



Questions 9/17/2020

Pertaining to the  
FAA Metrics Report to Congress (April 2020)  
on the DNL Metric and 65 DNL Standard for Airplane Noise

Around the time of a June 25, 2020 meeting of Quiet Skies Caucus (QSC) staffers with the FAA, several Congressional offices shared with the FAA three documents authored by aviation-impacted community groups. The documents, titled *Executive Summary*, *Technical Response*, and a cover letter with questions from the BOS Fair Skies to Congressman Lynch, were written in response to the FAA's April 2020 *Report to Congress on the DNL Metric and 65 DNL Standard for Airplane Noise* ("FAA Metrics Report").<sup>1</sup> The first two documents concluded that **Congress should reject the FAA Metrics Report** and require the FAA to produce within six months a revised report addressing the deficiencies described in the documents. The third document included specific questions about the Report that residents from across the country provided to their Regional FAA office or federal legislators.

**We ask that the FAA answer the questions.**

Note: To facilitate sharing, the questions and the two responses to the FAA Metrics Report (*Executive Summary* and *Technical Response*) are part of the combined document: *2020-09-17 Questions and Response Documents re FAA Metrics Report*.

**QUESTIONS for the FAA  
PERTAINING TO THE FAA METRICS REPORT**

Following are the eleven questions that were included in a letter from BOS Fair Skies to Congressman Lynch for the FAA's response and that were shared with others in Congress through their constituents.

1. Please explain how the DNL metric accounts for duration of the noise and how this compares to Time-above.
2. The foundation of the calculations is based on single-event estimates of Sound Exposure Levels (SEL). SEL uses mathematical principles of "instantaneous" noise, thus combining the decibels of an aviation event as if all of the sound pressure occurred in 1-second. It doesn't. Please explain the validity of the DNL metric given this implicit assumption.
3. Table 1 on page 19 of the FAA Metrics Report states that Number-Above (NA) does not account for nighttime noise, but Dr. Hansman, the consultant for the Boston Massport RNAV study, uses NA in his contract work for the FAA accounting for nighttime noise using a lower "above" level for nighttime hours. Time-Above also could easily be adjusted to penalize for nighttime events, much like is done now for DNL where there is a 10 dB penalty. If DNL gets a check-mark for time of day due to the nighttime penalty, please explain why NA and TA do not have check-marks because they,

<sup>1</sup>[https://www.faa.gov/about/plans\\_reports/congress/media/Day-Night-Average-Sound-Levels-COMPLETED-report-w-letters.pdf](https://www.faa.gov/about/plans_reports/congress/media/Day-Night-Average-Sound-Levels-COMPLETED-report-w-letters.pdf)

too, could account for “time of day” by using Dr. Hansman’s method and/or by adding a penalty for nighttime events.

- Answered by the FAA at the June 11, 2020 Massport Community Advisory Committee (MCAC) meeting: FAA agreed that NA and TA could easily be modified to account for Time of Day. This needs to be corrected in the FAA Metrics Report.
4. In the same Table, DNL gets credit for accounting for the number of events but Time-Above does not. How can one calculate Time-Above without accounting for the number of events?
  5. Many communities across the country have a measured or estimated DNL of 59.0 dBA. It would take 4 times these location’s current number of aviation events for DNL to reach a 65 dBA level. Many residents in areas with a DNL of 59.0 dBA are already highly impacted and complain to their representatives about the excessive number of aviation noise events., e.g., Hull, MA. How do you reconcile these 2 truths?
  6. Regulations require a single system for measuring noise, not a single metric. What is needed/required for the FAA to begin to use a single system for measuring noise that includes Number-Above, as well as DNL?
    - **The FAA Metrics Report fails to evaluate DNL and other metrics within the relevant context of NextGen implementation.** The FAA Metrics Report makes no mention of NextGen. DNL as a single metric for measuring aircraft noise was adopted in the early 1970s. Since approximately 2010, NextGen has fundamentally altered how and where aircraft are flown, creating a wholesale transformation in the way aircraft depart and approach airports now with: highly concentrated flight paths with a high number of operations, reduced separation between aircraft due to Wake ReCat implementation, new speed requirements, and lower altitudes. These transformations have discredited the FAA’s continued reliance on the DNL metric as the only metric for conducting environmental assessments and Findings of No Significant Impact (FONSIs). U.S. Regulations (US Code 49, Section 47502) require a “single system for measuring noise” that has a “highly reliable relationship between projected noise exposure and surveyed reactions of people to noise...,”<sup>2</sup> not a single metric.
  7. What are the margins of error associated with DNL estimates given how the FAA models these values? Is the margin-of-error small enough that the FAA can accurately classify locations into 65+ DNL with reasonable certainty?
  8. It would take 80 aviation noise events per day, every day, with SEL 90 dBA each to move a DNL of 63.5 to 65, thus making it a significant noise increase according to the FAA. Some communities have DNLs around 63.5. Residents in these areas suffer greatly from aviation noise and pollution. Please explain how the DNL metric is sensitive to residents’ current exposure if it takes 80 additional aviation events per day, every day, before the FAA considers it a significant impact. Doesn’t this example show that DNL is not a valid metric for assessing aviation noise burden? If not, why not?
  9. Has there been a finding of significant noise impact for any Environmental Assessment (that uses DNL) in the last 10 years? If yes, for what procedure(s) and airport(s)?
    - Answered by the FAA during the Florida EA FONSI virtual workshop – all have found no significant impact.

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<sup>2</sup>Aviation Safety and Noise Abatement Act, 1979, Pub. L. 96–193, §102, 9 Stat.50, <https://uscode.house.gov/statutes/pl/96/193.pdf>

10. The FAA Metrics Report makes no mention of NextGen. Please explain how DNL captures reasons for complaints made by sacrificial neighborhoods due to NextGen implementation including, but not limited to, concentrated flight paths due to Performance Based Navigation, reduced separation due to Wake ReCat with noise events often less than 2 minutes apart, and lower altitudes to increase distances between aircraft for safety reasons. Why is NextGen not mentioned in the FAA Metrics Report? Is a set of noise metrics, along with DNL, required to capture the complexity of the noise burden due to the implementation of NextGen?
11. The FAA Metrics Report does not explain how DNL captures the health effects caused by the implementation of NextGen. The word "health" appears once in the text of the report and NextGen is not mentioned at all. How does DNL capture the aviation noise burden to residents' physical and mental health, the sleepless nights sleep interruptions, the scientifically shown increases in heart and lung disease, and mental health conditions such as anxiety and depression?