TARGETS Noise Screen Plug-In

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Impetus for Change: Reduced RNAV Traffic Dispersion
Three Procedure Policy

• Specifically addresses RNAV overlays of existing conventional procedures

• Asserts that more than three procedure changes at an airport constitutes a change to airport operations

• Consider cumulative effects of the air traffic action

• Calls for use of noise analysis tool such as Integrated Noise Model (INM) instead of traditional screening models to support CatEx
TARGETS Noise Plug-in Collaborative Effort

- Environmental SMEs
- RNAV/RNP Office
- Air Traffic Facilities
- Environmental Programs Office
- MITRE Developers
- RNAV Procedures Team
Purpose

- Streamline noise screening of procedures to satisfy requirements of the Three Procedure Rule
- Ancillary benefits
  - Provides a tool to improve the procedure design process by identifying potential noise impacts before finalizing a procedure or set of procedures
TARGETS Noise Plug-in

- TARGETS Operator generates scenarios
- INM processes in the background
- TARGETS displays point data
Beyond the Tool

• Intended for use by the experienced TARGETS user. However, requires familiarity with:
  – NEPA and FAA Order 1050.1
  – Noise analysis concepts
  – Best practices for manipulating data
  – Interpreting the results

• Some level of automation improves accuracy of results
Methodology

• Step 1: Create a “Baseline” scenario that models the Average Annual Day for the existing air traffic environment.

• Step 2: Create an “Alternative” scenario that represents an AAD for the proposed air traffic action.

• Step 3: Compare the difference between the Baseline and Alternative scenario absolute noise levels against a defined noise threshold criteria to determine if additional analysis/mitigation is needed.
Basic Tools

NOP Radar Track Data

TARGETS Procedures

- ETMS Traffic Counts
- Facility Runway Usage
Generate Output

**Baseline:** Model of existing traffic scenario.

**Alternative:** Model of proposed air traffic action.
Overlay Results for Review by Environmental Specialist

Three or four images to show noise changes – one with everything and then one for each major blob (overlayed on aerial or something to show land use)

Tass can you do this?

Decrease

Alt ≥ 65 DNL +1.5dB Net Chg

Alt ≥ 60 DNL + 3.0 dB Net Chg

Alt ≥ 45 DNL + 5.0 dB Net Chg
Noise Screen Results (Noise Increases w/ Satellite Imagery)

Three or four images to show noise changes – one with everything and then one for each major blob (overlayed on aerial or something to show land use)

Tass can you do this?

Alt ≥ 65 DNL +1.5dB Net Chg
Alt ≥ 60 DNL + 3.0 dB Net Chg
Alt ≥ 45 DNL + 5.0 dB Net Chg
Detailed Analysis

- INM input/output exists for detailed review by an Environmental Specialist, if necessary
- Provides further substantiation of the results

- Helpful to identify underlying contributors to noise that may not be obvious in the TARGETS output
Average Annual Day Challenge

- Automated Average Annual Day (AAD) construction tool
  - Using runway use data, ETMS flight counts, and day/night flight ratios from radar track data, TARGETS will build a complete baseline AAD.
  - Eliminates the need for complex spreadsheet
  - Reduces errors from human manual entry
  - Saves hours of manual preparation time
Limitations

- No terrain analysis capability
- Standard 3.0 deg descent glidepath
- No procedure altitude constraints
- Irregular flight paths
  - Multiple go-arounds of the same aircraft track
  - Radar quality issues
Status

• Three FAA contractors have been trained to use the tool
• Completed several analyses which resulted in Categorical Exclusions (case-by-case approval)
• TARGETS Noise Plug-in:
  – All major components implemented and stable
  – Continued improvements to improve:
    • Computation time
    • Volume of track data (near and mid term)
  – Developing supporting documentation and training materials
• Ultimately tech-transfer to FAA
Questions/Comments