FAA Initiative to Address Noise Concerns of Santa Cruz/Santa Clara/San Mateo/San Francisco Counties

Feasibility Study Overview

Presented By: FAA, ATO, Western Service Center

Date: March 7, 2016

Background

- Longstanding issues with, as well as changes to, the Northern California TRACON instrument approach and departure procedures have generated noise concerns from local residents of Santa Cruz, Santa Clara, San Mateo and San Francisco Counties.
- In meetings and correspondence with congressional offices and local community representatives, the Federal Aviation Administration (FAA) has received recommendations to adjust the current published procedures.
- In response, the FAA has undertaken a noise initiative to explore such modifications.

Project Scope

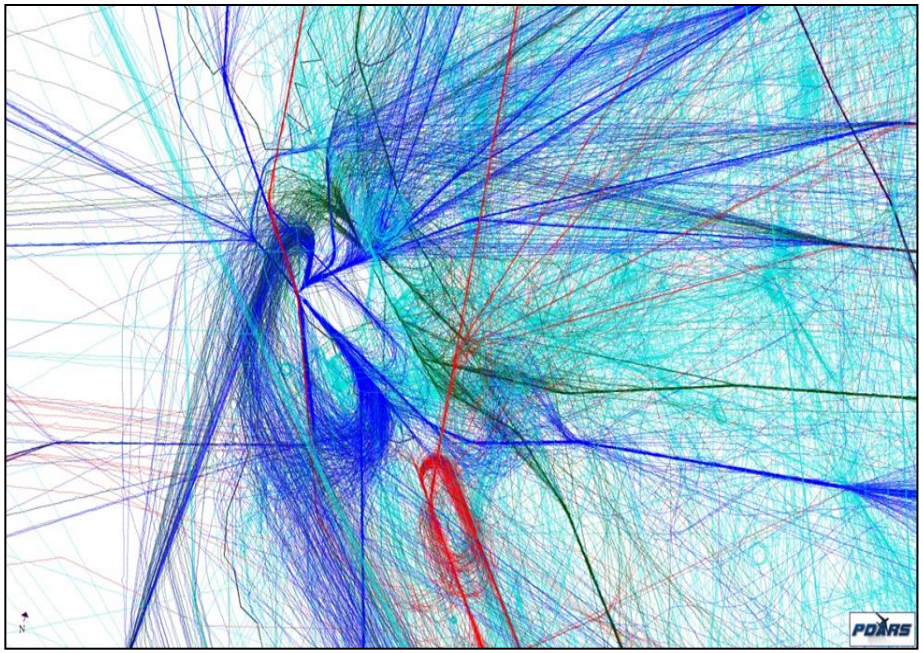
- **At the request of Representatives Farr, Eshoo and Speier, the FAA, in collaboration with NATCA, will:**
  - Analyze and determine feasibility of the proposed procedural and operational modifications included in the FAA Initiative to Address Noise Concerns of Santa Cruz/Santa Clara/San Mateo/San Francisco Counties.

What is a Feasibility Study?

- Analyzes different variables associated with potential sources of noise concerns.
- Focuses on the established criteria and fly-ability of new and/or modified flight procedures.
- Assesses the impacts to operations at the surrounding airports and traffic flows.
- Evaluates potential procedural modifications including:
  - Speed/altitude adjustments
  - Airspace changes
  - Moving existing waypoints
  - Operational safety

Initiative Reportable Milestones

- **Detailed Analysis**
- **Fly-ability Assessment**
- **Operational Assessment**
- **Feasibility Determination**



Detailed Analysis

- **Different variables are evaluated in order to determine the most likely cause of noise concerns including:**
  - IFR or VFR operation
  - Historical track data
  - Significant event (i.e. Super Bowl)
  - Time of day
  - Anomaly such as weather or aircraft emergency
  - Percentage of flights on a filed procedure
  - Average altitude or speed
  - Flight counts

Detailed Analysis

- **Performance Data Analysis and Reporting System (PDARS)**
  - Analytic software enables processing of complex and extremely large data sets as well as reliable extraction of relevant information, allowing users to focus on impacts of new/modified procedures, airspace changes operational issues or significant events.
  - PDARS is extremely versatile. It can analyze operations of a single flight, operations within one airspace volume, facility, airport, or larger airspace system. It can look at single days or multiple days, limited only by the available data.

Video: NorCal Airspace Complexity

What is a Feasibility Study?

- **Fly-ability Assessment**
  - Terminal Instrument Procedures (TERPS) Criteria
    - The key considerations for developing Terminal Instrument Approach and Departure Procedures include but are not limited to:
      - Existing obstructions
      - Ground/satellite based equipment
      - Lighting
      - Aircraft category
    - Specifies the minimum measure of obstacle clearance that is considered by the FAA to supply a satisfactory level of vertical protection from obstructions.

What is a Feasibility Study?

- **Fly-ability Assessment**
  - TERPS criteria established for the following Instrument Procedures:
    - Precision Approach (PAR, ILS, MLS)
    - Non-Precision Approach (VOR, TACAN, LNAV, NDB, ASR)
    - Approach with Vertical Guidance (LDA, LPV, VNAV)
    - Required Navigation Performance (RNP)
    - Area Navigation (RNAV)
    - Departure Procedures (DP)
  - TERPS evaluates rate of climb/descent and turns to ensure a stabilized approach/departure.

Fly-ability Assessment

- **Terminal Area Route Generation Evaluation & Traffic Simulation Software (TARGETS)**
  - Provides a “quick look” into notional design information.
  - Software that provides initial fly-ability results of proposed or modified RNAV procedures.
  - The traffic simulation capability of TARGETS can assist users in visualizing interactions between RNAV and conventional operations.
  - It is important to remember that while TARGETS provides valuable assistance in designing and evaluating procedures, it is only one part of a complex process.
    - Procedural conception to implementation requires careful use of all applicable directives and collaboration among numerous interested parties.

Operational Assessment

- **Air Traffic Control facilities evaluates potential impacts created by proposals to:**
  - Airspace complexity
  - Existing air traffic procedures
  - Traffic flows in/out airports
  - Current airspace structure
  - Radio communication
  - Radar coverage
- **An evaluation of the impacts to operations at the surrounding airports and associated procedures.**

Feasibility Determination

- **FAA Air Traffic Services, in collaboration with NATCA, with the support of Mission Support Services will make the determination of the proposed modifications, within the NorCal Initiative, in the following manner:**
  - Use data gathered during the:
    - Detailed Analysis
    - Fly-ability Assessment
    - Operational Assessment
  - Hold a series of meetings to discuss data and evaluate proposed modifications.

Feasibility Determination

- **If the procedural amendments are found unfeasible and operationally unacceptable:**
  - A detailed description outlining the rational of the determination will be completed and provided to the Representatives.

Feasibility Determination

- **If the procedural amendments are determined feasible and flyable, as well as operationally acceptable from a safety point of view:**
  - The FAA will conduct the formal environmental and safety reviews, coordinate and seek feedback from existing and/or new community roundtables and members of affected industry before moving forward with the formal amendment process.

Next Steps: Reportable Milestones

- **Stakeholder Feedback**
- **Environmental Review**
- **Safety Assessment**

Stakeholder Feedback

- **Aviation Industry**
- **Local Airport and Government Officials**
- **Community Outreach**
  - San Francisco Roundtable
  - Oakland Airport/Community Noise Management Forum
  - Select Committee (currently being established)

Environmental Review

- **In accordance with FAA Order 1050.1F Environmental Impacts: Policies and Procedures:**
  - Conduct environmental review according to FAA Orders, directives and policies to determine appropriate level of National Environmental Policy Act (NEPA) analysis
    - Depending on amount and degree of change, further analysis may be needed
      - Example: Routing changes resulting in significant noise impacts or reportable noise increases
    - Level of environmental review depends if anticipated impacts are significant
      - Categorical Exclusion (CATEX), Environmental Assessment (EA), Environmental Impact Statement (EIS)

Safety Assessment

- **Safety Management System (SMS)**
  - A formalized and proactive approach to system safety.
  - Directly supports the mission of the FAA which is “to provide the safest, most efficient aerospace system in the world.”
  - The Air Traffic Organization (ATO) SMS is an integrated collection of principles, policies, processes, procedures, and programs used to identify, analyze, assess, manage, and monitor safety risk in the provision of air traffic management and communication, navigation, and surveillance services.

Safety Assessment

- **Safety Risk Management (SRM)**
  - A formal safety and risk assessment process
  - SRM provides a means to:
    - Identify potential hazards and analyze and assess safety risk in ATO operations and NAS equipment.
    - Define mitigations to reduce risk to an acceptable level.
    - Identify safety performance targets to use as a benchmark for the expected performance of mitigations.
    - Create a plan that an organization can use to determine if expected risk levels are met and maintained.

Formal Amendment Process

- **Procedural requests are made through the FAA Instrument Flight Procedure (IFP) Information Gateway**
  - The requests are separated into two categories:
    - Performance Based Navigation (PBN)
    - Legacy IFP
  - This process can take up to two years depending on the priority level on the procedure (IFP Development, Coding, Quality Control, Flight Inspection, Scheduling into the 56 day charting cycle, controller/pilot training)

Questions?