

FAA Noise Research Program Federal Register Notice

Briefing on FAA Noise
Research, with a focus on the
Neighborhood Environmental
Survey on Aircraft Noise

March 10, 2021



Federal Aviation
Administration



Introduction

Noise Research Federal Register Notice

- FAA released a Federal Register Notice to provide an overview on the agency's noise research programs alongside the results of the Neighborhood Environmental Survey (the "Survey")
- We are seeking public comment on our research program and the survey results

Aviation Noise

- FAA recognizes that aircraft noise continues to be a challenge and we have a longstanding noise research program focused on the topic
- As a part of our research program, we decided to conduct a national survey to gather data to improve our understanding of the community response to aircraft noise
- Addressing aviation noise will require meaningful collaboration among all aviation stakeholders, and this includes the FAA

Focus

- This briefing will provide context for our research, present an overview of the Survey, and identify next steps as we review our noise policy and engage with stakeholders



Recent Engagement on Aircraft Noise

FAA has made efforts to meaningfully engage communities on noise concerns and will continue to enhance these efforts

- Hired community engagement officers across each FAA region to expand the reach of Regional Administrators into communities
- Working with airports and their noise officers to address legacy community noise concerns
- Working with roundtables across the country to continually provide information and expertise as they have asked for airspace changes
- Working within our air traffic organization to review procedures for reducing noise across the country
- Added research projects to our portfolio to study airspace management concepts to determine if there are options that are safe and may provide a net environmental benefit
- Implemented our noise portal nationwide through our Regional Aircraft Noise and Community Involvement webpages



FAA Noise Research Program - Overview

Effects of Aircraft Noise on Individuals and Communities

- Speech Interference and Children's Learning
- *Neighborhood Environmental Survey*
- Health and Human Impacts Research
 - Impacts to Cardiovascular Health
 - Sleep Disturbance
 - Economic Impacts

Noise Modeling, Noise Metrics and Environmental Data Visualization

- Aviation Environmental Design Tool
- Noise Screening
- Environmental Data Visualization
- Supplemental Noise Metrics

Reduction, Abatement and Mitigation of Aviation Noise

- Aircraft Source Noise Reduction
- Noise Abatement
- Noise Mitigation Research



Purpose and Motivation for Conducting the Survey

The FAA recognizes that aircraft noise continues to be a challenge

- As part of our longstanding noise research program to better understand the impacts of aircraft noise on human health and welfare, we decided that a new national survey should be conducted to gather data to improve our collective understanding of how communities are currently responding to aircraft noise
- The Survey is the first noise annoyance survey conducted by a US federal agency since the Federal Interagency Committee on Noise (FICON) performed an in-depth US Government agency review of human annoyance to noise in 1992
- FAA's goal for the Survey was to obtain updated information about the way people perceive aircraft noise



Neighborhood Environmental Survey

- The agency conducted a nationwide survey of over 10,000 people living near 20 representative airports regarding annoyance related to aircraft noise
- FAA conducted follow-up phone interviews with 2,000 of the respondents to obtain qualitative information regarding individual responses
- The responses to the survey were used to develop a nationally-representative “dose-response curve,” which is a tool that establishes the relationship between annoyance and noise exposure
- ***Results***
 - The survey results show a substantial increase in public annoyance to aircraft noise compared to the data that FAA and other agencies currently rely on to inform noise policy, which was acquired in the 1970s
 - While the results of the survey bring forward new data, they are consistent with the observed trend of increasing noise concerns, and consistent with the results of more recent surveys conducted outside the United States



Neighborhood Environmental Survey Methodology

Airport Selection:

- At the outset, the survey team assembled by the FAA determined to survey communities around a representative set of airports
- 16 airports were statistically chosen to represent configurations found at nation's airports as a whole
- Four additional critical airports were also included

AIRPORT SELECTION – MINIMUM CRITERIA

At least **100 JET** operations per day

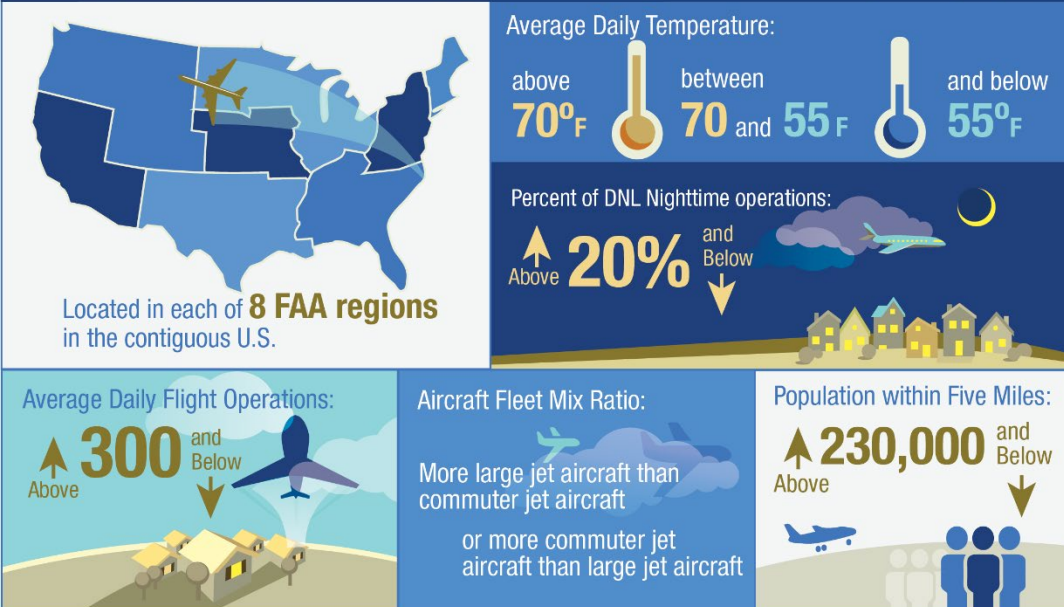


At least 100 households exposed to aircraft noise of **DNL 65 AND ABOVE**

At least 100 households exposed to levels between **DNL 60 DB AND 65 DB**



AIRPORT SELECTION THROUGH BALANCED SAMPLING FACTORS



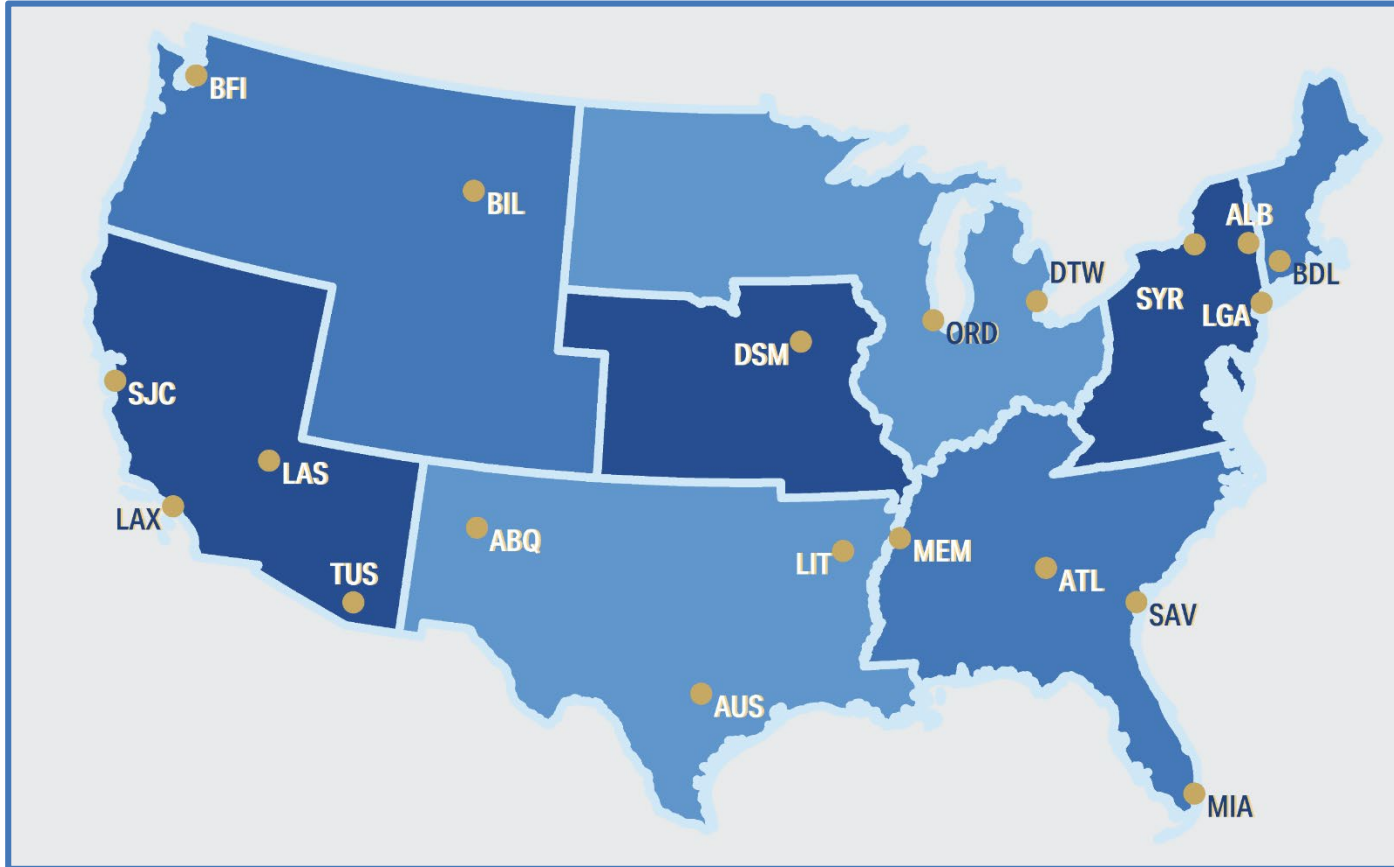
To ensure sufficient sampling, the following criteria were applied to determine eligible airports



Neighborhood Environmental Survey

Selected Airports

At the outset, the survey team assembled by the FAA decided to survey communities around a set of airports that represents the nation's airports as a whole



Airport Code	Airport
ABQ	Albuquerque International Sunport
ALB	Albany International
ATL	Hartsfield - Jackson Atlanta International
AUS	Austin-Bergstrom International
BDL	Bradley International
BFI	Boeing Field/King County International
BIL	Billings Logan International
DSM	Des Moines International
DTW	Detroit Metropolitan Wayne County
LAS	McCarran International
LAX	Los Angeles International
LGA	LaGuardia
LIT	Bill and Hillary Clinton National Airport / Adams Field
MEM	Memphis International
MIA	Miami International
ORD	Chicago O'Hare International
SAV	Savannah/Hilton Head International
SJC	Norman Y. Mineta San Jose International
SYR	Syracuse Hancock International
TUS	Tucson International



Neighborhood Environmental Survey Methodology

Survey Instruments:

- A **mail survey** was issued to participants around 20 airports experiencing a range of DNL noise exposure from aircraft

Rate each on a scale of 1-5, with 5 meaning **"most annoying."**

Thinking about the last 12 months or so, when you are here at home, how much does each of the following **bother, disturb, or annoy** you?

a. Noise from cars trucks or other road traffic	b. Smells or dirt from road traffic	c. Smoke, gas or bad smells from anything else	d. Litter or poorly kept up housing
e. Noise from aircraft	f. Your neighbors' noise or other activities	g. Any other noises you hear when you are here at home. If this bothers or annoys you, what is the noise?	
h. Undesirable business, institutional or industrial property		i. A lack of parks or green spaces	j. Inadequate public transportation
k. The amount of neighborhood crime	l. Poor city or county services	m. Any other problems that you notice when you are here at home. If this bothers or annoys you, what is the problem?	

TOTAL NUMBER OF SURVEY RESPONSES	
DNL dB Categories	Survey Respondents
50-55	3,592
55-60	3,481
60-65	2,016
65-70	914
70+	325
Total	10,328

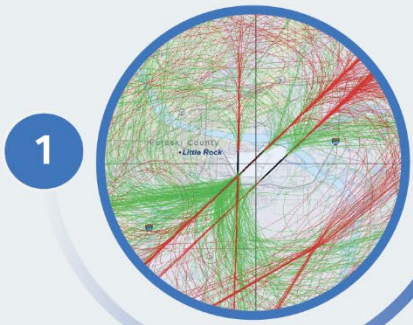
- Questionnaire used a five point scale of annoyance and top two levels (4 or 5 on the scale from 1 to 5) were combined to come up with number of people who are "highly annoyed"
- Since aircraft noise was one of 13 environmental concerns listed, the recipient did not know this was in fact an airport community noise survey
- A follow up **phone survey** was also issued to mail survey participants to gain further understanding why they were annoyed



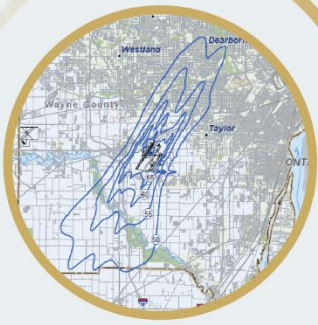
Neighborhood Environmental Survey

Determining DNL

Detailed modeling with INM using **2012-2013 operational data**



Modeling updated with **2015 operational data**



DNL contours generated from **50 dB to 70 dB, in 5-dB increments** to determine potential respondents

DNL computed at **each respondent's address** to associate with their responses

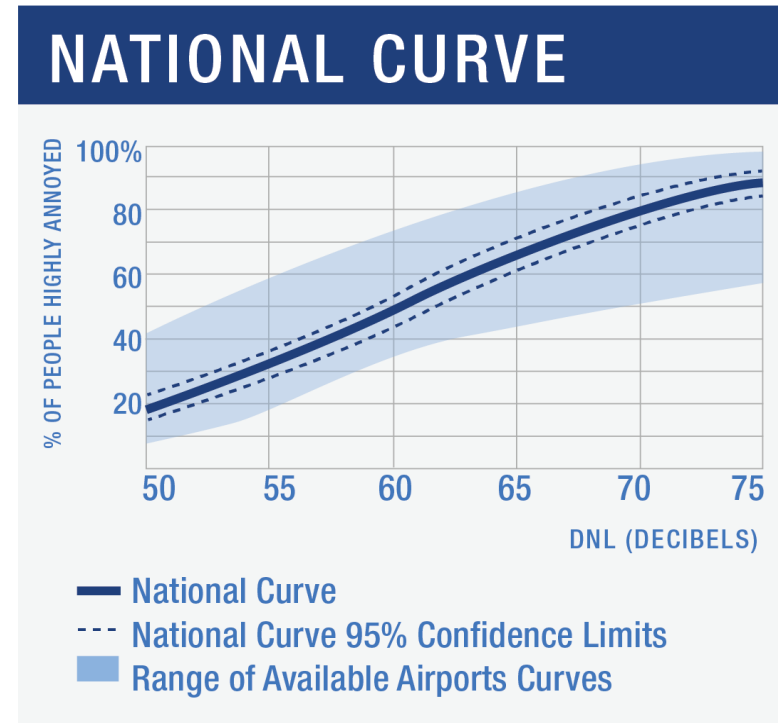
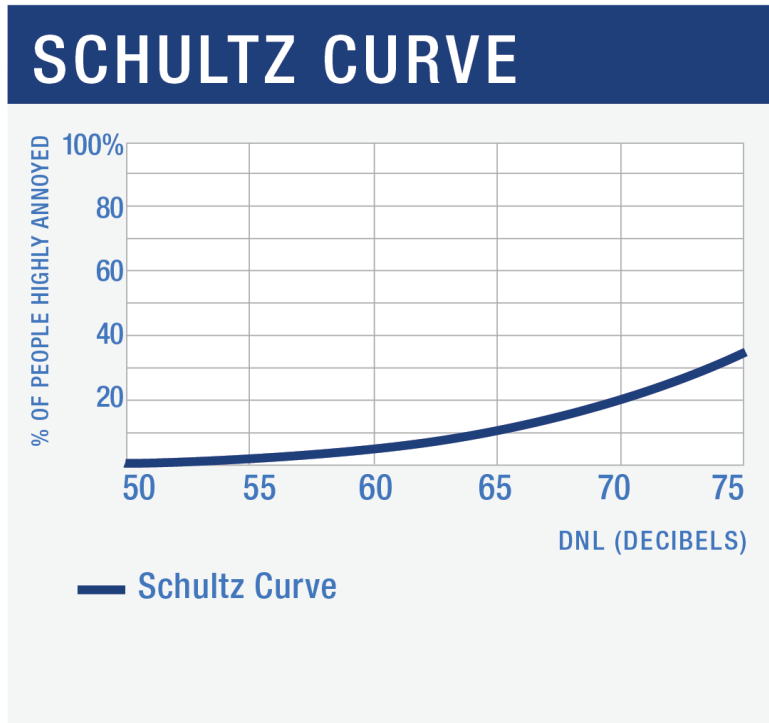


Neighborhood Environmental Survey

Aircraft Noise Annoyance Results

The NES results support an observed increase in Annoyance from Aircraft Noise:

- The results show a substantial increase in annoyance for the population living in the vicinity of airports
- The increase in annoyance is generally consistent across various levels of noise exposure



The new Survey was designed to use a consistent approach across each airport community surveyed. This has allowed for an enhanced ability to provide additional statistical information about the new results, such as the 95% Confidence Limits and range of results from each of the 20 airports, as shown on the plot above. This was not possible with the older Schultz Curve.



Two thousand mail survey respondents participated in a follow-up phone survey which asked more detailed questions that were aimed at understanding the underlying reasons for annoyance to aircraft noise

- While informative, the findings do not have the same statistical robustness as the primary mail survey due to the voluntary nature of the sampling
- A detailed statistical analysis was conducted to identify why people are annoyed by aircraft noise

Phone survey respondents who have experienced being “*Startled,*” “*Frightened,*” or “*Awakened*” by aircraft at home were most likely to be annoyed by aircraft noise.

Those who were bothered, disturbed, or annoyed by “*General Traffic Noise*” and “*Smells*” were also more likely to be annoyed by aircraft noise.

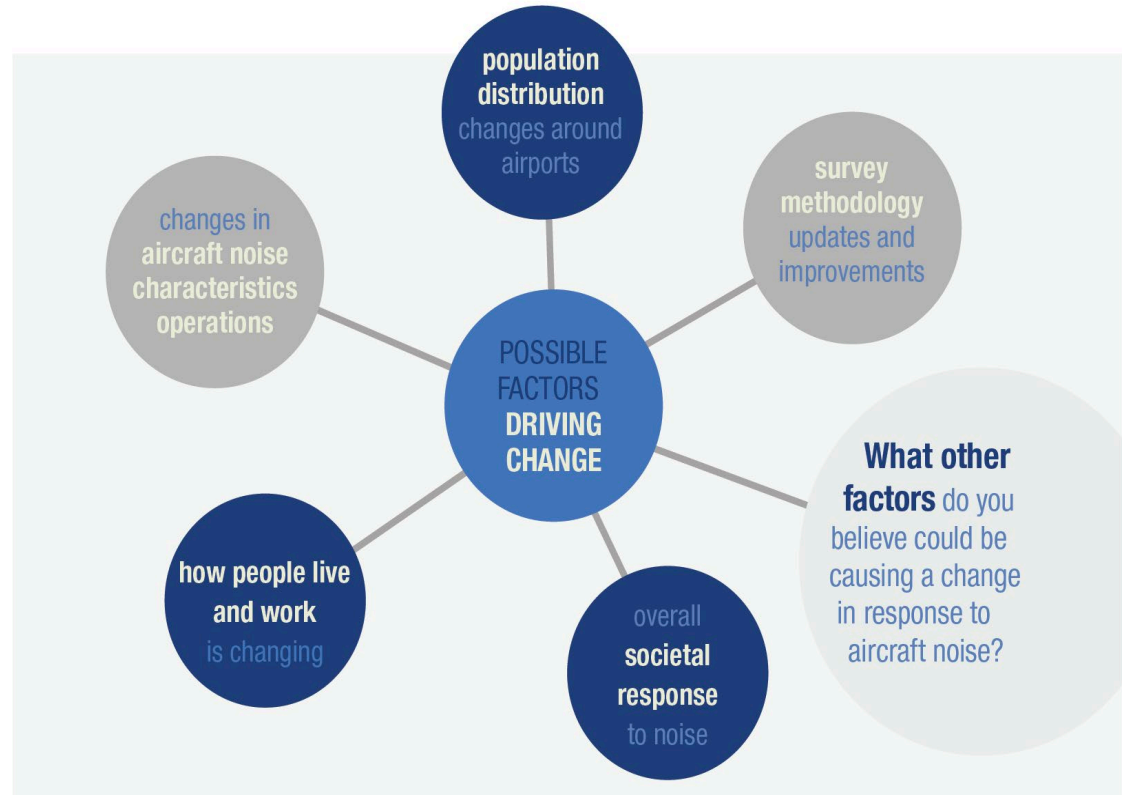


Neighborhood Environmental Survey

What do the Results Mean?

The results of the Neighborhood Environmental Survey show a substantial increase in the level of annoyance to aircraft noise relative to past surveys

- Multiple factors may be driving these changes and public input is requested to inform next steps
- Public and stakeholder feedback on these and other factors will be critical to informing FAA's understanding of the Survey results
- Taken together with the rest of the FAA's noise research program, FAA is seeking to establish a national dialogue on aircraft noise issues



How will the FAA use the Findings from the Survey?

- The Neighborhood Environmental Survey provides data that quantitatively shows that substantially more people are highly annoyed by aircraft noise exposure than in the past
- The FAA will look at the NES findings alongside outputs from other noise research programs and inputs from public and stakeholder comment to inform future actions
- The ongoing research to understand the potential impacts to sleep and cardiovascular health should be particularly insightful

The results of the survey are an important element of a broader portfolio of research and community engagement to investigate and mitigate the impacts of aircraft noise

- The FAA intends to continue reviewing these research findings in combination with public and stakeholder feedback to inform research and policy priorities



Publishing the Federal Register Notice (Notice) is a key first step towards engaging in a conversation with aviation stakeholders about FAA noise policy

- FAA is encouraging the public and other stakeholders to review the Notice and Survey report, and provide constructive comments
- Please note that the Notice and the Survey report provide data that will be used in the upcoming discussion about policy, but is not policy in itself

Timeline

- 60 day comment period on the Federal Register Notice
- Review public comments and identify general themes
- FAA will concurrently identify next steps beyond the Notice and engage with stakeholders as we move forward
- Keep the public and stakeholders up to date as we make progress



Noise Research Federal Register Notice

Public Comment Invited

- The Notice invites public comment on FAA’s noise research program, including the Survey
- Input on three questions is requested through a 60-day comment period
- To help provide additional information on aircraft noise, FAA’s existing noise policy, and a detailed overview of the methodology and results of the Neighborhood Environmental Survey, a website has also been made available at www.faa.gov/go/aviationnoise



Factors that may be contributing to the **increase in annoyance** shown in the Survey results



Additional investigation or analysis on:

- Effects of Aircraft Noise on individuals and Communities
- Noise Modeling, Noise Metrics, and Environmental Data Visualization
- Reduction, Abatement, and Mitigation of Aviation Noise



Additional categories of **investigation, analysis, or research** that should be undertaken to inform FAA noise policy




Who to contact:

- **Please use the following contacts:**
 - NoiseResearchFRN@faa.gov
 - Comments: Regulations.gov Docket

www.faa.gov/go/aviationnoise

Aviation Noise

 FAA conducted a nationwide survey regarding annoyance related to aircraft noise and seeks public comment. Please review the survey introduction, read the survey report, and provide your comments.



FEDERAL REGISTER


The Daily Journal of the United States Government



 Notice

Overview of FAA Aircraft Noise Policy and Research Efforts: Request for Input on Research Activities To Inform Aircraft Noise Policy

A Notice by the Federal Aviation Administration on 01/13/2021

 This document has a comment period that ends in 33 days. (03/15/2021)

 SUBMIT A FORMAL COMMENT



Federal Aviation
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