OAKLAND AIRPORT-COMMUNITY NOISE MANAGEMENT FORUM

An Advisory Body to the Executive Director of the Port of Oakland

March 11, 2021

Mr. Donald Scata, Noise Division Manager
Office of Environment and Energy (AEE-100)
Federal Aviation Administration
800 Independence Ave. SE
Washington, DC 20591

VIA EMAIL

RE: 86 FR 2722 - Overview of FAA Aircraft Noise Policy and Research Efforts: Request for Input on Research Activities to Inform Aircraft Noise Policy

Docket No. FAA-2021-0037

Dear Mr. Scata:

For over twenty-two years the Oakland Airport-Community Noise Management Forum (Forum) has represented the interests of community members residing in six cities, and in the unincorporated areas of Alameda and Western Contra Costa counties on aircraft noise and air quality issues. The Forum is now pleased to submit this response to the FAA's "Request for Input on Research Activities to Inform Aircraft Noise Policy." The FAA has specifically requested comments on three areas of interest for allocating resources to further research on a revised Aircraft Noise Policy. The three areas of requested input are listed below with areas of specific Forum interest highlighted in ***boldface*** type:

(1) Effects of Aircraft Noise on Individuals and Communities*:*
- Speech Interference and Children's Learning;
- ***Neighborhood Environmental Survey;***
- ***Health and Human Impacts Research***;
- Impacts to Cardiovascular Health;
- ***Sleep Disturbance***; and
- ***Economic Impacts***

(2) Noise Modeling, Noise Metrics, and Environmental Data Visualization
- Aviation Environmental Design Tool;
- ***Noise Screening***;
- ***Environmental Data Visualization****; and*
- ***Supplemental Noise Metrics***

(3) Reduction, Abatement, and Mitigation of Aviation Noise
- Aircraft Source Noise Reduction;
- Noise Abatement;
- ***Noise Mitigation Research***; and
- Aircraft Noise Policy Background

The following recommendations set forth the additional investigation, analyses, and/or research the Forum and community members believe the FAA should undertake in each of the three groups outlined above (while not commenting specifically on some of the above issues, the Forum nonetheless also believes them to be of material significance). The thoughts expressed herein are those of the Forum, and may not necessarily coincide with airport and aviation industry concerns; but are nonetheless offered in the interest of informing FAA research and development for a new or updated Aircraft Noise Policy.

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(1) EFFECTS OF AIRCRAFT NOISE ON INDIVIDUALS AND COMMUNITIES

Although it is common knowledge that the federal aircraft noise and land use compatibility planning program effectively began in 1979, when Congress enacted the Aviation Safety and Noise Abatement Act (ASNA); it is less recognized that the FAA, over the past forty-two years, has not successfully fulfilled the first two of the three following requirements in the law that it:

1. "establish a single system of noise measurement to be uniformly applied in measuring noise at airports and in surrounding areas for which there is a highly reliable relationship between projected noise and surveyed reactions of people to noise;
2. establish a single system for determining the exposure of individuals to noise from airport operations; and
3. identify land uses that are normally compatible with various exposures of individuals to noise."

FAA's implementation of ASNA resulted in the adoption of 14 CFR Part 150—*Airport Noise Compatibility Planning*. In part, Part 150 established the "day-night average sound level" (DNL) as the single noise metric for determining the exposure of individuals to aircraft noise. DNL is but one of many metrics used by FAA to describe aircraft noise; but, it still is not the single system as mandated by Congress in ASNA. As a result, DNL has been, and continues to be used by the FAA as the one unique metric for determining if a proposed action will result in a significant or less than significant impact on people; even in situations where other metrics may be more appropriate or even superior. DNL is a metric, not a "single system" as specified by ASNA; and therein lies the problem.

- The FAA must focus its research initiatives on developing a "single system" for measuring noise at airports and in their environs that incorporates a variety of noise measurement metrics to better inform FAA decision-makers and the public of the effects of aircraft noise on people and the communities in which they live.

The Forum also believes that to truly understand the impacts of aircraft noise on people and property, the FAA needs to make it much less difficult for people to report such noise. Currently, every airport has its own way to receive complaints about aircraft noise, even in regions with many densely-packed airports like the San Francisco Bay Area. Many of these reporting mechanisms are quite cumbersome, requiring one to fill out a web form for each report. This inherently discourages people from reporting noise. There are some sites that endeavor to make this process easier. One that many people in the San Francisco Bay area find to be particularly convenient is stop.jetnoise.net; where reporting a noisy or annoying flight is as simple as a single click on a smartphone. A similarly-convenient system needs to be available nationwide if the FAA is serious about compiling and understanding the effects that aviation noise has on people, and especially so in developing the ASNA-mandated single system for determining the exposure of individuals to noise from aircraft operations.

In addition, a more thorough understanding of annoyance response is needed in the development of national and local noise policies. Further study is needed in the field of non-acoustic factors that influence aircraft noise annoyance response. The next most important need is understanding and quantifying sleep response in a habituated population. Health effects are an increasing concern and the research to date has failed to come close to identifying any dose-response relationships.

- Health effects research must be directed at developing dose-response relationships.

Continuing efforts that merely suggest there may be effects without identifying dose-response

relationships are not helpful to answering the fundamental question of how much noise is too much. In this respect, the Forum endorses the comments of Sky Posse Palo Alto that:

- "[N]either the Schultz curve or the new national curve address health effects or disease burden from given levels of exposure to aircraft noise," and
- "What metrics and threshold criteria are consistent with protecting public health with an adequate margin of safety?"

Neighborhood Environmental Survey (NES). The Forum offers the following observations and recommendations in response to the request for input on the factors that may be contributing to the increase in annoyance shown in the NES results compared to the findings of earlier transportation noise annoyance surveys, including the survey methodology and comprehensibility. Community response to the NES document was critical of it because it *"was written in a way that no lay person could possibly comprehend what they [FAA] are saying…[the] conclusion was that the FAA didn't want…anyone else to understand it and thus wanted to discourage comments."*

Furthermore, the results of the NES showed a marked difference in annoyance response from one community to another. For example, if one were to compare the annoyance response at 65 DNL at the Tucson and Syracuse airports, there would be a range of about 40% highly annoyed at Syracuse and about 80% highly annoyed at Tucson. It might be pointed out that Tucson is a joint-use civil/military airport with fighter aircraft. But O'Hare airport was almost as sensitive, at about 75% highly annoyed at 65 DNL (NES, Figure 8-1).

- It is imperative to be able to understand this difference, i.e., almost twice as many people at one airport were highly annoyed compared to another airport with the same degree of cumulative noise exposure. It's not likely that people hear differently at one airport or the other, and it's pretty much the same types of aircraft flying out of these airports.

The NES telephone follow-up survey did not shed much light on these differences. It is well known that both acoustic and non-acoustic factors play a role in annoyance response and that acoustic response (as DNL or LEQ) may only account for about 30-50% of the annoyance.

- Follow-up research is needed to identify these non-acoustic factors and the reasons why they may vary from airport to airport.

Previous studies on Community Tolerance Levels (CTL/L_{ct}) showed that communities form unique attitudes about aviation noise. Fear and distrust of government are usually identified as major non-acoustic factors along with a long list of other factors. This begs the question of revision of the existing outdated federal Aircraft Noise Policy:

- Should there actually be only a single Aircraft Noise Policy?
- Should the FAA's Aircraft Noise Policy need to have both a federal and local component?
- State and local governments need to have a greater role in controlling aircraft noise.
- Are the findings of the NES' New National Curve the basis for requiring the FAA to pursue, as a minimum, an EA for proposed Nextgen airspace procedure changes, as opposed to a CATEX?

Such questions are key to development of policy and possibly recognize that ANCA preemption of local roles in noise management does far more harm than good. It is time for a comprehensive look at non-acoustic factors and who has roles in managing them, and how they would best be managed.

(2) NOISE MODELING, NOISE METRICS, AND ENVIRONMENTAL DATA VISUALIZATION

Is further study of noise metrics a waste of time and resources? This question has been addressed often over the past 50 years, and it is clear that all of the various noise metrics are so interrelated to each other that there is no potential benefit to further research on this topic. Given that the correlation between noise and annoyance is at best 50%, research into new metrics may have diminishing returns. Overflight frequency information and time-above data capabilities are inherent to existing metrics, but are underutilized. These capabilities need to be included in the requirements for environmental analyses.

- The issue is not which noise metric is best, but what should the policy level be? Consider it as though you have a problem with speeding cars on your street, and it has been suggested that the problem is that speed should be measured in kilometers per hour instead of miles per hour – it's not the metric, it's the limit that you set (and ultimately, its enforcement). The same applies to noise.

Noise modeling research needs to expand our understanding of model prediction uncertainty. Today's models are very good at approximating the 65 DNL (or CNEL) noise contour around an airport. But if the Aircraft Noise Policy is reduced to 60, 55, or even 50 DNL, how well can current models predict these lower levels? Experience tells us "not as well." Other factors for consideration include temperature inversions, wind direction, humidity, etc., which may cause LEQ and DNL to fluctuate by +/- 5 dB. How will increased uncertainty at lower-level contours affect potential policy changes? Models may also need to be expanded to cover large-scale AAM and UAM personal air vehicle operations (e.g., Uber, Volocopter, and Archer Aviation) as well, due to their proposed use as air taxis and as delivery vehicles for goods and other commodities.

Alameda's Citizen's League for Airport Safety and Serenity (CLASS) has advised the Forum that it would like to see consideration given to the use of single-event noise metrics to supplement "*the limited 65 CNEL [DNL] metric…because people do not hear noise averaged over a 24-hour period. All aspects of single-event noise impacts from a given Project, including noise shift related to changes in flight tracks [read NextGen], should therefore be analyzed for single-event noise impacts.*"

The Forum also supports Sky Posse Palo Alto's position that *"DNL is not a complete measure of aircraft noise. Additional existing metrics that better account for the number of intrusive aircraft noise events over neighborhoods, or the duration of those events, [or even the period of respite] could reveal factors causing impact where DNL, by itself, cannot."* For example, when one cannot continue a conversation outdoors due to noise interference, one's train of thought is interrupted or even lost. This has obvious implications for outdoor education, sports, and work.

FAA should also require the Sound Exposure Level (SEL) noise metric be used for noise impact studies under NEPA, such as is required by California under the California Environmental Quality Act (CEQA) as cited by CLASS in *Berkeley Keep Jets Over the Bay Committee v. Board of Port Commissioners*; wherein the court held that a lead agency *"cannot simply ignore the CEQA standard of significance for assessing noise* [and] *the credible expert opinion calling for further evaluation of the impact of single event noise."* (2001) 91 Cal. App. 4th 1344, 1382. *King & Gardiner Farms, LLC v. County of Kern* (2020) [45 Cal. App. 5th 814, 894, as modified on denial of rehearing (Mar. 20, 2020)] (holding that the agency failed to consider the magnitude of the increase in noise, and thus to "accurately describe how changes in noise levels affect human beings"). A description of how noise affects a community without meaningful quantitative and qualitative analysis of *"the community*

reaction to aircraft noise, including sleep disturbance" renders an EIR inadequate. *Berkeley Keep Jets Over the Bay Com.* [91 Cal. App. 4th at 1380-81]. The court in *Berkeley Keep Jets Over the Bay Committee* expressly referred to single-event noise analysis as an appropriate method for measuring disturbance [annoyance].

Noise Screening. The FAA's proposed update of its noise screening tool that *"will use a simplified noise modelling process to facilitate an expedited review of proposed Federal actions where significant noise impacts are not anticipated* [emphasis added]" does not seem to correlate well with supplementing the "*high fidelity noise modelling capability of the AEDT.*" Community members have expressed their certitude that "…*the effects of aircraft noise depend not just on the average level of noise* [DNL/CNEL]*, but even more on the intensity of the peaks in the noise [events], and the frequency and regularity of those peaks.*"

- Any noise modeling, metrics, visualizations, and policies should take the intensity, frequency, and regularity of aircraft noise events into account.

Environmental Data Visualization. People who live in the airport environs know how loud it is. Simply providing a picture of how loud it is, is not helpful except to the extent the community is reassured that decision makers will know how loud it is, but only on paper.

- The question is "*do regulators and policy makers actually care how loud it really is?*" Visualization reflects an attitude that "if people knew more about [*i.e.,* could visualize] the noise level they would have less adverse response." There is no evidence that this is true.

Further study is needed on graphically illustrating how proposed changes in flight procedures may affect impacted communities. For example, on the proposed Oakland International Airport WNDSR TWO STAR procedure, it will be necessary to be able to show and describe the potential changes over Richmond (and other affected communities) in terms that residents can understand by not only using supplemental metrics, but also aircraft altitude and flight frequency graphics, as well as detailed land use and noise sensitive facilities mapping.

(3) REDUCTION, ABATEMENT, AND MITIGATION OF AVIATION NOISE

In light of the twenty airport National Environmental Survey (NES), a renewed look at the federal preemption of local noise control efforts included in the Airport Noise and Capacity Act of 1990 (ANCA) and promulgated in 14 CFR Part 161 is warranted. These preemptions include but are not limited to:

- The prohibition on meaningful forms of restrictions on airport flight operations, including caps on numbers of flights and noise levels;
- No use of noise budgets;
- No mandatory night curfews;
- No noise-based scaling of landing fees;
- Not allowing quality of life benefits to contribute to cost-benefit analyses; and
- Restricting eligible benefits to only the area within the 65 DNL and above contours.

Additionally, the restrictions on mitigation expenditures to only those noise exposures above 65 DNL should be modified as well.

- All of the noise mitigation prohibitions contained in ANCA should be revisited as they represent burdensome obstructions to potentially positive local controls on aircraft noise.

Noise Mitigation Research. The FAA has requested input on what, if any, additional categories of investigation, analysis, or research should be undertaken to inform FAA noise policy? It is a fact that airports are a key part of the national transportation system and are also known economic generators for the regions they serve. Research is needed to better quantify these economic benefits. While any agreement among economists will be disparate, there is little doubt that commercial airports provide substantial regional economic benefit. What is not known well enough is who gains from these benefits; and how to weigh these regional economic benefits against any disproportionate impacts on communities close to the airport, especially those that may be under-served or marginalized.

- A key question is, are there mechanisms to better balance regional benefits with potential local adverse environmental and social impacts?

Currently the cost-benefit analysis component of a 14 CFR Part 161 application is limited to the community within the 65 DNL contour. If the Aircraft Noise Policy is reset at a lower DNL the impact area will increase in size and population, and the cost-benefit equation will be changed dramatically.

Another recommendation for additional research should be the analyses of noise impacts and overflight on property values. Meaning, if the 65 DNL noise impact area threshold is lowered, will homes within the new noise impact area be considered subject to significant noise impact, and the property values be reduced accordingly? Also, the requirements for sound insulation eligibility are widely, and incorrectly, tied only to areas within the 65 DNL and above contours. Actually, the test for sound insulation qualification is within 65 DNL contour and an indoor noise level exceeding 45 DNL. The 45 DNL interior noise guideline has not historically been a controversial guide. There is no doubt that there will be calls for expanding the sound insulation boundary if a lower Aircraft Noise Policy for exterior noise is set. Research is needed to provide additional support for the interior noise level guideline of 45 DNL.

A significant part of the 14 CFR Part 150 Airport Noise and Land Use Compatibility Planning regulation is focused on land use controls in the airport environs; but land use planning is primarily the role of local planning authorities with the Federal Government having little or no involvement in local planning matters, except under 14 CFR Part 77. The ability of airports or local land use authorities to control land use is dependent critically on state enabling legislation. Research is needed to define, for each state and territory, what land use authority is available to control encroaching land use. If the Aircraft Noise Policy is set to a lower level, far more undeveloped land will be added to the area for which land use controls would be advisable.

- Is there the possibility for federal legislation that would aid airports in preventing further encroachment by noise-sensitive or other noncompatible uses?

Lastly, future research into noise mitigation should focus on finding ways to equitably spread out and randomize aircraft noise events to the maximum extent possible. The Forum's constituents are very cognizant of the fact that, prior to NextGen, flights approaching and departing major airports tended to be reasonably spread across the surrounding airspace. NextGen has compressed these tracks into very narrow, intensively used corridors. It is the frequency of events and activity interference that is the crux of the matter with NextGen complaints and concerns.

From a historical viewpoint, it's quite obvious that people were less likely to be highly annoyed by scattered aircraft overflights and random noise events, at varying levels of intensity, from different directions and at varying intervals than they were to repetitive, frequent, noise at the same intensity from the same direction, along the same track as is currently the case with NextGen.

The repetitive and intensified nature of overflight noise that NextGen subjects people to is much harder to ignore. As was affirmed by a community member in a statement to the Forum:

- "if you hear a few planes a day at various levels of noise in various parts of the sky, you're unlikely to even bother to notice or remember them. Planes flying overhead on exactly the same route several times an hour are likely to start to [seem] like a leaky faucet, and be almost impossible to ignore."

In this respect, the Forum concurs with N.O.I.S.E. that "*with increased air traffic volume over the last decade as well as the enhanced navigational capabilities that enable aircraft to fly more precisely, the resulting concentrated traffic corridors have a more noticeable effect on the ground that must be considered thoroughly and as a priority concern* [by the FAA]."

It is not just the concentrated frequency of overflights and consequent activity interference that is the crux of the frustration caused by the implementation of NextGen procedures, but it is also the lack of diligence by FAA airspace utilization planners to even consider the demographic and cultural landscapes that are being overflown (e.g., population densities, noise-sensitive land uses, and social, economic, and environmental justice circumstances). Reasonableness suggests that with a more equitable distribution of the concentrated flight tracks created by individual NextGen procedures, the FAA may actually see a significant reduction in the percentage of people highly annoyed as is currently depicted on the new National Curve.

The Forum thanks the FAA for the opportunity to contribute to this important matter.

Respectfully submitted:

Oakland Airport-Community Noise Management Forum

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