December 14, 2020

To: The Honorable Eleanor Holmes-Norton and members of the Quiet Skies Caucus

cc: Ranking members of the Senate Committee on Commerce, Science, and Transportation; House Committee on Transportation and Infrastructure

Re: Community Proposal for FAA to immediately supplement DNL for public outreach

Dear Ms. Norton and members of the Quiet Skies Caucus:

The members of the Quiet Skies Conference and grassroots groups from around the country would like to thank you for your September 23, 2020 letter to FAA Administrator Dickson in which you ask the FAA to go back to the drawing board to meaningfully evaluate alternatives to the current average day-night level standard (DNL) as Congress requested in Sections 173 and 188 of the FAA Reauthorization Act of 2018.

We agree that the FAA's April 14, 2020 report fails to meaningfully evaluate alternatives to DNL for the purposes of regulatory policy, environmental assessments, informing the public, and informing discussions of proposed changes to navigation procedures and operating procedures at airports.

We understand that the FAA has said it needs more time to complete its analysis of the implications for regulatory policy of alternative metrics and of new information regarding the response of communities to aircraft noise exposure which the FAA collected in 2016. The FAA originally committed to complete this analysis by December 2018.

For other purposes, however, including environmental assessments, informing the public and informing discussions of proposed changes, we feel strongly that alternative metrics have been more than adequately studied, that they are unambiguously positive for describing aircraft noise in ways that DNL does not capture, and that it is time for the FAA to start using them for these purposes.

We propose and ask for your support for the FAA to start immediately including estimates for supplementary metrics and population exposure in screening analyses for environmental assessments and noise analyses used to inform discussions of proposed changes to navigation and operating procedures at airports. See Appendix 1 for details of our recommendations.

One of the supplementary metrics we recommend is Nx which represents the number of overflights that exceed x dBA during daytime hours or x-10 dBA during nighttime hours. This

metric has a long history of support for describing aircraft noise in ways that DNL does not capture. It was recently identified as a “best metric” for analyzing noise impacts by MIT researchers working on Project 23, “Analytical Approach for Quantifying Noise from Advanced Operational Procedures”, which is sponsored by the FAA Center of Excellence for Alternative Jet Fuels and Environment.

We believe that the effort required to produce estimates for approved supplementary metrics using software that the FAA and noise experts at Volpe National Transportation Systems Center are already using is negligible. Thus, producing the estimates we recommend should not have budgetary impacts or pose significant time delays.

We would be happy to testify or recommend experts to testify about our recommendations in Appendix 1, the importance of this request, and how this can happen.

Thank you for considering our request.

Janet McEneaney - Queens Quiet Skies (New York City)
Steve Kittleson - MSP FairSkies Coalition (Minneapolis-St.Paul)
Kevin Terrell - MSP FairSkies Coaition (Minneapolis-St.Paul)
Adriana Poole - Boston West Fair Skies (Massachusetts)
Jennifer Landesmann - Sky Posse Palo Alto (Northern California)

Recommendation to ensure that adequate information about aircraft noise and exposure is made available to the public

Recommendation

We recommend, in addition to DNL (or CNEL) and population estimates which the FAA currently produces, that the FAA also produce two estimates of Nx -- N50 and N60 -- and TALC60 for each receiver location. Nx is the number of overflights that exceed x dbA during daytime hours or x-10 dBA during nighttime hours. TALC60 is the time in minutes per day during which aircraft noise exceeds 60 C-weighted decibels.

We also recommend that the FAA produce estimates for other metrics supported by the current version of the FAA's Aviation Environmental Design Tool[1] upon request by any of the currently or potentially affected communities. Attached are some of the other metrics supported by the FAA that communities could find appropriate to have.

Finally, we recommend that the FAA produce estimates of noise for representative traffic patterns and make estimates available to the public as data sets that include latitude, longitude, DNL or CNEL, N50, N60, TALC60, possible other requested metrics, and population for each receiver location in the study area.

Discussion:

When the FAA performs environmental assessments of proposed changes to navigation and operating procedures, they produce estimates of DNL (or CNEL, which is the required metric in California) for all receiver locations in a study area where noise exposure is a potential issue. Receiver locations are ¼ mile square grid cells and census block centroids. The noise estimates for census blocks are used in combination with census population estimates to estimate population exposure.

Vast community testimony and numerous studies have demonstrated that DNL alone does not adequately capture the impacts of aircraft noise as it is experienced by people who live near flight paths, and that additional metrics and estimates of population exposure are essential for informing the public and discussions of proposed changes aimed at reaching consensus. With nearly 50 expert references, FAA's own analysis[2] alternative metrics states in the introduction that "no single metric can cover all situations due to the dynamic acoustical and operational characteristics of aviation noise."

[1] https://aedt.faa.gov

[2] https://www.faa.gov/about/plans_reports/congress/media/Day-Night_Average_Sound_Levels_COMPLETED_report_w_letters.pdf

Nx and Tx metrics have a long history of support for describing aircraft noise, including by the FAA's first national ombudsman for aircraft noise:

> When TA and N-level contours are presented along with DNL contours, the public receives not only the average airport noise level, but the amount of time airplane noise exceeds the specified level and the number of times each day that noise exceeds the specified level. When these metrics are presented along with DNL, a complete picture of airport noise exposure in the community emerges, painted in clear terms. (William Albee, 2002)

We recommend TALC60 for two reasons: it clearly describes an important characteristic of noise, i.e., the duration of noise events that average noise metrics like DNL take into account but do not clearly describe; and dBC weighting represents the sound spectrum more completely than does dBA, capturing sound that is not only in the higher pitched sounds (A-weighted) but also lower-frequency components of jet engine noise that are especially problematic for people exposed to backblast noise from departing aircraft and communities which experience noise from both arrival and departure procedures.

Nx was recently identified as a "best metric" for analyzing noise impacts by MIT researchers working on the Massport study for Boston's Logan Airport and Project 23, "Analytical Approach for Quantifying Noise from Advanced Operational Procedures", which is sponsored by the FAA Center of Excellence for Alternative Jet Fuels and Environment.

AEDT supports the noise metrics listed in Table 2-5, as well as the capability to create user-defined noise metrics.

Table 2-5 Summary of AEDT Noise Metric Abbreviations and Definitions

Metric Type	AEDT Name	Standard Name	Definition/Full Name
A-Weighted Noise Metrics			
Exposure	SEL	L_{AE}	A-Weighted Sound Exposure Level
	DNL	L_{dn}	Day Night Average Sound Level
	CNEL	L_{den}	Community Noise Equivalent Level
	LAEQ	L_{AeqT}	Equivalent Sound Level
	LAEQD	L_{d}	Day-average noise level
	LAEQN	L_{n}	Night-average noise level
Maximum Level	LAMAX	L_{ASmx}	A-Weighted Maximum Sound Level
Time-Above	TALA	TA_{LA}	Time-Above A-Weighted Level
Time-Audible	TAUD	T_{Aau}	Time-Audible
	TAUDSC	T_{AudSC}	Time-Audible with Overlapping Events Method (Statistical Compression)
	TAUDP	T_{AudP}	Time-Audible Percent
	TAUDPSC	T_{AudPSC}	Time-Audible Percent with Overlapping Events Method (Statistical Compression)
C-Weighted Noise Metrics			
Exposure	CEXP	L_{CE}	C-Weighted Sound Exposure Level
	CDNL	L_{Cdn}	C-Weighted Day Night Average Sound Level
Maximum Level	LCMAX	L_{CSmx}	C-Weighted Maximum Sound Level
Time-Above	TALC	TA_{LC}	Time-Above C-Weighted Level
Tone-Corrected Perceived Noise Metrics			
Exposure	EPNL	L_{EPN}	Effective Perceived Noise Level
	NEF	L_{NEL}	Noise Exposure Forecast
	WECPNL	L_{WECPN}	Weighted Equivalent Continuous Perceived Noise Level
Maximum Level	PNLTM	L_{PNTSmx}	Tone-Corrected Maximum Perceived Noise Level
Time-Above	TAPNL	TA_{PNL}	Time-Above Perceived Noise Level
Number Above Noise Level Metric			
Number Above Noise Level	NANL	NANL	Number Above Noise Level

All of the metrics in Table 2-5 are computed using the following four base noise level metrics:

- L_{AE} A-weighted sound exposure level (SEL);
- L_{ASmx} A-weighted maximum sound level (LAMAX);
- L_{EPN} Effective perceived noise level (EPNL); and
- L_{PNTSmx} Tone-corrected maximum perceived noise level (PNLTM).