How Airports Can Work with Their Communities on Noise Abatement Procedures

UC Davis Aviation Noise & Emissions Symposium 2022

May 2, 2022

Flight Procedure Evaluation Topics

- Airport's Role – Sjohnna Knack, San Diego International Airport
- Concept Development General Process – Steve Smith, Ricondo
- Assessment Documentation – Steve Smith, Ricondo
- Legal Challenges and Jurisdiction – W. Eric Pilsk, Kaplan Kirsch Rockwell
- FAA Community Involvement and Engagement – Beth White, FAA
- Airline and Aircraft Flyability – Lynae Craig, Alaska Airlines

Airport's Role - Facilitation

While airports have no control over where planes fly, they can act as a conduit between the community and the aviation stakeholders (FAA, Airlines)

Receives and analyzes noise complaints, looking for trends.

Develop a balanced working group to reach a better understanding of the concerns.

Hire a technical expert with experience working on FAA procedures.

Educate working group on existing conditions, airport's limitations (capacity, use restrictions, etc.)

Review aircraft noise concerns and determine if flight path modifications are potentially feasible for FAA consideration.

Submit any feasible modifications to the FAA via IFP Gateway.

SAN DIEGO INTERNATIONAL AIRPORT. LET'S GO.

Concept Development General Process

Discovery and Recommendations

- Discover primary noise concerns
- Identify general recommendations to address concerns
- Education - general air traffic control requirements, procedure design, flight operations and noise abatement options

Design and Evaluation

- Set design parameters
- Application of criteria
- Concept development (multiple iterations)
- ATC/Airline input
- Feasibility determination
- Noise analysis

Review and Input

- Working group review
- Achieve consensus on recommendations

Next Steps

- Submit to FAA for formal consideration

SAN Case Study Timeline

Approximately 6 Years to FAA Submittal

September 2016: SAN ANAC forms a subcommittee to that develops a workplan to address surrounding community noise concerns.

October 2017: ANAC approved 21 recommendations from subcommittee and requested the Authority to present to the Authority Board. Several ANAC recommendations in Group B related to reducing noise levels below CNEL 65 dBA.

March 2018: Flight Procedure Evaluation initiated to evaluate the ANAC recommendations focused on reducing noise levels below CNEL 65 dBA. The Authority coordinated the formation of the CAC and TAC. First meetings held March 2018.

June 2019: Flight procedure analysis completed and four recommendations accepted by ANAC.

August 2019: Submitted ANAC proposed amendment to ZZOOO RNAV SID in FAA IFP Gateway.

November 2019: Began 14 CFR Part 150 operations flight procedure alternative analysis focused on reducing noise levels at or higher than CNEL 65 dBA.

January 2021: 14 CFR Part 150 consultant does not recommend any changes to initial headings of flight procedures.

May 2021: Based on 14 CFR Part 150 findings, ANAC concurs with the recommendation to submit two nighttime flight procedures to FAA for review and implementation. The Authority submits the two nighttime procedures on behalf of ANAC in the FAA IFP Gateway.

March 2022: FAA publishes ZZOOO THREE RNAV SID flight procedure production forms for review.

Assessment Documentation

- Define design parameters
- Document initial screen results connected to community recommendations and suggestions
- Propose concept iterations with potential feasibility
- Develop documentation to record results of each concept iteration
- Summarize results for each step of the process

- SAN case study document:

https://www.san.org/Aircraft-Noise/FAR-Part-150?EntryId=13636

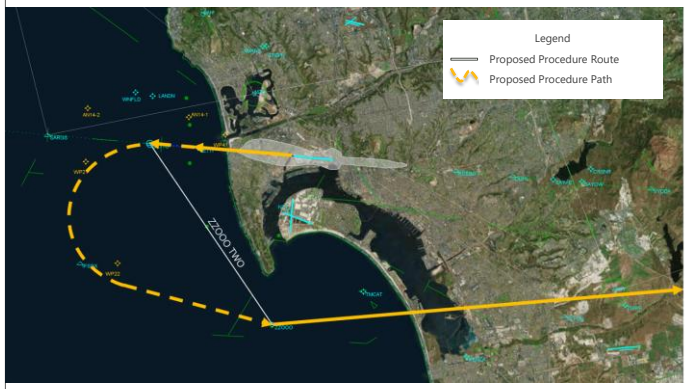
TABLE 4-1 (1 OF 6): DESIGN PARAMETERS REVIEW FINDINGS AND RECOMMENDATIONS TO ANAC SUBCOMMITTEE PROCEDURE SUGGESTIONS

ANAC RECOMMENDATION [1]	ANAC SUBCOMMITTEE PROCEDURE SUGGESTIONS[1]	TEAM DESIGN PARAMETER REVIEW FINDINGS
Recommendation 14	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.	Noise Dot #1 is located 1.5 nautical miles (NM) from the shoreline along a 299-degree magnetic heading (based on 11-degrees east magnetic variation) from the departure end of Runway 27. This suggestion recommends moving Noise Dot #1 along a 290-degree magnetic heading at 1.5 NM for the shoreline and designing a procedure that provides a "fly over" waypoint at the location. In addition, ANAC suggested relocating the WNFLD and LANDN waypoints south of their current location to be on the 290-degree magnetic extended course from the departure end of Runway 27. Compared to existing initial departure heading traffic, the Team determined a change in the overflight traffic location for areas exposed to noise levels at or above community Noise Exposure Level (CNEL) 65 A-weighted decibels (dBA) was possible.
	Establish within the PADRZ SID procedure a horizontal distance from end of runway (1.0 miles) along a fixed heading which must be satisfied along with altitude before a right turn can be initiated to preclude flights that quickly attain the current 520' altitude and turn right to a point prior to Noise Dot #1 before correcting to WNFLD, which results in aircraft flying farther north over Mission Beach.	This suggestion proposes to keep Runway 27 departures on the runway heading until aircraft reach a fixed point on the ground and at a required altitude before turning right. Compared to existing initial departure heading traffic, the Team determined a change in the overflight traffic location for areas exposed to noise levels at or above CNEL 65 dBA was possible.
	PADRZ ONE SID - As currently designed the PADRZ ONE departure leaves aircraft very close to and almost paralleling the coast along La Jolla, increasing noise impacts significantly. We recommend moving the WNFLD and KERNL waypoints 1.5 NM south of their current positions. This will ensure aircraft proceed more directly off the coast without paralleling the shore and adds less than a mile of track distance to PADRZ.	Moving WNFLD and KERNL waypoints 1.5 NM south of their current locations would reduce the degree of divergence from aircraft heading 275-degrees from Runway 27. The Federal Aviation Administration (FAA) requires at least a 15-degree angle of divergence between two aircraft departing from the same runway when the leading aircraft is 1.0 NM ahead of the following aircraft at the time the following aircraft is cleared for takeoff. If the 15-degree divergence is not possible, then the following aircraft cannot take off until the leading aircraft is 3.0 NM ahead of the following aircraft. Implementing the suggestion would reduce the departure throughput of Runway 27. Assuming existing initial heading PADRZ Area Navigation (RNAV) Standard Instrument Departure (SID) design, the earliest opportunity to turn west during daytime hours (6:30 a.m. to 9:59 p.m.) is north and east of the WNFLD waypoint to ensure separation between ZZOOO RNAV SID and BORDER 7 SID.

Procedure Design Scoping

Comments and Responses

ANAC RECOMMENDATION:	15 ALTERNATIVE 1 – EXTEND JETTI 2 NM WEST (DAYTIME)
Runway Configuration:	Runway 27 Arrivals and Departure
Operational Mode:	Runway 27 Daytime (6:30 a.m. to 9:59 p.m.) Departure
Version:	Preliminary Draft Concept phase – Version 1
Description:	The concept involves a modification of the ZZOOO TWO SID where the JETTI waypoint is moved two NM further west of its current location.
Intent:	Revise the ZZOOO SID to move departures further west of the Point Loma shoreline, reduce or eliminate flight paths over the Point Loma Peninsula, including Cabrillo National Park and to cross over ZZOOO waypoint at a higher altitude compared to current conditions.
Version Notes:	This is the initial version of the alternative.



Graphic Source: Federal Aviation Administration, February 2018 (radar video map (green), waypoints (cyan), runways (cyan) and navigational aids (cyan)); HMMH, March 2018 (4th Quarter 2017 Title 21 CNEL 65 dB contour (white filled area)); Ricondo & Associates, Inc., May 2018 (proposed procedure route (white) and proposed procedure path and waypoints (orange)).

Graphic Reference: Presented to TAC on May 31, 2018 and CAC on July 19, 2018.

Screening Findings:

☒ Pass to Draft ☐ Pass to Final ☐ Pass to Next Steps
☐ Pass to Part 150 ☐ Eliminate

Reason for Elimination:

☐ 65 CNEL Influence ☐ ANAC Intent ☐ Charting Requirements ☐ Design Criteria ☐ Duplicate ANAC #
☐ Existing Compliance ☐ Not Applicable ☐ Noise Impact ☐ Operational Feasibility ☐ Safety

Design Notes:

- Meets minimum "direct to fix (DF) with a turn segment length" design criteria between JETTI and ZZOOO waypoints
- Designed without speed 230 kts speed limit
- Would increase frequency of aircraft over 8,000 feet Mean Sea Level (MSL) over ZZOOO waypoint
- Moves traffic away from Point Loma shoreline as aircraft proceed towards ZZOOO waypoint
- Would increase flight distance by 2.95 NM compared to existing ZZOOO SID

Legal Considerations and Jurisdiction

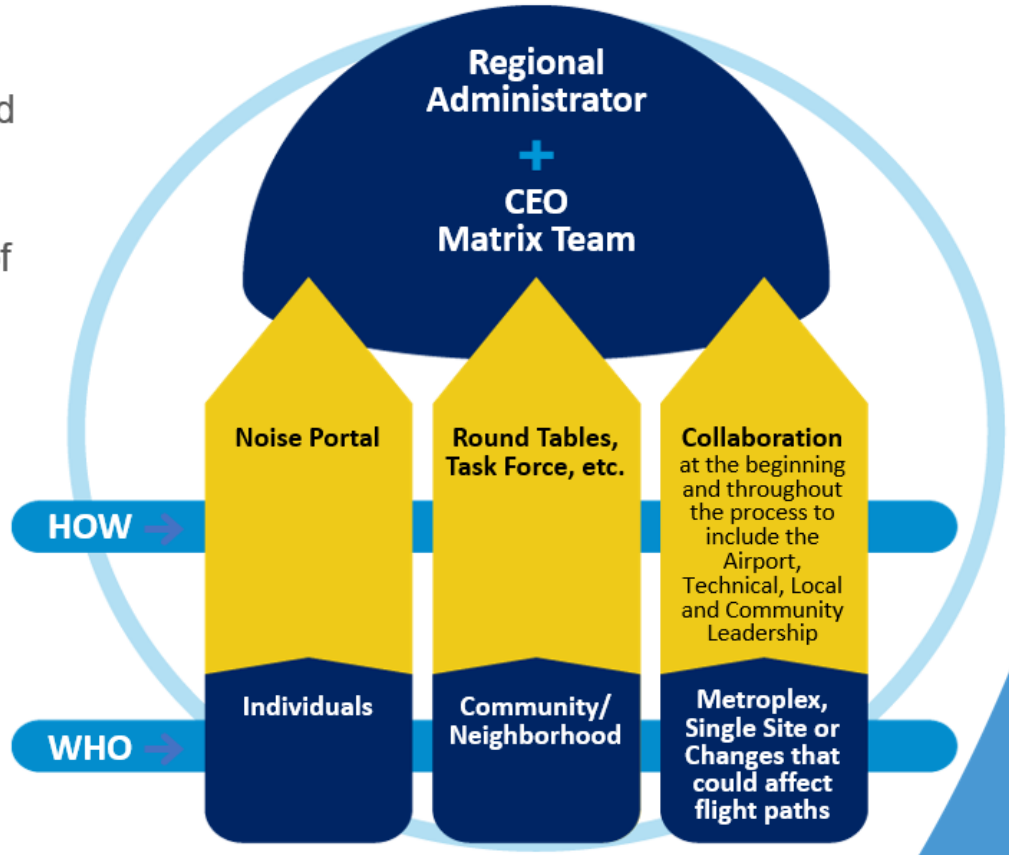
- Legal roles in air traffic procedure design
  - US Congress
  - FAA Air Traffic Organization and Airports (ATO, ARP)
  - Airports
  - Local land use planning and environmental jurisdiction
  - Airline, charter, and general aviation users
- Legal considerations
  - National Environmental Policy Act (NEPA)
  - General conformity to air quality standards
  - National Historic Preservation Act (Section 106)
  - Environmental justice
  - Airport Noise Capacity Act (ANCA)
- Participation versus litigation (pros and cons)

FAA Community Structure and Strategy

New structure and new positions

The FAA has developed a new strategy and structure to engage in meaningful dialogue with Airports and Communities about the airspace changes that are needed to continually manage and modernize the National Airspace System (NAS).

- Regional Administration moved under the Policy side of the Agency.
- Community Engagement Officers were hired to represent all of the Regions. They may be physically located in the Air Traffic Organization or in a Regional Office but they operate as a National team.
- Identify WHO is talking to us and HOW do we standardize that communication to ensure we are understanding the question and providing good answers.
- Our strategic goal is to identify the groups and provide an appropriate and sustainable channel of communication.



Keys to Successful Engagement

- Collaboration from the beginning
  - Making sure ALL the stakeholders are in the conversation from the beginning
  - Prior to any formal recommendation it is important that all the entities with a role or responsibility are part of the development of that recommendation.
  - The obvious voices are the community, the Airport, the FAA and the passenger and cargo carriers – but should the GA/Business Jet community, or a flight school be included in the conversation?

Keys to Successful Engagement

- Set clear expectations.
- It is often a challenge to manage expectations – but assuming that an early conversation about feasibility means a quick and positive answer is mismanaging expectations and will lead to distrust in the people and the process.
- Airspace projects take years – not weeks to complete. It is a complex system and any adjustment requires tremendous coordination to ensure safety.

Keys to Successful Engagement

- Look forward not back.
- The FAA has recognized that our outreach and engagement on earlier Airspace projects was not sufficient and we have adjusted how we engage.
- Let's spend the time we have with the experts talking about what may be possible.
- The FAA has committed our most valuable asset – our people – to this process – let's make the most of those interactions.

Today's Topics

- Who we are
- Safety
- Sustainability
- Noise Procedures

Who We Are

- Seattle Headquarters
- 5th Largest U.S. Airline
- 300 Airplanes
- 120 Destinations

Safety

1 Priority

Sustainability

- Net-Zero Carbon Emissions 2040
- Fleet Transition
- Operations Efficiency

Noise Procedures

- Safe
- Flyable
- Efficient
- Perceptible Noise Benefit