



SFO Airport/Community Roundtable Comment Letter

Response to Federal docket number FAA-2023-0855

Note: Gray text is used for FAA questions; black text is used for SFO Roundtable Comments.

Notice of public meeting and request for comments review key considerations of its civil aviation noise policy in the context of noise metrics and noise thresholds.

FAA requests comments focus on the issues and questions identified below to be most helpful to them; and that commenters identify the number of each question to which a response is submitted.

1. VEHICLE TYPE

When the FAA published the ANAP (27) in 1976, the impacts of aviation noise were related to commercial jet service at or in the immediate vicinity of airports. What types or elements of current or future air vehicle activity (e.g., unmanned aircraft systems (also known as UAS or drones), advanced air mobility, rotorcraft, subsonic fixed wing, supersonic, or commercial space) should the policy describe and disclose? How should this information be described using noise metrics? Should the FAA use this information to make decisions or for public disclosure only? Please explain your reasoning.

Comment: The SFO Airport/Community Roundtable wishes to respond with three distinct aircraft type categories: (1) supersonic, (2) helicopters and (3) emerging aircraft, e.g., eVTOLs.

- (1) Supersonic Aircraft: A 2020 letter from the SFO Airport/Community Roundtable to the FAA Administrator stated: “1) The FAA should follow its long-standing position of requiring new supersonic aircraft to meet the same noise certification levels as subsonic aircraft; and 2) Supersonic aircraft should meet or exceed Stage 5 requirements, which would remain consistent with subsonic aircraft...”

We continue to advocate for supersonic aircraft to comply with the noise certification standards in place for subsonic aircraft at the time of aircraft certification. Whatever devices, procedures, techniques, or other methods are used, such as a Variable Noise Reduction System (VNRS), to reduce supersonic aircraft noise to meet current supersonic noise standards, should continue to be used in flight through all altitudes in the climb until the aircraft reaches cruise flight level. Supersonic aircraft should be subject to all other regulations applicable to standard aircraft such as a 250-knot speed restriction below 10,000’MSL and other operational regulations as well as pilot certification and training.

We oppose supersonic flight over the land of the United States and the US Territorial Sea (12NM offshore) regardless of any purported “quiet sonic boom” technology.

Alternatively, if Congress, at some time in the future, agrees to allow supersonic flight over the land of the United States, with or without any purported “quiet sonic boom” technology or other design to reduce sonic boom noise, then no takeoff, landing or overflight from such a supersonic aircraft should take place over any portion of the United States land or territorial sea (12 NM offshore) of the United States from the hours of 10pm-8am local time under such supersonic flight.

- (2) Helicopters: We value the services provided by medical, law enforcement, and military helicopters and recognize the necessity of low altitude helicopter operations for special inspections, repairs, and some actual business operations. (e.g., crop dusting, photo reconnaissance). But for simple transportation of corporate executives or wealthy individuals, the FAA should consider setting a minimum altitude of 2000’ -- or higher -- over any populated areas and especially at night for the enroute (not taking off or landing) phase of flight.
- (3) Emerging Aircraft: Low Altitude autonomous aircraft, whether designed to act as “air taxis” (eVTOLs) or to deliver packages should be strictly regulated in conjunction with local elected officials and the public in the areas that they traverse. Please do not cede the low altitude airspace to an industry-heavy FAA “committee” to set regulations and give away the low altitude airspace to the detriment of residents’ health and quality of life.

Without regulation to protect residents, these vehicles will fill the low-level airspace impinging on and affecting the residents in a very personal manner. Please implement a transparent, effective method to involve local entities. This might entail involving local city councils or Boards of Supervisors or expanding the role of already existing public entities dealing with land use compatibility such as California’s Airport Land Use Committees or other representative public body.

Regulations controlling package delivery should provide strict operational limits if it is to fly over any residences. Package delivery should not be permitted during the evening hours, the night hours, or the early morning hours. No package delivery and no overflight between 6pm and 8am.

2. OPERATIONS OF AIR VEHICLES

Comment: The SFO Airport/Community Roundtable was established in 1981 as a voluntary committee to address community noise impacts from aircraft operations at SFO. Therefore, operations of air vehicles remain our primary concern, particularly at night.

a. What elements of aircraft operations (e.g., en-route, takeoff, landing) should the noise metric evaluate and disclose? Should the FAA use this information to make decisions or disclose to the public noise impacts? Please explain your reasoning.

Comment: The SFO Airport/Community Roundtable membership is limited to the areas within the counties of San Francisco and San Mateo. These areas predominantly experience takeoff and landing procedures, so our perspective may be more limited than others that may very well include en-route operations. In addition, and due to our relatively uniqueness of predominantly one airport flow configuration (approximately 90%) in “West Plan” that results in no overflights to the areas immediately west of SFO, we also experience ground noise from aircraft operations, such APU usage, taxiing, start-of-takeoff roll on departure and thrust reverse on arrival. We strongly believe that the noise metric must

evaluate and disclose all these operations of air vehicles and this information is critical to make decisions and disclose impacts.

b. What interests or concerns do communities in the vicinity of airports have? How can these concerns be addressed using noise metrics? What noise metrics would address these concerns? Please explain your reasoning.

Comment: The main concerns of communities represented by the SFO Airport/Community Roundtable are related to the operations of air vehicles include night operations and non-safety vectoring for efficiency of aircraft from published procedures and/or noise abatement procedures. We appreciate the overwhelming number of controllers who vector for noise abatement at night - directing planes over the San Francisco Bay or other non-residential areas instead of over highly sensitive residential areas.

Assumptions that airplanes are quiet above certain altitudes (7000' on descent and 10,000' in climb/cruise.) are inaccurate. Our residents have clearly reported that an airplane climbing at 10,000' is not a quiet airplane – especially at night.

There are some occasions when controllers offer or approve shortcuts to airplanes – allowing the planes to leave their filed flight plan path to fly over residential areas in the middle of the night with virtually no other traffic in the sky. ATC controllers should avoid non-safety vectors providing efficiency shortcuts to aircraft over residential areas- especially at night. Perhaps the best metric is simply the number of aircraft being vectored away from established procedures at night – as it only takes one such deviation to awaken people, as we know people are awakened from unusual operations.

c. What interests or concerns do overflight communities (28) have? How can these concerns be addressed using noise metrics? What noise metrics would address these concerns? Please explain your reasoning.

Comment: Some of our communities continue to be excluded from mitigation measures and are concerned that 65 DNL for decision-making does not reflect the NextGen concentration of flights and the level of annoyance. The FAA should use metrics, including Number Above, Lmax and C-weighting, that reflect the communities lived experience of airplane noise impacts.

d. What interests or concerns do communities in the vicinity of commercial space transportation operations have? How can these concerns be addressed using noise metrics? What noise metrics would address these concerns? Please explain your reasoning.

Comment: SFO currently has no commercial space transportation operations, so the SFO Airport/Community Roundtable is unable to provide a response.

e. What interests or concerns do communities in the vicinity of UAS (drone) package delivery or other newly emerging technology operations have? How can these concerns be addressed using noise metrics? What noise metrics would address these concerns? Please explain your reasoning.

Comment: See response to question 1 (3).

3. DNL

What views or comments do you have about the FAA's core decisionmaking metric, DNL? How would these views regarding DNL be resolved if the FAA employed another noise metric (either in addition to, or to replace DNL) or if the FAA calculated DNL differently? Please explain your reasoning.

Comment: DNL is not an adequate metric. In 2016, the SFO Airport/Community Roundtable submitted its [Response to the FAA Initiative to Address Noise Concerns of Santa Cruz/Santa Clara/San Mateo/San Francisco Counties](#) (Norcal Initiative). This document contained a comprehensive set of recommendations to the FAA in response to the FAA implementation of the Norcal Metroplex. We said then: "In assessing impacts to the community, the SFO Airport/Community Roundtable asks that consideration be given to the limitations of using an annual average metric such as DNL to assess impact on the members of the community. Impact to the community extends far beyond an arbitrary DNL level which is widely acknowledged to be inadequate. There are other available noise metrics, including those that better capture how frequency of flights affects communities; where available, these alternate metrics should be factored into FAA decisions. We understand that the FAA is conducting a wide-ranging study of noise impacts on the communities. When the results are available, we would recommend that more representative noise metrics from this study be implemented as soon as feasible and that *existing and future flight procedures be reviewed considering the new noise data.*" (Italics in original)

So, this is not a new issue, and we would add today that living in 60 DNL or 55 DNL noise contours, especially if the area also includes loud nighttime airplanes, limits residents' amount of health-restoring sleep, increases their susceptibility to serious disease and almost certainly results in very high levels of annoyance.

Back in 1974, the Environmental Protection Agency (EPA) recognized the importance of setting a low level of 55 DNL in their March 1974 report "Information on Levels of Environmental Noise Requisite to Protect Public Health and Welfare with an Adequate Margin of Safety", concluded that a DNL of 55 dB or lower was the appropriate noise level for "outdoors in residential areas..." That recommendation by the EPA was not accepted by the FAA.

DNL could perhaps play a role in assessing land use compatibility for communities close to the airport, but only if DNL is set lower at 55 DNL as recommended by the EPA in 1974 and additional metrics are incorporated. This lower criteria with additional metrics could be used to qualify for the Residential Sound Insulation Program (RSIP).

Even though DNL incorporates a "night penalty" of 10 dB, that is not sufficient compensation for the effects of nighttime noise. For example, it may take only one or two loud airplanes in the middle of the night causing awakenings to necessitate increased residential noise insulation even for 50 DNL and 55 DNL to protect the health of residents. Number of events above 50 dB or total number (below 18,000') of operations could be additional metrics to be factored with traditional DNL. But neither lower DNL, coupled with an operational frequency like number above or total number can account for the effects of individual loud airplanes causing awakenings.

In a recent study conducted by Boston University School of Public Health (BUSPH) and Oregon State University, (<https://ehp.niehs.nih.gov/doi/10.1289/EHP10959>) it was reported that that people who were exposed to airplane noise at levels as low as 45 dB were more likely to sleep less than 7 hours per night.

Other studies have correlated awakenings with Sound Exposure Level (SEL). We have seen that SEL is

about 7 to 12 dB higher than the maximum sound level for an average aircraft arrival or departure noise event. Assuming the 45 dB was a maximum sound level reported above, a corresponding SEL may be 55 dB for the onset of the interior SEL for awakenings. Assuming residential structures with open windows reduce the noise by 10-15 dB, an outside SEL of 65 to 70 dB would result in an interior Lmax of 45 dB. Assuming residential structures with windows closed reduce the noise by 20-25 dB, an outside SEL of 75 to 80 dB would result in an interior Lmax of 45 dB. Lastly, assuming residential structures with windows closed and sound insulation treatment applied reduce noise by 25-30 dB, an outside SEL of 85 to 90 dB would result in an interior Lmax of 45 dB. Therefore, SEL may be an appropriate single-event noise metric to use as the onset of awakenings from aircraft operations at night depending on the level of treatment applied to the structure; and be used to determine the acoustical treatments required to provide for an adequate sleeping environment for residential bedrooms. However, understanding that SEL and Lmax are closely tied with the noise events caused by aircraft operations, either metric could be used.

4. AVERAGING

DNL provides a cumulative description of the noise events expected to occur over the course of an entire year averaged into a representative day, described as an Average Annual Day (AAD).

a. Do you believe an AAD is an appropriate way to describe noise impacts? Please explain why or why not.

Comment: Averaging metrics do not generally provide the kind of tailored data to account for variations in aircraft noise that typically occur in our communities. However, averaging may serve some purposes when combined with aggressive time carve-outs and used with additional metrics including Sound Exposure Level (SEL).

b. If not, what alternative averaging schemes to AAD should be considered and why? What information would the use of an alternative averaging scheme capture that AAD does not?

Comment: The FAA currently allows schools to base their DNL calculations for noise insulation qualification based on their hours of operation instead of 24/7/365. That, too, should be available for airports which have seasonal variations. For example, winter snow destinations with heavy winter operations but few aircraft operations for the rest of the year, should be allowed to have their DNL calculation based only on their heavy season because that is when those residents are most affected.

Similarly, residents should be allowed to calculate the DNL for their homes based on the days of the year that they are subjected to the flights that typically comprise their DNL. For example, at San Francisco International Airport, (SFO), the typical traffic flow is based on northwest winds with Runways 28L/R straight out departure aircraft being the dominant factor in determining the 65 DNL contour for residences underneath. However, for about 10% of days in the year -- when SFO uses other runway configurations, including reverse flow, little, if any, significant airplane noise is produced in the 65 DNL contour, but those days are still added into the DNL 365 days calculation, thus "diluting" the impact of the noise that occurs 90% of the time. In this case, it would be expected that if the DNL calculation deleted days when Runways 28L/R were not used for departures, then it would be likely that the 65 DNL contour would expand into the adjacent 60 DNL contour levels, thus qualifying these homes for the Residential Sound Insulation Program (RSIP).

5. Decision-making Noise Metrics

The FAA currently uses DNL as its primary decisionmaking metric for actions subject to NEPA and airport noise compatibility planning studies prepared pursuant to 14 CFR part 150.

a. Should different noise metrics be used in different circumstances for decisionmaking?

Comment: DNL could be used for land compatibility and NEPA studies for changes near to the airport, although it needs to find alternatives to the 24/7/365 constraint and needs to be augmented with additional metrics from operations metrics as well as single event data. Based on the effects of changes to flight procedures resulting from the FAA's implementation of the NorCal Metroplex, it is clear that something other than DNL, specifically 1.5 dB change within the 65 DNL is needed to assess potential impacts, particularly those resulting in the concentration of flight paths.

b. If the answer to Question 5.a. is "yes," please identify: the metric, the information it provides that DNL does not, and explain when and how it should be employed by the FAA in its system (e.g., should the FAA use a noise metric other than DNL to evaluate noise exposure in quiet settings, such as national parks, national wildlife and waterfowl refuges, etc.)? Should this metric be used when the FAA is making decisions that affect noise in these settings? Should this metric be used alone or in combination with another metric?

Comment: Metrics used to make decisions on new and modified flight procedures should be based on operations data over a specified area using number of events above 50 dB or total number of flights overhead (below 18,000') along with additional metrics reporting individual aircraft using Sound Exposure Level (SEL). The SEL data is required to identify individual loud aircraft during the nighttime that could startle sleeping residents and lead to awakenings.

c. If the metric should be used in combination with another metric, please describe how they should be used together for decisionmaking.

Comment: See responses to questions 5.a. and 5.b.

d. If the answer to Question 5.a is "no," should DNL remain the core decisionmaking metric or should another metric be substituted in all circumstances?

Comment: See responses to questions 5.a. and 5.b.

e. How would the use of the metrics that you recommend support better agency decisionmaking? Please explain and illustrate with specific examples how the use of the recommended metric(s) would benefit agency decisionmaking.

Comment: The significance threshold for "non-airport" NEPA studies (e.g., flight procedure changes) could be based on a percentage increase from existing overhead operations - perhaps as low as 10% for daytime/evening hours, but a far lower increase would only be required for nighttime hours. And even an increase of one noisy flight at night might be sufficient to trigger further action under NEPA to assess the impact on residents' health. The number of events above does not adequately address the increased frequency of flights. Flights occurring every 2 to 3 minutes are far more annoying than those occurring every 20 to 30 minutes. Contrary, time above does not show the noise events that are noisy and yet may lead to awakenings and other health issues.

6. COMMUNICATION

a. Please identify whether and how the FAA can improve communication regarding changes in noise exposure (e.g., what information FAA communicates, where and with whom FAA communicates, what information methods FAA uses to communicate and the venues at which FAA shares this information). Please explain your reasoning.

Comment: Transparency is needed early in the process. Currently, the FAA's PBN flight procedure process incorporates public engagement very late in the process, long after the flight procedure design is largely finalized. While it is challenging to engage the public earlier when it might seem that there is little to show them, this early consultation is exactly what is needed. Beginning public engagement after a CATEX and after the flight procedure is almost fully developed defeats the purpose of public engagement and leaves the FAA open to criticism that the process is a "rubber stamp".

When a new or significantly modified flight procedure is proposed, allow the opportunity for an aviation Roundtable technical consultant and a qualified technical consultant for the procedure proponent to be a part of the PBN Full Working Group (or similar) rather than just including FAA-controlled technical staff.

The Federal Register and notices to Members of Congress are a start to effectively connecting with residents who have noise issues. However, other ways should be added in such as communication to recognized aviation Roundtables, known (or easily ascertainable) community aviation noise groups and advocates (there are lists of aviation noise groups on various large group websites), information to Boards of Supervisors (or similar) with requests to forward to appropriate entities could also work. In addition, social platforms may also be another communication alternative.

Whether by design or evolved use, the FAA Instrument Flight Procedures Information (IFP) Gateway does not provide any pertinent information to the public whatsoever. At the very least, the FAA could categorize proposed new/modified procedures as "Procedural Change" vs. "Administrative". "Procedural Change" could indicate a new flight path, a significantly lower altitude or other changes that could increase noise to residents. "Administrative" could describe a flight procedure that would propose a minor waypoint name change, a non-significant altitude revision or a typo.

b. Should the FAA consider revisions to its policy on the use of supplemental noise metrics in the FAA's NEPA procedures? Please explain how this policy should be modified to improve FAA communication of noise changes when the FAA is making decisions that affect noise. Please explain your reasoning.

Comment: See responses to questions 5.a. and 5.b

c. What information about the change in noise resulting from civil aviation operations (e.g., UAS or drones, helicopters, fixed wing aircraft, rockets/commercial space transportation vehicles, and new entrant technologies) should the noise metric communicate to the public? Please explain your reasoning.

Comment: See responses to questions 5.a. and 5.b.

d. Please explain how the public will benefit if the FAA implements your proposal in response to Questions 6.a and 6.b.

Comment: See response to question 6.a.

7. NEPA and Land Use Threshold Established Using DNL or for Another Cumulative Noise Metric

The FAA has several noise thresholds that are informed by a dose-response curve (Schultz Curve (29)), which historically provided a useful method for representing the community response to aircraft noise. Two of the noise thresholds informed by the Schultz Curve are the FAA's significant noise impact threshold for actions being reviewed under the National Environmental Policy Act and the land use compatibility standards established in 14 CFR part 150, Appendix A. Both of these rely on the cumulative noise metric DNL and are referred to collectively in this question and questions 8–10 as “the FAA noise thresholds.” On January 11, 2021, the FAA published the results of the Neighborhood Environmental Survey, (30) a nationally representative dataset on community annoyance in response to aircraft noise. The Neighborhood Environmental Survey results show higher percentage of people who self-identify as “highly annoyed” by aircraft noise across all DNL levels studied in comparison to the Schultz Curve.

a. How should the FAA consider this information (i.e., the Schultz Curve and Neighborhood Environmental Survey findings) when deciding whether to retain or modify the FAA noise 31) established using the DNL metric or to establish new FAA noise thresholds using other cumulative noise metrics? Please explain your reasoning.

Comment: Many of the FAA’s previous assumptions are based on outdated inaccurate premises. Now that the NES data shows the high level of annoyance at lower levels of noise and that residents far outside the 65 DNL contours are highly annoyed, the FAA noise policy should be completely revised. However, if you do continue to use this DNL metric, we would urge a level below 55 DNL and the use of additional metrics such as Number Above. For additional information on this, see the attached April 13, 2021 SFO Roundtable Comment to Docket No. FAA-2021-0037- Request for input on Research Activities to Inform Aircraft Noise Policy.

Use of the DNL metric as a standard for NEPA, specifically in reference to changes in the airspace beyond the airport boundaries, is wholly inadequate. Please note our comments regarding DNL in section 3 of this document. Use of NEPA Categorical Exclusions (CATEX) should be severely limited for new or significantly modified flight procedures. Use of CATEX for flight procedures operating 24/7 or in the nighttime should be viewed with intense scrutiny. All assumptions made leading to CATEX determination must be reviewed and revised considering the data provided in the Neighborhood Environmental Survey and as well as a groundswell of scientists reporting serious health impacts from airplane noise in scientific journals.

Clearly, the following FAA NEPA guidance (FAA Order JO 7400.2P) on situations where no further environmental review is required beyond the initial environmental review (IER) has been written in a way that almost entirely avoids environmental scrutiny of flight path changes. No further review is required if the proposed flight path change:

- (a) Is above 18,000 ft AGL
- (b) Is above 7,000 ft AGL for arrivals and/or 10,000 ft AGL for departures and/or overflights
- (c) Does not result in 1.5 dB increase for 65 DNL and higher for procedures between 10,000 ft and 18,000 ft AGL

With residents’ reporting high level of annoyance at lower levels of noise, as noted in the NES, the above

items (b) and (c) should be assertively modified.

b. Should the FAA consider other or additional information when deciding whether to retain or modify the FAA noise thresholds that were established using the DNL metric or to establish new FAA noise thresholds using other cumulative noise metrics? Please describe the reason for the recommendation and identify the data, information, or evidence that supports the recommendation.

Comment: If you continue to use DNL, use a low level of DNL based on current and ongoing studies and health impact studies as well as including metrics such as low frequency noise metrics and Number Above. Also see responses to questions 5.a. and 5.b.

c. How should research findings on auditory or non-auditory effects (e.g., speech interference, sleep disturbance, cardiovascular health effects) of noise exposure caused by civil aircraft and vehicles be considered by the FAA when it decides whether to retain or modify the FAA noise thresholds (32) that were established using the DNL metric? How should the FAA consider this same research when deciding whether to establish new FAA noise thresholds using other cumulative noise metrics? Please explain your response.

Comment: If you continue to use DNL, use a low level of DNL based on current and ongoing studies and health impact studies as well as including metrics such as low frequency noise metrics and Number Above. See also the attached SFO Airport/Community Roundtable April 13, 2021 SFO Roundtable Comment to Docket No. FAA-2021-0037- Request for input on Research Activities to Inform Aircraft Noise Policy.

d. In examining whether to change its metrics and thresholds for noise, the FAA needs reliable information to support any changes. One type of information that the FAA can rely on is epidemiological evidence. This means the study (scientific, systematic, and data-driven) of the distribution (frequency, pattern) and determinants (causes, risk factors) of health-related states and events (not just diseases) in specified populations (neighborhood, school, city, state, country, global). What amount of epidemiological evidence is sufficient to provide the FAA with a sound basis for establishing or modifying the FAA noise thresholds (33) either using the DNL metric or another cumulative noise metric? Please explain your response.

Comment: If you continue to use DNL, use a low level of DNL based on current and ongoing studies and health impacts studies as well as including metrics such as low frequency noise metrics and Number Above. Also see responses to questions 5.a. and 5.b.

e. Should the FAA consider using factors other than annoyance to establish FAA noise thresholds (34) using the DNL metric or other cumulative noise metrics? What revisions to existing FAA noise thresholds or new noise thresholds do you recommend be established and why? Please explain your response.

Comment: If you continue to use DNL, use a low level of DNL based on current and ongoing studies and health impacts studies as well as including metrics such as low frequency noise metrics and Number Above. Also see responses to questions 5.a. and 5.b.

8. FAA Noise Thresholds Using Single-Event or Operational Metrics

As the FAA learned from the results of the NES, people are bothered by individual aircraft noise events,

but their sense of annoyance increases with the number of those noise events. Should the FAA consider employing new FAA noise thresholds (35) using single-event or operational metrics? If the answer is “yes,” which metrics should be used to establish the FAA noise thresholds? What should be the relevant noise exposure level for the new noise thresholds you propose? Please explain your reasoning. If the answer is “no,” please explain your reasoning.

Comment: Please see our comments in other sections of this document which can be applicable here as well and specifically see responses to questions 5.a. and 5.b

9. FAA Noise Thresholds for Low-Frequency Event

Should the FAA establish noise thresholds (36) for low-frequency events, such as those associated with the launch and reentry of commercial space transportation vehicles authorized by the FAA Office of Commercial Space Transportation? If the answer is “yes,” which metrics should be used to establish the noise thresholds? What should be the relevant noise exposure level for the new noise thresholds you propose? Please explain your reasoning. If the answer is “no,” please explain your reasoning.

Comment: Low-frequency noise thresholds should not be limited to launch and re-entry of commercial space transportation as suggested in question nine. Due to our relative uniqueness of having predominantly one flow airport configuration (approximately 90% in “West Plan”) that results in no overflights to the areas immediately west of SFO, we experience ground noise from aircraft operations, such APU usage, taxiing, start-of-takeoff roll on departure and thrust reverse on arrival. These communities have long reported that “A-weighted” noise metrics are insufficient to describe this noise which relentlessly impacts residents’ sleep and health. In an August 24, 2021, letter to the FAA Administrator, the SFO Airport/Community Roundtable recommended that the FAA use an appropriate noise metric and C-weighting in the analysis of ground-based noise.

We continue to believe that C-weighted noise best describes the “backblast” noise from aircraft taking off and it should be addressed and remediated. We would advocate that the FAA perform an evaluation to determine if C-weighted or A-weighted noise data better represents people’s annoyance and sleep disturbances under the conditions described above. If there is a linear difference, consider an offset applied to DNL to account for this annoyance. If there is no linear difference, determine the circumstances where C-weighted noise should be factored into the land use compatibility and/or eligibility for sound insulation to mitigate such noise.

To better understand how ground based noise propagates through the communities adjacent to SFO from aircraft departures, the SFO Roundtable, through its Ground-Based Noise Subcommittee, produced the 2021 San Francisco International Airport Ground Based Noise Modeling Study available at the SFO Roundtable website: [Ground Based Noise Modeling Study](#).

Currently, the Roundtable, through its Ground-Based Noise Subcommittee, is conducting a limited study using portable noise monitors to determine whether low-frequency noise is a larger contributor to noise at the start of take-off vs. noise on the departure path. We will provide the results of the study to the FAA.

10. Miscellaneous

What other issues or topics should the FAA consider in this review regarding noise metrics, the method of calculating them, the establishment of noise thresholds, (37) or FAA's method of communicating the change in noise exposure? Please explain your response.

Comment: Over the past decades, laws, regulations, processes, and procedures have largely limited the Roundtable's ability to make significant improvements in reducing airplane noise to residents. The most troubling of these is the lack of recognition and focus by some that nighttime aircraft noise is a serious health concern to residents. In 2016, the SFO Airport/Community Roundtable submitted its [Response to the FAA Initiative to Address Noise Concerns of Santa Cruz/Santa Clara/San Mateo/San Francisco Counties](#) (Norcal Initiative) containing a comprehensive set of recommendations to the FAA in response to the FAA implementation of the Norcal Metroplex. We said then: "AIRCRAFT NOISE AS A HEALTH ISSUE: If aircraft noise is only seen as "annoying" to residents, it would overlook the well-documented detrimental effects of noise on the health of the members of communities underlying flight paths. Documented in peer-reviewed scientific journals, noise adversely and seriously affects blood pressure, cardiovascular and other health issues in adults. Impacts to children show that aircraft noise can result in an increase in children's blood pressure and can cause negative impacts on children's education as shown by lower levels in cognitive testing, task perseverance, long term memory, short term memory and reading achievement."

Today, many peer-reviewed scientific journals recognize the deleterious effects of nighttime noise and recognize that sleep disturbances can lead to serious health concerns. The very real and very serious health concerns to residents, as well as the economic costs from nighttime airplane noise exposure necessitates bold action on the part of the FAA and the airline industry.

- No longer can we accept that adding a few extra flight track miles is a valid reason for awakening residents multiple times in the night.
- No longer can we accept that avoiding a few minutes of flight delay is a valid reason for awakening residents multiple times in the night.
- No longer can we ignore options that might help prevent awakening residents multiple times in the night.

One of those options to consider would be to allow Airport Directors at least some discretion to grant incentives to airlines willing to request and implement nighttime noise abatement procedures. Another option to consider is modifying 14CFR161--NOTICE AND APPROVAL OF AIRPORT NOISE AND ACCESS RESTRICTIONS to allow Airport Directors to have increased discretion to insist on reasonable nighttime noise abatement procedures.

This might take the form of modifying the criteria or standards for granting a Part 161 Airport request or modifying the Part 161 process which is controlled by the FAA at every step including the final approval or disapproval. Since it's 1991 implementation, not one airport has successfully restricted operations of aircraft certified as Stage 3 or beyond through the Part 161 process. It would be easy to say that some of these restrictions are due to Congressional legislation, but if the FAA were to request, if required, modifications to these regulations from Congress, it is very possible that such requests would find support.

Another option would be to modify the mission of the FAA. In 2016 as part of the SFO Community Roundtable's recommendations as part of the FAA Norcal Initiative process following Metroplex

implementation, the SFO Community Roundtable suggested that the FAA Mission Statement be updated to include noise as a priority. The FAA Mission Statement currently reads:

“Our continuing mission is to provide the safest, most efficient aerospace system in the world.”

The Roundtable commented then that “We support action to amend the FAA Mission Statement to include “noise, health, and other impacts to the communities” along with efficiency, as a secondary consideration after safety. While nothing can be more important than safety in our skies, it is the opinion of this Roundtable that noise and adverse health impacts to the communities should be included to be at least as important as efficiency.” Considering recent scientific studies, the current Roundtable believes that while the FAA mission should always place safety first and foremost, it is past time to add aircraft noise impact to residents on an equal basis with efficiency.

11. Literature Review

In this review, the FAA will examine the body of scientific and economic literature to understand how aviation noise correlates with annoyance as well as environmental, economic, and health impacts. The FAA also will evaluate whether any of these impacts are statistically significant and the metrics that may be best suited to disclose these impacts. A bibliography of this body of research is available for review in the Background Materials tab in the Docket and as Appendix 1 to the FAA framing paper entitled, The Foundational Elements of the Federal Aviation Administration Civil Aircraft Noise Policy: The Noise Measurement System, its Component Noise Metrics, and Noise Thresholds. This framing paper is available at: <https://www.faa.gov/noisepolicyreview/NPR-framing>. Please identify any studies or data regarding civil aviation noise not already identified by the FAA in the bibliography that you believe the FAA should evaluate. Please explain the relevance and significance of the study or evidence and how it should inform FAA decisions regarding the policy.

Comment: The SFO Airport/Community Roundtable identifies the following literature references for FAA review and evaluation:

- (1) Reported in the Environmental Health Perspective (EHP) and funded through the Federal Aviation Administration (FAA), this study, “Associations between Aircraft Noise Exposure and Self-Reported Sleep Duration and Quality in the United States-Based Prospective Nurses’ Health Study Cohort,” concluded, in part, that:

“The increasing recognition of the importance of adequate sleep for maintaining health and optimal daytime functioning has spurred research aimed at identifying modifiable factors for improving sleep duration and quality. Environmental risk factors—including noise pollution—represent targets for improving sleep health that been underinvestigated...”

“We found evidence for adverse effects on sleep at exposures as low as 45 DNL dB(A), the lowest modeled noise level, and evidence further showed an exposure–response relationship between aircraft noise and short sleep duration...”

Reference: EHP: Environmental Health Perspective, Association between Aircraft Noise Exposure and Self-Reported Sleep Duration and Quality in the United States-Based Prospective Nurses’ Health Study Cohort, April 2023

(2) This publication reported that:

“Aircraft noise is one, if not the most, detrimental environmental effect of aviation. It can cause community annoyance, disrupt sleep, adversely affect academic performance of children, and could increase the risk of cardiovascular disease of people...”

Reference: Aviation Noise Impacts: State of the Science, Journal Noise and Health, Mar-Apr 2017

(3) Although European in focus, this 321-page OPEN ACCESS book includes extensive discussion of nighttime aviation noise impacts to human health (pp.173-218). In general, the book provides step by step explanation of airport noise and related annoyance, discusses the future of aviation noise, and explains how to engage communities when trying to manage aviation noise.

Reference: Aviation Noise Impact Management: Technologies, Regulations, and Societal Well-being in Europe, Editors: Laurent Leylekian, Alexandra Covrig, Alena Maximova, 2020.

(4) The SFO Airport/Community [Roundtable](#) responded to the FAA through a report recommending more than 40 actions to decrease aircraft noise to residents.

Reference: [SFO Roundtable Response to the FAA Initiative to Address Noise Concerns of Santa Cruz/Santa Clara/San Mateo/San Francisco Counties \(FAA Norcal Initiative\) November 17, 2016](#)

(5) The SFO Airport/Community Roundtable commissioned a study on low frequency aircraft noise.

Reference: [2021/2023 San Francisco International Airport Ground Based Noise Modeling Study](#), HMMH Report No. 309091.002