Aircraft Noise in District 60





Rep. Kim Schofield Town Hall– 2/24/2021 Ambrose W. Clay, Councilman, College Park, GA A. W. Clay SchofieldTownHall20210223b

Agenda



- Aircraft Noise Types
- College Park as an Example
- KATL West Side Flight Paths
- Satellite (GPS) Navigation
- Departure Noise Measurements
- KATL East Side Flight Paths
- KATL Major Flight Paths (Big Picture)
- FAA's Noise Annoyance Metric DNL
- Noise "Facts"
- Considerations for a New Noise Metric

Aircraft Noise Types



- Over-flight Noise from Take Offs Passing Roar
- Over-flight Noise from Landings Passing Whoosh
- Ground Noise from Landings 15 Sec Loud Roar
- Ground Noise from Taxiing Continued Whine
- Ground Noise from Take Offs Loud Roar Fading
- College Park Will Be Used as an Example



College Park As An Example









KATL East-Flow Arrival Paths





Satellite (GPS) Navigation



- NextGen with Satellite (GPS) navigation has created welldefined departure tracks with dispersion about their ground level projection of 0.1 mile (1 city block), or less – i.e., *Expressways in the Sky*.
- Precision flying and tracking enables controllers to reduce separation between aircraft. At ATL, for runway 26L, rush hour ("Push") departures have been observed as frequently as every 35 seconds, with 45 seconds being more typical.
- Even if existing Flight Tracks are not relocated, Citizens located directly "beneath" departure tracks *newly* experience more frequent over-flights, at regular intervals, concentrated in very narrow corridors.

Departure Noise Measurements (An Example)



- Measurements were made at the GICC about 1 mile from the end of runway 26L, and 0.05 miles from the departure path flight projection on the ground.
- "A-weighted" measurements were made for 9 minutes with a Type 2 calibrated microphone. The typical minimum sound level between overflights was about 43 dB – the *Noise Floor*.
- 10 aircraft were recorded in 9 minutes.
- During this moderate departure period, some over-flights produced 40 dB sound level shifts above the *Noise Floor*.
- At one busy hour peak, 4 planes departed, 35 seconds apart. Typical peaks have planes departing every 45 seconds for extended periods lasting 20 - 30 minutes, or more.

Departure Noise Measurements (cont.)





Departure Noise Measurements (cont.)

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KATL West-Flow Arrival Paths





KATL Major Flight Paths





- FAA's current metric for aircraft noise annoyance "averages" dB levels for a simulated mix of flights throughout a 24 hour day, with a 10 dB penalty added for noise from flights after 10 PM and before 7 AM.
- Peak levels of noise are accounted for only by their effect on the average. The amount of change in noise level during noise events (i.e., during over-flights) is not considered.
- The "A Weighting" aspect of the DNL metric discounts low frequency noise that nonetheless is palpable and that also can induce audible noise through structural vibration (rattling the teacup on the shelf), "C" weighted readings being typically 10 – 12 dB higher.

Noise "Facts"



- Quiet Neighborhood = 45 dB
- Conversation = 60 65 dB
- Noise from MD80 flying 1,000 feet above = 80 dB+
- A 10 dB decrease in sound seems ½ as loud
- Sound Transmission Loss of untreated house = 20 dB
- Sound Transmission Loss of "sealed" house = 30 dB
- Sound decreases inversely with square of distance
- Distance is function of altitude & ground distance
- Sound 3,163 ft below flight is 10 dB less than if at 1,000 ft
- Sound 1,000 ft below flight is 10 dB less if 3,000 ft off-track

Considerations

For a New Noise Metric



- With the notable increase in annoyance to aircraft noise reported in the January release of the FAA's Neighborhood Environmental Survey (NES), now is the time to recommend changes to the current FAA noise [dose-response] metric that is used to predict annoyance, so as to account for:
 - The psychological impact of frequent, significant noise spikes, often occurring at regular intervals for an extended period, multiple times per day
 - The physiological impact of infrequent, significant noise spikes occurring when people are trying to sleep.
- Public Comment must be received by March 15, 2021

Considerations

For a New Noise Metric (Cont.)



- Noise Type
 - "Overhead Noise" (Takeoff & Landing C Vs A Weighting)
 - "Ground Noise" (C Weighting)
- Intrusiveness
 - Noise Floor (Ambient Noise No Aircraft in dB)
 - Number and Magnitude of Excursions (dB) above Noise Floor
 - Average Noise Level During a Compressed Flight Period (Flights Packed Close Together – a "Push")
 - Interval Between Excursions During a "Push"
 - Duration of "Push"
 - Number of "Pushes" per Day
 - Consideration of above factors when occurring at night

Contact Information



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Backup Slides

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Noise "Facts" (cont.) Altitude Vs Off-Track Location





Distance Off-Track

NextGen Noise Impacts On Quality of Life



- During waking hours, significant changes in sound level, repeated frequently at a regular interval during a rush-hour, are perceived like a *Noise Blitz* by those beneath it.
- At night, infrequent, significant changes in sound level interfere with sleep, yet they have very little impact on the average dB level described by the FAA DNL noise metric.
- Recent research appears to show a relationship between sleep disturbance and a number of illnesses.