



Testimony

Before the Subcommittee on Aviation,
Committee on Transportation and
Infrastructure, House of Representatives

AIRCRAFT NOISE

FAA Should Improve Efforts to Address Community Concerns

Accessible Version

Statement of Heather Krause, Director
Physical Infrastructure

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GAO Highlights

Highlights of [GAO-22-105844](#), a testimony before the Subcommittee on Aviation, Committee on Transportation and Infrastructure, House of Representatives

Why GAO Did This Study

While airports provide access to transportation for millions of people each day, aircraft noise can be disruptive to communities. It can potentially expose residents to a variety of negative effects, such as disrupted sleep and health issues, and spur community objections to airport operations and growth. FAA has a responsibility to balance the growing demand for aviation capacity against the effects of aircraft noise on the environment and communities. It works to address noise concerns by (1) ensuring that aircraft meet federal noise standards, (2) assessing potential noise effects of proposed flight path changes, and (3) conducting community outreach on the potential noise impacts of such changes, among other efforts.

This statement describes FAA's efforts to engage with communities on aircraft noise concerns related to PBN implementation, among other issues. It is based largely on GAO's 2020 and 2021 work on aviation noise, including [GAO-21-103933](#). To update this work, GAO reviewed information from FAA on its efforts to implement GAO's recommendations.

What GAO Recommends

GAO made several recommendations in prior reports, including that FAA develop and use supplemental noise metrics, improve community engagement efforts, and enhance information sharing. FAA expects to take steps to implement them by the end of 2022. Continued attention is needed to ensure they are fully addressed.

View [GAO-22-105844](#). For more information, contact Heather Krause at 202-512-2834 or krauseh@gao.gov.

March 17, 2022

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FAA Should Improve Efforts to Address Community Concerns

What GAO Found

Although advances in technology have led to increasingly quieter airplanes, community concerns about aircraft noise have persisted. One concern relates to FAA's implementation of performance-based navigation (PBN), which may concentrate aircraft noise over a smaller area. As part of its effort to modernize air traffic control, FAA has been implementing PBN to allow aircraft to fly more precise flight paths intended to reduce flying time, fuel use, and emissions. Although, over time, FAA has increased its community outreach efforts throughout the PBN implementation process, FAA could improve its outreach to communities about noise concerns both before and after PBN changes.

In particular, FAA uses the Day-Night Average Sound Level (DNL) metric to meet legal requirements in assessing how these more precise flight paths might affect noise levels at various locations surrounding airports. However, this metric does not provide a clear picture of the flight activity or noise levels at a given location. DNL takes multiple components of aircraft noise into account, including the amount of noise from each flight and the average number of flights per day at a given location. Because of this, the same DNL may be associated with vastly different numbers of flights above that location. Small numbers of relatively loud operations, for example, can result in the same DNL as large numbers of quieter operations, as shown below. As a result, information on potential noise impacts FAA provided during outreach efforts—which was grounded in DNL—was not clear enough for communities to understand the planned changes.

Flights per day, by decibel (dB) level	Day-Night Average Sound Level
1 flight per day at 114.4 dB	65 dB
100 flights per day at 94.4 dB	65 dB

Note: For more details, see fig. 1 in GAO-22-105844.

Source: GAO analysis of Federal Aviation Administration information. | GAO-22-105844

Accessible Data for GAO Highlights Flights Per Day graphic

Flights per day, by decibel (dB) level	Day-Night Average Sound Level
1 flight per day at 114.4 dB	65dB
100 flights per day at 94.4 dB	65dB

Furthermore, after implementing PBN, FAA primarily conducts outreach through community forums established to address noise concerns. However, members of some forums GAO spoke with were frustrated and unclear on how to productively engage with FAA to address noise concerns. FAA had provided some public guidance on this process, but it was unclear about the extent to which communities can expect assistance from FAA in proposing changes to flight paths that cause noise concerns.

To improve FAA's efforts to assess noise impacts and engage with affected communities, in September 2021, GAO recommended that FAA (1) identify additional metrics for assessing the noise impacts of new flight paths, (2)

incorporate additional tools to clearly convey expected impacts, such as other noise metrics and visualization tools, and (3) improve guidance for communities on effectively engaging with FAA. FAA expects to take steps toward implementing these recommendations by the end of 2022. Implementing these improvements can help FAA more effectively understand the effects of aircraft noise and address community concerns as the nature and extent of operations in the national airspace system continue to evolve and increase.

Chair Larsen, Ranking Member Graves, and Members of the Subcommittee:

Thank you for the opportunity to testify today on our body of work related to aircraft noise. While airports provide access to transportation for millions of people each day, aircraft noise can be disruptive to communities. It can potentially expose residents to a variety of negative effects, such as disrupted sleep and increased risk for cardiovascular disease,¹ and spur community objections to airport operations and continued growth. Despite trends toward increasingly quieter airplanes, community concerns about noise have persisted, particularly with regard to changing flight paths around airports as part of the Federal Aviation Administration's (FAA) efforts to modernize the national airspace. Moreover, new entrants to the national airspace—such as uncrewed aircraft systems, commonly known as drones—may further contribute to challenges with aviation noise issues. In coordination with stakeholders, FAA works to address noise concerns by conducting research on aircraft noise impacts, ensuring that aircraft meet federal noise standards, overseeing and funding airport noise mitigation projects, and conducting community outreach related to potential noise effects of proposed changes to the national airspace, among other efforts.

My testimony today is based largely on reports we issued in 2020 and 2021 related to aircraft noise.² Specifically, this testimony primarily describes: (1) the transition of the U.S.-based commercial fleet to quieter airplanes and (2) FAA efforts to engage with communities to understand and address aircraft noise concerns. To conduct our prior work, we reviewed relevant statutes and regulations. We also reviewed FAA documents on its application of aircraft noise standards, environmental

¹M. Basner, C. Clark, A. Hansell, J. I. Hileman, S. Janssen, K. Shepherd, and V. Sparrow, "Aviation Noise Impacts: State of the Science," *Noise & Health*, vol. 19, no. 87 (2017) 41–50.

²See *AIRCRAFT NOISE: Information on a Potential Mandated Transition to Quieter Airplanes*, [GAO-20-661](#) (Washington, D.C.: Aug. 20, 2020); *AIRCRAFT NOISE: Better Information Sharing Could Improve Responses to Washington, D.C. Area Helicopter Noise Concerns*, [GAO-21-200](#) (Washington, D.C.: Jan. 7, 2021); and *AIRCRAFT NOISE: FAA Could Improve Outreach through Enhanced Noise Metrics, Communication, and Support to Communities*, [GAO-21-103933](#) (Washington, D.C.: Sept. 28, 2021).

impact analysis and community engagement practices in relation to the agency's implementation of performance-based navigation (PBN).³ We interviewed FAA officials and a range of industry and community stakeholders to discuss their perspectives on the impacts of aircraft noise and efforts to address it. More detailed information on our objectives, scope, and methodology can be found in each of the reports. For this statement we collected and reviewed updated information from FAA on its efforts to implement recommendations we made in our 2021 reports.

We conducted the work on which this testimony is based in accordance with generally accepted government auditing standards. Those standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on audit objectives. We believe the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objectives.

Background

FAA has an ongoing responsibility to balance the growing demand for aviation capacity against the environmental concerns and effects on communities caused by aircraft noise, whether that noise is caused by airplanes, helicopters, or new entrants to the national airspace. To address these concerns, FAA regulates aircraft noise by ensuring compliance with relevant noise standards through its aircraft certification process. FAA is also charged with implementing and enforcing limitations on the noise-related restrictions airports may place on aircraft operations (such as limiting certain types of planes) as well as noise standards for

³Performance-Based Navigation (PBN) involves making changes to existing flight procedures (that is, paths for planes to fly through the air using pre-determined flight maneuvers) to transition from a ground-based air traffic control system to one that uses satellite navigation. PBN procedures enable aircraft to fly a particular flight path more precisely, so aircraft will be closer to the "center line" of a flight path than when using conventional navigation procedures. Our work for [GAO-21-103933](#) focused on PBN implementation at both metroplex projects (major metropolitan areas with multiple airports and complex air traffic patterns for which FAA has redesigned the airspace and deployed PBN procedures for several airports concurrently) and single-site airports (individual airports for which FAA has designed PBN procedures).

airports' noise mitigation projects that can receive federal funding.⁴ FAA administers two programs—the Airport Improvement Program and Passenger Facility Charge program—that may fund airports' noise mitigation projects, including sound insulation of homes and other buildings near airports as well as land acquisitions. We last reported on these programs in 2012.⁵

In addition to FAA, airports, airlines, and other stakeholders have a role in addressing aircraft noise. For instance:

- Most airports are owned and operated by public authorities, such as cities, counties, or port authorities, which have primary responsibility for addressing community concerns about noise. Airports help FAA identify noise sensitive communities as well as participate in mitigation efforts such as funding the installation of sound insulation in homes and buildings exposed to significant aircraft noise. Also, collecting and addressing noise complaints is a shared responsibility between FAA and the airport authorities. Airport authorities generally do not have control over many of the causes of aviation noise such as the types of aircraft in service and traffic volume (generally controlled by airlines) or flight paths (generally controlled by FAA, in coordination with airlines).
- Airlines have a role in addressing aircraft noise concerns by, for example, coordinating with airports and FAA air traffic controllers to participate in voluntary airport noise abatement procedures or by transitioning their fleets to include newer, quieter aircraft.
- FAA has collaborated with helicopter industry groups to develop and update "Fly Neighborly" procedures and guidance, a voluntary set of guidelines that identify helicopter noise mitigation practices.

⁴FAA administers Airport Noise and Access Restrictions (14 CFR Part 161) and Airport Noise Compatibility Planning (14 CFR Part 150). Part 161 requires that certain airport operators receive approval from FAA to implement noise restrictions related to certain aircraft. Through the Part 150 program, FAA provides guidance to airports on the types of land uses that are incompatible with certain levels of airport noise and provides a process for airports to develop noise compatibility programs to reduce and prevent such uses. Airports that participate in this voluntary program can receive funding from FAA through the Airport Improvement Program for noise mitigation projects such as soundproofing buildings.

⁵GAO, *AIRPORT NOISE GRANTS: FAA Needs to Better Ensure Project Eligibility and Improve Strategic Goal and Performance Measures*, GAO-12-890 (Washington, D.C.: Sept. 12, 2012).

Most Commercial Airplanes Are Quieter Than Required

FAA issues what is known as a “type certificate” as part of a certification process for new aircraft designs to signify that the design is in compliance with applicable airworthiness, noise, and other standards. Airplanes are certificated to the noise standards that were in effect at the time of the type certificate application. In August 2020 we reported that, based on FAA data and GAO estimates, most U.S. large commercial jet airplanes were certificated at the minimum required stage 3 noise standards, but nearly all of them would be able to meet more stringent noise standards.⁶ By analyzing January 2020 data from airlines and aviation manufacturers, we estimated that 96 percent of large commercial airplanes were manufactured with technologies that are able to meet more recent and stringent stage 4 or 5 standards. According to FAA officials and aviation stakeholders we interviewed, the primary reason many large commercial airplanes certificated as stage 3 produce lower than stage 3 noise levels is because engine and airframe technology has outpaced the implementation of noise standards. More recently, in response to the decrease in travel amid the COVID-19 pandemic, some airlines have accelerated retirement of certain airplanes, some of which are certificated as stage 3. For example, one airline told us it is retiring its MD-88 fleet—which constitutes the majority of its remaining stage 3 fleet—and MD-90 fleet.

Stakeholders we interviewed generally agreed that a government-mandated transition (i.e. phase-out) of stage 3 airplanes would not substantially reduce airport noise and could be costly and challenging. Since most U.S. large commercial jet airplanes are certificated at the

⁶See [GAO-20-661](#). FAA classifies airplanes that meet the various noise standards into 5 stages. Airplanes classified as stages 1 and 2 (the noisiest aircraft) have been prohibited by regulation and statute respectively from operating in the United States. Airplanes operating today in the United States—classified as stages 3, 4, or 5—are much quieter. The Airport Noise and Capacity Act of 1990 required large jet airplanes to comply with stage 3 noise standards by 1999, leading to a phase-out of the noisiest airplanes (stage 1 and 2 airplanes). Pub. L. No. 101-508, § 9308, 104 Stat. 1388. Additionally, in 2013, FAA promulgated a rule in response to Section 506 of the FAA Modernization and Reform Act of 2012 that required smaller airplanes to comply with stage 3 standards by 2016. Adoption of Statutory Prohibition on the Operation of Jets Weighing 75,000 Pounds or Less That Are Not Stage 3 Noise Compliant, 78 Fed. Reg. 39576 (July 2, 2013) (codified at 14 C.F.R. § 91.881); FAA Modernization and Reform Act of 2012, Pub. L. No. 112-95, § 506, 126 Stat. 11, 105.

minimum required stage 3 noise standards, a phase-out could require recertifying them to comply with stage 4 or 5 standards. This process could be costly for operators and manufacturers but would provide little reduction in noise since we found that nearly all of those aircraft already meet the more stringent noise standards. Further, airplanes currently unable to meet more stringent standards would require modifications or face retirement. For older airplanes that could not be recertified to meet stage 4 or 5 standards, some operators could incur costs for replacement airplanes sooner than originally planned. Although stakeholders indicated that a phase-out would not substantially reduce noise, they identified other limited benefits newer airplanes generate, such as reduced greenhouse gas emissions and fuel consumption.⁷ In addition, some stakeholders noted that factors other than noise from stage 3 airplanes are key contributors to airport noise in recent years. Such factors include a large increase in the number and frequency of flights at some commercial airports in recent years prior to the COVID-19 pandemic and changes to flight paths raising community noise concerns.

Looking to the future, emerging technologies may present opportunities to further reduce aircraft noise. For example, as we reported in November 2020, companies are developing innovative new aircraft designs, including electrically powered aircraft and aircraft with vertical takeoff and landing capabilities.⁸ Among these potential future developments is the concept of advanced air mobility, which is expected to take advantage of the potential lower operating costs of electrified aircraft in support of moving people and cargo more quickly between local, regional, and urban places. According to FAA, significant technological improvements are expected to enable electrically powered aircraft that will reduce noise traditionally associated with helicopter transportation.⁹

⁷At the time of our 2020 report, the U.S. commercial airplane fleet was younger and quieter when compared to the last time the federal government mandated a transition to quieter aircraft. For example, according to February 2020 data we reviewed for passenger and cargo airlines, the average age of the passenger airplane fleet was approximately 12 years, and for the cargo fleet, about 21 years. In comparison, in 2001, we reported that the average age of passenger and cargo airplane fleet was approximately 26 and 31 years old, respectively. See [GAO-20-661](#).

⁸GAO, *AVIATION CERTIFICATION: FAA Needs to Strengthen Its Design Review Process for Small Airplanes*, [GAO-21-85](#) (Washington, D.C.: Nov. 16, 2020).

⁹Federal Aviation Administration, *Concept of Operations, v1.0: Urban Air Mobility (UAM)* (Washington, D.C.: June 26, 2020).

Additional Information and Communication Could Help FAA Better Understand Noise Impacts and Engage With Communities

As directed in the FAA Modernization and Reform Act of 2012, FAA has continued modernizing the national airspace through NextGen, a multi-billion dollar effort to implement technologies and capabilities, including PBN, which relies on satellite navigation.¹⁰ PBN is intended to allow aircraft to fly more precise flight paths intended to reduce flying time, fuel use, and emissions. The precision and predictability of PBN procedures increase safety and may allow more planes to safely fly in a given airspace at the same time or in closer succession, which in turn would allow for increased airspace capacity if demand increases. However, because PBN flight procedures are more precise, noise is likely to be concentrated over a smaller area. As a result, while fewer communities overall may experience noise, those communities directly under new PBN flight paths may experience more frequent noise. Community concerns about increased noise after PBN implementation, among other factors, have led to legal challenges and delays, reducing the realized benefits of PBN.

As we reported in 2021, using additional metrics to assess the potential noise impacts of proposed PBN flight path changes may provide FAA with a better understanding of such impacts.¹¹ Currently, FAA assesses the potential noise impact of proposed flight path changes (such as PBN procedures) on locations within the area surrounding an airport by using the Day-Night Average Sound Level (DNL) metric.¹² Our analysis showed that because DNL takes into account both the amount of noise from each aircraft operation, as well as the average annual flights per day at a given location, the same DNL may be associated with vastly different numbers

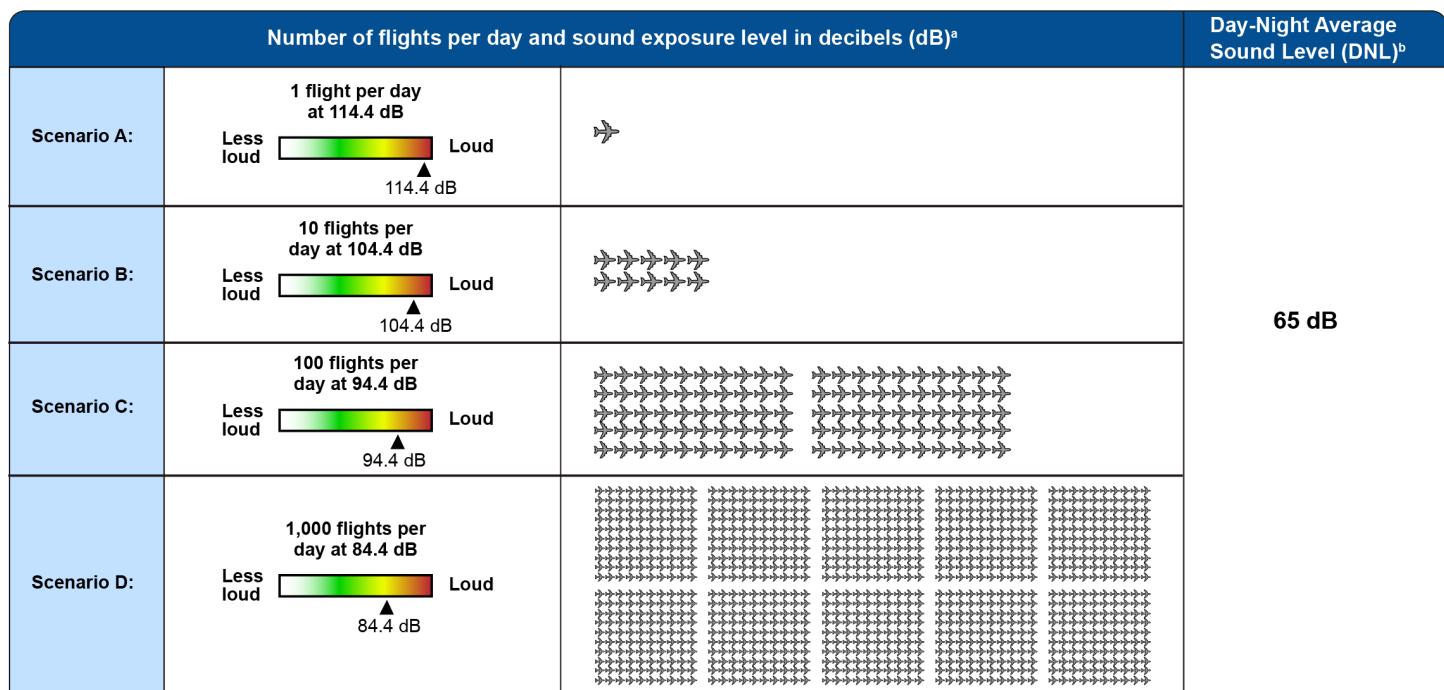
¹⁰Pub. L. No. 112-95, § 213, 126 Stat. 11, 46-50.

¹¹See [GAO-21-103933](#).

¹²DNL is expressed in decibels (dB), which measure the intensity (or loudness) of a sound. The higher the decibel level, the more intense the sound, and the louder it will be perceived. The National Environmental Policy Act of 1969 (NEPA), as amended, implementing regulations, and FAA's implementing Order require FAA to examine the potential impacts associated with a major federal action, including potential noise impacts. As a result, operational changes, such as changes to flight paths, as well as airport development proposals, such as adding new runways or otherwise expanding capacity, must be reviewed to identify potential noise effects.

of flights above that location. As such, DNL does not provide a clear picture of the flight activity or associated noise levels at a given location. For example, as shown in figure 1, 100 flights per day can yield the same DNL as one flight per day at a higher decibel level.

Figure 1: Different Numbers of Flights and Sound Exposure Levels Result in a Day-Night Average Sound Level (DNL) of 65 Decibels



Source: GAO analysis of Federal Aviation Administration information. | GAO-22-105844

Accessible Data for Figure 1: Different Numbers of Flights and Sound Exposure Levels Result in a Day-Night Average Sound Level (DNL) of 65 Decibels

Number of flights per day and sound exposure level in decibels (dB) ^a	Number of flights per day and sound exposure level in decibels (dB) ^a	Day-Night Average Sound Level (DNL) ^b
Scenario A:	1 flight per day at 114.4 dB	65dB
Scenario B:	10 flights per day at 104.4 dB	65dB
Scenario C:	100 flights per day at 94.4 dB	65dB
Scenario D:	1,000 flights per day at 84.4 dB	65dB

Note: Sound exposure level (SEL) is a measure of the acoustic energy (that is, the sound pressure) of an individual noise event as if that event had occurred within a one-second time period.

^aDecibel (dB): A measure of sound intensity, or loudness.

^bDay-Night Average Sound Level (DNL): A cumulative measure of aircraft noise exposure at a particular location.

This analysis as well as recent research published by FAA demonstrate the limitations of FAA relying solely on DNL to identify potential noise impacts. In January 2021, FAA issued the results of a survey showing a substantial increase in the percentage of people who are highly annoyed by aircraft noise, including at lower DNL levels, as compared to earlier survey results. According to FAA, one factor that may have contributed to this increase is changes to the nature of noise exposure, such as changes to the number of flights overhead. Since no single metric can convey different noise effects, using additional metrics—such as changes in number of flights overhead—in designing proposed flight paths could help FAA identify and address potential noise concerns and better facilitate PBN implementation. We recommended that FAA identify appropriate supplemental noise metrics and circumstances for their use to aid in FAA's internal assessments of noise impacts related to proposed PBN flight path changes. As of March 2022, FAA said it is conducting a noise policy review and plans to consider whether and under what circumstances supplemental, companion, or alternative noise metrics are appropriate to inform research and policy considerations. FAA plans to complete their initial noise policy review by the end of 2022.

Over time, FAA has increased its community outreach efforts through the PBN implementation process. For example, at locations where PBN was implemented first, FAA only conducted briefings with airport officials. For later locations, however, FAA started to conduct more outreach with members of the public, including public workshops and webinars among other outreach activities. However, FAA could improve the public outreach it conducts prior to implementing PBN procedures. We reported that most community stakeholders said the information FAA provided on potential noise impacts during outreach efforts throughout the PBN-implementation process was not clear enough to understand the planned changes. For instance, because FAA described the impacts in terms of DNL, communities may not have had the information needed to understand how the number of flights over each location was expected to change. We recommended that FAA update guidance to incorporate additional communication tools that more clearly convey expected impacts, such as other noise metrics and visualization tools related to proposed PBN implementation. As of March 2022, FAA said it plans to update guidance on community outreach by the end of 2022.

FAA has also faced challenges in its outreach after implementation of PBN procedures. After implementing PBN, FAA primarily conducted outreach through community forums established to address noise concerns. However, members of some forums we spoke with were frustrated and unclear on how to productively engage with FAA to address noise concerns. FAA had provided some public guidance on this process, but it was unclear about the extent to which communities could expect assistance from FAA in proposing changes to flight paths that cause noise concerns. For example, FAA's guidance advises that FAA's Air Traffic Organization can provide technical expertise on airspace procedural design when requested, but is unclear about the extent of the assistance available. We recommended that FAA provide clearer information to airports and communities on what communities can expect from FAA related to post-implementation outreach, including the technical assistance FAA can provide. As of March 2022, FAA said it plans to develop an appropriate process and post-implementation outreach tools by the end of 2022.

In addition to its PBN-related outreach, FAA has established positions within regional offices and headquarters to collect and respond to community complaints about aircraft noise. Within the Office of Policy, International Affairs, and Environment, the Aviation Noise Ombudsman serves as a public liaison for questions and complaints related to aircraft noise.¹³ Additionally, in response to a requirement in the FAA Reauthorization Act of 2018, FAA established the Community Engagement Officer position within each of FAA's nine regional offices to serve as a regional ombudsman and coordinate public outreach with the appropriate FAA officials.¹⁴ As we reported in 2021, FAA officials told us the agency seeks to respond to and address the noise complaints it

¹³The Ombudsman was established by the Federal Aviation Reauthorization Act of 1996. Pub. L. No. 104-264, § 1210, 110 Stat. 3213 (codified at 49 U.S.C. § 106(q)).

¹⁴The FAA Reauthorization Act of 2018 required FAA to designate a regional ombudsman for each of FAA's regions. Pub. L. No. 115-254, § 180, 132 Stat. 3186, 3230. In addition to the regional noise ombudsmen, FAA also has a noise ombudsman, which is a separate national position that serves as a liaison with the public on issues regarding aircraft noise. FAA has also formed a Noise Complaint Initiative group consisting of representatives from across FAA with the goal of more efficiently and effectively responding to and addressing noise complaints.

receives, and complaints are generally forwarded to the appropriate regional offices.¹⁵

Related to helicopter noise complaints in particular, in 2021 we reported how FAA and industry stakeholders collect and respond to helicopter noise concerns in the Washington, D.C. area.¹⁶ According to FAA data for 2017 through 2019, over 50 helicopter operators conducted approximately 88,000 helicopter flights within the D.C. area, though limited data on noise from these flights existed.¹⁷ While FAA and operators reported taking steps to address public concerns on helicopter noise in the D.C. area, the ability of FAA and operators to address noise issues in the D.C. area was impeded because they did not consistently or fully share the information needed to do so. FAA receives and responds to complaints on helicopter noise from the public through its Noise Ombudsman and had recently developed online forms that improved FAA's ability to identify and respond to helicopter noise issues. However, according to nearly all of the 18 operators we interviewed, FAA had not communicated with them about helicopter noise or forwarded complaints to them. According to FAA, this was due to limitations on personally identifiable information on complainants that FAA can disclose to private operators. Similarly, operators often received noise complaints from the public that were not directed to the correct operator, but they did not typically share these complaints with FAA. As a result, operators had not consistently responded to residents' inquiries about helicopter noise and activity. For example, Fairfax County Police Department officials estimated that over 80 percent of noise complaints they received were unrelated to their flights, and thus they were unable to determine the source of the noise that spurred the complaint.

We recommended FAA develop a mechanism to exchange helicopter noise information with operators in the D.C. area. As of March 2022, FAA officials said they were working to identify a mechanism to share complaint data with helicopter operators in the area. FAA officials also stated that they plan to conduct quarterly meetings in the area with local helicopter operators to examine trends in helicopter complaint data and

¹⁵For additional information, see [GAO-21-103933](#) regarding the handling of noise complaints related to airports and [GAO-21-200](#) regarding the handling of noise complaints related to helicopters.

¹⁶See [GAO-21-200](#).

¹⁷The D.C. area was defined in our report as the area within 30 miles of Ronald Reagan Washington National Airport.

discuss helicopter noise mitigation efforts. FAA officials said they plan to begin holding and facilitating these meetings in spring 2022. Although our work related to helicopter noise focused on the Washington D.C. area, other cities may experience similar concerns about heavy helicopter traffic and, in general, seeking to increase communication among FAA, operators, and stakeholders may assist in addressing their concerns.

As FAA continues in its efforts to expand the use and types of uncrewed aircraft systems and other emerging technologies into the national airspace system, these new aircraft could present new noise challenges. For example, electric take-off and landing vehicles have the potential for quieter operations but may also operate closer to populations and raise new concerns for communities. FAA stated in 2020 that stakeholder concerns about noise will need to be considered when designing corridors (defined airspace) where these aircraft might operate.¹⁸ In addition, continued growth in commercial space launches is expected, but as we reported in 2020, stakeholders have expressed concerns that FAA's process for licensing launch sites may not adequately consider combined noise effects of commercial space activities with aviation activities on surrounding communities.¹⁹ Assessing and addressing community noise concerns will be critical as the nature and extent of aircraft operations continues to evolve and increase. Fully implementing our prior recommendations can help FAA more effectively understand the effects of aircraft noise and address community concerns.

Chair Larsen, Ranking Member Graves, and Members of the Subcommittee, this concludes my prepared remarks. I would be pleased to respond to any questions that you may have at this time.

GAO Contact and Staff Acknowledgements

If you or your staff have any questions about this statement, please contact me at (202) 512-2834 or krauseh@gao.gov. Contact points for our Offices of Congressional Relations and Public Affairs may be found on the last page of this statement.

¹⁸Federal Aviation Administration, *Concept of Operations, v1.0: Urban Air Mobility (UAM)* (Washington, D.C.: June 26, 2020).

¹⁹GAO, *COMMERCIAL SPACE TRANSPORTATION: FAA Should Examine a Range of Options to Support U.S. Launch Infrastructure*, [GAO-21-154](#) (Washington, D.C.: Dec. 22, 2020).

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