

RESPONSE TO COMMUNITY QUESTIONS FROM MARCH 8 COMMUNITY MEETING

This document is a response by Freytag & Associates, LLC to “COMMUNITY QUESTIONS FROM THE DCA AIRPLANE AIRCRAFT NOISE PROJECT MARCH 8 COMMUNITY MEETING”. These questions fall into the following two general topic areas:

- Changes in aircraft, flight hours and arrival/departure procedures to reduce the impact of aircraft noise affecting District of Columbia residents
- Use of field noise measurements in the District to assess noise exposure

BACKGROUND

The Federal Aviation Administration (FAA) is charged by their parent organization, the Department of Transportation, to establish, maintain and protect an effective air transportation system throughout the country at all times. The three principle FAA objectives are:

- Maintain a safe air traffic control system at all times,
- Maintain an effective, reliable, and efficient air transportation system at all times, and
- Minimize adverse environmental impacts on communities (principally air and noise pollution)

In order to achieve these objectives, the FAA has overall control over the air traffic control system which may not be preempted by local governments. This ultimate control was fully documented in the Airport Noise and Capacity Act (ANCA) of 1990 in response to a barrage of aircraft control legislation by local governments. Briefly, the Act did two things:

- Mandated phased retirement of all noisier aircraft (Stage 1 and 2 aircraft) by YR2000.
- Prohibited any new “access restrictions” by local governments, while grandfathering some controls established before the Act, without passage of a (extremely onerous) FAA Part 161 study (none has ever been accepted by the FAA).

Access restrictions are anything “...which affects the operation of aircraft and which has the effect of controlling noise.” Thus, curfews or any change in hours of operation, types of aircraft allowed, and operational procedures (e.g., throttle cutback, downwind takeoffs) may not be mandated by the District. While this limits our options for mitigating noise exposure, the FAA felt that it was necessary to preserve the National Air Traffic Control (ATC) system from local prohibitions by nearly every airport in the country- all of whom have communities significantly impacted by aircraft noise.

OPTIONS FOR REDUCING AIRCRAFT NOISE IN THE DISTRICT

The NextGen implementation in the District and other Metroplexes first addressed the FAA goals of safer and more efficient air transport. NextGEN is a new national airspace system transforming America’s air traffic control system from ground-based navigation/radar with radio communication, to a satellite-based (GPS) system. The FAA did not focus on the noise effects of the NextGEN implementation initially because traditional noise impact mitigation was relegated only to higher noise exposure areas (i.e., 65 Day-Night average sound level (DNL) and above) which are seldom affected by NextGen route changes due to their proximity to the airport property.

The FAA has subsequently realized the increased impact at the two dozen Metroplexes throughout the country and established new noise impact criteria based on increased noise. They now accept noise assessments in terms of certain supplemental metrics. The new impact criteria from FAA Order 1050.1f are:

- A 3 dB increase in areas between 60 DNL and 65 DNL, and
- A 5 dB increase in areas between 60 DNL and 65 DNL

This study is pursuing a number of options, acceptable to the FAA, for identifying and mitigating adverse effects of aircraft noise. We will be conducting studies using two supplemental metrics recognized by the FAA in accordance with American National Standards Institute: sleep interference and classroom disruption. Among the options investigated in our study are:

- Departure and/or arrival route flight track and/or altitude modification
- Throttle adjustments for aircraft departures
- Arrivals: Optimized Profile Descent (OPD)
- Arrival traffic management: In-trail sequencing – inbound flights
- New and more precise Area Navigation (RNAV) procedures
- Amend descent profiles to fix
- Reduce track miles and amend track speed
- Minimize delayed vectoring

NOISE MEASUREMENTS AND NOISE MODELING

The FAA has been conducting Airport Noise Compatibility programs for more than 30 years. These programs only address noise exposure in areas with a day-night average sound level (DNL value) of 65 dB or greater (the District is entirely within areas below 65 DNL). These studies work with the communities to educate the public on aircraft noise and its regulation, mitigate noise impact and define noise exposure areas to assist communities with zoning. All FAA studies are based upon computer noise modeling, supplemented with noise measurement at a few locations. Thus, computer noise modeling rather than noise measurement is the basis for FAA noise impact assessment. The reasons for this are:

- Noise measurements only define the noise exposure at a single location, and cannot be reliably extrapolated to other locations,
- Noise measurement can only measure noise exposure during a specific measurement period. Any particular measurement period cannot characterize average annual noise exposure, the metric used for noise impact assessment. Noise exposure varies from day to day, under various runway uses and wind conditions, seasonally, etc.
- Noise measurements must be made using a proper noise measurement (integrating) metric to account for both the level and duration of flyover events, with calibrated and certified equipment, and in conditions which minimize the effects of local shielding and local reflections.

Therefore, noise assessment for this project is necessarily primarily based upon computer modeling using the FAA standard Aircraft Environmental Design Tool (AEDT) computer program. Exterior noise measurements will be made to verify noise modeling results and to assess the noise impacts of sleep interference and classroom disruption.

SPECIFIC QUESTIONS AND CONCERNS WITH RESPONSES

1. Some of the community members are more concerned about measuring noise in their community than the other main project activities.
 - a. *Noise modeling is the preferred noise assessment tool.*
2. Some of the community members did not understand the reason for being unable to push the aircraft route back over to the pre-NextGen routes.
 - a. *NextGen reorganized the entire air traffic routing for all traffic from all airports throughout the Metroplex. Often prior routes could no longer be used due to conflicts with new routes.*
3. Northbound takeoffs cause the most disturbance. Southbound traffic patterns should continue until there is a 3+ knot effective tailwind component.
 - a. *For safety reasons, individual piloting techniques such as tailwind departures on departure are at the discretion of the pilot, and may not be mandated by the FAA or the community.*
4. A local ordinance that establishes a lower decibel threshold than current FAA guidelines would help keep older and louder planes out of DCA.
 - a. *Local ordinances such as mandating lower noise levels are prohibited under ANCA.*
5. It's really not ok to have scheduled takeoffs and landings before 7AM or after 10PM.
 - a. *Local ordinances such as noise curfews are prohibited under ANCA.*
6. Many pilots shooting the river approach seem to cut the corner over Palisades and Georgetown.
 - a. *A large part of our investigations will be to review all actual air traffic routing by reviewing radar records of all flights. This will identify deviations from the published ATC procedures. The noise modeling will input the actual routes flown, and not simply those from the published routes.*
7. Certain airports (like SNA) seem to have very particular lower-power climb out procedures over populated areas; maybe that could be applied here.
 - a. *We may recommend such throttle cutbacks if they would reduce community noise impact. However, this may be implemented on a voluntary basis because the pilot has final authority over the safe operation of the aircraft. The procedure at SNA is from an agreement between the airlines and the airport, with FAA approval.*
8. How about a land swap with Andrews AFB?
 - a. *An interesting idea, but beyond the scope of our study. The military has a base reuse program for its retired facilities, and airports such as Bergstrom, Austin, TX, has converted that AFB for civil use.*
9. As I said last night, I believe the provisions in the Freytag contract for actual noise measurements are too skimpy (two schools and three homes for three days). In order to satisfy the community's need to know what the actual noise levels are, and for future use in our litigation, we should measure at least four schools that are under the flight path: Holy Trinity Elementary; Georgetown University; Georgetown Day School; and the Lab School.

- a. *As mentioned above, noise modeling is the preferred noise assessment tool. Field noise measurements are supplemental to the study.*
- 10. Three homes may also be insufficient to determine sleep disruption.
 - a. *The results of the sleep study may be generalized to other areas because the exterior aircraft noise event levels will be recorded. Every home has slightly different noise insulation characteristics. So, interior noise levels and attendant sleep disturbance may be computed. Results of the sleep study will address the issue more broadly.*
- 11. The length of time for the noise measurements also appears to be too short for purposes of potential litigation.
 - a. *Noise modeling (not noise monitoring) is the preferred noise assessment tool. Noise monitoring is primarily to verify modeling results. No reasonable monitoring period may sufficiently document the desired average annual conditions.*
- 12. Consideration of the nighttime noise restrictions.
 - a. *Local ordinances such as noise curfews are prohibited under ANCA.*
- 13. All aircraft but the CRJ200s and ERJ145s create more noise in real life situations (as opposed to artificial and suspiciously extrapolated lab/model situations) than is and/or should be allowed.
 - a. *The noise source data in the AEDT computer model is from precise noise measurements made by the FAA in noise-certifying each civil aircraft type for use in the U.S. (14CFR36). The AEDT model considers altitude, location, airspeed, throttle setting, meteorological conditions, flap settings and other factors in modeling the noise. Further, individual flight operations will be measured and checked against the noise model.*
- 14. The representatives of this company gave me the impression at times that they were hired by the FAA.
 - a. *Freytag & Associates, LLC was not "hired by the FAA". DOEE is our only client on this project and we do not intend to speak with the FAA until the end of the project when the DOEE may request our support in meeting with them to implement our recommendations.*
- 15. The answer for the example Freytag & Associates, LLC gave to the gentleman who suggested that airliners use older noisier planes on routes where airports were not in high density zones was dismissive and not to the point.
 - a. *We regret that the response at the meeting seemed dismissive. As mentioned above, local mandates for replacement of specific aircraft are prohibited under ANCA.*
- 16. One point I did not understand is why "we cannot move air traffic routes and transfer the problem to another neighborhood": although I agree in principle, we have very good reasons to ask for a change of routes (and not simply altitudes) and we should pursue this possibility as well.
 - a. *Route changes, in both departure and arrival procedures, are part of the study.*

17. We (the District of Columbia citizens) were the victims of noise transfer three years ago. The study should show that the subsequent flight path change now affects a larger population than before.
 - a. *There is no environmental mandate for reapportioning noise impact according to population size. The “change” in the noise environment, rather than simply the “absolute” noise environment, is now considered with FAA Order 1050.1F mentioned above.*