AMSL:	50	
	Original Values	Adjusted Values
Effective Height (ft) AMSL:	241	291
Primary Evaluation Point:	N32° 44' 16.06",W117° 13' 30.48"	N32° 44' 15.38",W117° 13' 27.66"
Tieback Distance (ft):	0	0
Primary Evaluation Distance (ft):	6208.9	5958.9
Secondary Evaluation Distance (ft):	0	0
Level Surface ROC (ft):	2000	2000
Amount of Penetration (ft):	-154.9	-89.6
Required Termination Altitude (ft) AMSL:	312	377.8
Required Climb Gradient (ft/NM):	289.5	368.7
OCS Altitude (ft) AMSL:	395.9	380.6
Minimum Aircraft Altitude (ft) AMSL:	515.9	495.8

En Route Controlling Obstacles

MOCA

Start Pt	End Pt	Name	Source	Obstacle Type	AC (H/V (ft))	Lat	Long	Height (ft)	Height (ft) AMSL	Mnts Area	Pri/Sec Area	ROC (ft)	Worst Case Veg Ht (ft)	Leg MOCA (ft)	Min OCA (ft)	TARGETS Instance Date	Man-Made Obstacle
RIDDL	LANDO	06-020154	DOF	TOWER	2E (+50/+125)	N34° 19' 26.62"	W118° 34' 53.72"	3590.00	3590.00	true	P	2000.00	0	5590	5590.00	Sun Jul 05 13:29:30 EDT 2020	false
RIDDL	TWINE	06-020154	DOF	TOWER	2E (+50/+125)	N34° 19' 26.62"	W118° 34' 53.72"	3590.00	3590.00	true	P	2000.00	0	5590	5590.00	Sun Jul 05 13:29:30 EDT 2020	false
TWINE	OROSZ	06-020154	DOF	TOWER	2E (+50/+125)	N34° 19' 26.62"	W118° 34' 53.72"	3590.00	3590.00	true	P	2000.00	0	5590	5590.00	Sun Jul 05 13:29:30 EDT 2020	false
LANDO	EHF	06-165107	DOF	CATENARY	5E (+500/+125)	N35° 01' 40.25"	W118° 37' 32.27"	3174.00	3174.00	true	P	2000.00	0	5174	5174.00	Sun Jul 05 13:29:33 EDT 2020	false
PADRZ	SXC	06-001930	DOF	TOWER	5E (+500/+125)	N33° 23' 12.00"	W118° 24' 03.00"	2137.00	2137.00	true	P	2000.00	0	4137	4137.00	Sun Jul 05 13:29:29 EDT 2020	false
SXC	DINTY	06-001930	DOF	TOWER	5E (+500/+125)	N33° 23' 12.00"	W118° 24' 03.00"	2137.00	2137.00	true	P	2000.00	0	4137	4137.00	Sun Jul 05 13:29:29 EDT 2020	false
SXC	MALIT	06-001930	DOF	TOWER	5E (+500/+125)	N33° 23' 12.00"	W118° 24' 03.00"	2137.00	2137.00	true	P	2000.00	0	4137	4137.00	Sun Jul 05 13:29:29 EDT 2020	false
HFMNN	CHKNN	06-000413	DOF	TOWER	4D (+250/+50)	N33° 44' 46.00"	W118° 20' 07.00"	1543.00	1543.00	true	P	2000.00	0	3543	3543.00	Sun Jul 05 13:22:51 EDT 2020	false
CHKNN	RIDDL	06-000413	DOF	TOWER	4D (+250/+50)	N33° 44' 46.00"	W118° 20' 07.00"	1543.00	1543.00	true	P	2000.00	0	3543	3543.00	Sun Jul 05 13:22:51 EDT 2020	false
PADRZ	IKAYE	06-001864	DOF	TOWER	2A (+50/+3)	N34° 06' 30.00"	W119° 03' 52.00"	1524.00	1524.00	true	P	2000.00	0	3524	3524.00	Sun Jul 05 13:22:52 EDT 2020	false
PADRZ	HFMNN	NONE															

No MCA Obstacles

Runway Evaluation for RW27

LNAV Engagement CG (ft/NM):	-
LNAV Engagement Termination Altitude (ft):	-
Obstacle Climb Gradient (ft/NM):	-
Obstacle CG Termination Altitude (ft):	-
Inhibit controlling obstacles within ICA Extended 3SM Area:	false

Route Evaluation for KSAN:RW27:CHKNN

Required Engagement Climb Gradient (ft/NM): 489.09

KSAN:RW27:CHKNN Evaluation Results Part 1/2

Leg Tp	End Pt	Turn Tp	Alt Restr	Alt Restr 2	Spd Restr	Min CG Calc Alt	Turn Ang	Leg Length	Min Seg Length
VI						220.96	10.08	1.02	1.02
CF	WNFLD-NEW	FLY_BY				1621.83	14.17	7.0	1.98
TF	GYWNN	FLY_BY	+8000.00			6651.70	9.5	25.14	1.72
TF	PADRZ	FLY_BY				8708.95	1.29	10.28	1.0
TF	HFMNN	FLY_BY				14634.23	14.8	29.61	7.03
TF	CHKNN	FLY_BY				17043.21		12.04	7.03

KSAN:RW27:CHKNN Evaluation Results Part 2/2

Leg Tp	End Pt	Turn Tp	DTA1	DTA1 Turn Rad	DTA1 Turn Alt	DTA1 Turn Spd	DTA1 Bank Ang	DTA1 Tailwind	DTA1 True Airspd	DTA1 vGround	DTA2	DTA2 Turn Rad	DTA2 Turn Alt	DTA2 Turn Spd	DTA2 Bank Ang	DTA2 Tailwind	DTA2 True Airspd	DTA2 vGround
VI					0.0	0.0					0.25	2.89	528.17	265.0	25.0	30.0	273.95	303.95
CF	WNFLD-NEW	FLY_BY	0.25	2.89	528.17	265.0	25.0	30.0	273.95	303.95	1.72	13.85	4030.57	265.0	7.09	54.98	288.77	343.75
TF	GYWNN	FLY_BY	1.72	13.85	4030.57	265.0	7.09	54.98	288.77	343.75	0.0	35.64	14626.07	300.0	5.0	75.96	386.62	462.58
TF	PADRZ	FLY_BY	0.0	35.64	14626.07	300.0	5.0	75.96	386.62	462.58	0.0	40.6	18227.75	300.0	5.0	83.09	410.6	493.69
TF	HFMNN	FLY_BY	0.0	40.6	18227.75	300.0	5.0	83.09	410.6	493.69	7.03	54.11	28602.83	300.0	5.0	103.63	493.31	570.0
TF	CHKNN	FLY_BY	7.03	54.11	28602.83	300.0	5.0	103.63	493.31	570.0	0.0		32821.53	300.0	0.0	111.99	534.07	570.0

KSAN:RW27:CHKNN Criteria Failures and Warnings

No failures.

Route Evaluation for KSAN:RW27:DINTY

Required Engagement Climb Gradient (ft/NM): 489.09

KSAN:RW27:DINTY Evaluation Results Part 1/2

Leg Tp	End Pt	Turn Tp	Alt Restr	Alt Restr 2	Spd Restr	Min CG Calc Alt	Turn Ang	Leg Length	Min Seg Length
VI						220.96	10.08	1.02	1.02
CF	WNFLD-NEW	FLY_BY				1621.83	14.17	7.0	1.98
TF	GYWNN	FLY_BY	+8000.00			6651.70	9.5	25.14	1.72
TF	PADRZ	FLY_BY				8708.95	28.11	10.28	3.55
TF	SXC	FLY_BY				14730.07	18.07	30.09	12.15
TF	DINTY	FLY_BY				41000.00		209.19	8.6

KSAN:RW27:DINTY Evaluation Results Part 2/2

Leg Tp	End Pt	Turn Tp	DTA1	DTA1 Turn Rad	DTA1 Turn Alt	DTA1 Turn Spd	DTA1 Bank Ang	DTA1 Tailwind	DTA1 True Airspd	DTA1 vGround	DTA2	DTA2 Turn Rad	DTA2 Turn Alt	DTA2 Turn Spd	DTA2 Bank Ang	DTA2 Tailwind	DTA2 True Airspd	DTA2 vGround
VI					0.0	0.0					0.25	2.89	528.17	265.0	25.0	30.0	273.95	303.95
CF	WNFLD-NEW	FLY_BY	0.25	2.89	528.17	265.0	25.0	30.0	273.95	303.95	1.72	13.85	4030.57	265.0	7.09	54.98	288.77	343.75
TF	GYWNN	FLY_BY	1.72	13.85	4030.57	265.0	7.09	54.98	288.77	343.75	0.0	35.64	14626.07	300.0	5.0	75.96	386.62	462.58
TF	PADRZ	FLY_BY	0.0	35.64	14626.07	300.0	5.0	75.96	386.62	462.58	3.55	14.19	18227.75	300.0	14.05	83.09	410.6	493.69
TF	SXC	FLY_BY	3.55	14.19	18227.75	300.0	14.05	83.09	410.6	493.69	8.6	54.11	28770.66	300.0	5.0	103.97	494.84	570.0
TF	DINTY	FLY_BY	8.6	54.11	28770.66	300.0	5.0	103.97	494.84	570.0	0.0		41000.0	300.0	0.0	128.18	628.54	570.0

KSAN:RW27:DINTY Criteria Failures and Warnings

No failures.

Route Evaluation for KSAN:RW27:EHF

Required Engagement Climb Gradient (ft/NM): 489.09

KSAN:RW27:EHF Evaluation Results Part 1/2

Leg Tp	End Pt	Turn Tp	Alt Restr	Alt Restr 2	Spd Restr	Min CG Calc Alt	Turn Ang	Leg Length	Min Seg Length
VI						220.96	10.08	1.02	1.02
CF	WNFLD-NEW	FLY_BY				1621.83	14.17	7.0	1.98
TF	GYWNN	FLY_BY	+8000.00			6651.70	9.5	25.14	1.72
TF	PADRZ	FLY_BY				8708.95	1.29	10.28	1.0
TF	HFMNN	FLY_BY				14634.23	14.8	29.61	7.03
TF	CHKNN	FLY_BY				17043.21	1.96	12.04	7.03
TF	RIDDL	FLY_BY				20212.87	15.61	15.83	7.42
TF	LANDO	FLY_BY				32431.67	32.39	61.02	23.13
TF	EHF	FLY_BY				39815.90		36.86	15.72

KSAN:RW27:EHF Evaluation Results Part 2/2

Leg Tp	End Pt	Turn Tp	DTA1	DTA1 Turn Rad	DTA1 Turn Alt	DTA1 Turn Spd	DTA1 Bank Ang	DTA1 Tailwind	DTA1 True Airspd	DTA1 vGround	DTA2	DTA2 Turn Rad	DTA2 Turn Alt	DTA2 Turn Spd	DTA2 Bank Ang	DTA2 Tailwind	DTA2 True Airspd	DTA2 vGround
VI					0.0	0.0					0.25	2.89	528.17	265.0	25.0	30.0	273.95	303.95
CF	WNFLD-NEW	FLY_BY	0.25	2.89	528.17	265.0	25.0	30.0	273.95	303.95	1.72	13.85	4030.57	265.0	7.09	54.98	288.77	343.75
TF	GYWNN	FLY_BY	1.72	13.85	4030.57	265.0	7.09	54.98	288.77	343.75	0.0	35.64	14626.07	300.0	5.0	75.96	386.62	462.58
TF	PADRZ	FLY_BY	0.0	35.64	14626.07	300.0	5.0	75.96	386.62	462.58	0.0	40.6	18227.75	300.0	5.0	83.09	410.6	493.69
TF	HFMNN	FLY_BY	0.0	40.6	18227.75	300.0	5.0	83.09	410.6	493.69	7.03	54.11	28602.83	300.0	5.0	103.63	493.31	570.0
TF	CHKNN	FLY_BY	7.03	54.11	28602.83	300.0	5.0	103.63	493.31	570.0	0.0	54.11	32821.53	300.0	5.0	111.99	534.07	570.0
TF	RIDDL	FLY_BY	0.0	54.11	32821.53	300.0	5.0	111.99	534.07	570.0	7.42	54.11	38372.95	300.0	5.0	122.98	595.68	570.0
TF	LANDO	FLY_BY	7.42	54.11	38372.95	300.0	5.0	122.98	595.68	570.0	15.72	54.11	41000.0	300.0	5.0	128.18	628.54	570.0
TF	EHF	FLY_BY	15.72	54.11	41000.0	300.0	5.0	128.18	628.54	570.0	0.0		41000.0	300.0	0.0	128.18	628.54	570.0

KSAN:RW27:EHF Criteria Failures and Warnings

No failures.

Route Evaluation for KSAN:RW27:IKAYE

Required Engagement Climb Gradient (ft/NM): 489.09

KSAN:RW27:IKAYE Evaluation Results Part 1/2

Leg Tp	End Pt	Turn Tp	Alt Restr	Alt Restr 2	Spd Restr	Min CG Calc Alt	Turn Ang	Leg Length	Min Seg Length
VI						220.96	10.08	1.02	1.02
CF	WNFLD-NEW	FLY_BY				1621.83	14.17	7.0	1.98
TF	GYWNN	FLY_BY	+8000.00			6651.70	9.5	25.14	1.72
TF	PADRZ	FLY_BY				8708.95	4.41	10.28	1.0
TF	IKAYE	FLY_BY				24893.56		80.86	1.0

KSAN:RW27:IKAYE Evaluation Results Part 2/2

Leg Tp	End Pt	Turn Tp	DTA1	DTA1 Turn Rad	DTA1 Turn Alt	DTA1 Turn Spd	DTA1 Bank Ang	DTA1 Tailwind	DTA1 True Airspd	DTA1 vGround	DTA2	DTA2 Turn Rad	DTA2 Turn Alt	DTA2 Turn Spd	DTA2 Bank Ang	DTA2 Tailwind	DTA2 True Airspd	DTA2 vGround
VI					0.0	0.0					0.25	2.89	528.17	265.0	25.0	30.0	273.95	303.95
CF	WNFLD-NEW	FLY_BY	0.25	2.89	528.17	265.0	25.0	30.0	273.95	303.95	1.72	13.85	4030.57	265.0	7.09	54.98	288.77	343.75
TF	GYWNN	FLY_BY	1.72	13.85	4030.57	265.0	7.09	54.98	288.77	343.75	0.0	35.64	14626.07	300.0	5.0	75.96	386.62	462.58
TF	PADRZ	FLY_BY	0.0	35.64	14626.07	300.0	5.0	75.96	386.62	462.58	0.0	40.6	18227.75	300.0	5.0	83.09	410.6	493.69
TF	IKAYE	FLY_BY	0.0	40.6	18227.75	300.0	5.0	83.09	410.6	493.69	0.0		41000.0	300.0	0.0	128.18	628.54	570.0

KSAN:RW27:IKAYE Criteria Failures and Warnings

No failures.

Route Evaluation for KSAN:RW27:MALIT

Required Engagement Climb Gradient (ft/NM): 489.09

KSAN:RW27:MALIT Evaluation Results Part 1/2

Leg Tp	End Pt	Turn Tp	Alt Restr	Alt Restr 2	Spd Restr	Min CG Calc Alt	Turn Ang	Leg Length	Min Seg Length
VI						220.96	10.08	1.02	1.02
CF	WNFLD-NEW	FLY_BY				1621.83	14.17	7.0	1.98
TF	GYWNN	FLY_BY	+8000.00			6651.70	9.5	25.14	1.72
TF	PADRZ	FLY_BY				8708.95	28.11	10.28	3.55
TF	SXC	FLY_BY				14730.07	62.98	30.09	23.55
TF	MALIT	FLY_BY				30747.52		80.0	20.0

KSAN:RW27:MALIT Evaluation Results Part 2/2

Leg Tp	End Pt	Turn Tp	DTA1	DTA1 Turn Rad	DTA1 Turn Alt	DTA1 Turn Spd	DTA1 Bank Ang	DTA1 Tailwind	DTA1 True Airspd	DTA1 vGround	DTA2	DTA2 Turn Rad	DTA2 Turn Alt	DTA2 Turn Spd	DTA2 Bank Ang	DTA2 Tailwind	DTA2 True Airspd	DTA2 vGround
VI					0.0	0.0					0.25	2.89	528.17	265.0	25.0	30.0	273.95	303.95
CF	WNFLD-NEW	FLY_BY	0.25	2.89	528.17	265.0	25.0	30.0	273.95	303.95	1.72	13.85	4030.57	265.0	7.09	54.98	288.77	343.75
TF	GYWNN	FLY_BY	1.72	13.85	4030.57	265.0	7.09	54.98	288.77	343.75	0.0	35.64	14626.07	300.0	5.0	75.96	386.62	462.58
TF	PADRZ	FLY_BY	0.0	35.64	14626.07	300.0	5.0	75.96	386.62	462.58	3.55	14.19	18227.75	300.0	14.05	83.09	410.6	493.69
TF	SXC	FLY_BY	3.55	14.19	18227.75	300.0	14.05	83.09	410.6	493.69	20.0	32.65	28770.66	300.0	8.25	103.97	494.84	570.0
TF	MALIT	FLY_BY	20.0	32.65	28770.66	300.0	8.25	103.97	494.84	570.0	0.0		41000.0	300.0	0.0	128.18	628.54	570.0

KSAN:RW27:MALIT Criteria Failures and Warnings

No failures.

Route Evaluation for KSAN:RW27:OROSZ

Required Engagement Climb Gradient (ft/NM): 489.09

KSAN:RW27:OROSZ Evaluation Results Part 1/2

Leg Tp	End Pt	Turn Tp	Alt Restr	Alt Restr 2	Spd Restr	Min CG Calc Alt	Turn Ang	Leg Length	Min Seg Length
VI						220.96	10.08	1.02	1.02
CF	WNFLD-NEW	FLY_BY				1621.83	14.17	7.0	1.98
TF	GYWNN	FLY_BY	+8000.00			6651.70	9.5	25.14	1.72
TF	PADRZ	FLY_BY				8708.95	1.29	10.28	1.0
TF	HFMNN	FLY_BY				14634.23	14.8	29.61	7.03
TF	CHKNN	FLY_BY				17043.21	1.96	12.04	7.03
TF	RIDDL	FLY_BY				20212.87	0.02	15.83	1.0
TF	TWINE	FLY_BY				24219.32	0.77	20.01	1.0
TF	OROSZ	FLY_BY				25735.60		7.57	1.0

KSAN:RW27:OROSZ Evaluation Results Part 2/2

Leg Tp	End Pt	Turn Tp	DTA1	DTA1 Turn Rad	DTA1 Turn Alt	DTA1 Turn Spd	DTA1 Bank Ang	DTA1 Tailwind	DTA1 True Airspd	DTA1 vGround	DTA2	DTA2 Turn Rad	DTA2 Turn Alt	DTA2 Turn Spd	DTA2 Bank Ang	DTA2 Tailwind	DTA2 True Airspd	DTA2 vGround
VI					0.0	0.0					0.25	2.89	528.17	265.0	25.0	30.0	273.95	303.95
CF	WNFLD-NEW	FLY_BY	0.25	2.89	528.17	265.0	25.0	30.0	273.95	303.95	1.72	13.85	4030.57	265.0	7.09	54.98	288.77	343.75
TF	GYWNN	FLY_BY	1.72	13.85	4030.57	265.0	7.09	54.98	288.77	343.75	0.0	35.64	14626.07	300.0	5.0	75.96	386.62	462.58
TF	PADRZ	FLY_BY	0.0	35.64	14626.07	300.0	5.0	75.96	386.62	462.58	0.0	40.6	18227.75	300.0	5.0	83.09	410.6	493.69
TF	HFMNN	FLY_BY	0.0	40.6	18227.75	300.0	5.0	83.09	410.6	493.69	7.03	54.11	28602.83	300.0	5.0	103.63	493.31	570.0
TF	CHKNN	FLY_BY	7.03	54.11	28602.83	300.0	5.0	103.63	493.31	570.0	0.0	54.11	32821.53	300.0	5.0	111.99	534.07	570.0
TF	RIDDL	FLY_BY	0.0	54.11	32821.53	300.0	5.0	111.99	534.07	570.0	0.0		38372.95	300.0	0.0	122.98	595.68	570.0
TF	TWINE	FLY_BY	0.0		38372.95	300.0	0.0	122.98	595.68	570.0	0.0	54.11	41000.0	300.0	5.0	128.18	628.54	570.0
TF	OROSZ	FLY_BY	0.0	54.11	41000.0	300.0	5.0	128.18	628.54	570.0	0.0		41000.0	300.0	0.0	128.18	628.54	570.0

KSAN:RW27:OROSZ Criteria Failures and Warnings

No failures.

Evaluation Input

Name:	RS Results PADRZ2 2-ABCX2
Project:	La Jolla 20200708a
Last Evaluated:	14-Jul-2020 13:44:18
Evaluated Obstacles?:	true
Obstacle Database:	DOF (14.0nm query)
Evaluated Terrain?:	false
Evaluated Precipitous Terrain?:	false
Worst Case Vegetation Height (ft) AGL:	0
Converted 9I Accuracies to 4D?:	true
MVA Prior to the IF (ft) MSL:	-
Maximum Aircraft Category:	D

Airport

Name:	KSAN [CIFP:FULL]
Location:	N32° 44' 00.80",W117° 11' 22.80"
Elevation (ft):	17
Magnetic Variation (degs):	11 ()

AAO Exempt Airports

Name	Location	Elevation (ft)
KCRQ [NFDC]	N33° 07' 41.70",W117° 16' 48.30"	330.5
KLAX [NFDC]	N33° 56' 32.99",W118° 24' 28.98"	127.8
KLGB [NFDC]	N33° 49' 04.55",W118° 09' 06.81"	60.4
KMYF [NFDC]	N32° 48' 56.60",W117° 08' 22.40"	427.3
KNZY [NFDC]	N32° 41' 53.51",W117° 12' 47.20"	25.9
KONT [NFDC]	N34° 03' 21.60",W117° 36' 04.30"	944
KRNM [NFDC]	N33° 02' 21.00",W116° 54' 54.90"	1394.6
KSAN [CIFP:FULL]	N32° 44' 00.80",W117° 11' 22.80"	17
KSAN [NFDC]	N32° 44' 00.80",W117° 11' 22.80"	16.8
KSDM [NFDC]	N32° 34' 20.20",W116° 58' 48.60"	526.1
KSEE [NFDC]	N32° 49' 34.40",W116° 58' 20.80"	387.5
KSMO [NFDC]	N34° 00' 56.96",W118° 27' 04.70"	169.8
KSNA [NFDC]	N33° 40' 32.40",W117° 52' 05.60"	56.1

Runways

Name	Airport	Location	Elevation (ft)	TDZE (ft)	True Course (degs)	Survey?
RW09	KSAN [CIFP:FULL]	N32° 44' 10.92",W117° 12' 04.43"	16	16	106	NONE
RW27	KSAN [CIFP:FULL]	N32° 43' 52.94",W117° 10' 50.26"	15	15.5	286	NONE

Criteria Failures and Warnings

No failures.

Software Evaluation Failures, Warnings, and Notes

CEW19: KLGB does not have all the required runways to construct the AAO area.
CEW19: KMYF does not have all the required runways to construct the AAO area.
No terrain evaluation was performed.
CEW19: KCRQ does not have all the required runways to construct the AAO area.
CEW19: KSMO does not have all the required runways to construct the AAO area.
CEW19: KSEE does not have all the required runways to construct the AAO area.
CEW19: KLAX does not have all the required runways to construct the AAO area.
RW27: Minimum VI segment leg was applied.
CEW19: KSDM does not have all the required runways to construct the AAO area.
CEW19: KRNM does not have all the required runways to construct the AAO area.
CEW19: KNZY does not have all the required runways to construct the AAO area.
CEW19: KONT does not have all the required runways to construct the AAO area.
CEW19: KSNA does not have all the required runways to construct the AAO area.

Obstacles Requiring Accuracy Code Verification

[06-000242 [DOF], 06-000275 [DOF], 06-000315 [DOF], 06-000553 [DOF], 06-001163 [DOF], 06-001665 [DOF], 06-002013 [DOF], 06-002064 [DOF], 06-002237 [DOF], 06-002238 [DOF], 06-002499 [DOF], 06-006030 [DOF], 06-006036 [DOF], 06-006037 [DOF], 06-006045 [DOF], 06-006056 [DOF], 06-006067 [DOF], 06-006068 [DOF], 06-006086 [DOF], 06-006254 [DOF], 06-020050 [DOF], 06-020074 [DOF], 06-229418 [DOF]]

Ignored Obstacles

None.

Procedure Notes

None.

Database Effective Dates

Database	Date
UddfObstacle	07/13/2017
Tiled IFPA	N/A
OEAAA	N/A
DOF	06/18/2020
NFDC	07/16/2020
IFP_OFFLINE	N/A
AVNII_OFFLINE	N/A
CIFP	06/18/2020

Notes:

1. The only changes made in this SID were on the RWY 27 Runway Transition.

2. The intended use of this TARGETS Distribution Package is for evaluation purposes in the SAN Airport Part 150, July 2020, as an alternative design proposal.

ECHHO2-ABCX2

Point Of Contact

Organization Name - ABCx2

POC's Name - James K Allerdice Jr

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FAX Number -

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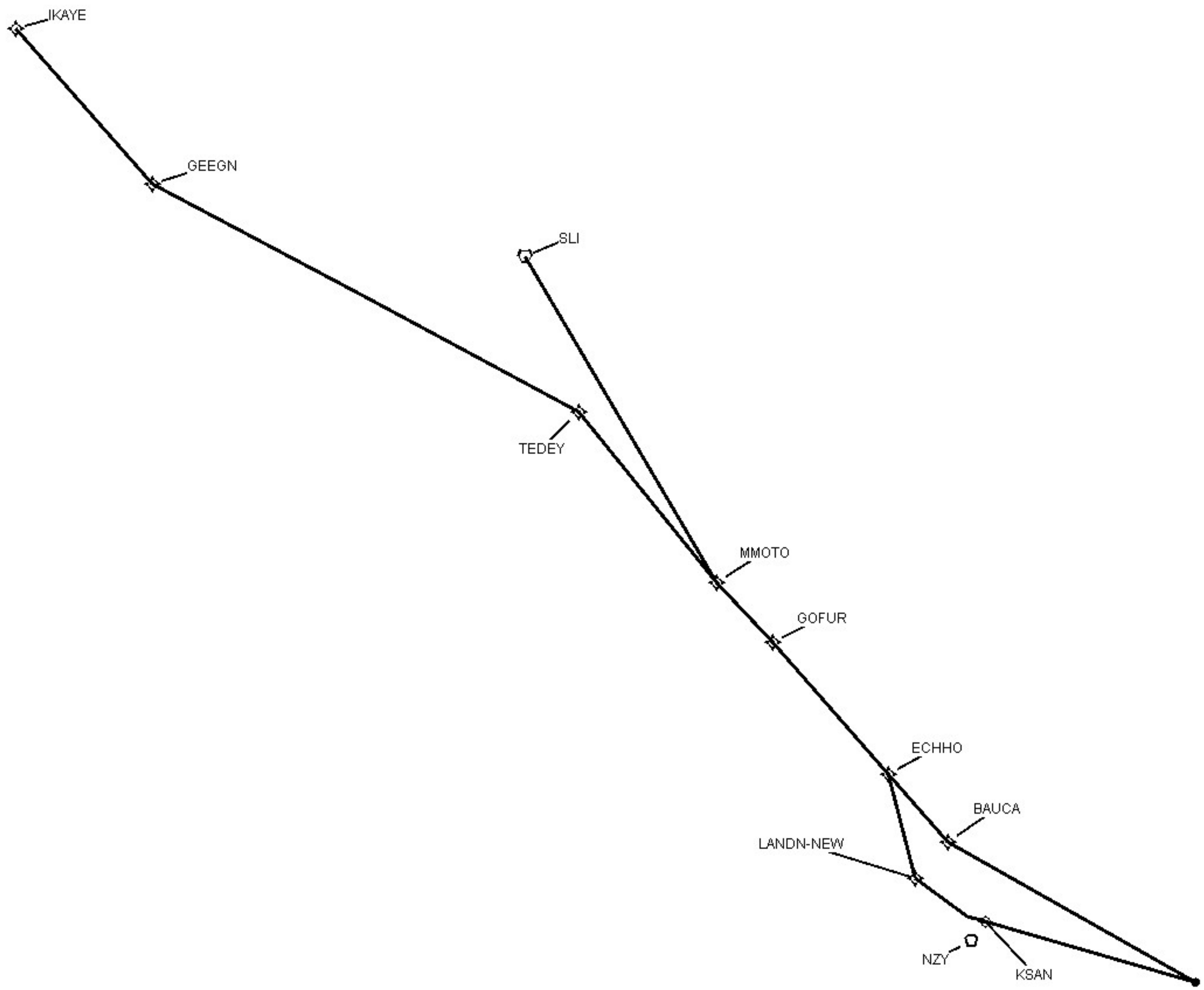
TARGETS Distribution Package

Version:6.1.0
Date: Tue Jul 14 12:22:00 EDT 2020



ECHHO2-ABCX2

Runway Transition Data - KSAN:RW09

DB	End Point	Latitude (D° M' S.ss")	Longitude (D° M' S.ss")	FO/ FB	Leg	TC	MC	Dist.	Altitude	Speed	MEA	MOCA	Turn Dir	Arc Center Lat (D° M' S.ss")	Arc Center Lon (D° M' S.ss")	Arc Radius (NM)
CIFP:FULL	DER RW09	N32 43 48.00	W117 10 29.89													
					VA	106.00	95.00	19.92	+4000							
CIFP:FULL	BAUCA WP	N32 51 36.76	W117 15 38.05	FB	DF			26.98								
CIFP:FULL	ECHHO WP	N32 58 01.44	W117 22 23.40	FB	TF	318.40	307.40	8.56								

Runway Transition Data - KSAN:RW27

DB	End Point	Latitude (D° M' S.ss")	Longitude (D° M' S.ss")	FO/ FB	Leg	TC	MC	Dist.	Altitude	Speed	MEA	MOCA	Turn Dir	Arc Center Lat (D° M' S.ss")	Arc Center Lon (D° M' S.ss")	Arc Radius (NM)
CIFP:FULL	DER RW27	N32 44 13.65	W117 12 15.68													
					VI	286.00	275.00	1.02								
	LANDN-NEW WP	N32 48 06.67	W117 19 17.32	FB	CF	306.00	295.00	6.11								
CIFP:FULL	ECHHO WP	N32 58 01.44	W117 22 23.40	FB	TF	345.23	334.23	10.23								

En Route Transition Data - IKAYE

DB	End Point	Latitude (D° M' S.ss")	Longitude (D° M' S.ss")	FO/ FB	Leg	TC	MC	Dist.	Altitude	Speed	MEA	MOCA	Turn Dir	Arc Center Lat (D° M' S.ss")	Arc Center Lon (D° M' S.ss")	Arc Radius (NM)
CIFP:FULL	ECHHO WP	N32 58 01.44	W117 22 23.40		IF											
CIFP:FULL	GOFUR WP	N33 10 29.72	W117 35 26.14	FB	TF	318.69	307.69	16.59	+15000		2200	2200				
CIFP:FULL	MMOTO WP	N33 16 10.43	W117 41 42.94	FB	TF	317.12	306.12	7.74			2200	2200				
CIFP:FULL	TEDEY WP	N33 32 15.25	W117 57 14.80	FB	TF	321.06	310.06	20.66			2200	1300				
CIFP:FULL	GEEGN WP	N33 53 52.27	W118 45 08.16	FB	TF	298.60	287.60	45.40			3700	3600				
CIFP:FULL	IKAYE WP	N34 08 35.00	W119 00 37.00	FB	TF	318.85	307.85	19.53			5200	3600				

En Route Transition Data - SLI

DB	End Point	Latitude (D° M' S.ss")	Longitude (D° M' S.ss")	FO/ FB	Leg	TC	MC	Dist.	Altitude	Speed	MEA	MOCA	Turn Dir	Arc Center Lat (D° M' S.ss")	Arc Center Lon (D° M' S.ss")	Arc Radius (NM)
CIFP:FUL L	ECHHO WP	N32 58 01.44	W117 22 23.40		IF											
CIFP:FUL L	GOFUR WP	N33 10 29.72	W117 35 26.14	FB	TF	318.69	307.69	16.59	+15000		2200	2200				
CIFP:FUL L	MMOTO WP	N33 16 10.43	W117 41 42.94	FB	TF	317.12	306.12	7.74			2200	2200				
CIFP:FUL L	SLI VORTAC	N33 46 59.88	W118 03 17.13	FB	TF	329.73	318.73	35.66			3000	2600				

Point Data

DB	Point	Arc Center	Lat-Long (DMS.S)	Latitude (Deg)	Longitude (Deg)	Latitude (D°, M.mm')	Longitude (D°, M.mm')	Latitude (D° M' S.ss")	Longitude (D° M' S.ss")
CIFP:FUL L	BAUCA WP		325136.76N-1171538.05W	N 32.8602111	W 117.2605694	N32 51.613	W117 15.634	N32 51 36.76	W117 15 38.05
CIFP:FUL L	ECHHO WP		325801.44N-1172223.40W	N 32.9670667	W 117.3731667	N32 58.024	W117 22.390	N32 58 01.44	W117 22 23.40
CIFP:FUL L	GEEGN WP		335352.27N-1184508.16W	N 33.8978528	W 118.7522667	N33 53.871	W118 45.136	N33 53 52.27	W118 45 08.16
CIFP:FUL L	GOFUR WP		331029.72N-1173526.14W	N 33.1749222	W 117.5905944	N33 10.495	W117 35.436	N33 10 29.72	W117 35 26.14
CIFP:FUL L	IKAYE WP		340835.00N-1190037.00W	N 34.1430556	W 119.0102778	N34 08.583	W119 00.617	N34 08 35.00	W119 00 37.00
	LANDN-NEW WP		324806.67N-1171917.32W	N 32.8018535	W 117.3214783	N32 48.111	W117 19.289	N32 48 06.67	W117 19 17.32
CIFP:FUL L	MMOTO WP		331610.43N-1174142.94W	N 33.2695639	W 117.6952611	N33 16.174	W117 41.716	N33 16 10.43	W117 41 42.94
NFDC	NZY TACAN		324209.13N-1171258.43W	N 32.7025361	W 117.2162306	N32 42.152	W117 12.974	N32 42 09.13	W117 12 58.43
CIFP:FUL L	SLI VORTAC		334659.88N-1180317.13W	N 33.7833000	W 118.0547583	N33 46.998	W118 03.285	N33 46 59.88	W118 03 17.13
CIFP:FUL L	TEDEY WP		333215.25N-1175714.80W	N 33.5375694	W 117.9541111	N33 32.254	W117 57.247	N33 32 15.25	W117 57 14.80

RS Results 01 ECHHO2-ABCX2

Last Evaluation: 14-Jul-2020 12:17:33
Reference Software Version: 2.5.0
Project Chart Date: 04/26/2018

Controlling Obstacles for RW09 Runway Evaluation

CG Controlling Obstacle

Name:	06-000364	
Obstacle Type:	TOWER	
Height (ft) AMSL:	2713	
Location:	N32° 41' 47.22",W116° 56' 10.09"	
Accuracy Code (H/V (ft) AMSL):	5E (+500/+125)	
Applied Horizontal Accuracy (ft) AMSL:	500	
Applied Vertical Accuracy (ft) AMSL:	125	
	Original Values	Adjusted Values
Effective Height (ft) AMSL:	2713	2838
Primary Evaluation Point:	N32° 41' 47.22",W116° 56' 10.09"	N32° 41' 48.59",W116° 56' 15.71"
Tieback Distance (ft):	0	0
Primary Evaluation Distance (ft):	73973	73473
Secondary Evaluation Distance (ft):	0	0
Level Surface ROC (ft):	2000	2000
Amount of Penetration (ft):	847.1	984.5
Required Termination Altitude (ft) AMSL:	3565.1	3729.6
Required Climb Gradient (ft/NM):	291.6	307.2
OCS Altitude (ft) AMSL:	1865.9	1853.5
Minimum Aircraft Altitude (ft) AMSL:	2449.7	2433.3

Controlling Obstacles for RW27 Runway Evaluation

CG Controlling Obstacle

Name:	06-187045
Obstacle Type:	UTILITY POLE
Height (ft) AMSL:	241
Location:	N32° 44' 16.06",W117° 13' 30.48"
Accuracy Code (H/V (ft) AMSL):	4D (+250/+50)
Applied Horizontal Accuracy (ft) AMSL:	250
Applied Vertical Accuracy (ft) AMSL:	50

	Original Values	Adjusted Values
Effective Height (ft) AMSL:	241	291
Primary Evaluation Point:	N32° 44' 16.06",W117° 13' 30.48"	N32° 44' 15.38",W117° 13' 27.66"
Tieback Distance (ft):	0	0
Primary Evaluation Distance (ft):	6208.9	5958.9
Secondary Evaluation Distance (ft):	0	0
Level Surface ROC (ft):	2000	2000
Amount of Penetration (ft):	-155.3	-90
Required Termination Altitude (ft) AMSL:	312	377.8
Required Climb Gradient (ft/NM):	289.5	368.7
OCS Altitude (ft) AMSL:	396.3	381
Minimum Aircraft Altitude (ft) AMSL:	516.5	496.3

En Route Controlling Obstacles

MOCA

Start Pt	End Pt	Name	Source	Obstacle Type	AC (H/V (ft))	Lat	Long	Height (ft)	Height (ft) AMSL	Mnts Area	Pri/Sec Area	ROC (ft)	Worst Case Veg Ht (ft)	Leg MOCA (ft)	Min OCA (ft)	TARGETS Instance Date	Man-Made Obstacle
TEDEY	GEEGN	06-000413	DOF	TOWER	4D (+250/+50)	N33° 44' 46.00"	W118° 20' 07.00"	1543.00	1543.00	true	P	2000.00	0	3543	3543.00	Sun Jul 05 13:22:51 EDT 2020	false
GEEGN	IKAYE	06-001864	DOF	TOWER	2A (+50/+3)	N34° 06' 30.00"	W119° 03' 52.00"	1524.00	1524.00	true	P	2000.00	0	3524	3524.00	Sun Jul 05 13:22:52 EDT 2020	false
MMOTO	SLI	06-037689	DOF	BLDG	1A (+20/+3)	N33° 36' 59.40"	W117° 52' 15.16"	540.00	540.00	true	P	2000.00	0	2540	2540.00	Sun Jul 05 13:22:50 EDT 2020	false
MMOTO	TEDEY	06-147243	DOF	TOWER	1A (+20/+3)	N33° 37' 17.40"	W117° 54' 19.35"	143.00	143.00	true	S	1104.34	0	1248	1247.34	Sun Jul 05 13:22:50 EDT 2020	false
ECHHO	GOFUR	NONE															
GOFUR	MMOTO	NONE															

No MCA Obstacles

Runway Evaluation for RW09

LNAV Engagement CG (ft/NM):	200.0
LNAV Engagement Termination Altitude (ft):	4000.0
Obstacle Climb Gradient (ft/NM):	-
Obstacle CG Termination Altitude (ft):	-
Inhibit controlling obstacles within ICA Extended 3SM Area:	false

Route Evaluation for KSAN:RW09:IKAYE

Required Engagement Climb Gradient (ft/NM): -

KSAN:RW09:IKAYE Evaluation Results Part 1/2

Leg Tp	End Pt	Turn Tp	Alt Restr	Alt Restr 2	Spd Restr	Min CG Calc Alt	Turn Ang	Leg Length	Min Seg Length
VA			+4000.00			4000.00	166.49	19.92	19.92
DF	BAUCA	FLY_BY				9397.66	42.61	26.98	0.0
TF	ECHHO	FLY_BY				11110.69	0.35	8.56	3.19
TF	GOFUR	FLY_BY	+15000.00			14430.05	1.45	16.59	1.0
TF	MMOTO	FLY_BY				15978.78	4.0	7.74	1.0
TF	TEDEY	FLY_BY				20113.49	22.32	20.66	10.68
TF	GEEGN	FLY_BY				29204.46	20.69	45.4	20.56
TF	IKAYE	FLY_BY				33115.42		19.53	9.88

KSAN:RW09:IKAYE Evaluation Results Part 2/2

Leg Tp	End Pt	Turn Tp	DTA1	DTA1 Turn Rad	DTA1 Turn Alt	DTA1 Turn Spd	DTA1 Bank Ang	DTA1 Tailwind	DTA1 True Airspd	DTA1 vGround	DTA2	DTA2 Turn Rad	DTA2 Turn Alt	DTA2 Turn Spd	DTA2 Bank Ang	DTA2 Tailwind	DTA2 True Airspd	DTA2 vGround
VA					0.0	0.0					20.0	2.37	4000.0	265.0	25.0	54.92	288.63	343.55
DF	BAUCA	FLY_BY	20.0	2.37	4000.0	265.0	25.0	54.92	288.63	343.55	3.19	8.18	15247.45	300.0	21.31	77.19	390.61	467.8
TF	ECHHO	FLY_BY	3.19	8.18	15247.45	300.0	21.31	77.19	390.61	467.8	0.0	40.62	18246.19	300.0	5.0	83.13	410.73	493.86
TF	GOFUR	FLY_BY	0.0	40.62	18246.19	300.0	5.0	83.13	410.73	493.86	0.0	46.11	24057.39	300.0	5.0	94.63	454.31	526.15
TF	MMOTO	FLY_BY	0.0	46.11	24057.39	300.0	5.0	94.63	454.31	526.15	0.0	50.96	26769.0	300.0	5.0	100.0	477.0	553.11
TF	TEDEY	FLY_BY	0.0	50.96	26769.0	300.0	5.0	100.0	477.0	553.11	10.68	54.11	34009.02	300.0	5.0	114.34	546.43	570.0
TF	GEEGN	FLY_BY	10.68	54.11	34009.02	300.0	5.0	114.34	546.43	570.0	9.88	54.11	41000.0	300.0	5.0	128.18	628.54	570.0
TF	IKAYE	FLY_BY	9.88	54.11	41000.0	300.0	5.0	128.18	628.54	570.0	0.0		41000.0	300.0	0.0	128.18	628.54	570.0

KSAN:RW09:IKAYE Criteria Failures and Warnings

RDO257: [Warning] In the route beginning at RW09, the Input Climb Gradient, 200.0 is equal to the Input Engagement Climb Gradient. Consolidate climb gradients into a single climb gradient of 200.0 ft/NM to 100000.0 feet.
RDO55: [Waiver Required] In the route beginning at RW09 and ending at IKAYE, the Engagement Altitude 4000.0 is not within 20 feet of the Airport Elevation plus 500 feet 517.0.
RDO35: [Waiver Required] The VA/VI leg off of RW09 has a leg length of 19.924458820654678 NM that is in excess of the maximum ICA length: 10.0 NM.

Route Evaluation for KSAN:RW09:SLI

Required Engagement Climb Gradient (ft/NM): -

KSAN:RW09:SLI Evaluation Results Part 1/2

Leg Tp	End Pt	Turn Tp	Alt Restr	Alt Restr 2	Spd Restr	Min CG Calc Alt	Turn Ang	Leg Length	Min Seg Length
VA			+4000.00			4000.00	166.49	19.92	19.92
DF	BAUCA	FLY_BY				9397.66	42.61	26.98	0.0
TF	ECHHO	FLY_BY				11110.69	0.35	8.56	3.19
TF	GOFUR	FLY_BY	+15000.00			14430.05	1.45	16.59	1.0
TF	MMOTO	FLY_BY				15978.78	12.66	7.74	5.65
TF	SLI	FLY_BY				23117.79		35.66	5.65

KSAN:RW09:SLI Evaluation Results Part 2/2

Leg Tp	End Pt	Turn Tp	DTA1	DTA1 Turn Rad	DTA1 Turn Alt	DTA1 Turn Spd	DTA1 Bank Ang	DTA1 Tailwind	DTA1 True Airspd	DTA1 vGround	DTA2	DTA2 Turn Rad	DTA2 Turn Alt	DTA2 Turn Spd	DTA2 Bank Ang	DTA2 Tailwind	DTA2 True Airspd	DTA2 vGround
VA					0.0	0.0					20.0	2.37	4000.0	265.0	25.0	54.92	288.63	343.55
DF	BAUCA	FLY_BY	20.0	2.37	4000.0	265.0	25.0	54.92	288.63	343.55	3.19	8.18	15247.45	300.0	21.31	77.19	390.61	467.8
TF	ECHHO	FLY_BY	3.19	8.18	15247.45	300.0	21.31	77.19	390.61	467.8	0.0	40.62	18246.19	300.0	5.0	83.13	410.73	493.86
TF	GOFUR	FLY_BY	0.0	40.62	18246.19	300.0	5.0	83.13	410.73	493.86	0.0	46.11	24057.39	300.0	5.0	94.63	454.31	526.15
TF	MMOTO	FLY_BY	0.0	46.11	24057.39	300.0	5.0	94.63	454.31	526.15	5.65	50.96	26769.0	300.0	5.0	100.0	477.0	553.11
TF	SLI	FLY_BY	5.65	50.96	26769.0	300.0	5.0	100.0	477.0	553.11	0.0		39270.31	300.0	0.0	124.76	606.62	570.0

KSAN:RW09:SLI Criteria Failures and Warnings

RDO257: [Warning] In the route beginning at RW09, the Input Climb Gradient, 200.0 is equal to the Input Engagement Climb Gradient. Consolidate climb gradients into a single climb gradient of 200.0 ft/NM to 100000.0 feet.
RDO35: [Waiver Required] The VA/VI leg off of RW09 has a leg length of 19.924458820654678 NM that is in excess of the maximum ICA length: 10.0 NM.
RDO55: [Waiver Required] In the route beginning at RW09 and ending at SLI, the Engagement Altitude 4000.0 is not within 20 feet of the Airport Elevation plus 500 feet 517.0.

Runway Evaluation for RW27

LNAV Engagement CG (ft/NM):	-
LNAV Engagement Termination Altitude (ft):	-
Obstacle Climb Gradient (ft/NM):	-
Obstacle CG Termination Altitude (ft):	-
Inhibit controlling obstacles within ICA Extended 3SM Area:	false

Route Evaluation for KSAN:RW27:IKAYE

Required Engagement Climb Gradient (ft/NM): 489.59

KSAN:RW27:IKAYE Evaluation Results Part 1/2

Leg Tp	End Pt	Turn Tp	Alt Restr	Alt Restr 2	Spd Restr	Min CG Calc Alt	Turn Ang	Leg Length	Min Seg Length
VI						220.75	20.06	1.02	1.02
CF	LANDN-NEW	FLY_BY				1442.98	39.23	6.11	2.2
TF	ECHHO	FLY_BY				3489.68	26.51	10.23	3.74
TF	GOFUR	FLY_BY	+15000.00			6807.83	1.45	16.59	2.05
TF	MMOTO	FLY_BY				8356.00	4.0	7.74	1.0
TF	TEDEY	FLY_BY				12489.20	22.32	20.66	9.41
TF	GEEGN	FLY_BY				21576.86	20.69	45.4	19.29
TF	IKAYE	FLY_BY				25486.39		19.53	9.88

KSAN:RW27:IKAYE Evaluation Results Part 2/2

Leg Tp	End Pt	Turn Tp	DTA1	DTA1 Turn Rad	DTA1 Turn Alt	DTA1 Turn Spd	DTA1 Bank Ang	DTA1 Tailwind	DTA1 True Airspd	DTA1 vGround	DTA2	DTA2 Turn Rad	DTA2 Turn Alt	DTA2 Turn Spd	DTA2 Bank Ang	DTA2 Tailwind	DTA2 True Airspd	DTA2 vGround
VI					0.0	0.0					0.51	2.89	527.65	265.0	25.0	30.0	273.95	303.95
CF	LANDN-NEW	FLY_BY	0.51	2.89	527.65	265.0	25.0	30.0	273.95	303.95	1.69	4.75	3583.42	265.0	19.61	54.1	286.81	340.91
TF	ECHHO	FLY_BY	1.69	4.75	3583.42	265.0	19.61	54.1	286.81	340.91	2.05	8.68	8701.06	265.0	13.26	64.23	310.43	374.66
TF	GOFUR	FLY_BY	2.05	8.68	8701.06	265.0	13.26	64.23	310.43	374.66	0.0	36.12	15000.0	300.0	5.0	76.7	389.01	465.71
TF	MMOTO	FLY_BY	0.0	36.12	15000.0	300.0	5.0	76.7	389.01	465.71	0.0	39.84	17710.44	300.0	5.0	82.07	407.03	489.09
TF	TEDEY	FLY_BY	0.0	39.84	17710.44	300.0	5.0	82.07	407.03	489.09	9.41	47.67	24947.32	300.0	5.0	96.4	461.58	535.0
TF	GEEGN	FLY_BY	9.41	47.67	24947.32	300.0	5.0	96.4	461.58	535.0	9.88	54.11	40862.79	300.0	5.0	127.91	626.76	570.0
TF	IKAYE	FLY_BY	9.88	54.11	40862.79	300.0	5.0	127.91	626.76	570.0	0.0		41000.0	300.0	0.0	128.18	628.54	570.0

KSAN:RW27:IKAYE Criteria Failures and Warnings

No failures.

Route Evaluation for KSAN:RW27:SLI

Required Engagement Climb Gradient (ft/NM): 489.59

KSAN:RW27:SLI Evaluation Results Part 1/2

Leg Tp	End Pt	Turn Tp	Alt Restr	Alt Restr 2	Spd Restr	Min CG Calc Alt	Turn Ang	Leg Length	Min Seg Length
VI						220.75	20.06	1.02	1.02
CF	LANDN-NEW	FLY_BY				1442.98	39.23	6.11	2.2
TF	ECHHO	FLY_BY				3489.68	26.51	10.23	3.74
TF	GOFUR	FLY_BY	+15000.00			6807.83	1.45	16.59	2.05
TF	MMOTO	FLY_BY				8356.00	12.66	7.74	3.49
TF	SLI	FLY_BY				15492.40		35.66	3.49

KSAN:RW27:SLI Evaluation Results Part 2/2

Leg Tp	End Pt	Turn Tp	DTA1	DTA1 Turn Rad	DTA1 Turn Alt	DTA1 Turn Spd	DTA1 Bank Ang	DTA1 Tailwind	DTA1 True Airspd	DTA1 vGround	DTA2	DTA2 Turn Rad	DTA2 Turn Alt	DTA2 Turn Spd	DTA2 Bank Ang	DTA2 Tailwind	DTA2 True Airspd	DTA2 vGround
VI					0.0	0.0					0.51	2.89	527.65	265.0	25.0	30.0	273.95	303.95
CF	LANDN-NEW	FLY_BY	0.51	2.89	527.65	265.0	25.0	30.0	273.95	303.95	1.69	4.75	3583.42	265.0	19.61	54.1	286.81	340.91
TF	ECHHO	FLY_BY	1.69	4.75	3583.42	265.0	19.61	54.1	286.81	340.91	2.05	8.68	8701.06	265.0	13.26	64.23	310.43	374.66
TF	GOFUR	FLY_BY	2.05	8.68	8701.06	265.0	13.26	64.23	310.43	374.66	0.0	36.12	15000.0	300.0	5.0	76.7	389.01	465.71
TF	MMOTO	FLY_BY	0.0	36.12	15000.0	300.0	5.0	76.7	389.01	465.71	3.49	31.42	17710.44	300.0	6.33	82.07	407.03	489.09
TF	SLI	FLY_BY	3.49	31.42	17710.44	300.0	6.33	82.07	407.03	489.09	0.0		30206.33	300.0	0.0	106.81	508.24	570.0

KSAN:RW27:SLI Criteria Failures and Warnings

No failures.

Evaluation Input

Name:	RS Results 01 ECHHO2-ABCX2
Project:	La Jolla 20200708a
Last Evaluated:	14-Jul-2020 12:17:33
Evaluated Obstacles?:	true
Obstacle Database:	DOF (14.0nm query)
Evaluated Terrain?:	false
Evaluated Precipitous Terrain?:	false
Worst Case Vegetation Height (ft) AGL:	0
Converted 9I Accuracies to 4D?:	true
MVA Prior to the IF (ft) MSL:	-
Maximum Aircraft Category:	D

Airport

Name:	KSAN [CIFP:FULL]
Location:	N32° 44' 00.80",W117° 11' 22.80"
Elevation (ft):	17
Magnetic Variation (degs):	11 ()

AAO Exempt Airports

Name	Location	Elevation (ft)
KCRQ [NFDC]	N33° 07' 41.70",W117° 16' 48.30"	330.5
KLAX [NFDC]	N33° 56' 32.99",W118° 24' 28.98"	127.8
KLGB [NFDC]	N33° 49' 04.55",W118° 09' 06.81"	60.4
KMYF [NFDC]	N32° 48' 56.60",W117° 08' 22.40"	427.3
KNZY [NFDC]	N32° 41' 53.51",W117° 12' 47.20"	25.9
KONT [NFDC]	N34° 03' 21.60",W117° 36' 04.30"	944
KRNM [NFDC]	N33° 02' 21.00",W116° 54' 54.90"	1394.6
KSAN [CIFP:FULL]	N32° 44' 00.80",W117° 11' 22.80"	17
KSAN [NFDC]	N32° 44' 00.80",W117° 11' 22.80"	16.8
KSDM [NFDC]	N32° 34' 20.20",W116° 58' 48.60"	526.1
KSEE [NFDC]	N32° 49' 34.40",W116° 58' 20.80"	387.5
KSMO [NFDC]	N34° 00' 56.96",W118° 27' 04.70"	169.8
KSNA [NFDC]	N33° 40' 32.40",W117° 52' 05.60"	56.1

Runways

Name	Airport	Location	Elevation (ft)	TDZE (ft)	True Course (degs)	Survey?
RW09	KSAN [CIFP:FULL]	N32° 44' 10.92",W117° 12' 04.43"	16	16	106	NONE
RW27	KSAN [CIFP:FULL]	N32° 43' 52.94",W117° 10' 50.26"	15	15.5	286	NONE

Criteria Failures and Warnings

RDO257: [Warning] In the route beginning at RW09, the Input Climb Gradient, 200.0 is equal to the Input Engagement Climb Gradient. Consolidate climb gradients into a single climb gradient of 200.0 ft/NM to 100000.0 feet.
RDO55: [Waiver Required] In the route beginning at RW09 and ending at IKAYE, the Engagement Altitude 4000.0 is not within 20 feet of the Airport Elevation plus 500 feet 517.0.
RDO66: [Waiver Required] The OCS surface applied from RW09 is penetrated by obstacles/terrain.
RDO35: [Waiver Required] The VA/VI leg off of RW09 has a leg length of 19.924458820654678 NM that is in excess of the maximum ICA length: 10.0 NM.
RDO55: [Waiver Required] In the route beginning at RW09 and ending at SLI, the Engagement Altitude 4000.0 is not within 20 feet of the Airport Elevation plus 500 feet 517.0.

Software Evaluation Failures, Warnings, and Notes

CEW19: KLGB does not have all the required runways to construct the AAO area.
CEW19: KMYF does not have all the required runways to construct the AAO area.
No terrain evaluation was performed.
CEW19: KCRQ does not have all the required runways to construct the AAO area.
CEW19: KSMO does not have all the required runways to construct the AAO area.
CEW19: KSEE does not have all the required runways to construct the AAO area.
CEW19: KLAX does not have all the required runways to construct the AAO area.
RW27: Minimum VI segment leg was applied.
CEW19: KSDM does not have all the required runways to construct the AAO area.
CEW19: KRNM does not have all the required runways to construct the AAO area.
CEW19: KNZY does not have all the required runways to construct the AAO area.
CEW19: KONT does not have all the required runways to construct the AAO area.
CEW19: KSNA does not have all the required runways to construct the AAO area.

Obstacles Requiring Accuracy Code Verification

[06-000275 [DOF], 06-000308 [DOF], 06-001163 [DOF], 06-001665 [DOF], 06-002013 [DOF], 06-002237 [DOF], 06-002238 [DOF], 06-002499 [DOF], 06-006007 [DOF], 06-006026 [DOF], 06-006030 [DOF], 06-006032 [DOF], 06-006035 [DOF], 06-006036 [DOF], 06-006037 [DOF], 06-006068 [DOF], 06-006245 [DOF], 06-006254 [DOF], 06-006276 [DOF], 06-020050 [DOF], 06-020074 [DOF], 06-038543 [DOF], 06-229418 [DOF], 06-229745 [DOF], MX-000628 [DOF], MX-000629 [DOF], MX-000630 [DOF], MX-000631 [DOF], MX-000632 [DOF], MX-000633 [DOF], MX-000634 [DOF], MX-000649 [DOF], MX-000650 [DOF]]

Ignored Obstacles

None.

Procedure Notes

None.

Database Effective Dates

Database	Date
UddfObstacle	07/13/2017
Tiled IFPA	N/A
OEAAA	N/A
DOF	06/18/2020
NFDC	07/16/2020
IFP_OFFLINE	N/A
AVNII_OFFLINE	N/A
CIFP	06/18/2020

Notes:

1. The only changes made in this SID were on the RWY 27 Runway Transition.

2. The intended use of this TARGETS Distribution Package is for evaluation purposes in the SAN Airport Part 150, July 2020, as an alternative design proposal.

MMOTO2-ABCX2

Point Of Contact

Organization Name - ABCx2

POC's Name - James K Allerdice Jr

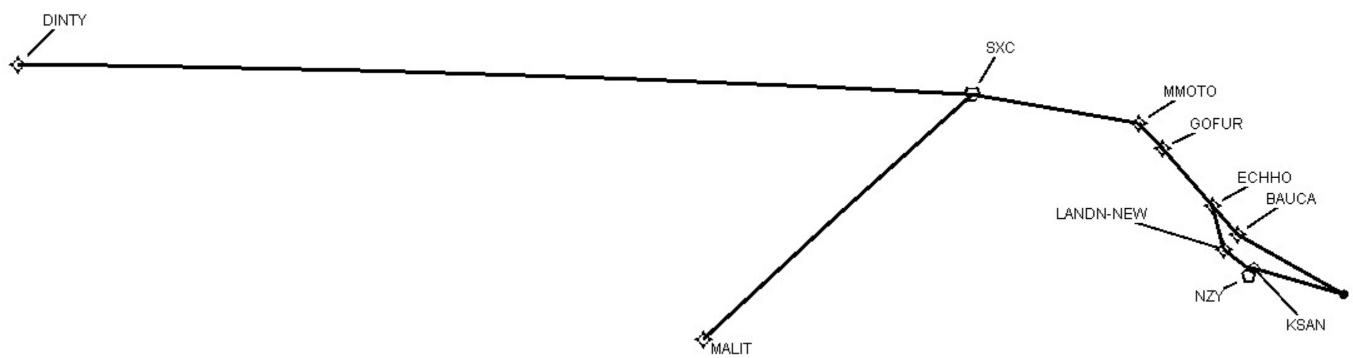
Telephone Number - 678-485-0852

FAX Number -

Email Address - j.allerdice@abcx2.com

TARGETS Distribution Package

Version:6.1.0
Date: Tue Jul 14 13:25:07 EDT 2020



MMOTO2-ABCX2

Runway Transition Data - KSAN:RW09

DB	End Point	Latitude (D° M' S.ss")	Longitude (D° M' S.ss")	FO/ FB	Leg	TC	MC	Dist.	Altitude	Speed	MEA	MOCA	Turn Dir	Arc Center Lat (D° M' S.ss")	Arc Center Lon (D° M' S.ss")	Arc Radius (NM)
CIFP:FUL L	DER RW09	N32 43 48.00	W117 10 29.89													
					VA	106.00	95.00	19.92	+4000							
CIFP:FUL L	BAUCA WP	N32 51 36.76	W117 15 38.05	FB	DF			26.98								
CIFP:FUL L	ECHHO WP	N32 58 01.44	W117 22 23.40	FB	TF	318.40	307.40	8.56								
CIFP:FUL L	GOFUR WP	N33 10 29.72	W117 35 26.14	FB	TF	318.69	307.69	16.59	+15000							
CIFP:FUL L	MMOTO WP	N33 16 10.43	W117 41 42.94	FB	TF	317.12	306.12	7.74	-19000							

Runway Transition Data - KSAN:RW27

DB	End Point	Latitude (D° M' S.ss")	Longitude (D° M' S.ss")	FO/ FB	Leg	TC	MC	Dist.	Altitude	Speed	MEA	MOCA	Turn Dir	Arc Center Lat (D° M' S.ss")	Arc Center Lon (D° M' S.ss")	Arc Radius (NM)
CIFP:FUL L	DER RW27	N32 44 13.65	W117 12 15.68													
					VI	286.00	275.00	1.02								
	LANDN-NEW WP	N32 48 06.67	W117 19 17.32	FB	CF	306.00	295.00	6.11								
CIFP:FUL L	ECHHO WP	N32 58 01.44	W117 22 23.40	FB	TF	345.23	334.23	10.23								
CIFP:FUL L	GOFUR WP	N33 10 29.72	W117 35 26.14	FB	TF	318.69	307.69	16.59	+15000							
CIFP:FUL L	MMOTO WP	N33 16 10.43	W117 41 42.94	FB	TF	317.12	306.12	7.74	-19000							

En Route Transition Data - DINTY

DB	End Point	Latitude (D° M' S.ss")	Longitude (D° M' S.ss")	FO/ FB	Leg	TC	MC	Dist.	Altitude	Speed	MEA	MOCA	Turn Dir	Arc Center Lat (D° M' S.ss")	Arc Center Lon (D° M' S.ss")	Arc Radius (NM)
CIFP:FUL L	MMOTO WP	N33 16 10.43	W117 41 42.94		IF				-19000							
CIFP:FUL L	SXC VORTAC	N33 22 30.20	W118 25 11.68	FB	TF	280.04	269.04	36.98			4200	4200				
CIFP:FUL L	DINTY WP	N33 28 58.49	W122 35 02.38	FB	TF	272.92	261.92	209.19			4200	4200				

En Route Transition Data - MALIT

DB	End Point	Latitude (D° M' S.ss")	Longitude (D° M' S.ss")	FO/FB	Leg	TC	MC	Dist.	Altitude	Speed	MEA	MOCA	Turn Dir	Arc Center Lat (D° M' S.ss")	Arc Center Lon (D° M' S.ss")	Arc Radius (NM)
CIFP:FULL	MMOTO WP	N33 16 10.43	W117 41 42.94		IF				-19000							
CIFP:FULL	SXC VORTAC	N33 22 30.20	W118 25 11.68	FB	TF	280.04	269.04	36.98			4200	4200				
CIFP:FULL	MALIT WP	N32 28 32.13	W119 35 28.25	FB	TF	228.00	217.00	80.00			4200	4200				

Point Data

DB	Point	Arc Center	Lat-Long (DMS.S)	Latitude (Deg)	Longitude (Deg)	Latitude (D°, M.mm')	Longitude (D°, M.mm')	Latitude (D° M' S.ss")	Longitude (D° M' S.ss")
CIFP:FULL	BAUCA WP		325136.76N-1171538.05W	N 32.8602111	W 117.2605694	N32 51.613	W117 15.634	N32 51 36.76	W117 15 38.05
CIFP:FULL	DINTY WP		332858.49N-1223502.38W	N 33.4829139	W 122.5839944	N33 28.975	W122 35.040	N33 28 58.49	W122 35 02.38
CIFP:FULL	ECHHO WP		325801.44N-1172223.40W	N 32.9670667	W 117.3731667	N32 58.024	W117 22.390	N32 58 01.44	W117 22 23.40
CIFP:FULL	GOFUR WP		331029.72N-1173526.14W	N 33.1749222	W 117.5905944	N33 10.495	W117 35.436	N33 10 29.72	W117 35 26.14
	LANDN-NEW WP		324806.67N-1171917.32W	N 32.8018535	W 117.3214783	N32 48.111	W117 19.289	N32 48 06.67	W117 19 17.32
CIFP:FULL	MALIT WP		322832.13N-1193528.25W	N 32.4755917	W 119.5911806	N32 28.536	W119 35.471	N32 28 32.13	W119 35 28.25
CIFP:FULL	MMOTO WP		331610.43N-1174142.94W	N 33.2695639	W 117.6952611	N33 16.174	W117 41.716	N33 16 10.43	W117 41 42.94
NFDC	NZY TACAN		324209.13N-1171258.43W	N 32.7025361	W 117.2162306	N32 42.152	W117 12.974	N32 42 09.13	W117 12 58.43
CIFP:FULL	SXC VORTAC		332230.20N-1182511.68W	N 33.3750556	W 118.4199111	N33 22.503	W118 25.195	N33 22 30.20	W118 25 11.68

RS Results MMOTO2-ABCX2

Last Evaluation: 14-Jul-2020 13:20:20
Reference Software Version: 2.5.0
Project Chart Date: 04/26/2018

Controlling Obstacles for RW09 Runway Evaluation

CG Controlling Obstacle

Name:	06-000364	
Obstacle Type:	TOWER	
Height (ft) AMSL:	2713	
Location:	N32° 41' 47.22",W116° 56' 10.09"	
Accuracy Code (H/V (ft) AMSL):	5E (+500/+125)	
Applied Horizontal Accuracy (ft) AMSL:	500	
Applied Vertical Accuracy (ft) AMSL:	125	
	Original Values	Adjusted Values
Effective Height (ft) AMSL:	2713	2838
Primary Evaluation Point:	N32° 41' 47.22",W116° 56' 10.09"	N32° 41' 48.59",W116° 56' 15.71"
Tieback Distance (ft):	0	0
Primary Evaluation Distance (ft):	73973	73473
Secondary Evaluation Distance (ft):	0	0
Level Surface ROC (ft):	2000	2000
Amount of Penetration (ft):	847.1	984.5
Required Termination Altitude (ft) AMSL:	3565.1	3729.6
Required Climb Gradient (ft/NM):	291.6	307.2
OCS Altitude (ft) AMSL:	1865.9	1853.5
Minimum Aircraft Altitude (ft) AMSL:	2449.7	2433.3

Controlling Obstacles for RW27 Runway Evaluation

CG Controlling Obstacle

Name:	06-187045
Obstacle Type:	UTILITY POLE
Height (ft) AMSL:	241
Location:	N32° 44' 16.06",W117° 13' 30.48"
Accuracy Code (H/V (ft) AMSL):	4D (+250/+50)
Applied Horizontal Accuracy (ft) AMSL:	250
Applied Vertical Accuracy (ft) AMSL:	50

	Original Values	Adjusted Values
Effective Height (ft) AMSL:	241	291
Primary Evaluation Point:	N32° 44' 16.06",W117° 13' 30.48"	N32° 44' 15.38",W117° 13' 27.66"
Tieback Distance (ft):	0	0
Primary Evaluation Distance (ft):	6208.9	5958.9
Secondary Evaluation Distance (ft):	0	0
Level Surface ROC (ft):	2000	2000
Amount of Penetration (ft):	-155.3	-90
Required Termination Altitude (ft) AMSL:	312	377.8
Required Climb Gradient (ft/NM):	289.5	368.7
OCS Altitude (ft) AMSL:	396.3	381
Minimum Aircraft Altitude (ft) AMSL:	516.5	496.3

En Route Controlling Obstacles

MOCA

Start Pt	End Pt	Name	Source	Obstacle Type	AC (H/V (ft))	Lat	Long	Height (ft)	Height (ft) AMSL	Mnts Area	Pri/Sec Area	ROC (ft)	Worst Case Veg Ht (ft)	Leg MOCA (ft)	Min OCA (ft)	TARGETS Instance Date	Man-Made Obstacle
MMOTO	SXC	06-001930	DOF	TOWER	5E (+500/+125)	N33° 23' 12.00"	W118° 24' 03.00"	2137.00	2137.00	true	P	2000.00	0	4137	4137.00	Sun Jul 05 13:29:29 EDT 2020	false
SXC	DINTY	06-001930	DOF	TOWER	5E (+500/+125)	N33° 23' 12.00"	W118° 24' 03.00"	2137.00	2137.00	true	P	2000.00	0	4137	4137.00	Sun Jul 05 13:29:29 EDT 2020	false
SXC	MALIT	06-001930	DOF	TOWER	5E (+500/+125)	N33° 23' 12.00"	W118° 24' 03.00"	2137.00	2137.00	true	P	2000.00	0	4137	4137.00	Sun Jul 05 13:29:29 EDT 2020	false

No MCA Obstacles

Runway Evaluation for RW09

LNAV Engagement CG (ft/NM):	200.0
LNAV Engagement Termination Altitude (ft):	4000.0
Obstacle Climb Gradient (ft/NM):	-
Obstacle CG Termination Altitude (ft):	-
Inhibit controlling obstacles within ICA Extended 3SM Area:	false

Route Evaluation for KSAN:RW09:DINTY

Required Engagement Climb Gradient (ft/NM): -

KSAN:RW09:DINTY Evaluation Results Part 1/2									
Leg Tp	End Pt	Turn Tp	Alt Restr	Alt Restr 2	Spd Restr	Min CG Calc Alt	Turn Ang	Leg Length	Min Seg Length
VA			+4000.00			4000.00	166.49	19.92	19.92
DF	BAUCA	FLY_BY				9397.66	42.61	26.98	0.0
TF	ECHHO	FLY_BY				11110.69	0.35	8.56	3.19
TF	GOFUR	FLY_BY	+15000.00			14430.05	1.45	16.59	1.0
TF	MMOTO	FLY_BY	-19000.00			15978.78	37.03	7.74	3.64
TF	SXC	FLY_BY				23381.03	6.72	36.98	3.64
TF	DINTY	FLY_BY				41000.00		209.19	1.0

KSAN:RW09:DINTY Evaluation Results Part 2/2																	
Leg Tp	End Pt	Turn Tp	DTA1	DTA1 Turn Rad	DTA1 Turn Alt	DTA1 Turn Spd	DTA1 Bank Ang	DTA1 Tailwind	DTA1 True Airspd	DTA1 vGround	DTA2	DTA2 Turn Rad	DTA2 Turn Alt	DTA2 Turn Spd	DTA2 Bank Ang	DTA2 Tailwind	DTA2 True Airspd	DTA2 vGround
VA					0.0	0.0					20.0	2.37	4000.0	265.0	25.0	54.92	288.63	343.55
DF	BAUCA	FLY_BY	20.0	2.37	4000.0	265.0	25.0	54.92	288.63	343.55	3.19	8.18	15247.45	300.0	21.31	77.19	390.61	467.8
TF	ECHHO	FLY_BY	3.19	8.18	15247.45	300.0	21.31	77.19	390.61	467.8	0.0	40.62	18246.19	300.0	5.0	83.13	410.73	493.86
TF	GOFUR	FLY_BY	0.0	40.62	18246.19	300.0	5.0	83.13	410.73	493.86	0.0	41.64	19000.0	300.0	5.0	84.62	416.03	500.0
TF	MMOTO	FLY_BY	0.0	41.64	19000.0	300.0	5.0	84.62	416.03	500.0	3.64	10.88	19000.0	300.0	18.51	84.62	416.03	500.0
TF	SXC	FLY_BY	3.64	10.88	19000.0	300.0	18.51	84.62	416.03	500.0	0.0	54.11	31957.53	300.0	5.0	110.28	525.33	570.0
TF	DINTY	FLY_BY	0.0	54.11	31957.53	300.0	5.0	110.28	525.33	570.0	0.0		41000.0	300.0	0.0	128.18	628.54	570.0

KSAN:RW09:DINTY Criteria Failures and Warnings

RDO257: [Warning] In the route beginning at RW09, the Input Climb Gradient, 200.0 is equal to the Input Engagement Climb Gradient. Consolidate climb gradients into a single climb gradient of 200.0 ft/NM to 100000.0 feet.
RDO35: [Waiver Required] The VA/VI leg off of RW09 has a leg length of 19.924458820654678 NM that is in excess of the maximum ICA length: 10.0 NM.
RDO55: [Waiver Required] In the route beginning at RW09 and ending at DINTY, the Engagement Altitude 4000.0 is not within 20 feet of the Airport Elevation plus 500 feet 517.0.

Route Evaluation for KSAN:RW09:MALIT

Required Engagement Climb Gradient (ft/NM): -

KSAN:RW09:MALIT Evaluation Results Part 1/2

Leg Tp	End Pt	Turn Tp	Alt Restr	Alt Restr 2	Spd Restr	Min CG Calc Alt	Turn Ang	Leg Length	Min Seg Length
VA			+4000.00			4000.00	166.49	19.92	19.92
DF	BAUCA	FLY_BY				9397.66	42.61	26.98	0.0
TF	ECHHO	FLY_BY				11110.69	0.35	8.56	3.19
TF	GOFUR	FLY_BY	+15000.00			14430.05	1.45	16.59	1.0
TF	MMOTO	FLY_BY	-19000.00			15978.78	37.03	7.74	3.64
TF	SXC	FLY_BY				23381.03	51.64	36.98	23.64
TF	MALIT	FLY_BY				39405.11		80.0	20.0

KSAN:RW09:MALIT Evaluation Results Part 2/2

Leg Tp	End Pt	Turn Tp	DTA1	DTA1 Turn Rad	DTA1 Turn Alt	DTA1 Turn Spd	DTA1 Bank Ang	DTA1 Tailwind	DTA1 True Airspd	DTA1 vGround	DTA2	DTA2 Turn Rad	DTA2 Turn Alt	DTA2 Turn Spd	DTA2 Bank Ang	DTA2 Tailwind	DTA2 True Airspd	DTA2 vGround
VA					0.0	0.0					20.0	2.37	4000.0	265.0	25.0	54.92	288.63	343.55
DF	BAUCA	FLY_BY	20.0	2.37	4000.0	265.0	25.0	54.92	288.63	343.55	3.19	8.18	15247.45	300.0	21.31	77.19	390.61	467.8
TF	ECHHO	FLY_BY	3.19	8.18	15247.45	300.0	21.31	77.19	390.61	467.8	0.0	40.62	18246.19	300.0	5.0	83.13	410.73	493.86
TF	GOFUR	FLY_BY	0.0	40.62	18246.19	300.0	5.0	83.13	410.73	493.86	0.0	41.64	19000.0	300.0	5.0	84.62	416.03	500.0
TF	MMOTO	FLY_BY	0.0	41.64	19000.0	300.0	5.0	84.62	416.03	500.0	3.64	10.88	19000.0	300.0	18.51	84.62	416.03	500.0
TF	SXC	FLY_BY	3.64	10.88	19000.0	300.0	18.51	84.62	416.03	500.0	20.0	41.34	31957.53	300.0	6.53	110.28	525.33	570.0
TF	MALIT	FLY_BY	20.0	41.34	31957.53	300.0	6.53	110.28	525.33	570.0	0.0		41000.0	300.0	0.0	128.18	628.54	570.0

KSAN:RW09:MALIT Criteria Failures and Warnings

RDO257: [Warning] In the route beginning at RW09, the Input Climb Gradient, 200.0 is equal to the Input Engagement Climb Gradient. Consolidate climb gradients into a single climb gradient of 200.0 ft/NM to 100000.0 feet.
RDO35: [Waiver Required] The VA/VI leg off of RW09 has a leg length of 19.924458820654678 NM that is in excess of the maximum ICA length: 10.0 NM.
RDO55: [Waiver Required] In the route beginning at RW09 and ending at MALIT, the Engagement Altitude 4000.0 is not within 20 feet of the Airport Elevation plus 500 feet 517.0.

Runway Evaluation for RW27

LNAV Engagement CG (ft/NM):	-
LNAV Engagement Termination Altitude (ft):	-
Obstacle Climb Gradient (ft/NM):	-
Obstacle CG Termination Altitude (ft):	-
Inhibit controlling obstacles within ICA Extended 3SM Area:	false

Route Evaluation for KSAN:RW27:DINTY

Required Engagement Climb Gradient (ft/NM): 489.59

KSAN:RW27:DINTY Evaluation Results Part 1/2

Leg Tp	End Pt	Turn Tp	Alt Restr	Alt Restr 2	Spd Restr	Min CG Calc Alt	Turn Ang	Leg Length	Min Seg Length
VI						220.75	20.06	1.02	1.02
CF	LANDN-NEW	FLY_BY				1442.98	39.23	6.11	2.2
TF	ECHHO	FLY_BY				3489.68	26.51	10.23	3.74
TF	GOFUR	FLY_BY	+15000.00			6807.83	1.45	16.59	2.05
TF	MMOTO	FLY_BY	-19000.00			8356.00	37.03	7.74	3.49
TF	SXC	FLY_BY				15755.55	6.72	36.98	3.49
TF	DINTY	FLY_BY				41000.00		209.19	1.0

KSAN:RW27:DINTY Evaluation Results Part 2/2

Leg Tp	End Pt	Turn Tp	DTA1	DTA1 Turn Rad	DTA1 Turn Alt	DTA1 Turn Spd	DTA1 Bank Ang	DTA1 Tailwind	DTA1 True Airspd	DTA1 vGround	DTA2	DTA2 Turn Rad	DTA2 Turn Alt	DTA2 Turn Spd	DTA2 Bank Ang	DTA2 Tailwind	DTA2 True Airspd	DTA2 vGround
VI					0.0	0.0					0.51	2.89	527.65	265.0	25.0	30.0	273.95	303.95
CF	LANDN-NEW	FLY_BY	0.51	2.89	527.65	265.0	25.0	30.0	273.95	303.95	1.69	4.75	3583.42	265.0	19.61	54.1	286.81	340.91
TF	ECHHO	FLY_BY	1.69	4.75	3583.42	265.0	19.61	54.1	286.81	340.91	2.05	8.68	8701.06	265.0	13.26	64.23	310.43	374.66
TF	GOFUR	FLY_BY	2.05	8.68	8701.06	265.0	13.26	64.23	310.43	374.66	0.0	36.12	15000.0	300.0	5.0	76.7	389.01	465.71
TF	MMOTO	FLY_BY	0.0	36.12	15000.0	300.0	5.0	76.7	389.01	465.71	3.49	10.41	17710.44	300.0	18.51	82.07	407.03	489.09
TF	SXC	FLY_BY	3.49	10.41	17710.44	300.0	18.51	82.07	407.03	489.09	0.0	54.11	30667.17	300.0	5.0	107.72	512.66	570.0
TF	DINTY	FLY_BY	0.0	54.11	30667.17	300.0	5.0	107.72	512.66	570.0	0.0		41000.0	300.0	0.0	128.18	628.54	570.0

KSAN:RW27:DINTY Criteria Failures and Warnings

No failures.

Route Evaluation for KSAN:RW27:MALIT

Required Engagement Climb Gradient (ft/NM): 489.59

KSAN:RW27:MALIT Evaluation Results Part 1/2

Leg Tp	End Pt	Turn Tp	Alt Restr	Alt Restr 2	Spd Restr	Min CG Calc Alt	Turn Ang	Leg Length	Min Seg Length
VI						220.75	20.06	1.02	1.02
CF	LANDN-NEW	FLY_BY				1442.98	39.23	6.11	2.2
TF	ECHHO	FLY_BY				3489.68	26.51	10.23	3.74
TF	GOFUR	FLY_BY	+15000.00			6807.83	1.45	16.59	2.05
TF	MMOTO	FLY_BY	-19000.00			8356.00	37.03	7.74	3.49
TF	SXC	FLY_BY				15755.55	51.64	36.98	23.49
TF	MALIT	FLY_BY				31773.78		80.0	20.0

KSAN:RW27:MALIT Evaluation Results Part 2/2

Leg Tp	End Pt	Turn Tp	DTA1	DTA1 Turn Rad	DTA1 Turn Alt	DTA1 Turn Spd	DTA1 Bank Ang	DTA1 Tailwind	DTA1 True Airspd	DTA1 vGround	DTA2	DTA2 Turn Rad	DTA2 Turn Alt	DTA2 Turn Spd	DTA2 Bank Ang	DTA2 Tailwind	DTA2 True Airspd	DTA2 vGround
VI					0.0	0.0					0.51	2.89	527.65	265.0	25.0	30.0	273.95	303.95
CF	LANDN-NEW	FLY_BY	0.51	2.89	527.65	265.0	25.0	30.0	273.95	303.95	1.69	4.75	3583.42	265.0	19.61	54.1	286.81	340.91
TF	ECHHO	FLY_BY	1.69	4.75	3583.42	265.0	19.61	54.1	286.81	340.91	2.05	8.68	8701.06	265.0	13.26	64.23	310.43	374.66
TF	GOFUR	FLY_BY	2.05	8.68	8701.06	265.0	13.26	64.23	310.43	374.66	0.0	36.12	15000.0	300.0	5.0	76.7	389.01	465.71
TF	MMOTO	FLY_BY	0.0	36.12	15000.0	300.0	5.0	76.7	389.01	465.71	3.49	10.41	17710.44	300.0	18.51	82.07	407.03	489.09
TF	SXC	FLY_BY	3.49	10.41	17710.44	300.0	18.51	82.07	407.03	489.09	20.0	41.34	30667.17	300.0	6.53	107.72	512.66	570.0
TF	MALIT	FLY_BY	20.0	41.34	30667.17	300.0	6.53	107.72	512.66	570.0	0.0		41000.0	300.0	0.0	128.18	628.54	570.0

KSAN:RW27:MALIT Criteria Failures and Warnings

No failures.

Evaluation Input

Name:	RS Results MMOTO2-ABCX2
Project:	La Jolla 20200708a
Last Evaluated:	14-Jul-2020 13:20:20
Evaluated Obstacles?:	true
Obstacle Database:	DOF (14.0nm query)
Evaluated Terrain?:	false
Evaluated Precipitous Terrain?:	false
Worst Case Vegetation Height (ft) AGL:	0
Converted 9I Accuracies to 4D?:	true
MVA Prior to the IF (ft) MSL:	-
Maximum Aircraft Category:	D

Airport

Name:	KSAN [CIFP:FULL]
Location:	N32° 44' 00.80",W117° 11' 22.80"
Elevation (ft):	17
Magnetic Variation (degs):	11 ()

AAO Exempt Airports

Name	Location	Elevation (ft)
KCRQ [NFDC]	N33° 07' 41.70",W117° 16' 48.30"	330.5
KLAX [NFDC]	N33° 56' 32.99",W118° 24' 28.98"	127.8
KLGB [NFDC]	N33° 49' 04.55",W118° 09' 06.81"	60.4
KMYF [NFDC]	N32° 48' 56.60",W117° 08' 22.40"	427.3
KNZY [NFDC]	N32° 41' 53.51",W117° 12' 47.20"	25.9
KONT [NFDC]	N34° 03' 21.60",W117° 36' 04.30"	944
KRNM [NFDC]	N33° 02' 21.00",W116° 54' 54.90"	1394.6
KSAN [CIFP:FULL]	N32° 44' 00.80",W117° 11' 22.80"	17
KSAN [NFDC]	N32° 44' 00.80",W117° 11' 22.80"	16.8
KSDM [NFDC]	N32° 34' 20.20",W116° 58' 48.60"	526.1
KSEE [NFDC]	N32° 49' 34.40",W116° 58' 20.80"	387.5
KSMO [NFDC]	N34° 00' 56.96",W118° 27' 04.70"	169.8
KSNA [NFDC]	N33° 40' 32.40",W117° 52' 05.60"	56.1

Runways

Name	Airport	Location	Elevation (ft)	TDZE (ft)	True Course (degs)	Survey?
RW09	KSAN [CIFP:FULL]	N32° 44' 10.92",W117° 12' 04.43"	16	16	106	NONE
RW27	KSAN [CIFP:FULL]	N32° 43' 52.94",W117° 10' 50.26"	15	15.5	286	NONE

Criteria Failures and Warnings

RDO257: [Warning] In the route beginning at RW09, the Input Climb Gradient, 200.0 is equal to the Input Engagement Climb Gradient. Consolidate climb gradients into a single climb gradient of 200.0 ft/NM to 100000.0 feet.
RDO66: [Waiver Required] The OCS surface applied from RW09 is penetrated by obstacles/terrain.
RDO35: [Waiver Required] The VA/VI leg off of RW09 has a leg length of 19.924458820654678 NM that is in excess of the maximum ICA length: 10.0 NM.
RDO55: [Waiver Required] In the route beginning at RW09 and ending at DINTY, the Engagement Altitude 4000.0 is not within 20 feet of the Airport Elevation plus 500 feet 517.0.
RDO55: [Waiver Required] In the route beginning at RW09 and ending at MALIT, the Engagement Altitude 4000.0 is not within 20 feet of the Airport Elevation plus 500 feet 517.0.
RDO70: [Waiver Required] In the leg from MMOTO to SXC, an MEA was not provided. An MEA must be established on each leg of an En route Transition.
RDO70: [Waiver Required] In the leg from SXC to DINTY, an MEA was not provided. An MEA must be established on each leg of an En route Transition.
RDO70: [Waiver Required] In the leg from SXC to MALIT, an MEA was not provided. An MEA must be established on each leg of an En route Transition.

Software Evaluation Failures, Warnings, and Notes

CEW19: KLGB does not have all the required runways to construct the AAO area.
CEW19: KMYF does not have all the required runways to construct the AAO area.
No terrain evaluation was performed.
CEW19: KCRQ does not have all the required runways to construct the AAO area.
In the leg from SXC to MALIT the MEA was set to 4200.0 based on evaluated MOCA.
CEW19: KSMO does not have all the required runways to construct the AAO area.
CEW19: KSEE does not have all the required runways to construct the AAO area.
CEW19: KLAX does not have all the required runways to construct the AAO area.
RW27: Minimum VI segment leg was applied.
In the leg from SXC to DINTY the MEA was set to 4200.0 based on evaluated MOCA.
CEW19: KSDM does not have all the required runways to construct the AAO area.
CEW19: KRNM does not have all the required runways to construct the AAO area.
CEW19: KNZY does not have all the required runways to construct the AAO area.
CEW19: KONT does not have all the required runways to construct the AAO area.
CEW19: KSNA does not have all the required runways to construct the AAO area.
In the leg from MMOTO to SXC the MEA was set to 4200.0 based on evaluated MOCA.

Obstacles Requiring Accuracy Code Verification

[06-000275 [DOF], 06-002237 [DOF], 06-002238 [DOF], 06-002499 [DOF], 06-006026 [DOF], 06-006276 [DOF], 06-020050 [DOF], 06-020074 [DOF], 06-229418 [DOF], 06-229745 [DOF], MX-000628 [DOF], MX-000629 [DOF], MX-000630 [DOF], MX-000631 [DOF], MX-000632 [DOF], MX-000633 [DOF], MX-000634 [DOF], MX-000649 [DOF], MX-000650 [DOF]]

Ignored Obstacles

None.

Procedure Notes

None.

Database Effective Dates

Database	Date
UddfObstacle	07/13/2017
Tiled IFPA	N/A
OEAAA	N/A
DOF	06/18/2020
NFDC	07/16/2020
IFP_OFFLINE	N/A
AVNII_OFFLINE	N/A
CIFP	06/18/2020

Notes:

1. **The only changes made in this SID were on the RWY 27 Runway Transition.**
2. **The intended use of this TARGETS Distribution Package is for evaluation purposes in the SAN Airport Part 150, July 2020, as an alternative design proposal.**

Appendix 3 – Equivalent Lateral Spacing Operations (ELSO) - Background Materials

DEVELOPMENT AND OPERATIONAL TRANSITION OF THE FIRST PBN-ENABLED DEPARTURE SEPARATION STANDARD

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Federal Aviation Administration, Washington, District of Columbia

Abstract

In 2014, the Federal Aviation Administration (FAA) prioritized Performance-Based Navigation (PBN) capabilities of its Next Generation Air Transportation System (NextGen) and committed to implementing high-priority innovations within the next three years. For 2015, the commitments include the issuance of a national standard for PBN-enabled Equivalent Lateral Spacing Operation (ELSO) departures and ELSO implementations at airports throughout the United States (US) National Airspace System (NAS). Beginning in 2011, flight validations of ELSO-based reduced-divergence procedures at The Hartsfield-Jackson Atlanta International Airport (KATL) demonstrated operational benefits and validated the ELSO concept for the development of the standard. The standard will enable the NAS-wide use of PBN departure procedures with a reduced minimum divergence of 10 degrees instead of the 15 degrees currently required to conduct simultaneous parallel and successive departure operations. This paper describes the process, from inception to integration into the NAS that pioneered the first PBN-enabled reduced separation standard for departures. Further work to identify candidate airports for application and activities supporting the harmonization of PBN-based separation standards in the global air transportation system are also discussed.

Introduction

Performance-Based Navigation (PBN) serves as a cornerstone for transforming the United States (US) National Airspace System (NAS) from a system that primarily relies on ground-based navigation and radar surveillance to a satellite-based system. To further capitalize on PBN-enabled capabilities and enable safe implementation of more closely spaced flight paths, the Federal Aviation Administration (FAA) committed to developing standards for reduced separation and divergence [1]. The commitments include the issuance of a standard for PBN-enabled Equivalent Lateral Spacing Operation (ELSO) departures and ELSO implementations at airports throughout the NAS [2]. The ELSO standard concept provides lateral spacing between reduced-divergence flight paths that is equivalent to the spacing observed in conventional departure operations at minimum divergence requirements of the currently applicable separation standard [3]. Applications of the reduced standard deliver benefits by providing PBN procedure design options to more effectively address terrain, obstacle, or airport noise sensitivity constraints and enable diverging operations to increase departure capacity, reduce departure delay, decrease fuel burn, and lessen aircraft emissions. This paper describes the process applied to successfully operationally transition ELSO as the first PBN-enabled departure separation standard into the NAS and harmonize its adoption in the global air transportation system.

Background

In 2003, the FAA unveiled its strategy for applying PBN capabilities with the publication of the *Roadmap for Performance-Based Navigation.* The roadmap paved the way for NAS-wide implementation of terminal Area Navigation (RNAV) Standard Instrument Departure (SID) and Standard Terminal Arrival (STAR) procedures [4]. Leveraging the on-board navigation capabilities of advanced flight automation systems that are currently available on the majority of commercial and corporate aircraft, RNAV procedures promised more efficient utilization of available runways and constrained terminal airspaces surrounding major U.S. airports.

Initial implementations of RNAV procedures that provided the most significant benefits included departure procedures at Dallas/Ft. Worth International Airport (KDFW) and The Hartsfield-Jackson Atlanta International Airport (KATL) [5]. At both airports, PBN-based improvements in navigation accuracy and precision enabled the designs of additional departure flight paths.

At KDFW, the designs implemented in 2005 offered two additional diverging departure procedure routes in both North and South airport operational configurations. For each primary departure runway, the designs applied conventional divergence with a minimum of 15 degrees between the initial route segments. A Certificate of Authorization or Waiver (COA or *waiver*) authorized conducting simultaneous PBN operations along initially parallel route segments from runways on both East and West airport complexes [6]. In Figure 1, green and red arrows illustrate the initial course angles that meet the minimum requirement of the conventional divergence standard (15 degrees). Red arrows denote the courses of initial procedure segments of the additional, PBN-enabled departure routes.

At KATL, noise impact considerations and resulting route design constraints limited the number of PBN departure routes to one additional departure route in both East and West operational configurations. Application of conventional divergence requiring course divergence of at least 15 degrees and the need to operate within established noise abatement corridors precluded designs of dual-diverging routes from Runway 08R and Runway 27R. The lack of divergence necessitated that these departures remain in-trail of each other and prevented full realization of the efficiency benefits associated with diverging operations at the airport. Furthermore, the use of the PBN-enabled dual-diverging departure routes from Runways 09L and 26L had to be discontinued during periods when the airport conducted Triple departure operations requiring Air Traffic Control (ATC) personnel to issue initial aircraft headings (radar vectors) to aircraft departing from some of the runways. The initial divergence angles of the departure tracks implemented in 2006 are illustrated in Figure 2. As before, red arrows denote initial courses of PBN-enabled additional departure routes.

The following sections review current requirements of the conventional 15-degree divergence standard and describe key steps in the development and implementation of a PBN-enabled reduced divergence standard.

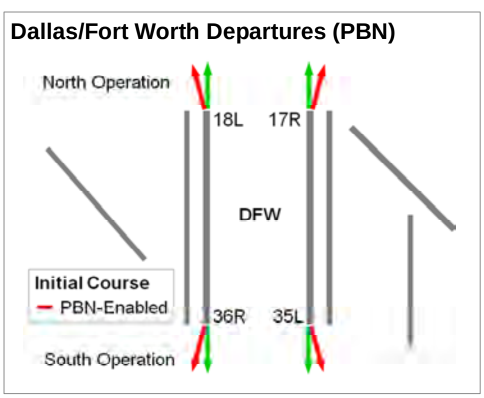

Figure 1. Initial Divergence of KDFW's PBN Procedures Implemented in 2005

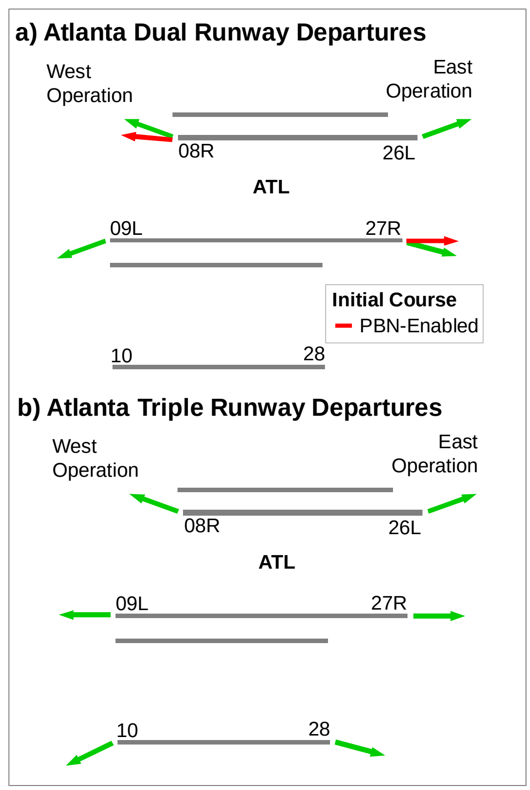

Figure 2. Initial Divergence of KATL's Dual and Triple Departure Tracks Implemented in 2006

Conventional Divergence Standard

A single 15-degree divergence requirement of the radar separation standard applies when conducting departure operations. This rule has been in place for the past 50 years. The standard currently applies equally to conventional departures that follow ATC-assigned aircraft headings (i.e., radar vectors) and PBN departures that proceed along designed procedure routes. FAA Order (FAAO) JO 7110.65 - Air Traffic Control and International Civil Aviation Organization (ICAO) Doc 4444 Procedures for Air Navigation – Air Traffic Management (PANS-ATM) define the requirements for conducting diverging departure operations [7,8].

There are three key rules pertaining to diverging departure operations from the same runway or parallel runways. In each of these cases, radar identification with the aircraft must be established within one mile of the takeoff runway end and courses must diverge by 15 degrees or more immediately after departure. Figure 3 illustrates minimum separation requirements for operations conducted in the radar environment. Figure 3a) refers to aircraft departing from the same runway and Figure 3b) refers to aircraft departing from the same airport or adjacent airports with parallel runways that are separated by less than 2,500 feet. In these cases, wake turbulence requirements must be applied longitudinally between aircraft departing the same or parallel runways. Figure 3c) refers to aircraft departing parallel runways that are spaced 2,500 feet or more apart. In this case, aircraft may depart independently and no wake turbulence requirements apply.

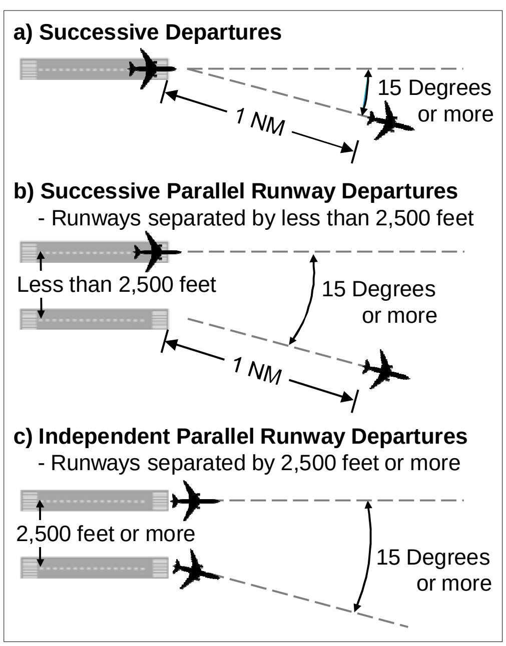

Figure 3. Applications of the Current 15-Degree Divergence Standard

Reduced Divergence Standard

In 2010, FAA Next Generation Air Transportation System (NextGen) strategy and mid-term implementation objectives included the goal of more effectively addressing terrain, obstacle, or airport noise sensitivity constraints and increase operational efficiencies. The strategy called for the development and adoption of a PBN-enabled reduced divergence standard to facilitate the design of multiple departure paths from each runway end [9,10]. With the initial goal of enabling diverging departure operations from all primary departure runways at KATL, the process adopted to reduce the divergence standard represents a multi-year effort across various FAA lines of business, and between the FAA and aviation industry. The various activities can be grouped in the following steps:

- Operational Need
- Concept Development
- Concept Application
- Technical Review
- Operational Transition
- Document Change
- NAS-Wide Application
- Global Harmonization

Key elements of each step are described in the following sections.

Operational Need

In 2008, the Atlanta Terminal Radar Approach Control (TRACON) Airspace and Procedures Office identified the need to overcome the design limitations described previously to fully realize the efficiency benefits of diverging departure operations (see Figure 2). The office proposed a plan to evolve the designs of KATL's PBN departure procedures to Atlanta's Capacity Enhancement Working Group (CEWG)[1]. Primary objectives of the evolution plan included the goals of increasing departure capacity and thus improving schedule integrity of airline hub operations at the airport [11]. To this end, the plan called for enabling air traffic controllers to conduct successive and/or simultaneous RNAV SID operations from dual/triple parallel runways with reduced divergence. The use of reduced divergence was necessary to provide additional departure paths within KATL's established noise abatement corridors and lessen the environmental impact on areas surrounding the airport. A secondary goal was to enhance operational safety by enabling consistent use of RNAV *off-the-ground* (OTG) operations, i.e., no longer requiring ATC issuance of initial radar vectors to departing aircraft when the airport conducted triple runway departure operations.

Initial Concept Development

In 2009, the FAA Performance Based Navigation Policy and Support Group (AJV-14) tasked The MITRE Corporation's Center for Advanced Aviation System Development (MITRE CAASD) to review the operational changes expected to result from KATL's evolution plan and estimate associated benefits to airline operators. The preliminary findings indicated potential annual benefits in the $10 to $20 million range [12]. The findings validated KATL's business case for reduced-divergence departure operations. Follow-on tasking included investigations of PBN-based options to advance the divergence standard with the initial goal of enabling reduced-divergence departure operations at the airport.

In 2010, the ELSO concept was proposed to enable departure operations along departure paths with reduced divergence and along initially parallel departure paths [3]. The concept provides lateral spacing between departure paths that is equivalent to or greater than the spacing of departure paths associated with conventional diverging departure operations based on minimum requirements of the currently applicable divergence standard. This comparative approach also suggested an equivalent or greater level of safety for ELSO departure operations.

The ELSO standard concept provides an analytic expression that describes the divergence angle as a function of three components that take into consideration observed navigational performance and runway layout characteristics [3]. Depending upon the runway layout geometry, diverging application of the ELSO standard typically supports reduced divergence angles of 5 to 10 degrees for RNAV 1 departure operations. As described in the *Document Change* section below, the standard eventually adopted for NAS-wide application solely capitalizes on PBN-enabled improvements in navigational performance. Figure 4 illustrates the PBN component of the ELSO concept.

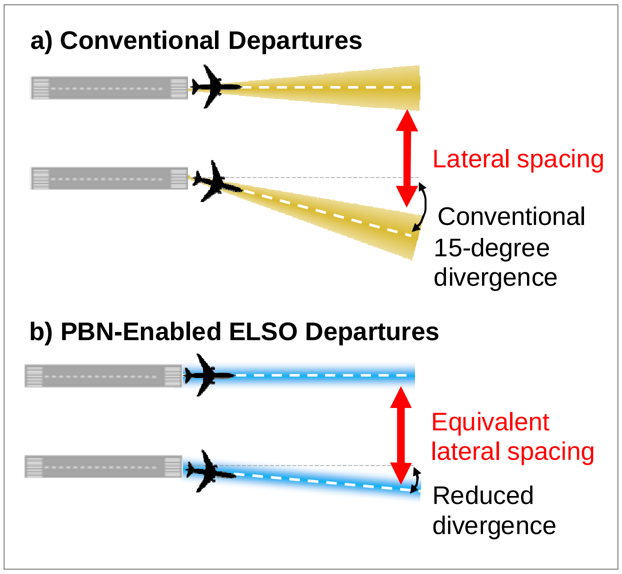

Figure 4. Diverging Application of the PBN Component of the ELSO Concept

Concept Application

To achieve the goals of its RNAV SID evolution plan, KATL sought approval for a waiver to apply reduced course divergence. The plan showed that application of reduced divergence enables dual-diverging operations from KATL's two primary departure runways and independent operations from its three widely-spaced parallel runways. The initial divergence angles of the departure routes are illustrated in Figure 5. Initial review of the route designs showed that the proposed divergence angles meet or exceed ELSO divergence requirements [3].

[1] A local workgroup comprised of representatives from the aviation industry, the local airport authority, and FAA.

In 2010, Atlanta TRACON convened a Safety Risk Management Panel (SRMP) to meet the Safety Management System (SMS) requirements for the proposed operational changes. The panel conducted a safety risk analysis in support of the proposed operations with reduced divergence. It identified and addressed safety risk management issues and mitigation actions pertaining to the proposed operational changes and developed a Safety Risk Management Document (SRMD) for FAA review and approval [13].

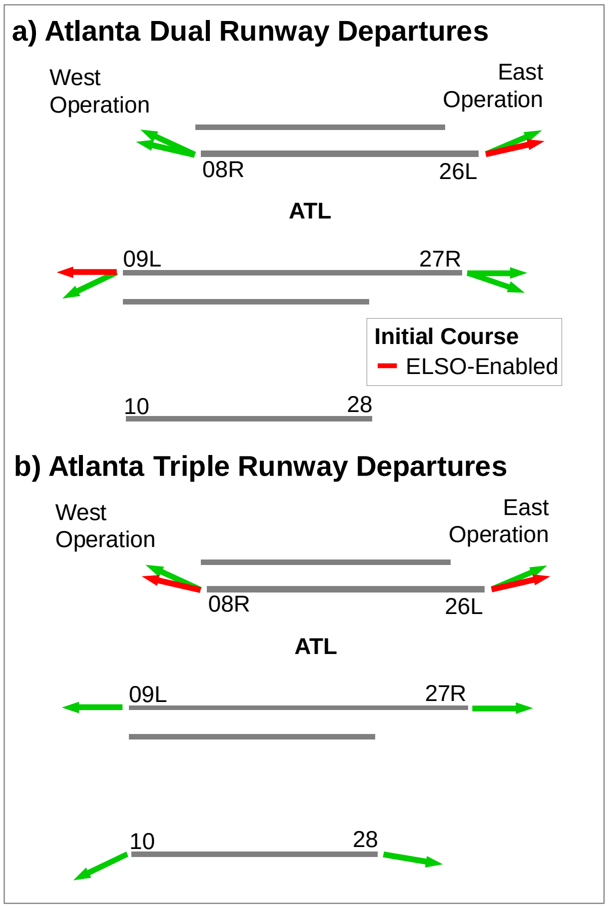

Figure 5. Initial Divergence of KATL's PBN Procedures Implemented in 2011

Technical Review

FAA technical review of the ELSO concept led by Flight Technologies and Procedures Division (AFS-400) commenced in 2011. It included AJV-14 as well as Terminal Safety and Operations Support (AJT-2) and focused on evaluating risks that may result from application of the concept at KATL. The initial review validated the comparative approach of the ELSO concept and the absence of negative impacts on risks associated with operations on reduced-divergence departure routes. Subsequent review by FAA RNAV and Required Navigation Performance (RNP) Group (AJR-37) determined the acceptability of ELSO departure operations from a safety aspect and facilitated the SMS process applicable to FAA's Air Traffic Organization (ATO) [14].

Operational Transition

Approval

On 22 August 2011, FAA Terminal Operations and Safety Support (AJS-22) approved Atlanta's waiver request for reduced course divergence and authorized Atlanta Tower and TRACON to conduct reduced-divergence continuous RNAV off-the-ground operations for successive departures and dual/triple simultaneous parallel departures by implementing NextGen RNAV ELSO procedures [15]. With an effective date of 20 October 2011, the waiver paved the way for operational demonstrations of reduced-divergence departure operations at KATL and served to validate the ELSO concept.

Implementation

On 20 October 2011, Atlanta implemented a set of sixteen NextGen RNAV ELSO departure procedures that provided additional departure paths within KATL's established noise abatement corridors. Various pre-implementation activities were carried out in close collaboration among Atlanta Tower, Atlanta TRACON, Atlanta Air Route Traffic Control Center (Center), airline operators, and surrounding communities. These activities implemented measures preempting possible operational issues for which the SRMP previously identified mitigation actions. Most importantly, they included controller and pilot training to ensure that aircraft navigate along the routes on which they were cleared to depart.

To facilitate the transition to reduced-divergence departure operations, Atlanta Tower temporarily opened an additional Ground control position. On initial call up, the controller staffing this *Meter* position verified that the assigned departure runway and initial navigational fix associated with the departure procedure were correctly loaded in the aircraft Flight Management System (FMS).

The phraseology in use by the Local controller when issuing takeoff clearances also specifies the name of the fix to which the departure is initially cleared. Use of this phraseology promotes final flight-crew verification of the procedure (initial fix) and requires read-back to ensure proper course guidance along the cleared route of flight [16]. Another measure requires the Local controller to monitor the departure either visually or by using a Certified Tower Radar Display (CTRD) to assure timely aircraft turn initiation before instructing the aircraft to contact Departure control.

Further monitoring of the flight's route conformance by Departure control was aided by additional markings on video map overlays developed for use by TRACON Automated Radar Terminal System Color Displays (ACD). These measures proved effective in assuring aircraft divergence and continue to be in use today.

Other measures were taken to accommodate non-participating aircraft, i.e., aircraft that lack the required PBN capability, or contingencies that preclude execution of the RNAV ELSO procedures (e.g., equipment outages, weather events). They included the development of runway-specific conventional procedures and revising the Letter of Agreement (LOA) between Atlanta Tower and TRACON to reflect the changes. The various implementation measures were taken in close consultation with the airlines operating at the airport to ensure flight crew awareness of the operational changes. They also included publications of a Letter to Airmen, Attention All Users Pages (AAUP) to pilots, as well as updates to flight crew check lists [17].

Validation

In 2012, the FAA tasked MITRE CAASD to assess the operational changes that are directly associated with the ELSO-enabled diverging departure operations. The assessment quantified associated annual operator benefits at nearly $20 million [18]. As stated previously, the RNAV ELSO procedure designs increased the number of departure routes from three routes to four routes (see Figure 5). In an East operation, the additional route permits diverging departure operations from Runway 08R. Figure 6 compares East operation radar tracks before and after implementation of the NextGen RNAV ELSO procedures and illustrates the reduced-divergence departure operations at the airport.

The waiver that enabled KATL to conduct RNAV ELSO departure operations initially required biannual review and renewal. In preparation for its first request for renewal in 2013, Atlanta TRACON personnel reviewed the safety data that were collected over a period of nearly two years by its ongoing safety monitoring program. The review established the effectiveness of the measures taken to mitigate possible operational issues. No operational errors were attributed to the reduction of departure divergence and the request for waiver renewal was granted.

The successful flight validations at KATL paved the way for policy changes to facilitate beneficial ELSO application throughout the NAS without the need for airport-specific reviews and authorizations.

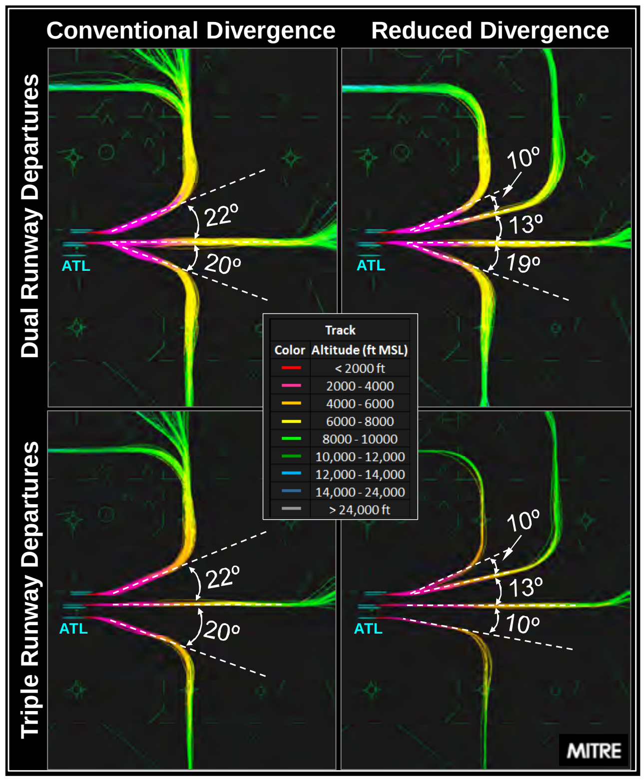

Figure 6. Radar Tracks Illustrating KATL's Reduced Divergence Departure Operations

Document Change

In 2012, FAA commenced a multi-phased initiative to update its Air Traffic Control Handbook, FAAO JO 7110.65. Update recommendations included changes to Section 5-8-3 (Successive or Simultaneous Departures) to enable NAS-wide application of the ELSO standard [19]. The FAA tasked MITRE CAASD to perform a NAS-wide survey of candidate implementation airports. The survey results suggested the potential for beneficial application of reduced-divergence departure operations at other airports and supported the decision to propose a national policy change [20].

In 2013, the FAA tasked MITRE CAASD to develop a single divergence requirement for uniform application throughout the NAS. The adoption of a single divergence requirement forgoes the complexities of leveraging runway layout characteristics and solely capitalizes on PBN-enabled improvements in navigational performance [21]. FAA technical review by AFS-400 determined a single reduced value of 10 degrees appropriate for all PBN (RNAV 1) departure operations and for achieving a level of safety equal to or better than that experienced by conventional departures using 15 degrees divergence [22]. A SRMP was convened in 2014 to analyze the hazards and unintended consequences of introducing the proposed NAS-wide change. The work of the panel centered on examining KATL's operational experience conducting reduced-divergence departure operations and found no evidence to suggest that the reduction of divergence to 10 degrees has introduced risk into the NAS [23].

In 2014, the FAA Terminal Procedures Office (AJV-822) initiated a Document Change Proposal (DCP) and drafted language to authorize a minimum of 10 degrees of course divergence between successive and simultaneous RNAV SID departures. Following a review and comment period, FAA Air Traffic Procedures (AJV-8) approved the document change for publication in FAAO JO 7110.65 with an effective date of 25 June 2015. Specifically, the change:

- Defines *immediately after departure* turn requirements as any turn that provides at least 15 degrees of divergence that begins no more than 2 miles from the departure end of the runway (DER)
- Defines the requirement that the only type SID that can be used for reduced divergence procedures are RNAV SIDs constructed with a specific lateral path that begins at the DER
- Authorizes 1 mile initial separation for aircraft departing the same runway or parallel runways separated by less than 2,500 feet provided both aircraft are flying an (appropriate) RNAV SID and their courses diverge by 10 degrees or more immediately after departure
- Authorizes simultaneous takeoffs between aircraft departing in the same direction from parallel runways if the centerlines are separated by at least 2,500 feet and courses diverge by 10 degrees or more when both aircraft are flying an (appropriate) RNAV SID.

NAS-Wide Application

The scheduled inclusion of the reduced divergence standard in FAAO JO 7110.65 permits PBN procedure implementations with reduced divergence at eligible locations throughout the NAS. Capitalizing on improved navigational precision of PBN operations, these reduced-divergence departure paths provide benefit by improving the ability of parallel and same runway operations to do the following: address terrain, obstacle, or noise sensitivity constraints; increase departure capacity or throughput during peak demand periods; reduce departure delay associated with taxi-out time; and reduce fuel burn and emissions. The new standard provides additional options for procedure designers as they seek to provide increased efficiency, safety, and environmentally friendly alternatives. The FAA plans to use the Metroplex [2] process along with single-site implementation to deploy the capability. Candidate sites are currently being examined for consideration [2].

Global Harmonization

The FAA's business is driven by four strategic priorities. One priority is advanced by initiatives to improve safety, air traffic efficiency, and environmental sustainability across the globe through an integrated, data driven approach that shapes global standards, enhances collaboration and harmonization, and better targets FAA resources and efforts. The

---

[2] FAA initiative which focuses on a systems approach to PBN implementation and airspace design in large metropolitan areas.

reduced divergence standard meets all of the requirements of this priority.

Beginning in 2011, the FAA introduced the reduced divergence standard concept to ICAO [24,25]. After initial review recommendation by ICAO's Separation and Airspace Safety Panel (SASP), ICAO's Air Navigation Commission (ANC) approved further work toward adopting a global reduced divergence standard.

In 2012, review of the theoretical assumptions and modeling of the concept by the Mathematician's Subgroup (MSG) of the SASP further supported ELSO-based reduced divergence requirements [26]. In 2013, the panel endorsed a proposal to draft an amendment proposal for PANS-ATM for the introduction of a global standard with a minimum requirement of 10-degree divergence for use by aircraft authorized to conduct terminal PBN (RNAV 1) operations [27,28]. The FAA is currently drafting the Circular and preparing the Impact Statement needed to support final ANC review of the reduced divergence standard and anticipates completion of the review process to enable publication in the next available edition of ICAO PANS-ATM.

Summary and Next Steps

The FAA is committed to capitalizing on PBN-enabled capabilities currently available on commercial and corporate aircraft operating in the NAS and enabling safe implementation of more closely spaced flight paths. In 2010, development of national standards for reduced separation and divergence commenced. The five-year process for the development, validation, NAS-wide integration, and global harmonization of a first PBN-enabled departure separation standard involved numerous lines of business within the FAA, aviation industry, and the international aviation community.

The new standard for reduced divergence enables the design of RNAV procedure paths with a minimum of 10 degrees of divergence instead of the 15 degrees currently required. Publication of the national standard for reduced divergence is scheduled for 25 June 2015 in FAAO JO 7110.65. Publication of the international standard in ICAO PANS-ATM is expected in 2018. The process applied to develop and integrate the reduced-divergence standard comprised eight steps that may serve as a framework for future advances in the development of aircraft separation standards that further leverage NextGen capabilities.

The goals of enhancing the efficiency with which departure operations are conducted at KATL and reducing the noise footprint of the airport provided a sustained local impetus toward the development and operational validation of the reduced divergence standard. The standard is based on the ELSO concept which provides lateral spacing between reduced-divergence flight paths that is equivalent to the spacing observed in conventional departure operations at minimum divergence requirements of the currently applicable separation standard. ELSO's comparative approach facilitated the SMS review and approval processes applicable to FAA ATO and ICAO SASP. The FAA Metroplex process currently serves to apply the standard in redesigns of departure procedures and to beneficially deploy reduced-divergence departure operations at airports throughout the NAS.

Further gains in NAS operational efficiencies of departure and arrival operations are expected to increasingly rely on developing advanced spacing concepts that capitalize on NextGen capabilities to evolve applicable separation standards. In the case of departures, further study currently investigates additional reductions in the required minimum divergence as well as enabling initially parallel departure paths. Capitalizing on Required Navigation Performance (RNP) technology to improve operational efficiencies of arrival operations, the Established-on-RNP (EoR) concept aims to safely guide aircraft to simultaneous parallel final approach paths without the requirement for vertical separation from aircraft on adjacent approaches. Flight trials to validate the EoR concept are currently conducted at Denver International Airport (KDEN).

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2015 Integrated Communications Navigation and Surveillance (ICNS) Conference

April 21-23, 2015

Development and Operational Transition of the First PBN-Enabled Departure Separation Standard

Ralf H. Mayer, Dennis J. Zondervan, Brian M. Crow, James K. Allerdice, and H. Madison Walton

Integrated Communications Navigation and Surveillance (ICNS) Conference

Herndon, VA

21 April 2015

Outline

- **Background**
  - Next Generation Air Transportation System (NextGen)
    - Opportunities for enabling more effective use of airspace and improving operational efficiencies
      - Leveraging Performance-Based Navigation (PBN) capabilities
- **Reduced Departure Divergence**
    - Development, operational transition, integration into the National Airspace System (NAS), and global harmonization
      - Key steps
- **Summary and Next Steps**

Background

- **Next Generation Air Transportation System (NextGen)**
  - In 2003, Federal Aviation Administration (FAA) first unveiled its strategy for applying Performance Based Navigation (PBN) capabilities
  - FAA committed to developing PBN-enabled standards for reduced separation and divergence to further advance PBN capabilities
- **Reduced Departure Divergence**
  - Equivalent Lateral Spacing Operation (ELSO)
    - Concept developed in 2010
    - In operational use since 2011
      - The Hartsfield-Jackson Atlanta International Airport (KATL)
    - National reduced divergence standard
      - Development commenced in 2013

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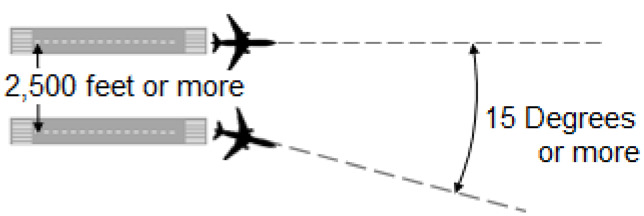
Current Departure Divergence

- **Same Runway**
  - Successive Departures

    - Diverging operations enable application of Same Runway Separation for improved departure efficiency

- **Parallel Runway**
  - Independent Departures



- **Key Requirements**
  - Courses must diverge by **15 degrees** or more immediately after departure
  - Radar environment and radar identification of aircraft within one mile of the departure runway

- **Applications**
  - Standard applies equally to:
    - Conventional departures (on radar vectors) and
    - PBN departures (e.g., on RNAV procedures)

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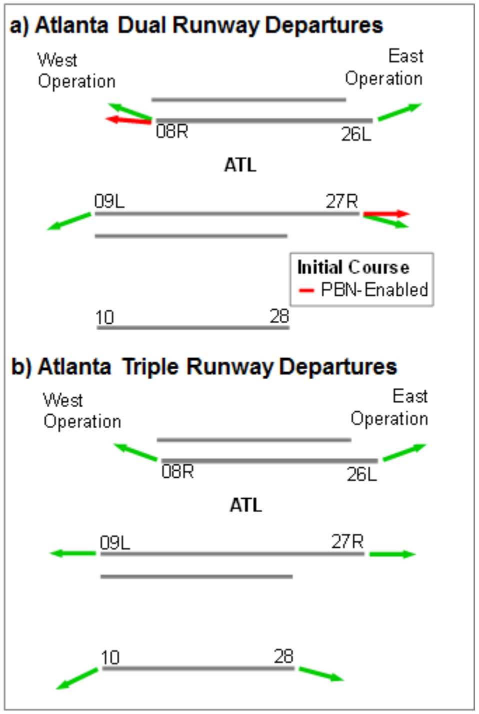
Operational Need

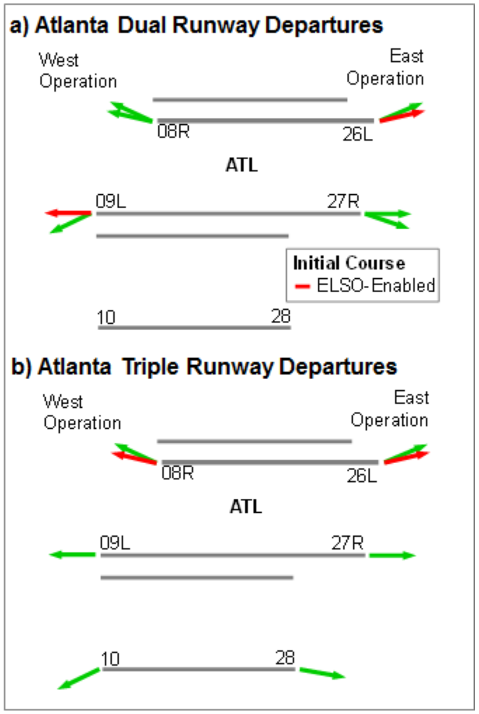
- **KATL PBN Departure Procedures**
  - Initial Procedure Courses

2006 Implementation



- In 2006, conventional divergence requirements and noise constraints limited the number of additional PBN-enabled departure routes
  - East or West Operations
  - Dual or Triple Departures
- In 2008, a proposal called for reduced departure divergence that enables additional departure paths
- Primary goals:
  - Increase efficiency and reduce departure delays
  - Lessen environmental impact

2008 Proposal



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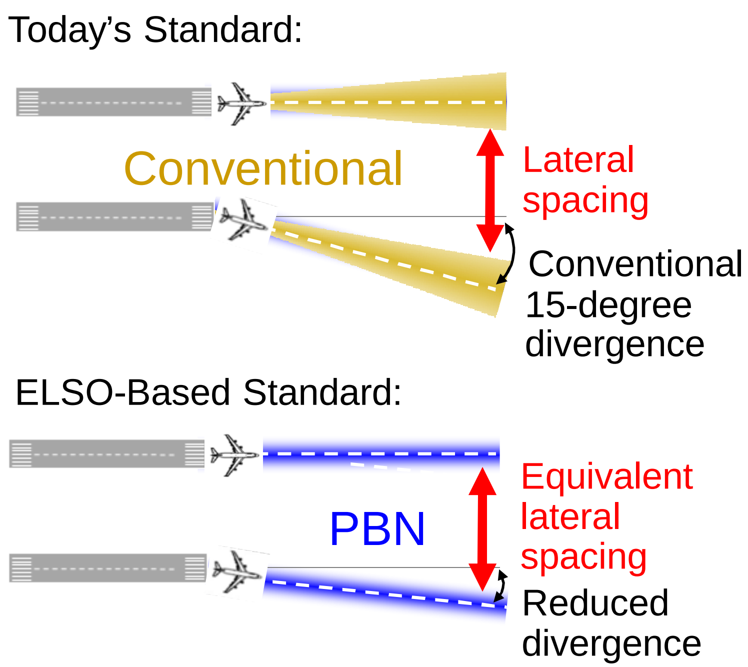
Concept Development

- **Equivalent Lateral Spacing Operation (ELSO)**
  - PBN Component



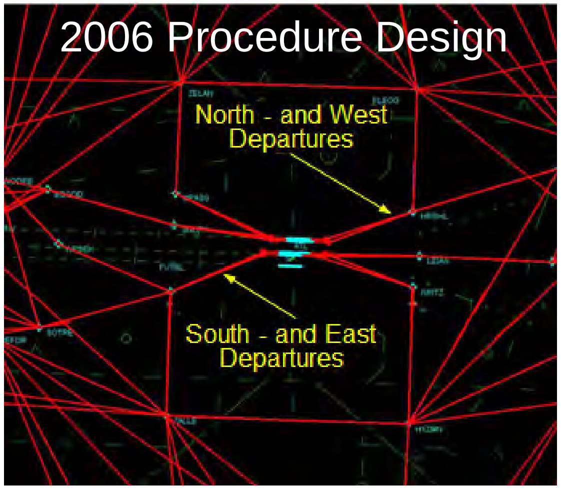
Benefits

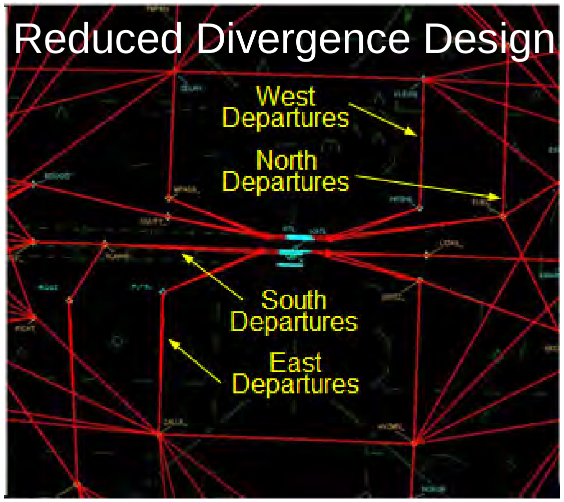
⇒ Additional RNAV SID procedure design options
- Improved ability to address terrain/obstacle and noise sensitivity constraints

⇒ Increased departure efficiency if ELSO enables diverging departure operations
- Increased departure capacity
- Increased throughput during peak demand periods
- Reduced departure delay (taxi-out time)
- Reduced fuel burn and emissions

Concept Application and Review

- **Reduced Divergence Departure Operations**
  - KATL sought Air Traffic Organization (ATO) approval for an operational waiver
    - Safety Management System (SMS) review
      - Operational changes
    - Safety Risk Management Document (SRMD)
      - Risk mitigations
- **Technical Review**
  - Consistency of proposed divergence angles with ELSO divergence requirements
  - Validation of comparative approach of ELSO concept
  - Absence of negative impacts on risks associated with operations
  - Acceptability from a safety aspect





Operational Transition (1 of 2)

- **Waiver Approval (August 2011)**
  – Authorized Atlanta air traffic control (ATC) to conduct reduced-divergence continuous Area Navigation (RNAV) off-the-ground operations for successive departures and dual/triple simultaneous parallel departures

- **Procedure Implementation (October 2011)**
  - Key implementation activities included controller and pilot training to ensure proper runway use and procedure assignment verification
    – Including updated flight crew check lists
  - Use of "***RNAV to***" phraseology (takeoff clearance)
  - Conformance monitoring
    – Tower and Departure control
  - Procedures for accommodating non-participating aircraft
    – Updated Letter of Agreement (LoA) between Tower and Departure

Federal Aviation Administration

Memorandum

Date: AUG 22 2011

To: Suzanne Alexander, Director, Eastern Terminal Operations

From: Tony Mello, Acting Director, Terminal Safety and Operations Support

Subject: Request for Waiver to Federal Aviation Administration (FAA) Order JO 7110.65; Successive Or Simultaneous Departures for Atlanta Terminal Radar Approach Control (A80 TRACON) and Atlanta Hartsfield-Jackson International Airport Traffic Control Tower (ATL ATCT); Your Memo

DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION
Atlanta TRACON
784 Georgia Highway 74 South
Peachtree City, Georgia 30269

ISSUED: August 12, 2011 EFFECTIVE: October 20, 2011

ATLANTA TRACON LETTER TO AIRMEN NO. 11-4

SUBJECT:

ATLANTA HARTSFIELD-JACKSON INTERNATIONAL AIRPORT (ATL) REDUCED DIVERGENCE AREA NAVIGATION (RNAV) STANDARD INSTRUMENT DEPARTURES (SIDs)

CANCELLATION: October 20, 2013

Beginning Thursday, October 20, 2011, ATL will implement new Reduced Divergence RNAV SIDs. These SIDs have been designed to aid in noise abatement and add departure capacity to the ATL airport while maintaining an equivalent level of safety when compared to existing separation standards. To achieve this, ATL will implement the Equivalent Lateral Spacing Operations (ELSO) standard developed by MITRE Corporation and approved for implementation by FAA Waiver 11-T-05.

1. Reduced Divergence RNAV SIDs will be conducted daily between 0700-2300 Local Time. Between 2300-0700 Local Time, aircraft will be issued noise abatement radar vectors.

2. Pilots must ensure that they are operating on the **current RNAV database** (dated 10/20/2011 or later) and that the **correct departure runway** is entered into the Flight Management Computer (FMC) prior to departure.

NOTE- Several fixes/waypoints on the new SIDs are new or have moved from their previous location.

3. ATL controllers will issue departure clearances to RNAV aircraft using the "RNAV to" phraseology. Example – "DAL123, RNAV to SNUFY, Runway 26L, Cleared for Takeoff." In this case, SNUFY would be the first named fix/waypoint on the SID to be flown. The pilot is expected to verify that the fix/waypoint displayed on the Flight Management System (FMS) corresponds to the fix/waypoint issued in the departure clearance. **If the fix/waypoint is not identical, pilots must request a vector from the Tower.**

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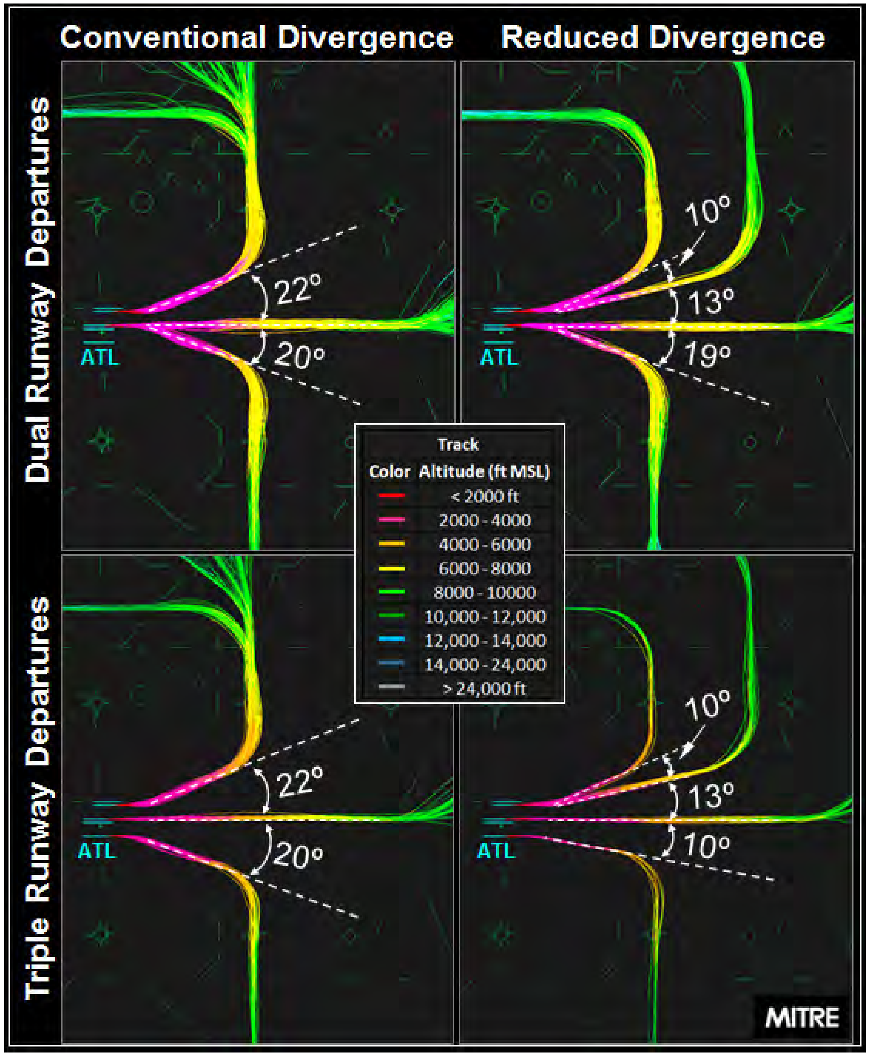
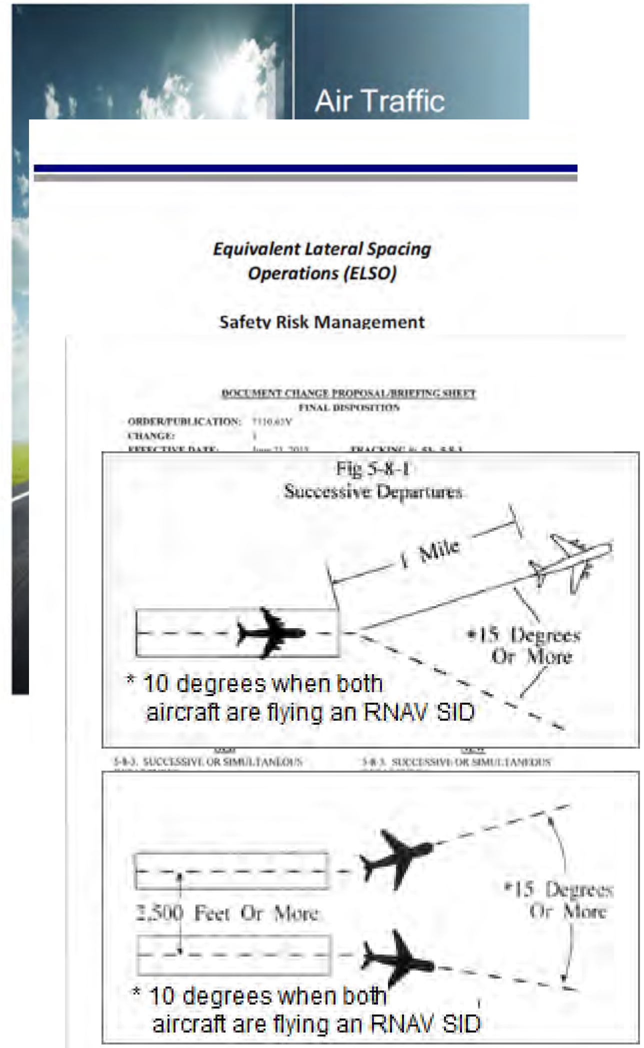
Operational Transition (2 of 2)

- **Operational Validation (2012)**
  - Benefits resulting from operational changes associated with reduced divergence departure operations
    - Annual operator benefit of nearly $ 20 million
- **Waiver Maintenance**
  - Ongoing safety monitoring program
  - Bi-annual renewal (2013)
    - No operational errors attributed to the reduction of departure divergence



Document Change

- **Divergence Standard**
  - In 2012, FAA commenced a multi-phased initiative to update ***FAA JO 7110.65 Air Traffic Control***
    - Review of applicability throughout the NAS
    - Proposal for a national policy change
- **Document Change Proposal (DCP)**
  - In 2013, FAA adopted a single minimum reduced divergence angle of 10 degrees
    - Completed SMS review of operational changes (2014)
    - Developed draft language to change FAA JO 7110.65
      - Paragraph 5-8-3 Successive or Simultaneous Departures
  - Publication scheduled for 25 June 2015



NAS-Wide Application

- **Potential Application Benefits**
  - Improved procedure design flexibility
    - Facilitate addressing terrain, obstacle, or noise sensitivity constraints
    - Enable diverging departure operations
      - Increase departure efficiency
      - Reduce delays, fuel burn and emissions
- **Application Approach**
  - FAA Metroplex process
    - Ongoing initiative to re-design procedures and airspace in large metropolitan areas
  - Application under consideration at Fort Lauderdale-Hollywood International Airport (KFLL) and Miami International Airport (KMIA)

NextGEN

FAA NextGen eNews – April 2015

What's New in NextGen?

Another completed commitment involves Equivalent Lateral Spacing Operations (ELSO).

ELSO capitalizes on the increased navigational precision of Area Navigation (RNAV) departure operations. ELSO reduces the angle between departure routes from 15 degrees to as little as 10 degrees without the aircraft flying closer together.

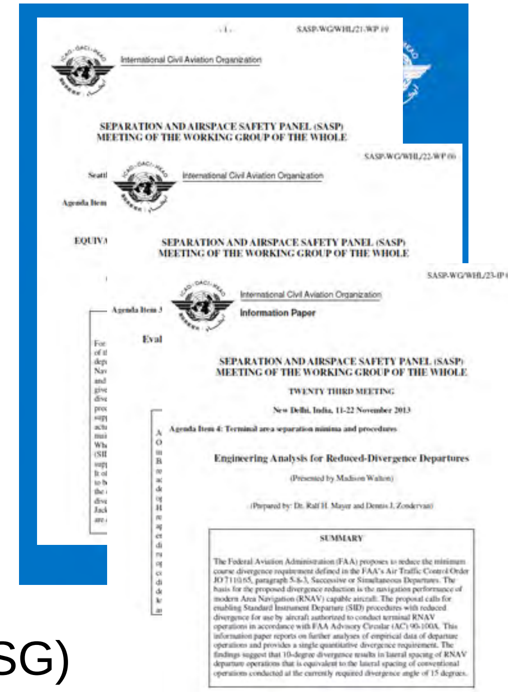
"By doing that, we are able to increase departure capacity flow so it makes the NAS (National Airspace System) more efficient," Creasap said.

The FAA approved change to the current standard and made it available for consideration in future Metroplex and single airport sites. It also will be incorporated into the air traffic control handbook, which is set to be released in June, Creasap said.

"Industry wanted us to get the work done so that it is well defined enough that we could actually use it in the Florida Metroplex," Gustin said. "We accomplished that, and Florida Metroplex is moving forward considering this ELSO technique."

Global Harmonization

- **International Civil Aviation Organization (ICAO)**
  – Enhance international collaboration and harmonization to shape global standards to:
    - Improve safety, air traffic efficiency, and environmental sustainability


International Civil Aviation Organization

SEPARATION AND AIRSPACE SAFETY PANEL (SASP)
MEETING OF THE WORKING GROUP OF THE WHOLE

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TWENTY THIRD MEETING

New Delhi, India, 11-22 November 2013

Agenda Item 4: Terminal area separation minima and procedures

Engineering Analysis for Reduced-Divergence Departures

(Presented by Madison Walton)

SUMMARY

- **Separation and Airspace Safety Panel (SASP)**
  – FAA introduced reduced divergence concept in 2011
    - Initial review approved work toward adopting a global reduced divergence standard
  – Concept reviewed by Mathematician's Subgroup (MSG)
    - MSG supported ELSO-based reduced divergence requirements (2012)
  – Panel endorsed proposal to draft amendment proposal for ICAO Doc 4444 Procedures for Air Navigation – Air Traffic Management (PANS-ATM) in 2013
    - 10-degree divergence for use by aircraft authorized to conduct terminal PBN procedure (RNAV 1) operations

Summary and Next Steps

- **FAA committed to capitalizing on PBN-enabled capabilities**
  - Enabling safe implementation of more closely-space flight paths
    - Reduced Departure Divergence
      - Process commenced in 2010 involving numerous lines of business within FAA, aviation industry, and international aviation community
      - New standard enables design of RNAV procedures with 10 degrees of divergence (instead of 15 degrees currently required)
      - FAA publication of new standard scheduled for 25 June 2015
      - ICAO adoption and publication expected in 2018
        - Circular and Impact Statement in preparation
- **Next Steps**
  - FAA system-wide implementation of reduced divergence procedures via the Metroplex process
  - Further study to investigate additional reductions in divergence requirements

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COMPLETE LIST OF AUTHORS:
Ralf H. Mayer, Dennis J. Zondervan, Brian M. Crow, James K. Allerdice, Jr., H. Madison Walton, Jr.

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January 7, 2021

(*Sent via e-mail: agonzale@san.org*)

San Diego County Regional Airport Authority
Amy Gonzalez
General Counsel
3225 N Harbor Dr, Fl 3
San Diego, CA 92101-1045

Re: The Airport Authority's Flight Procedure Analysis and Part 150 Noise Exposure Map and Noise Certification Program

Dear Ms. Gonzalez:

This letter is submitted by Chatten-Brown, Carstens & Minteer on behalf of its client, Gary Wonacott. The San Diego County Regional Airport Authority ("Airport Authority") must ensure adequate analyses and inputs in updating its Flight Procedure Analysis ("FPA") and Part 150 Noise Exposure Map ("NEM") and Noise Certification Program ("NCP") and in assessing the impact of the FAA NextGen on communities outside of the recognized 65 dB CNEL, including Mission Beach.

An inadequate analysis taints all related subsequent decisions, including acceptable noise abatement alternatives and determination of eligible homes under the Quieter Home Program. It has long been established that aircraft noise above certain levels creates serious adverse impacts on human health and quality of life.

Mr. Wonacott details his concerns with the Airport Authority's methodology in the attached letter (**Exhibit A**) and believes it jeopardizes the validity of the FPA and Part 150 studies, including through inadequate modelling of key flight tracks for the 290 Nighttime Noise Abatement Departure and PADRZ SID.

Further, no evidence has been located that the Airport Authority conducted an environmental assessment when it moved late night departures from the 275 degree heading to the 290 degree heading through a Letter of Agreement. Mr. Wonacott requests more information on whether a review was conducted, and if no review was conducted, why no review was or will be conducted.

The Airport Authority has acknowledged in the presence of Mr. Wonacott to the ANAC Subcommittee that no documentation legitimizes the shift in nighttime flight path and noise impact over Mission Beach. Mr. Wonacott is also concerned that the Airport Authority simultaneously uses an undefined representation of the 290 nighttime departure and treats the 290 and PADRZ paths as the same in analyses. Mr. Wonacott requests explanations for the lack of formal recognition and noise impact review and the aforementioned discrepancies.

The Part 150 Study NEM fails to reflect current or reasonably projected conditions as required under 14 C.F.R. § 150.21. Mr. Wonacott's letter details the inadequacies of the NEM's underlying assumptions, including that the ANAD model underestimates actual flight paths over South Mission Beach and the jetty.

The Airport Authority must ensure transparency in its analysis and decision-making process through providing the information requested in **Exhibit A**, particularly a quantitative description for the 290-degree vector track and associated dispersion used in the AEDT models and PADRZ SID track. Mr. Wonacott was told this would cost $7,000—an unreasonable amount for the production of electronic data. The Public Records Act only permits the agency to charge "direct costs of duplication" (Gov't Code § 6253(b)), but not the cost of staff time to search, review, and redact the records. (*North County Parents Organization v. Dep't of Education* (1994) 23 Cal.App.4th 144, 146.)

Finally, Mr. Wonacott requests information on why the Airport Authority has not followed the proscribed term limits despite the fact that the term of the ANAC Mission Beach representative Deborah Watkins ended in March 2020, and that Ms. Watkins has continuously served on the ANAC since 2008. The ANAC must follow the representative term limits under Airport Authority Policy Section 1.21(4) ("The term of each Member's appointment to the Advisory Committee shall be two (2) years.)

Mr. Wonacott respectfully reiterates his request for the data as detailed in **Exhibit A** and the opportunity present his comments directly to the Airport Authority.

Thank you for your consideration.

Sincerely,

Josh Chatten-Brown

EXHIBIT A

January 7, 2021

(*Sent via e-mail: agonzale@san.org*)

San Diego County Regional Airport Authority
Amy Gonzalez
General Counsel
3225 N Harbor Dr, Fl 3
San Diego, CA 92101-1045

Dear Ms. Gonzalez:

The issues covered in this letter include:

1. Modeling Issues
2. FAA NextGen Impact on Mission Beach
3. Alternatives to Abate Noise Over Mission Beach
4. Compromise and the Illegal Nighttime Noise Abatement Agreement
5. Replacement of the Airport Noise Abatement Committee (ANAC) Mission Beach Representative

I. Modeling Issues

The FAA has developed a comprehensive tool for predicting noise and emissions around airports that like all analytical tools has limitations and built in simplifying assumptions. And while this tool has been used in a very consistent fashion as dictated by the FAA, the quality of the output is only as good as the quality of the input.

We have several concerns that potentially impact the noise predictions for Mission Beach. The most important of these is the assumed backbone tracks for the NextGen PADRZ SID and the 290 nighttime departure. We believe, based on statements made by the consultants in their reports that both the backbone tracks and the assumed dispersions have been over-simplified, resulting in incorrect predictions of noise levels and the shift in contours. The description of the flawed approach is in the “San Diego International Airport Air Traffic Flight Procedures,” Air Traffic Procedures Design Report, August 2020, page 6-5.

In addition, there is absolutely no reference to the Nighttime Noise Abatement Letter of Agreement in the 2010 Part 150 Study. If this departure really provides substantial noise abatement, presumably measured by the reduction in the size of the 65 dB CNEL contour, you would think there would be some mention of it. In fact, there is no mention of it in the 1980 Part 150 either, or even any reference to a potential noise abatement associated with it, while many other noise abatement ideas are discussed in detail.

Airport Authority consultants, while admitting that the 290 LOA is not an approved FAA procedure, have made flawed assumptions in the AEDT model(s) used in the Flight Procedures Analyses and the Part 150, with regard to the location of the 290 tracks relative to the PADRZ

SID backbone. We also have evidence from a 2017 PRR obtained email between Ms. Knack and a colleague stating that the 290 and PADRZ are the same. They are not.

This misrepresentation of the 290 LOA tracks has substantially affected the baseline output 65 dB CNEL contour size and position as well as all of the resulting alternative 65 dB CNEL contours. We have substantial data that contradicts the assumed integrated 290/PADRZ tracks that indicates that the output contours should not be shifting as far south as shown, if at all.

The Airport Authority would claim that the shifting of the magnetic north is a factor in the shift of the 290 departures north over the decades; however, this is a smoke screen at best. Our data, from a public source on a website confirms that the average crossing point for all 290 departures during all or part of the year from 2012 to 2019 has not changed appreciably. The average distance from the most southern point on Mission Beach for the 290 by year is summarized below in the table:

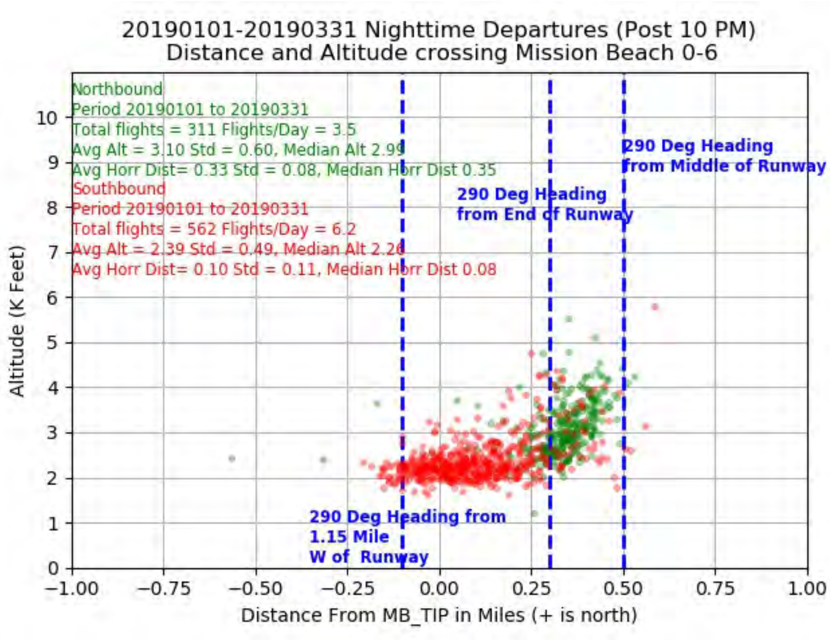
Figure 1:

Year	Average Horizontal Distance (miles)	Average Altitude (ft)
2012	0.19	2,470
2014	0.18	2,360
2016	0.08	2,150
2017	0.12	2,290
2018	0.13	2,260
2019	0.10	2,390

Examples of the data and type of chart used to display the data in the table are shown below. There are a couple key points that can be surmised from this chart. The Airport Authority consistently uses the mid-point of the runway as the origin for tracks, 290, etc. While this is clearly wrong, it can be estimated that the actual end of the turn to 290 degrees on average, is roughly two-thirds of the distance from the end of the runway to 1.15 miles from the end of the runway, or 0.77 miles from the end of the runway. This location is most important in determining where the aircraft cross the coast.

Each dot in the chart represents a single departure. The green dots are either PADRZ or the pre-PADRZ 293 departure post 10 pm. The red dots are the 290 departures. Note that there is a statistically significant difference in the distance from the reference point for the 290 and the PADRZ on the order of 0.23 miles. This data is for the coastline, or about 2.6 miles from the end of the runway.

Figure 2:



These next three charts confirm the difference between the 290 and the PADRZ as a function of distance from the end of the runway at 1, 2 and 2.6 NM (2.6 NM is 2.99 miles). Another important point is revealed in this data. It has been stated that the aircraft on PADRZ, since they are much lighter, turn almost immediately after reaching 520 feet altitude, much sooner than those aircraft on the 290. This chart, while it does show a difference, does not back up the statement made regarding the PADRZ turns before the end of the runway.

Figure 3:

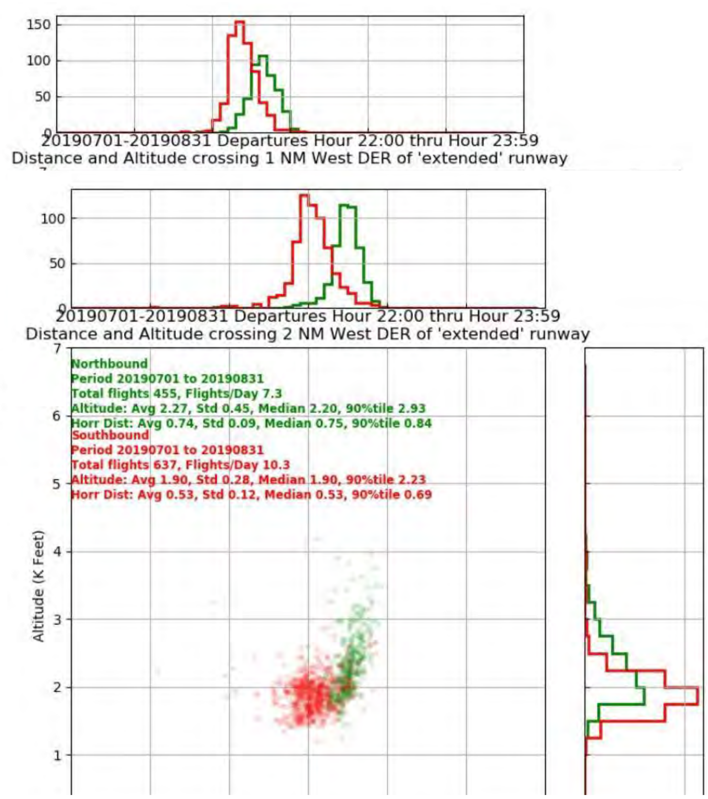
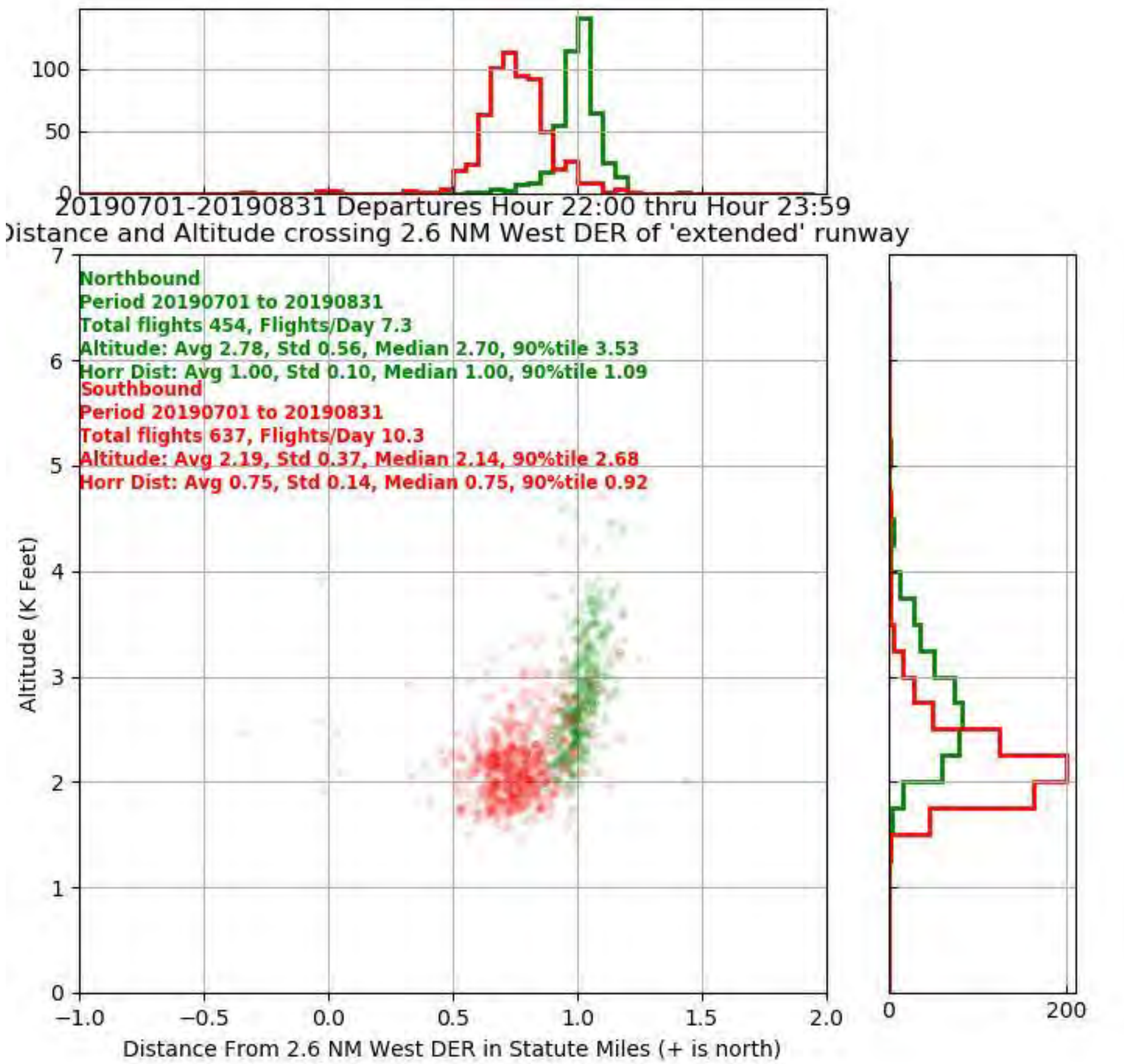


Figure 4:



It is not possible to make an assumption for the PADRZ SID, because the PADRZ track is a product of the FAA designer and bears no relationship with some end of turn point. But the green dots in the figure show the crossing points for the aircraft on the PADRZ SID. And the graph clearly shows a difference on the order of a quarter of a mile between the 290 and PADRZ. This quarter mile makes a huge difference to the residents of Mission Beach.

It is also clear from the data in the table that there is no overbearing influence from the shift of the magnetic north. If anything, the crossing point for the 290 has shifted south during the period 2012 to 2019. Therefore, we conclude that the Airport Authority is once again misrepresenting information to justify a position. Recently, they sent out erroneous information to a CAC member stating that both the 290 and the PADRZ cross over the coast about half a mile farther north than the data shows.

It is also note worthy that the Airport Authority has refused to produce the tracks and dispersion for the 290 and the PADRZ SID after numerous requests. This includes a PRR that I submitted, but was told that the cost to provide this data in an excel spreadsheet format was $7,000.

It is time for the Airport Authority to provide a detailed description and Excel spreadsheet format of the actual backbone tracks for the PADRZ, and their best assessment of the nominal track for the 290.

It is unfortunate that the Airport Authority Noise Abatement Office consultants have chosen to hide the actual tracks from the public, making it impossible to assess their true impacts on the size and position of the noise contours, which are being used to determine which homes might receive noise insulation and which ones will not.

Assumption quality has also been raised regarding the census data used to quantify the number of persons and housing units in the key incompatible noise contours. It is clear that very small changes in the input assumptions can dramatically change the numbers, and so it is imperative that the consultants make every effort to ensure that the most accurate numbers are used.

The questions raised above must be resolved before the book can be closed on the Flight Procedures Analyses (FPA) and the Part 150 studies.

II. FAA NextGen Impact on Mission Beach

For decades, the focus of attention from airport noise impact has been on Loma Portal, Pt. Loma Heights, and Ocean Beach, which is justified as long as other communities in the departure path are not ignored. But, this has been the case for Mission Beach. Looking back at previous noise studies and decisions made by the Port of San Diego Commissioners and the San Diego Regional Airport Authority, it is clear that Mission Beach residents have not been considered in the decision process. This must now change.

By example, in the 1970-80s, unbeknownst to the residents of Mission Beach and without the required Environmental Assessment, the City of San Diego City Council supported by the Port Authority, proposed a change in departures to the Air Traffic Control (ATC) in San Diego to move all post 10 pm departures from the 275 degree vector (aligned with the runway) departure to a 290 vector departure. A Letter of Agreement (LOA) was signed by the three parties, the City Council, the Port, and the FAA/ATC. After much searching, the FAA confirmed that there is no evidence of any documentation at the FAA supporting this agreement. In other words, there is no FAA approved 290 nighttime noise abatement procedure allowing aircraft to be moved post 10 pm to a 290 vector departure.

The move of the departures from the 275 to 290 has resulted in a much more disruptive environment in Mission Beach and Loma Portal, especially since the aircraft whose departure route was shifted from ZZOOO are much heavier, larger and make substantially greater noise at the most disruptive time of the day, or this case, night. In addition, there is no evidence that the move from 275 actually resulted in a reduction of the 65 dB CNEL contour.

There is stronger evidence today that suggests just the opposite. The recent Part 150 analysis performed by the AA consultants indicates that by moving the 290 departures back to 275, there is a decrease in the number of houses within the incompatible noise area. Presumably, then, moving the post 10 pm departures from 275 to 290 would result in an increase in the number of houses in the 65. This likely is the reason why no EA was performed.

And finally, this change was implemented without an Environmental Assessment with full knowledge that there would be a substantial noise shift from one community to another. There is no statue of limitations on this illegal move.

Since the 290 vector departure is not a formal departure, pilots must file their flight plans using the formal ZZOOO SID, then ATC just prior to takeoff redirects the pilots to the 290 nighttime noise abatement vector departure. The original ZZOOO departure is an approved SID; therefore, no particular action is necessary for the FAA to reverse the action taken under the Letter of Agreement. The Mission Beach Association of Residents strongly requests this action to eliminate the nighttime noise abatement agreement be dissolved so that aircraft departing on ZZOOO post 10 pm, stay on the formal ZZOOO departure SID.

III. Alternatives to Abate Noise Over Mission Beach

There is clear evidence based on increases in Noise Monitor 23 measurements that since the implementation of the NextGen satellite navigation PADRZ SID in 2017, noise levels have concentrated and increased in Mission Beach with CNEL levels as high as 65 dB, particularly in South Mission Beach. This evidence is further verified by an increased number of noise complaints coming from Mission Beach. Prior to the NextGen implementation there were tens of noise complaints quarterly. Since implementation, that number has increased to 3000-5000 quarterly complaints.

Virtually any alternative that moves the departure track south of the Mission Beach peninsula at the coastline will accomplish the noise objective for Mission Beach. On the other hand, analyses that showed 1 dB increase in SENL for Mission Beach were strongly influenced by the initial conditions, i.e., the assumed track conditions for PADRZ and the 290. At one point in the FPA final report, the consultant states that the 290 is not an approved FAA procedure and therefore the departures were moved to PADRZ. This is unacceptable to the residents of Mission Beach. At another point in the Part 150 Study, the consultants stated that the 290 was integrated into the PADRZ SID track as one of the dispersion tracks off of the main PADRZ SID backbone (based on radar inputs). Again, this assumption is wrong, since WebTrax and RADAR24 clearly show that the two departures take very different tracks to the coast. Again, this assumption is unacceptable to the residents of Mission Beach.

The consultants need to provide the assumed tracks in an Excel format such that the tracks used can be compared with real world data. At this point, and only at this point, can Mission Beach residents make an assessment of what noise abatement alternative is acceptable to our community.

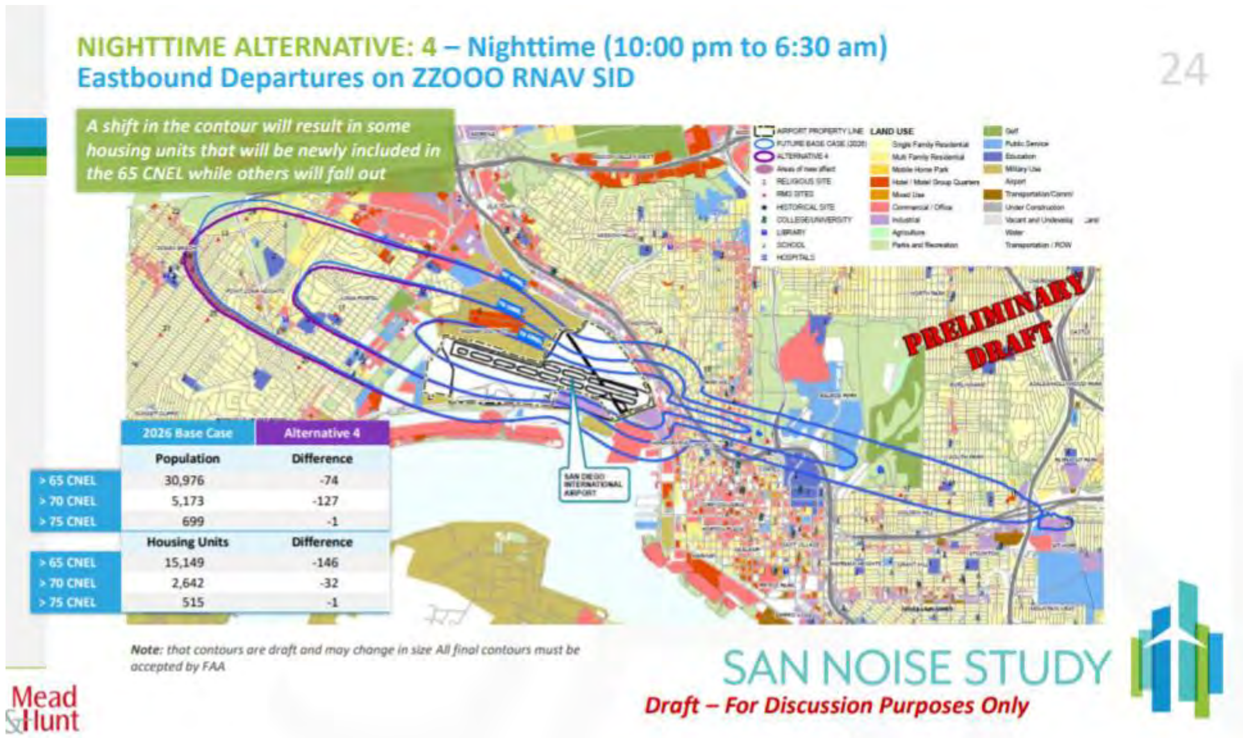
The key reason for opposing all of the potential alternatives, including the 3 SID departure procedure, is that it results in a shift south, and in some cases an extension to the west, in the 65 dB CNEL contour. The AA consultants have claimed from day one that the FAA does not allow shifts that results in new houses in the 65 contour, even if there is a net decrease in the number of houses in the 65. The Airport Authority and their consultants have treated this as a hard and fast FAA policy. But it isn't.

In a letter dated October 15, 2020 from Holly Dixon, Acting Manager LA Airports District, she states that after a search of the FAA policies, no policy could be identified that states that a shift of the 65 contour is not allowed. This frankly makes a lot of sense, since the primary objective of the FAA is to reduce houses within the incompatible 65 noise contour area. And if a shift occurs along with a decrease in the number of houses, the FAA wants to maintain the option to allow this procedure to go forward. The fewer the number of houses in the 65, the smaller the required funding to insulate the houses and take them out of the incompatible noise contour. So, the FAA should and does look at the shift as an option.

The two charts below show the alternative 4 that would move the 290 nighttime departures back to 275. What was initially very surprising was the small impact on the 65 dB CNEL. The first result from the consultants showed exactly zero change, which was questioned by all of the CAC members. As usual, the consultants did not admit they made a mistake the first time. Each time the consultants make a mistake, it costs them credibility, which the Airport Authority Noise Abatement Office personnel don't seem to understand. In any case, this data further confirms that the nighttime noise abatement agreement has no basis. There is no real noise abatement if the 65 dB CNEL does not decrease in size resulting in fewer houses in the incompatible noise area.

Figure 5:

Figure 6:



IV. Compromise and the Illegal Nighttime Noise Abatement Agreement

While I don't officially speak for all of Mission Beach, I do have the technical background to understand the potential impact of various alternatives on the residents of Mission Beach. And, I have regularly sent summaries to the MBTC and the MBPPB. And given that significant responsibility is afforded all of the TAC AND CAC members, then I believe that I am allowed to make evaluations and present acceptable alternatives to the Airport Authority.

Over time, the TAC, CAC have gravitated into three groups: 1) the 65'ers who live in Loma Portal, Pt. Loma Heights, and Ocean Beach, 2) the La Jolla, Bird Rock and Pacific Beach Group, and 3) Mission Beach. The 65'ers tend to lump Mission Beach in with the La Jolla Group.

The conflict is based on the concept of a zero sum gain, or that any solution that benefits Mission Beach results in a shift in the 65 dB CNEL contour to the south with an associated increase in noise over Pt. Loma and OB. So far, the Airport Authority consultants have shown a net decrease in the number of houses in the incompatible noise area for all of the alternatives evaluated. But then, there were major issues raised about the assumed census data for both people and housing.

The 65'ers have now focused on the Part 150 study claiming that all efforts should push towards reducing the size of the 65 dB CNEL contour to the exclusion of all potential benefits to those living outside of the 65. This ignores the initial purpose of the ANAC Subcommittee to identify ways to reduce the impact of the NexGen changes on all communities surrounding Lindbergh field. The Part 150 was introduced as an afterthought by the Airport Authority to supplement funding, but perhaps more importantly to codify changes such as moving the 290 to PADRZ.

I now recognize the shift of the post 10 pm departures from 275 to 290 as an illegal departure, and therefore leaving these 290 departures where they are is a concession that would be part of a compromise. We allow the nighttime departures to stay on 290 and they allow us to move PADRZ SID south. However, they have repeatedly rejected any move of PADRZ south; therefore, I see no alternative but to move the nighttime departures with destinations east back to the 275.

There is direct evidence that the nighttime departures with destinations going back east are louder than the ones that go north, which are currently on PADRZ. Therefore, given the post 10 pm penalty of 10 dB on each departure, intuitively one would think that this would result in a difference in the 65 dB CNEL contour, but it doesn't, as was previously discussed. However, it would result in a substantial change in the SENEL values for the two communities.

In summary, our preference is a compromise that moves the PADRZ SID south of the Mission Beach peninsula and makes that SID applicable to both daytime and nighttime departures, moves the current nighttime departures with destinations east either back to the 275 ZZOOO SID, or an alternative new 285 SID. Finally, under no circumstance will Mission Beach accept any plan that moves all of the nighttime departures to any segment of the PADRZ SID.

V. Replacement of the Airport Noise Abatement Committee (ANAC) Mission Beach Representative

Ms. Watkins has now served on the SDCRAA ANAC committee for 12 years, with her last two-year term ending last March 2020. It is apparent that the Airport Authority convinced Ms. Watkins that any noise abatement that might benefit Mission Beach, but would shift the 65 dB CNEL contour to the south would violate an FAA regulation. She used this rationale multiple times during the ANAC Subcommittee meeting that she Chaired, as well as during the FPA, where she served again as the Chair.

Ms. Watkins has not adequately served the community of Mission Beach since 2017, and it is time for her to be immediately replaced on the ANAC, given that her term ended March 2020.

Sincerely,

Gary Wonacott

Public Comments from
January 9, 2021 to
February 26, 2021

Date Received: January 19, 2021
From: RJ Herrin
Comment: i would like to state my opposition to the ELSO proposal put forth by the Quiet Skies group. I believe the proposed change in the current departure procedures to require all departing aircraft to first proceed straight out off the end of the runway approximately 1 mile prior to turning (roughly over Point Loma High School) increases the noise burden suffered by those in close proximity to the airport (Loma Portal). I believe the current procedures offer a slight dispersion of flight paths through the community is preferable to a concentration of flight into the center of Point Loma. I do support further investigation of potential vertical noise abatement profiles that could possibly reduce the noise impact on the community. My suggestion to your operational recommendations from the 1/07/21 presentation are: The noise effects of a 1500'/3000', thrust reduction/acceleration altitude compared to a 800'/3000' or 1500'/1500'. Remove the recommendation of a full thrust setting for take off to allow for any legal reduced thrust takeoff. Use an altitude based acceleration point versus a location based acceleration point. Consider any approved NADP1 airline procedure. Consider a speed restriction in the departure procedure (i.e. 210kts) to a point to increase climb rate instead of a NADP.

Date Received: January 21, 2021
From: LBruce
Comment: I would like to join the workshop on 1/21/21

Date Received: January 22, 2021
From: Gary Wonacott

Comment: According to my preliminary calculations moving PADRZ south to Alt 1A passes the test and does not even require and AEDT analysis. We are we even talking ins and outs?

https://nam10.safelinks.protection.outlook.com/?url=https%3A%2F%2Fwww.faa.gov%2Fair_traffic%2Fenvironmental_issues%2Fenvironmental_tetam%2Fmedia%2Ftechnical_addendum_to_guidance_document.pdf&data=04%7C01%7Cryk.dunkelberg%40meadhunt.com%7C7f8dacf2f1784208b61f08d8bf4c5414%7Cb467145be9b54d22a13d8331f319ce09%7C0%7C0%7C637469681846338566%7CUnknown%7CTWFpbGZsb3d8eyJWIjoiMC4wLjAwMDAiLCJQIjoiV2luMzIiLCJBTiI6Ik1haWwiLCJXVCI6Mn0%3D%7C1000&sdata=kQ1LNRHKpsjglzmSlfC9uVMiUjOcbYP%2FGTOM%2F9DcBGQ%3D&reserved=0

Date Received: January 24, 2021
From: Len Gross
Comment: It has recently occurred to several members of the CAC that an important option is missing in the 150 study. Contours that only move the current Noise Abatement (NA) path don't seem to have been considered. It is possible that some shifts in the NA will actually reduce the number of people within the 65 with negligible "ins." This might provide a really important result for the community. I believe these items are needed to complete the 150: • Show Ins/outs and contour change for a move of Noise Abatement (nighttime South/East Bound) traffic to a "1D" type departure • Show Ins/outs and contour change for a move of Noise Abatement Noise Abatement (nighttime South/East Bound) traffic to 270 (i.e., ZZOOO) • Show In/outs and contour change for a move of Noise Abatement Noise Abatement (nighttime South/East Bound) traffic to PADRZ

Date Received: January 24, 2021
From: Gary Wonacott
Comment: This shows a compilation of departures. The black lines are the average or nominal. My question is why can we not keep the speed under 200 mph until past the coast?

Date Received: February 3, 2021
From: CAC Committee
Comment:

February 3, 2021

Dear Dennis, Sjohnna and Heidi,

CC: Kim Becker CEO

Pursuant to the January 7, 2021 TAC/CAC meeting and the January 21, 2021 Public Workshop, we submit the following thoughts into public record as members of the Part 150 Citizen Advisory Committee ("CAC") and Technical Advisory Committee (TAC) that live in Ocean Beach, Loma Portal and Point Loma, including those of us who reside within the 65 CNEL contour, the specific "constituents" of the Part 150 Study.

As you are aware, over the course of the Part 150 study, we have shared significant unified concerns about the lack of viable noise mitigation alternatives being evaluated inside the 65 CNEL as well as the attempts by members of the committee from communities well outside of the 65 dB CNEL contour to push noise into the heart of our community using flawed metrics, distorted data and undisclosed new waypoints. Further, using SDCRAA data that was specifically offered *"to provide estimates of the characteristics of the population, not to provide counts of the population…"*

As previously stated, the purpose of the 14 CFR Part 150 study is to:

(a) Reduce individuals and noncompatible land uses within the 65 dB CNEL and prevent introduction of additional non-compatible land

(b) Develop a balanced and cost-effective program to reduce noise impacts within the 65 dB CNEL contours

while noting that,

(c) Further, benefits for sensitive areas exposed to noise levels lower than 65 CNEL are not relevant for the purposes of 14 CFR Part 150.

(d) The shifting noise from one community to another is not consider to meet 14 CFR Part 150's purpose by SDCRAA and the FAA

With this in mind, we concur with the conclusion of the SDCRAA consultants that ALL operational alternatives analyzed (1A, 1B, 1C, 1D, 2A, 2B, 2C, 2D, 3A, 3B, and 4) fail to reduce non-compatible land use AND demonstrate a material shift of noise into the residential hearts of Ocean Beach and Loma Portal for the suggested benefit of Mission Beach (well outside of the documented 65 dB CNEL contour), violating tenant (a) and (d) above. More specifically and most impactful, is the resulting relocation of departures to reach a complete 100% concentration of departures onto the initial 1 NM plus direct to JETTI (275 degree) track that doubles the impacts experienced by those underneath (and within the 65, 70 and 75 dB CNEL contours) versus the current dispersion accomplished by right hand turns that commence as early as "wheels up". This places 100% of the approximate 400 daily departures, or about one every 2.5 minutes, directly over Point Loma High School and Loma Portal Elementary school. Thus, we must restate that those of us living within and just south or west of the 65 CNEL study area do not accept nor support these alternatives and agree with the SDCRAA that they should not be considered further or put forward to the ANAC or FAA as they do not comply with the purpose of the 14 CFR Part 150.

That said, we do agree with the SDCRAA that there are potentially benefits to continued study of the NADP and Ground Based Augmentation System (GBAS) Operational recommendations as well as the land use recommendations to include: a) Support compatible land use development: Prevent non-compatible development near airport, b) Compatibility Planning Process: Coordination during comprehensive planning processes, c) Support of San Diego County Airport Land Use Commission (ALUC) and d) Continuation of the Quieter Home Program residential and non-residential insulation with updated for new future base case 65 CNEL 2026 contours. However, to date we have only received vague descriptions of the true nature of these procedures and therefore, require much greater detail prior to publishing the Part 150.

UPDATED SPECIFIC REQUESTS:

Pursuant to January 7, 2021 TAC/CAC meeting and the January 21, 2021 Public Workshop, we reiterate the following specific requests for additional modeling and analysis of alternatives in line with the SDCRAA recommended path forward to secure our support.

1. Complete a meaningful analysis of NADP options that would add both lateral and vertical dispersion to the current ZZOOO and PADRZ departures
2. Complete a meaningful analysis of GBAS options that would add both lateral and vertical dispersion to the current arrival routes
3. Explore alternatives that result in more Stage 4 and Stage 5 aircraft at SAN using either regulation or carrier incentives
4. Ensure "compliance" with the current 290 degree Nighttime Noise abatement Procedure, while accounting for "magnetic variation" shift over time, as was the intent of ANAC recommendation 17
5. Analyze ways to ensure maximum compliance with nighttime landing to the west unless safety dictates otherwise
6. Ensure the Quieter Home Program continues and is funded appropriately

As of the January 21, 2021 Public Workshop, we believe these recommendations are in line with the SDCRAA recommended path forward and could truly benefit those inside the 65 CNEL. Specific details are below:

NADP

At this point, the one high point of the entire Part 150 is the NADP potential. Therefore, as supported by the SDCRAA, we appreciate the ongoing analysis of NADP options and we request continued modeling and refinement of the of the NADP options as we believe they enable further noise dispersion in the vertical axis. In line with ANAC Recommendation #21 and the goals of this Part 150 study, we strongly request the AA to explore in great detail multiple NADP alternatives. This review should include but not be limited to:

a) A thorough review of alternative NADP's implemented at other US and Intl. airports
b) Departure Thrust Cutback (as referenced at Part 150 meeting 11/2019)
c) Designated Noise Abatement Takeoff/Approach Paths (as referenced at Part 150 meeting 11/2019)
d) NextGen: Performance Based Navigation (PBN) Required Navigation Performance (RNP) (as referenced at Part 150 meeting 11/2019)
e) Power and Flap Settings/CDA procedure (as referenced at Part 150 meeting 11/2019)
f) Alternatives for Speed restrictions on initial climb out
g) Dispersion of flight paths using "heading only" versus the current "direct to waypoint" departures

STAGE 5 AIRCRAFT

We again request additional information, study, modeling, and alternatives to implement a move to 100% Stage 4 and Stage 5 certified aircraft at SAN. Given the Congressional requirement in Section 175 of the FAA Reauthorization Act of 2018 for the FAA to address the phaseout timing for Stage 3 aircraft, we believe increased compliance could be highly beneficial to those under the 65 CNEL. This would include defined options and alternatives using either regulation or incentives.

NIGHTTIME PROCEDURE

With respect to the longstanding Nighttime Noise Abatement Agreement, the ANAC records show that the explicit text and the intent of ANAC Recommendation 17 was to specifically ensure "compliance" with the current Nighttime Noise abatement Procedure that calls for a 290 departure heading for both left and right turns. Additionally, we believe the longstanding Nighttime Noise Abatement Agreement and the 290 magnetic heading was actually meant to drive aircraft over the channel at night. That said, and as documented in the recent SDCRAA workshop, in order to remain compliant with the original purpose and intent of the agreement, the heading should be adjusted every ten years to correct for changes in the local magnetic variation to maintain the same relative 290° heading that existed at time of implementation. Presently, the circa 1985 Nighttime departure heading of 290 degrees must be adjusted to approximately 293 to account for approximately 3 degrees of magnetic variation shift since the procedure was put in place over 30 years ago.

NIGHTTIME LANDINGS

We strongly request the AA explore in great detail ways to ensure maximum compliance with nighttime landings to the west unless safety dictates otherwise. This analysis should include multiple GBAS alternatives to honor ANAC recommendation #16 and Part 150 goals. This review should include but not be limited to:

a) A thorough review of alternative GBAS's implemented at other US and Intl. airports
b) Designated Noise Abatement Approach Paths (vertically\glide path and horizontally 260-280) that provide dispersion from the set 270 approach
c) NextGen: Performance Based Navigation (PBN) Required Navigation Performance (RNP)

QUIETER HOME PROGRAM

The QHP is the only ongoing mitigating factor offered today, specifically focused to reduce "non compatible land use". Given this role, a full public understating of the financial sustainability and/or risks of this program based upon the impacts of the forecasted traffic growth to the 65 dB CNEL non compatible properties within the 2026 forecasted 65 CNEL contour fall well within the purview of the Part 150 CAC. Therefore, we specifically request the AA provide our committee a thorough financing plan (specific revenue and cost forecasts) as to how they intend to fund the $365 million dollars in additional increased QHP refurbishment costs for the 9,134 housing units added to the 65 dB CNEL contour over the next five years.

SUMMARY

We thank the SDCRAA and their consultants for the hard work put into this 14 CRF Part 150 study to date and we strongly believe there is potential in the recommendations we have stated previously and reiterated above. Further, we believe our recommendations are consistent with the Part 150 mission as well as the ANAC Recommendations. **To date, however, our mutual commitment to reduce individual and noncompatible land uses within the 65 dB CNEL has not been fulfilled.** Thus, we request that these further proposals be pursued, and thoroughly discussed openly within the ANAC and the FAA.

Respectfully submitted,

Michael Tarlton, CAC\TAC Member	Robert Herrin, CAC Member
Marc Adelman, CAC Member	David Kujawa, CAC Member
Robin Taylor, CAC Member	Nancy Palmtag, CAC Member
Casey Schnoor, CAC Member	

Date Received: February 16, 2021
From: Will Schussel
Comment: This question is for everyone who will vote on moving the flights over South Mission Beach between 10pm and 11:30pm - would you vote to move the flights over your home from 10pm to 11:30pm? If you are being honest, the answer is no; then why would you move the flights over South Mission Beach, from 10pm to 11:30pm, instead of having the takeoffs go down the middle of the San Diego River, which would cause the least disturbance for all involved?

Date Received: February 17, 2021
From: Tim SanFelice
Comment: As a resident of Mission Beach, we have greatly noticed the noise of the airplanes has grown louder and louder, particularly over the last 5 years. It used to be that the planes would go far out in the ocean before turning north. We are now finding that many of the planes have not only turned north early but are even on a northward path while still to the east of us in Mission Beach. I am only somewhat familiar with all the flight patterns, but do know that the noise issues have gotten very bad for us and even worse for our neighbors in South Mission Beach. We have many clients in Arizona, several of them spend time in Mission Beach and one of their biggest complaints is the amount of airplane noise. That to me would translate to a common complaint by Short Term Rental customers throughout Mission Beach. Not good for tourists. Mission Beach is constantly being considered ""less than"" because of the wrongful perception that there are not as many full-time residents here. That simply is not true. Check the latest census. I have been told several times that it comes down to fuel efficiency. Why does that have to be OUR problem? We should not have to sacrifice our comfort and our health for the airlines. In fact, they should be accommodating us. I've been told we can get assistance with replacing our windows to help reduce the noise. I live at the beach, I do not want to have my doors and windows closed all the time. I want the

sound of the waves and the smell of the sea air. That is the biggest reason I live here. Why should I have to lose that? Please eliminate the path that is flying over Mission Beach and have the planes make their turns out through the Mission Bay Channel and well over the ocean. We are counting on you to be fair to everyone and do what is right for the residence first.

If you believe you submitted a comment that has not been included, please send an email to Jen.Wolchansky@meadhunt.com.