Comment to FAA REDAC Committee

October 4, 2023 Meeting

The Aviation-Impacted Communities Alliance (AICA) submitted a comment Docket ID No. FAA-2023-0855-2206 regarding the regarding FAA's Request for Comments of the Civil Aviation Noise Policy (NPR); Docket ID No. FAA-2023-0855. The AICA includes 70+ groups across the country dedicated to protecting communities from harmful levels of aviation noise and pollution through campaigns for legislation and industry change nationwide. We encourage you to read the AICA comment which provides a balanced representation from communities for a National Aviation System that works for all.

Today, I am sharing key items from our NPR comment to inform REDAC's advice and recommendations to FAA's Research, Engineering, and Development program.

- **Evaluate NextGen impacts.** The airspace restructuring with NextGen moved flight tracks, concentrated air traffic, lowered altitudes, and implemented speed restrictions over communities.

  Follow up on Nicholas Miller's comment FAA-2023-0855-0150, "FAA changed airspace use, moved dispersed operations to single tracks, basically giving communities the double whammy of not only eliminating the benefits of months (and years) of effort, but increasing many areas of noise exposure." "Only FAA knows the details of how and why actions detrimental to community noise exposures were taken, and I can only guess. Nevertheless, let me suggest some possible FAA actions (exclusive of noise policy revisions). First with noise measurements. I have found that very few people understand the value of carefully designed noise measurements. (As Ken Plotkin used to say, the only facts we have are the measurements collected in the field.) I propose checks of the accuracy of the noise model database. Measure time histories, and maximum sound levels of single overflights, by aircraft type, by time of day at selected locations. Also collect associated altitude information. Compare what the model says the maximums should be for that aircraft type at that location and altitude.

  A second effort would be to analyze in detail, how much distance, time and fuel are saved with the RNAV, PBN, Metroplex, NextGen or whatever the current procedures are called. This effort must apply to specific procedures, not generic ones. If only minor savings are found, go back to the prior guidance (vectors?). It's a bit hard to believe the new ones are much safer – were the previous ones less safe?

- **AICA recommends the decision-making metric to replace DNL for overflight communities should be N-Above (Ambient+Offset)** for the peak day of the year using LMAX as the maximum noise level of an event. Notationally, for example N-Above-Ambient$_{+10}$ or NAA$_{+10}$ would be the number of events over Ambient + 10 dB using A-weighting or C-weighting whichever is higher. Can REDAC perform independent and robust analysis of existing data from many airports and researchers?

- **The NES data showed a strong correlation between N-Above 50 dB (NA50)** and the level of annoyance. Can REDAC perform and publish the analysis of the NA50 as a single independent variable using NES data as this information informs the new noise policy?

- **FAA recently analyzed census tracts and data for noise exposure levels down to DNL 50 dB** around the 30 largest US airports that represented 70% of the people affected. Can REDAC analyze this data and share findings?

- **Identify how to improve AEDT to accurately model impacts and in the meantime display the error bars in modeled assessments.** AEDT is not accurate beyond a few miles from the airport, especially for arrivals. AEDT is based on a Noise Power Distance (NPD) model, which assumes that airframe and engine noise correlate with thrust. The NPD model is not as sophisticated as the ANOPP model that simulates aircraft noise based on various aircraft components. Airframe noise is the dominant noise source on arrivals, not engine noise. Recent MIT research, sponsored by the FAA ASCENT project 44, shows that delayed deceleration techniques could potentially reduce noise by 3 to 6 dB on average across different aircraft types in areas beyond 8 nautical miles from an airport. The AEDT model uses descent profiles that underestimate the use of flaps or slats over overflight communities, especially 10 or more miles away from the airport. See the Giladi and Menachi's paper on validating noise models states that "...the AEDT model underestimates noise levels [emphasis added], sometimes considerably, by **4 to 7 dB(A)** [emphasis added], even when using an accurate flight path for its input."

- **Perform analysis of airframe noise given it is the dominant noise source on arrivals, not engine noise. Focus on airframe noise.**

- **Model benefit of if all domestic aircraft's Flight Management Systems (FMS)** were upgraded in order to allow the FMS to accommodate multiple departure, approach, and arrival instrument paths for the purpose of rotating path usage in order to disperse aviation noise more equitably than NextGen today.

- **Impacts and assessment of visual pollution of aircraft** including vehicles types and elements of aircraft operations for General Aviation today and future AAM.

We shared many ideas for REDAC to consider for a balanced, independent, and inclusive analysis and/or research. We are available to support your efforts.

Respectfully submitted,

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