[The following article was originally published in the *Airport Noise Report* newsletter on pages 132-134 in Volume 34, Number 33, October 7, 2022.]

Airport Noise Report

A weekly update on litigation, regulations, and technological developments

Volume 34, Number 33 October 7, 2022

REDAC

COMMUNITY ALLIANCE URGES REDAC TO SUPPORT SIX NOISE RESEARCH PROPOSALS

The co-founders of the Aviation-Impacted Communities Alliance (AICA) urged the FAA's Research, Engineering & Development Advisory Committee (REDAC) at its Oct. 5 meeting to support six aircraft noise research proposals the Alliance wants FAA to conduct in order to better understand and measure the impact of aircraft noise, especially from NextGen operations.

The AICA represents 67 grassroots community groups and nine national organizations around the country whose members are directly experiencing the adverse impact of aircraft noise and emissions from FAA NextGen airspace changes and procedures that tightly focus flight paths over them. Many, if not most, of these communities are located 10 miles or more from airports, well beyond the 65 DNL noise contour that FAA uses to mark the outer extent of significant aircraft noise impact.

The AICA wants FAA to conduct research to answer questions raised by the findings of the agency's Neighborhood Environmental Survey (NES), which show that the number of people "highly annoyed" by aircraft noise in communities around 20 U.S. airports is far greater than estimated, thus rendering invalid the

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REDAC … The Aviation-Impacted Communities Alliance urges FAA's RE&D Advisory Committee to support six aircraft noise research proposals the communities developed to better understand and measure the impact of air- craft noise, especially from NextGen procedures. The community alliance will also seek to get their research projects included in the new FAA reauthorization bill now under development - p. 132

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dose/response relationship for annoyance to aircraft noise that serves as the basis for FAA's decades-old 65 DNL threshold of significant noise impact.

Following are the six aircraft noise research proposals presented to REDAC by Cindy L. Christiansen, PhD, and Darlene Yaplee, co-founders of the AICA. They plan on including their recommendations to REDAC as part of an AICA proposed slate for the new FAA reauthorization bill:

1. An updated noise exposure study and report based on the FAA's Neighborhood Environmental Survey (NES)

Data provided by FAA Office of Environment and Energy personal correspondence to the US Department of Transportation Statistics indicates a 39% increase over the last 10 pre-Covid years in the number of people in the US who are exposed to DNL 65dB or greater. This is despite the quieter engines and despite the FAA's change to satellite navigation and its narrowed flight paths.

From the FAA's Neighborhood Environmental Survey Study (NES Study), we now know that the 65dB threshold for identifying excessive aviation noise is invalid. Using the same standards that set the current DNL threshold of 65dB, the scientifically rigorous results from the recent NES study found the "highly annoyed" threshold should be DNL46+. Because DNL65 is invalid, we do not know the number of individuals exposed to

excessive aviation noise; we do not know if that number is increasing, but we do know that it is much greater than the 440,000 that the FAA reports lived in the DNL65 contour during 2019. Please recommend a study that determines numbers exposed to aviation DNL of 40dB to 75+dB from 2010 to present.

2. A National Academies Division of Medicine Consensus Report on the effects of aviation noise and pollution on public health

Please recommend charging the National Academies Division of Medicine with studying the copious peer-reviewed public health manuscripts and studies and writing an independent-expert consensus report to guide FAA policy on aviation public health effects. This study for the Division of Medicine is especially important now that we know that the DNL metric and its threshold are seriously flawed when considering humans' negative reactions to aviation noise.

It also is especially important because the FAA's NextGen and Performance Based Navigation procedures have concentrated noise and pollution over unfortunate communities, without their consent. It is well known that concentration of carcinogens and disturbances cause negative public health impacts.

We need an independent committee of public health and environmental health scientists to assess the current evidence of aviation noise and pollution on public health and to recommend any needed policy changes based on the experts' findings.

3. A National Academies Division of Medicine and Division of Engineering Consensus Report that recommends a System to measure aviation noise close to airports and, separately, aviation noise close to Performance Based Navigation procedures (PBN)

US Code 49 Section 47502 from the 96th Congress requires the Secretary of Transportation to establish a single system of measuring aviation noise. Instead of using a single system to measure aviation noise, the FAA regulates noise using a single metric (DNL) and even states incorrectly in the Neighborhood Environmental Survey Study (NES Study) that "Congress directed the Federal Aviation Administration (FAA) to establish a single metric."

Understanding that all aviation noise events do not occur close to airports, a single system allows for the appropriate use of more than one metric to determine noise burden. With the onset of PBN procedures, we need a system that recognizes that there is more than one type of aircraft noise problem: both the new problem created along NextGen PBN procedures, as well as the longtime significant noise impacts in areas close to airports. There is strong evidence from [MIT] Professor John Hansman's BOS/Massport/FAA RNAV study that the metric N-above captures aviation noise complaints from residents living in areas away from airports but who are close to or under these new-navigation flight paths.

Please recommend that the FAA fund a National Academies Division of Medicine-led consensus report, with a subcontract to the National Academies Division of Engineering, to assess and determine a valid system of metrics that recognizes the FAA's current aircraft noise problems are not simply tied to areas close to airports, but also to those away from airports but close to PBN procedures.

4. N-Above and T-Above Research Using the Neighborhood Environmental Study (NES) Data

For the airports included in the NES and for the respondents to the NES survey around those airports, compute and report N-Above and T-Above at noise levels from 45 dB-A to 65 dB-A in increments of 5 dB, on granular geographic grids. Compare the correlation between N-Above and annoyance, versus the correlation between DNL-65 and annoyance. The rich data from the NES exists, please use it to understand metrics beyond DNL and the correlation to annoyance.

5. Research to Improve AEDT Accuracy for Locations "Away from Airport"

Compare AEDT modeled arrival noise to actual arrival measurements for aviation noise events in affected communities from at least 10 different Core 30 airports that were newly impacted by NextGen and up to 50 miles from the airports. Affected communities are defined by DNL-46 and greater; DNL-46 is the value at which 12.3% are highly annoyed as per the Neighborhood Environmental Survey (NES). Comparisons should include modeled versus measured noise of individual aircraft Lmax and SEL, and the resulting impact on DNL and N-

Above. If there are material differences (greater than 1dB) between the predicted and measured noise levels for individual noise events, then the research should recommend an AEDT improvement plan, and the FAA should include the AEDT error bar findings in all its Environmental Reviews. This research will verify AEDT accuracy or inaccuracy for the “Away from Airport” noise problem.

6. National Airport Complaint Data Research

To assess the noise impacts of frequent overflights from Performance Based Navigation, metrics for understanding the annoyance mechanism is necessary. Extend the analysis based on the methodology described in “Aircraft Noise Models of Dispersed Flight Tracks and Metrics for Assessing Impacts” by Alison Yu and John Hansman of the Massachusetts Institute of Technology Department of Aeronautics and Astronautics to include at least five additional and different core airports in the United States. Airports nationally collect data on noise complaints; please use it for research to assess noise impacts from PBN and build on Yu and Hansman’s analysis