

Technical Response for Congressional Quiet Skies Caucus Staffers

Re: FAA's Report to Congress\*:  
DNL Metric and DNL 65 Standard  
For Airplane Noise

(\*The report submitted by the FAA in response to the Reauthorization Act of 2018, Sections 173 and 188)



**Summary**

The FAA's April, 2020 Report to Congress on the evaluation of alternative noise metrics and 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 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 response to noise, as required by law<sup>1</sup>, then Congress should task another agency (for example the Environmental Protection Agency) with producing a meaningful evaluation of alternative metrics and standards for aircraft noise.

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 an ongoing, vast discrepancy between community aircraft noise impacts and complaints, and the FAA's consistent "Finding of No Significant Impact (FONSI)" for new Metroplex and single site assessment designs that are based on the current DNL metric and DNL 65 standard used in the FAA environmental review process.

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on, rendering the DNL metric and standard ineffective -- yet the FAA does not acknowledge this and instead relies on outdated analyses to justify its use.

---

<sup>1</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>

## Contents

Introduction .....	3
Congress Asked for a Single System, Not Necessarily a Single Metric.....	3
DNL Does Not Satisfy Congress’s or the FAA’s Metric Criteria .....	4
Problems with DNL - National Academy of Engineers (NAE) Report.....	4
FAA’s “Equivalent Operations for DNL = 65” Chart Illustrates DNL problems.....	5
A Needed Addition to the FAA ‘s DNL = 65 Chart .....	6
Additional Problems with DNL.....	6
DNL is a measure of “instantaneous sound” .....	6
FAA’s use of estimated DNL omits margin-of-error from their decision making .....	6
DNL does not account for a location’s ambient noise level .....	7
NextGen Created a New Type of Aircraft Noise Problem.....	7
FAA Modernized the National Air Space Without Modernizing Noise Metrics.....	7
Alternative Metrics are Needed .....	7
N-Above (NA) Should Be Included in the FAA’s Single System of Noise Measurement.....	8
Noise Can be Significant Below 65 dB DNL .....	10
Separate Noise Remediation Programs from the DNL 65 dBA Standard .....	10
Additional FAA Considerations - Supplemental Metrics and a Single System.....	11
Who is responsible for the effects of aviation impacts on communities? .....	11
Conclusion.....	12

## Introduction

The Federal Aviation Administration (FAA) April 2020 [Report to Congress](#) on alternative noise metrics **fails to fulfill** the requirements of Sections 173 and 188 of the FAA 2018 Reauthorization Act.<sup>2</sup>

*The clear intent of these mandates was for the FAA to evaluate alternative metrics that would address the huge discrepancy between community aircraft noise complaints and the FAA's repeated "Finding of No Significant Impact (FONSI)" based on the current DNL (Day Night Level) standard used in the environmental review process.*

From Administrator Dickson's cover letter to the report:

- **Section 188** of the Act directed the FAA to submit a report evaluating alternative noise metrics to the current average day-night level standard to the appropriate Congressional committees.
- While not directed by the Act to include as a report, the information contained in the document also fulfills the FAA's response to **Section 173**.

The FAA report **fails to provide** evaluations; it merely describes DNL and a number of alternative metrics, while offering a biased comparison of DNL to these alternatives. It omits examining DNL and other metrics in the context of NextGen implementations and the massive increase of noise complaints due to NextGen. Finally, it does not address the problems with the (DNL) 65 standard.

### **Congress Asked for a Single System, Not Necessarily a Single Metric**

Despite the FAA's unambiguous statement in the report that "no single metric can cover all situations due to the dynamic acoustical and operational characteristics of aviation noise," the FAA asserts that it has adopted DNL as its "standard" (single) metric to be in accordance with the Aviation Safety and Noise Abatement Act (ASNA)<sup>3</sup> passed by Congress in 1979. ASNA required the FAA to:

- (1) establish a single system of measuring noise for which there is a highly reliable relationship between projected noise exposure and the surveyed reactions of people to noise to be used to measure noise at airports and their surrounding areas;
- (2) establish a single system for determining the exposure of individuals to noise which results from the operations of an airport and which includes noise intensity, duration, frequency, and time of occurrence.

Congress asked for a **single system, not necessarily a single metric, with a highly reliable relationship between projected noise and people's reactions to noise.**

---

<sup>2</sup> As stated by Administrator Dickson in his cover letter to the report, Section 188 of the Act directed the FAA to submit a report evaluating alternative noise metrics to the current average day-night level standard to the appropriate Congressional committees. In the cover letter of the report, the Administrator also says that the information contained in the report also fulfills the FAA's mandate under Section 173.

<sup>3</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>

## DNL Does Not Satisfy Congress's or the FAA's Metric Criteria

On page 4 of the FAA's report, the agency appears to have interpreted ASNA with a definition, "a meaningful metric or set of metrics should ..." but omitted ASNA's requirements for "a highly reliable relationship between projected noise exposure and surveyed reactions of people to noise."

The FAA concludes that,

"The Day-Night Average Sound Level (DNL) incorporates all of these elements and is the metric the FAA uses to inform environmental decision making for noise."

The fundamental flaw in the FAA's defense and use of the DNL metric is:

- **Congress (US Code 49 Section 47502<sup>4</sup>) requires that a single system of measuring noise have "a highly reliable relationship between projected noise exposure and surveyed reactions of individuals to noise."**
- The FAA uses the DNL metric and DNL 65 standard to inform environmental decision-making for NextGen technologies and procedures.
- The enormous ongoing public noise complaints are in areas where the FAA's environmental assessment concludes with a "Finding of No Significant Impact" (FONSI).

During the FAA's recent public workshops on the Florida Metroplex,<sup>5</sup> the FAA admitted that there has **never** been a "Finding of Significant Impact" (FOSI, without the N) in any of the NextGen Metroplex and Single Site assessments of changes to operations. However, once implemented, these changes have been highly criticized by communities affected by the newly concentrated paths. The FAA's entirety of FONSI's are belied by the multiple litigations filed against the FAA nationwide and the unprecedented levels of public complaints across the country.

Despite all these serious problems, the FAA still clings to the use of the outdated DNL as the metric for assessing whether noise impacts caused by NextGen implementations are significant.

## Problems with DNL - National Academy of Engineers (NAE) Report

The National Academy of Engineering (NAE) *Technology for a Quieter America*<sup>6</sup> notes these (and other) limitations of the DNL metric.

"Many limitations of a DNL-type metric based on the average A-weighted sound pressure level used to assess environmental noise have been noted:

- DNL is insensitive to the impact of very loud, isolated events.
- Fewer loud events can have the same DNL as many quieter events; thus, the impacts of very different soundscapes are described as equal.
- DNL is insensitive to the time when an event occurs (e.g., noise early in the night causes different sleep disturbance than noise early in the morning)<sup>7</sup>.

---

<sup>4</sup> <https://www.govinfo.gov/content/pkg/USCODE-2011-title49/pdf/USCODE-2011-title49-subtitleVII-partB-chap475-subchapl.pdf>

<sup>5</sup> 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](https://www.faa.gov/news/updates/?newsId=95531&omniRss=news_updatesAoc&cid=101_N_U)

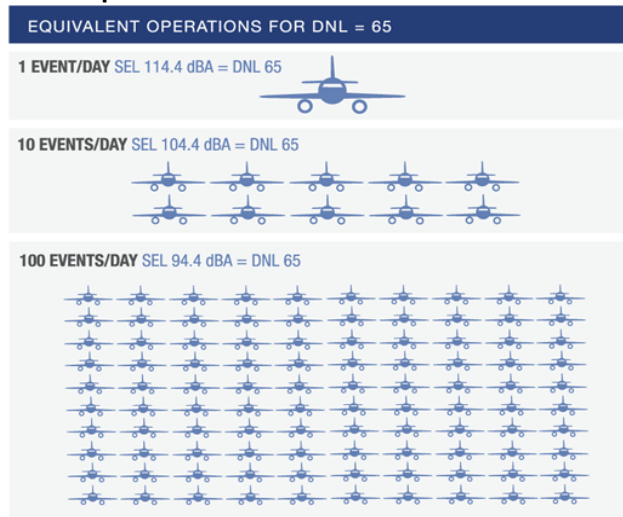
<sup>6</sup> Page 26, *Technology for a Quieter America* (2010), The National Academies Press, Committee for a Quieter America: National Academy of Engineering

<sup>7</sup> The rationale for this statement is unclear given DNL incorporates a 10dB penalty for nighttime events. Therefore, in this response, we acknowledge that DNL is "sensitive" to events that occur during the 10pm to 7am period, i.e. "Time of Day".

- The only strong argument for using night and evening weightings in DNL is based on the fact that average nighttime ambient levels are lower than those during the day.
- A-weighting does not reflect the results of research studies in psychoacoustics over the past 40 years.
- DNL does not take into account other sound characteristics (e.g., tonality and rate of loudness onset) that can influence annoyance and sleep disturbance levels.”

The DNL metric implies that there is **no meaningful difference** whether people are exposed to a few (1-10) aircraft noise events a day or hundreds of aircraft noise events a day. It describes the impacts of **dramatically different noise environments as equals, all examples are DNL=65.**

**FAA’s “Equivalent Operations for DNL = 65<sup>8</sup>” Chart Illustrates DNL problems.**

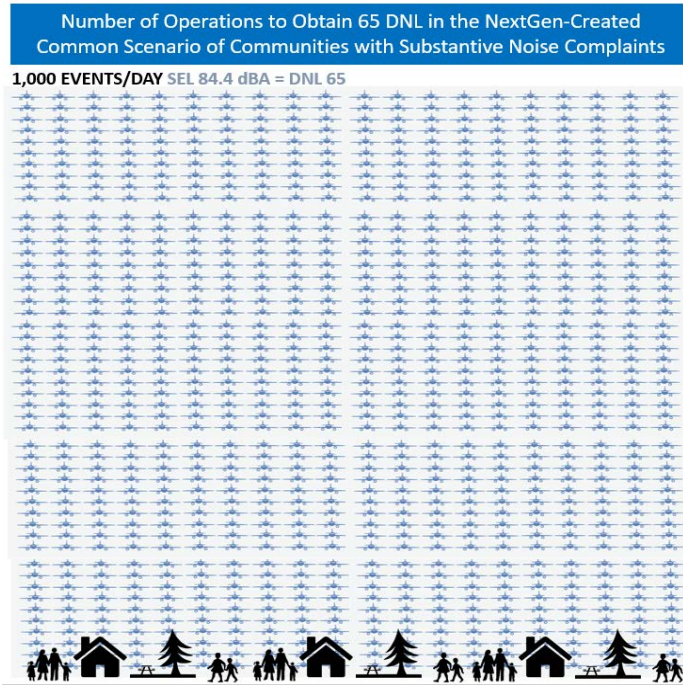


The three noise levels in FAA’s chart are not representative of communities that are suffering from NextGen. The noise levels portrayed occur at locations close to airports which have always had significant noise.

The chart fails to show the number of aircraft that would be required to reach the 65 DNL standard, in the now common scenario of communities with substantive noise complaints caused by NextGen implementations. If the FAA added this scenario to the chart, it would show that 1,000 planes per day are required to reach the DNL 65 standard to trigger a “Significant Impact”. (See next page for the graphic.)

<sup>8</sup> [https://www.faa.gov/regulations\\_policies/policy\\_guidance/noise/basics/](https://www.faa.gov/regulations_policies/policy_guidance/noise/basics/)

## A Needed Addition to the FAA 's DNL = 65 Chart



NextGen drastically increased aircraft concentration, and noise over some communities prior to when NextGen was rolled out. 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.”<sup>9</sup>

Furthermore, the time when an event occurs is important. Noise late at night causes different sleep disturbances than noise early in the morning. Adding a DNL night penalty for aircraft noise does not mean that DNL accurately captures the impact of the timing of an aircraft noise. Sometimes only one loud aviation event disrupts sleep.

### Additional Problems with DNL

#### DNL is a measure of “instantaneous sound”

The FAA reports “The SEL metric captures all the acoustic energy of a noise event and **normalizes it as if the event occurred in one second.**”, but obviously, communities do not hear an aviation noise event for just one second. The sound usually lasts for more than a minute. DNL is a combination of SELs, typically over a period of one average day. The mathematics used to compute the DNL metric implicitly assumes the sound pressure from a single aviation event is instantaneous,<sup>10</sup> as if the noise from each event occurred in one second. This seldom-mentioned, implicit assumption is a primary cause for DNL’s failure to reliably identify excessive aviation noise.

#### FAA’s use of estimated DNL omits margin-of-error from their decision making

The FAA’s modeled DNL is an estimate, and therefore has a margin-of-error. This imprecision in the DNL metric is not mentioned in the Report. (We expected it would be part of section 7, “Role of Noise Measurements vs. Noise Modeling.”) Not only is margin-of-error not mentioned in the report, it is

<sup>9</sup>October 2016 Annual Air Traffic Control Association Meeting, <http://www.culvercity.org/home/showdocument?id=6994>

<sup>10</sup> Equations (1) and (2) in Appendix D: 14 CFR Part 150 Airport Noise Compatibility Planning; Part C: Mathematical Descriptions

always omitted from the FAA's environmental review assessments. If the margin-of-error is large, the FAA cannot, with a reasonable level of certainty, classify locations with 65 DNL. The FAA must include the margin-of-errors into its decisions regarding "significant impact." Peer reviewed studies and manuscripts in the health, medical, and policy domains would reject any paper that used an estimated metric as if it were, with certainty, true.

### **DNL does not account for a location's ambient noise level**

Most negative reactions to noise occur because of an increase in noise over the existing (ambient) level. DNL 65 in rural and suburban locations, parks, places of worship, and peoples' homes, among others, cause a different exposure reaction than DNL 65 in areas with higher ambient levels. A location's previous ambient noise level is omitted from the FAA's environmental assessment decisions because DNL does not account for ambient noise level differences. A "system of noise measurement" that accurately describes the relationship between noise exposure and reactions of individuals to noise should account for ambient noise levels.

### **NextGen Created a New Type of Aircraft Noise Problem**

NextGen has fundamentally changed how aircraft are flown. NextGen rollouts have led to a dramatic increase in aircraft noise complaints from communities nationwide.

The use of GPS technology in NextGen implementations has allowed the FAA to create narrow horizontal corridors and decreased spacing between aircraft, thus concentrating flights at low altitudes over communities located far from airports. Such communities are now living under noisy "rails in the sky" - less than 500 feet wide - with planes often coming one after another every 2 minutes or less. Furthermore, NextGen has aircraft speed requirements which means loud adjustments to reduce, maintain, or increase speed for arrivals. Instead of the FAA's goal of quietly gliding into airports, aircraft approaches have actually become louder.

NextGen created new aircraft noise situations that must be characterized by other metrics than DNL.

### **FAA Modernized the National Air Space Without Modernizing Noise Metrics**

The [2018-2019 FAA NextGen Implementation Plan<sup>11</sup>](https://www.faa.gov/nextgen/media/NextGen_Implementation_Plan-2018-19.pdf) lists four "critical infrastructure programs" and eleven NextGen "portfolios", where development, testing, and implementation of new aviation "capabilities" have happened and continue to occur through NextGen's rollout.

Two programs and ten portfolios of FAA's NextGen Implementation Plan identify one of the "benefits" of the new capabilities to be **increased capacity**.

The FAA is using new capabilities of NextGen technologies (performance-based navigation, time-based flow management, etc.) to modernize the National Air Space and to increase capacity, but is NOT at the same time modernizing its measurement of noise impacts. As a result, it is failing to measure the substantial harm that these new capabilities cause to the health and quality of life of people on the ground.

### **Alternative Metrics are Needed**

No single noise metric can address all the noise environments and operational characteristics of aircraft noise. An appropriate system of metrics would meet ALL the Congress's stated criteria for measuring

---

<sup>11</sup>NextGen 2018-2019 Implementation Plan, FAA, [https://www.faa.gov/nextgen/media/NextGen\\_Implementation\\_Plan-2018-19.pdf](https://www.faa.gov/nextgen/media/NextGen_Implementation_Plan-2018-19.pdf)



noise impacts and would address the large discrepancy between community aircraft noise complaints and the FAA’s repeated Findings of “No Significant Impact (FONSI).”

The DNL metric clearly fails to meet these basic requirements, and the [FAA Report to Congress](#) does not provide the required evaluation of alternative metrics to DNL and the DNL 65 standard. Had it done so, Congress (and the public) would be better informed about the applicability and usefulness of other metrics to community responses to aircraft noise resulting from NextGen.

*The FAA claims that supplementary metrics are needed to “aid the public understanding of community noise effects.”<sup>12</sup> **We claim that 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.***

### **N-Above (NA) Should Be Included in the FAA’s Single System of Noise Measurement**

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](#) using N-Above is an example of the type of methodology that is needed to evaluate and select metrics. An evaluation should identify thresholds for the metrics that would be used to define “significant,” detrimental impact. Exceeding the threshold of one metric in a set of metrics, e.g., DNL and N-Above, should be a sufficient determinant of significant noise rather than needing to exceed all metrics’ thresholds.

N-Above (NA) directly captures a dimension of noise that DNL does not - the number of aircraft noise events in a discrete time period. The “above” part of NA incorporates noise level, and as in the MIT study, time-sensitive periods, e.g., nighttime, are accommodated using different “above” or threshold levels depending on the time of the event. The NA metric shows promise, with the following additions analyzed and evaluated:

- N-Above metrics should be reported along a range of “above” levels (dB), e.g. every 3 dB between 42 and 66 inclusive. (A 3 dB increase roughly corresponds to a doubling of the sound level).
- Use sone, the modern measure of sound loudness.
  - A-weighting has numerous documented limitations<sup>13</sup>.
  - The technical limitations of noise-monitors that motivated the use of A-weighting have long since been eliminated by modern electronics<sup>14</sup>.
  - Research shows that females (as a group) have greater hearing sensitivity, and have a greater susceptibility to noise exposure at a wider range of frequencies than males. We must ensure that noise metrics reflect the impacts on **all** Americans, both females and males<sup>15</sup>.

---

<sup>12</sup> 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](https://www.faa.gov/news/updates/?newsId=95531&omniRss=news_updatesAoc&cid=101_N_U)

<sup>13</sup> Aircraft Noise Characteristics and Metrics, More S., July 2011, A PARTNER Project 24 Report, Partnership for Air Transportation Noise and Emissions Reduction, An FAA/NASA/Transport Canada-Sponsored Center of Excellence, <http://web.mit.edu/aeroastro/partner/reports/proj24/noisethesis.pdf?fbclid=IwAR2t0OdwiX5QTtqEx4rLAegjxTskC543p1akEA62RMjGibzeM4ydaBRGBjY>

<sup>14</sup> Fletcher, H., A.H. Beyer, and A.B. Duel. 1930. “Noise Measurement,” in City Noise, Report of the Noise Abatement Commission, Department of Health, City of New York

<sup>15</sup> <https://www.tandfonline.com/doi/abs/10.1080/87565649809540712?journalCode=hdvn20>



- Decisions about what number of N-Above events is significant and what thresholds are required for an event to count **should be made with input from health professionals, researchers, and the public** and include data beyond complaint information. It is likely that thresholds should be different for nighttime and for various ambient noise levels.

The FAA report provided the following comparison of noise metrics in their Table 1.

**Table 1 from FAA Report to Congress, April 14, 2020, page 19**  
*Additions in Red are for Emphasis*

**Table 1. Noise Metrics**

	Noise Level	Time of Day	Number of Events
L <sub>eq</sub>	✓		✓
DNL	✓	✓	✓ ?
LA <sub>eq</sub> (hr) (e.g. 16hr, 8hr)	✓	✓	✓
L <sub>den</sub>	✓	✓	✓
CNEL	✓	✓	✓
SEL and CSEL	✓		
L <sub>max</sub>	✓		
PSF <sup>a</sup>	✓		
NA <sup>b</sup>	✓	✓	✓
TA <sup>c</sup>	✓	<b>Time of Day is easy to account for using different thresholds.</b>	
Time Audible <sup>d</sup>	✓		

<sup>a</sup> PSF, or pounds per square foot, is functionally a measure of "noise level" instead of decibels. PSF is typically used as a measure of the peak overpressure of a sonic boom.  
<sup>b</sup> NA is the number of noise events above a certain noise level threshold.

**For remaining footnotes see FAA report**

Along with the row of checkmarks for DNL, the FAA claims that LA<sub>eq</sub>(hr), L<sub>den</sub> and CNEL capture the three criteria. However, the report admits these metrics are "similar" versions of DNL. Therefore, they have predictably similar problems as DNL, with a slight, but inadequate, improvement over DNL with an added penalty for evening noise events.

The report says this about N-Above:

"Operational-Acoustic metrics like NA and TA provide an alternative way to consider noise exposures over longer time periods while emphasizing details about aircraft operational characteristics, but do not fully consider the cumulative intensity of aircraft noise."

The report's comparison of N-Above and DNL is misleading at best and arguably is incorrect because:

- DNL does not distinguish between the number of noise-events; one very loud event or many less loud events can lead to the same DNL number.
- The NAE study states "DNL is insensitive to the time when an event occurs." Perhaps the FAA means that the DNL metric includes a time-based "penalty" for noise events occurring at night, which is reasonable. The same night-time penalty can be similarly incorporated into the N-Above metric. For example, the aforementioned MIT research study applies a different "Above" threshold for nighttime events than for events from 7 a.m. to 10 p.m.

- By the FAA’s admission, N-Above emphasizes details about aircraft operational characteristics which DNL does NOT provide. NextGen made numerous aircraft operational changes that increase capacity, i.e., number of flights in a given period of time, and therefore this should be one of the metric criteria.
- DNL does not directly capture the “number of events” for aircraft in a discrete time period.

To summarize, in comparison to DNL, N-Above provides:

- Equivalent noise-level representation
- Similar time-of-day representation - night penalties can be applied to N-Above
- Vastly superior representation of number-of-noise-events
- Represents details of aircraft operational characteristics (which are at the root of many NextGen issues), which DNL does not
- An easily-understood count will facilitate better Congressional and FAA policy decisions

The FAA accurately states that N-Above does not **fully consider** the cumulative intensity of aircraft noise. The aforementioned advantages of using N-Above as part of an aviation noise “system of measurement” easily outweigh this minor limitation.

We conclude N-Above is superior to DNL because the number of noise events is a critical characteristic for the high aircraft concentration of NextGen. At a minimum **both metrics** should be part of “a single system of metrics” to address the FAA’s metric criteria and the noise problem Congress seeks to measure on behalf of communities for aviation noise impacts.

#### **Noise Can be Significant Below 65 dB DNL**

The DOT/FAA Aviation Noise Abatement Policy (ANAP) characterized aircraft noise exposure of DNL 65 to 75 dBA in residential areas as "significant" and DNL 75 dBA or more as "severe". This terminology is disingenuous, implying that noise levels lower than DNL 65 are insignificant.

The vast majority of NextGen noise complaints across the country originates from communities far beyond the DNL 65 noise contour, often from areas located 20 or more miles away from an airport. As far as residents are concerned, NextGen has had a significant impact on their lives.

As an example, a location with a current DNL of 59 would have to have 4X its current number of aviation noise events to reach the FAA’s definition of “significant” noise. This is an absurd requirement, especially for areas where communities already voice that their exposure is currently “too much”.

#### **Separate Noise Remediation Programs from the DNL 65 dBA Standard**

The FAA may be reluctant to abandon the use of DNL 65 as its decision-making standard because current regulations obligate the FAA to perform costly abatement programs for residents living in the 65 dB DNL contour, which is typically within a few miles of an airport. The abatement program is important for communities living close to an airport. However, residents living away from airports are not asking for sound insulation. This will not help residents who could open their windows and experience the outdoors before NextGen was implemented. These residents want the FAA to use technology and procedure design to reduce aircraft noise over their homes.

The definitions of significant impact and DNL 65 standard must be reviewed in the context of NextGen complaints and alternative metrics. Noise remediation programs should be discussed independently.

## Additional FAA Considerations - Supplemental Metrics and a Single System

In addition to fulfilling The Aviation Safety and Noise Abatement Act (ASNA) in context of NextGen implementations and the items in the report, the FAA should address the following in its consideration of supplemental metrics and a single system for measuring noise:

- Update FAA’s current definition of “cumulative impact” to encompass air traffic from all airports within a 50-mile radius of a community and be part of a better “single system” to measure noise. Currently the definition is restricted to aircraft traffic to and from one airport, even if aircraft from other airports overfly the same communities (as is often the case).
- The dramatic increase in aircraft noise complaints from communities nationwide since NextGen must be considered in ‘people’s response to noise’. Impact should be in terms of noise levels and number of aircraft events (absolute numbers or changes) experienced by people.
- Explain how the FAA validates its noise models used in the environmental review process of NextGen procedures implemented over communities that are not located within 5 miles of an airport.
- Address ambient noise in the FAA noise models given today’s technology can distinguish airplane noise from ambient noise with far greater precision than in the past. This information can be used to better model people’s responses to airplane noise and to define standards that more effectively mitigate those responses. Therefore,
  - Report aircraft noise DNL values in relation to ambient noise levels and express the DNL increase due to aircraft noise as a multiplier of the ambient noise level (for instance, a 3 dB DNL increase due to aircraft noise is a doubling of the ambient noise level).
  - Report N-Above metrics in 3 dB ranges starting at ambient noise level.
- FAA noise modeling should correlate the estimated noise predictions with noise measurements on the ground under real-world conditions. It is not enough to base the predictions made by the model on how pilots are supposed to fly and under the weather conditions assumed by the model. The model needs to predict noise experienced by residents under real-world conditions, including how and where pilots actually fly, in varying temperature and wind, and including airframe noise.
- Use sones to rate sound levels.
- 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.<sup>16</sup>

### Who is responsible for the effects of aviation impacts on communities?

- Administrator Stephen Dickson told a Senate committee on June 6th, 2020 “Our space is aviation safety, and their space is public health.”<sup>17</sup>
- FAA Mission: Our continuing mission is to provide the safest, most efficient aerospace system in the world.<sup>18</sup>
- What is NextGen? The Next Generation Air Transportation System (NextGen) is the FAA-led modernization of America's air transportation system to make flying even safer, more efficient, and more predictable.<sup>19</sup>

<sup>16</sup><https://www.euro.who.int/en/health-topics/environment-and-health/noise/publications/2018/environmental-noise-guidelines-for-the-european-region-2018>

<sup>17</sup> USA Today, June 6th 2020, Only 'guidelines': FAA won't make wearing of face masks on airlines mandatory

<sup>18</sup> FAA website, <https://www.faa.gov/about/mission/>

<sup>19</sup> FAA website, [https://www.faa.gov/nextgen/what\\_is\\_nextgen/](https://www.faa.gov/nextgen/what_is_nextgen/)

## **Conclusion**

The FAA's April, 2020 Report to Congress on the evaluation of alternative noise metrics and 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 an outdated metric and inadequate analytic methods 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 noise exposure and people's response 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 standards.