



Executive Summary for Congressional Quiet Skies Caucus Staffers

Re: FAA’s Report to Congress (April 2020) on the DNL Metric and 65 DNL Standard for Airplane Noise

Summary

[The FAA’s April, 2020 Report to Congress](#)¹ on alternative noise metrics and the 65 DNL standard for airplane noise fails to fulfill the requirements of sections 173 and 188 of the FAA Reauthorization Act of 2018.

Congress should reject the report and require the FAA to produce within 6 months a revised report addressing the deficiencies described in this paper.

If the FAA is unable (or unwilling) to develop, evaluate, and utilize noise metrics that actually have “a highly reliable relationship between projected noise exposure and the surveyed reactions of people to noise...” as required by law,² then Congress should task another agency (for example the Environmental Protection Agency) with producing a meaningful evaluation of alternative metrics and the 65 DNL standard for aircraft noise.

Congressional Directive

Sections 173 and 188 of the FAA Reauthorization Act of 2018 directed the FAA to evaluate alternative metrics to the Day Night Average Sound Level (DNL) and the Day Night (DNL) 65 standard. There is a vast discrepancy between community aircraft noise impacts (and complaints) and the FAA’s consistent “Findings of No Significant Impact (FONSIs)” for new Metroplex and single site assessment designs. These FONSIs are based on the flawed DNL metric and the 65 DNL standard used in the FAA environmental review process.

- *Section 188* of the Act directed the FAA to submit a report to Congress evaluating “alternative metrics to the current average day-night level (DNL) standard, such as the use of actual noise sampling and other methods, to address community airplane noise concerns.”³
- *Section 173* of the Act directed the FAA within 1 year to “complete the on-going evaluation of alternative metrics to the current Day Night Level (DNL) 65 standard.”⁴

⁴https://www.faa.gov/about/plans_reports/congress/media/Day-Night_Average_Sound_Levels_COMPLETED_report_w_letters.pdf

² Aviation Safety and Noise Abatement Act, 1979, <https://uscode.house.gov/statutes/pl/96/193.pdf>, Sec.102(1).

³ <https://www.congress.gov/115/plaws/publ254/PLAW-115publ254.pdf>

⁴ <https://www.congress.gov/115/plaws/publ254/PLAW-115publ254.pdf>

Failures of the FAA report

- 1. The FAA report fails to address the fact that DNL does not satisfy Congress’s criteria for noise measurement.** Congress ([US Code 49, Section 47502](#)) requires that “a single system of measuring noise” have a “highly reliable relationship between projected noise exposure and surveyed reactions of people to noise....”⁵ The implementation of NextGen technologies in communities around the country has caused complaints about noise to increase by orders of magnitude and lawsuits to proliferate. Yet the FAA continues to use the DNL metric and the 65 DNL standard to issue Findings of No Significant Impact (FONSIs) in every case of NextGen rollouts.⁶ Therefore, the DNL metric fails the basic Congressional requirement to have a reliable relationship between projected noise exposure and surveyed reactions to noise.
- 2. The FAA report fails to evaluate DNL and other metrics within the relevant context of NextGen implementation.** DNL as a single metric for measuring aircraft noise was adopted in the early 1970s. Since that time, NextGen has fundamentally altered how and where aircraft are flown, creating a wholesale transformation in the way aircraft depart and approach airports -- transformations which have discredited the FAA’s continued reliance on the DNL metric as the only metric for conducting environmental assessments and FONSIs.
- 3. The FAA report fails to provide evaluations.** The report merely *describes* DNL and a number of alternative metrics while offering a biased, incomplete, and at times scientifically inaccurate comparison of DNL to those alternatives. A credible evaluation of alternative noise metrics and the 65 DNL standard would address the correlation between each metric and the known noise impact on communities. The FAA-funded [MIT Research Report](#)⁷ using the Number-above (NA) metric is an example of the type of research methodology that is needed to evaluate and select metrics.
- 4. The FAA report fails to address the many known problems with the DNL metric.** As documented by the National Academy of Engineering (NAE) in its *Technology for a Quieter America*⁸ report, “Many limitations of a DNL-type metric based on the average A-weighted sound pressure level used to assess environmental noise have been noted.”⁹ The 2018 World Health Organization (WHO) Noise Guidelines for the European Region state that the standard for aircraft noise should be significantly lower than the U.S. Standard in order to adequately protect human health.¹⁰
- 5. The FAA report fails to evaluate how the number of noise events represents the noise impacts on communities.** The number of noise events is a critical metric that the FAA should be considering because NextGen drastically increased the levels of aircraft concentration. The public health consequences of having 10-20 aircraft overhead per day are very different from

⁵ Aviation Safety and Noise Abatement Act, 1979, <https://uscode.house.gov/statutes/pl/96/193.pdf>, Sec.102(1).

⁶ FAA virtual workshops on the Draft Environmental Assessment for South-Central Florida, June 3 to June 12, 2020, https://www.faa.gov/news/updates/?newsId=95531&omniRss=news_updatesAoc&cid=101_N_U

⁷ <https://dspace.mit.edu/handle/1721.1/121166>

⁸ *Technology for a Quieter America* (2010), The National Academies Press, Committee for a Quieter America: National Academy of Engineering.

⁹ Among other deficiencies noted, “Fewer loud events can have the same DNL as many quieter events; thus, the impacts of very different soundscapes are described as equal...”

¹⁰ <https://www.euro.who.int/en/health-topics/environment-and-health/noise/publications/2018/environmental-noise-guidelines-for-the-european-region-2018>

the public health consequences of 200-400 aircraft overhead per day. This noise concentration problem of NextGen was recognized in 2016 by then-FAA Administrator Huerta, who stated that, “more precise navigation paths ...have the effect of concentrating noise over a smaller area under the flight path.”¹¹ Common sense, to say nothing of the impacts on and complaints of residents, suggests that this correlation between the frequency of aircraft overflight events and human responses should have been evaluated.

A Meaningful Evaluation of Alternative Metrics is Needed

We agree with the FAA’s assertion that no single noise metric can address all the environmental and operational characteristics of aircraft noise. An appropriate *system of metrics* would address the vast discrepancy between community aircraft noise impacts caused by NextGen and the FAA’s repeated “Findings of No Significant Impact (FONSIs).” DNL, as a single metric, clearly fails to address this major disconnect. The FAA failed to evaluate alternative metrics to supplement the DNL metric and capture the NextGen impact on communities, as well as to evaluate the 65 DNL standard in determining significant impact.

The FAA claims that supplementary metrics are needed to “aid the public understanding of community noise effects.”¹² **Rather, supplemental metrics are needed for the FAA to capture and accurately represent the noise impacts to communities from NextGen and to then use these supplemental metrics in its decision-making for environmental reviews.**

Conclusions

[The FAA’s April, 2020 Report to Congress](#)¹³ on alternative noise metrics and the 65 DNL standard for airplane noise fails to fulfill the requirements of sections 173 and 188 of the FAA Reauthorization Act of 2018. Technology has moved on, rendering the DNL metric and standard ineffective -- yet the FAA does not acknowledge this and instead relies on outdated analyses to justify its use.

Congress should reject the report and require the FAA to produce a revised report within 6 months addressing the deficiencies described in this paper. If the FAA is unable (or unwilling) to develop, evaluate, and utilize noise metrics that actually have “a highly reliable relationship between projected noise exposure and the surveyed reactions of people to noise...” as required by law, then Congress should task another agency (for example the Environmental Protection Agency) to produce a meaningful evaluation of alternative aircraft noise metrics and the 65 DNL standard.

¹¹October 2016 Annual Air Traffic Control Association Meeting, <http://www.culvercity.org/home/showdocument?id=6994>

¹² FAA virtual workshops on the Draft Environmental Assessment for South-Central Florida, June 3 to June 12, 2020, https://www.faa.gov/news/updates/?newsId=95531&omniRss=news_updatesAoc&cid=101_N_U

¹³https://www.faa.gov/about/plans_reports/congress/media/Day-Night-Average-Sound-Levels-COMPLETED-report-w-letter-s.pdf