PDK Noise/Operations 101
DeKalb-Peachtree Airport

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Brief History

Camp Gordon (1917-1921)
- WWI

Naval Air Station Atlanta (1942-1959)
- WWII

DeKalb-Peachtree Airport (1959-Present)
- Public-Use
PDK Background

- 2nd busiest airport in the state of GA
- "General Aviation Reliever Airport"

- Only 8 miles from downtown Atlanta
  - Excellent access to Buckhead Financial District
  - Perimeter Financial Districts
    and its northern suburbs
General Aviation

What is general aviation?

- All *civil* aviation except for scheduled passenger airline service

Airport User Mix includes:

- Flight Schools (10 Fixed Wing)
- Helicopter Operators
- Corporate/Business/Charter Operations
- Medical Operators
- Personal/Recreational Flyers
- All News Helicopters
Importance of General Aviation

_weighted_checklist_icon_ Efficiency
- Access multiple destinations in one day
- No TSA, long layovers, early airport arrivals, lost baggage, etc.
- Less congestion at large, commercial service airports

_weighted_checklist_icon_ Time-multiplier
- Able to work in a secure & confidential environment while in-flight

_weighted_checklist_icon_ Access to more destinations
- Most airports in the U.S. do NOT have commercial service

_weighted_checklist_icon_ Cost Saving
- Less dependency on hotels and shorter ground transportation

_weighted_checklist_icon_ Education

_weighted_checklist_icon_ Local Economic Impact (Jobs, Taxes, Attracting Business)
What is an operation?

✈ An operation is One takeoff or landing.
✈ PDK has on average about 350-450 operations per day.

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<tr>
<td>Yearly</td>
<td>151,132</td>
<td>159,066</td>
<td>158,441</td>
<td>187,006</td>
<td>233,233</td>
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<td>Daily Average</td>
<td>414</td>
<td>436</td>
<td>433</td>
<td>511</td>
<td>639</td>
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Airport Movement Areas

✈ 3 Runways
✈ 2 Parallel North-South,
✈ 1 Crosswind NW-SE
✈ Aircraft will always takeoff/land into the direction of the prevailing wind
✈ FAA Control Tower
   (0630-2300L M-F; 0700-2300 Sat/Sun)
✈ FAA has jurisdiction over the airspace and movement area
✈ IFR – Instrument Flight Rules
✈ VFR – Visual Flight Rules
Flights and the role of the Airport

- The Airport does not approve each flight.
- The Airport does not tell aircraft how or where to fly.
- The Airport maintains the ground, not what happens in the sky.
- If a pilot decides he/she wants to hop in a plane and go, he or she can do so. Just as we can do in our cars.
- The airport is not provided with a flight plan or manifest of each flight. Flight plan information goes to the FAA.
- VFR operations do not require flight plans, but IFR operations do.
Airspace and Airport Operations

❖ PDK is in Class D Airspace
  ❖ Extends up to 3500 Ft MSL (3,000 with LOA with ATL Approach)

❖ Airport Traffic Pattern

❖ PDK Airspace Considerations
  ❖ Congestion
  ❖ Other Airports (ATL, Fulton, Cobb, Gwinnett, Dobbins, etc.)
  ❖ Obstructions

❖ Approaches into PDK
  ❖ ILS, GPS-Y, VOR-DME, Visual
Airspace Classification
(Urside down wedding cake)
PDK West Traffic Pattern

Ptree Blvd

I-285

I-85
South Flow Departures
South Flow Arrivals
Example: 21L ILS Approach
- Used on southbound arrivals
- Used during inclement weather (low cloud ceiling, low visibility, etc.)
  - unless winds are strongly from the north
Example: GPS-Y Approach
* 15° Offset from ILS
* Limitations
North Flow Departures
Operations Summary

任何形式的问题吗？
What is Noise?

“A sound, especially one that is loud or unpleasant or that causes disturbance” (Google 2018).

Very subjective

Aircraft/Noise Disturbances can be related to:
- Repetitive Noise (e.g., touch and go ops)
- Loud Noise
- Frequency (e.g., pitch of engine/prop)
- Type (jet, prop, helicopter)
- Duration (e.g., run-ups)
- Time (e.g., night/voluntary curfew)
Sound Measurements

Different measurements exist to quantify noise (LMax, SEL, Leq, etc.)

- SEL → Cumulative sound energy in 1 sec
- LMax → Peak point on a bell curve of sound (think derivative)
- Leq → Average

The **decibel** is a ratio compared with a reference sound pressure.
- Different weighting (A-weighting is what humans can hear)

Sound pressure increases by powers of 10 (Logarithmic)
- 1 → 10 db = \(10x\); 1 → 20db = \(100x\)

Perceived Loudness doubles for every increase of 10 dB
- 60 → 70 db = \(2x\); 60 → 80 db = \(4x\)
LMax Example
Example Decibel Chart

- Limit of hearing (theoretical)
- Normal breathing
- Whisper at 2 meters
- "Silent" library
- Quiet household room
- Moderate rainfall
- Normal conversation
- Busy traffic
- Vacuum cleaner
- Chainsaw
- Passing motorcycle (2 meters)
- Shouted conversation
- Passing ambulance
- Jackhammer at source
- Fireworks at 1 meter
- Loudest possible true sound
- Intolerable
- Threshold of pain
- Hearing loss from repeated exposure
- Hearing damage from prolonged exposure
- Moderate to quiet
- Faint
- Threshold of hearing
Noise Legislation

✦ Airport Noise and Capacity Act of 1990 (ANCA)

✦ Limits how airports can address noise
✦ Airports are prohibited from adopting overly restrictive, or outright punitive, anti-noise ordinances
✦ Phased out Stage 2 Aircraft from continental U.S. airspace
  • Aircraft MTOW > 75,000 lbs: Dec. 31, 1999
  • Aircraft MTOW < 75,000 lbs: Dec. 31, 2015
✦ Grandfathered-in noise restrictions in effect before 1990
Rules about Noise/Access Restrictions

- Must be reasonable, non-arbitrary, and non-discriminatory
- Must avoid creating an undue burden on interstate & foreign commerce
- Must keep airspace safe & efficient
- Avoid conflict with federal law
- Must not create an undue burden on the National Aviation System
Noise FAR Part 150

- Airport Land Use Compatibility Planning
- Noise Exposure Map (NEM)
- Noise Compatibility Program (NCP)

PDK Part 150 Recommendations

- Informal North Flow Preferential Runway Use Program
- 3 Standard Instrument Departures (SIDs)
- Designated Maintenance Run-up Areas
- Updated NOMS and Noise Monitoring Stations
- Land Acquisition and Relocation
- Voluntary Sound Attenuation (Insulation Program)
- Preventive Land Use Compatibility Measures
- Establish & Maintain Noise Information Office
  - Dissemination of info and communication with pilots
PDK Part 150 Recommendations

Departure Procedures

These recommendations involved experimenting with 3 different Departure Procedures (DP) from 2002-2004 that focused on routing aircraft down Buford Hwy up to a certain altitude. These procedures were recommended in the Part 150 Update (1997).

Initiative ultimately was discontinued due to:

- Significant Change in Noise Exposure (+1.5 dBA if DNL > 65 dBA)
- Diversity of Aircraft (significant performance differentials)
- Effect of winds on aircraft course
PDK Part 150 Recommendations

Soundproofing (SIP)

 kes 65 DNL (Day-Night Average)
 kes 24 Hour average sound level in dBA
   • 10 db penalty 10pm-9am
   • Yearly DNL used for Part 150
 kes Cumulative metric – people respond more predictably to cumulative noise rather than single noise events
 kes Public health vs economical/technological considerations

 kes PDK 2016 Noise Contour Map

 kes County BOC did not accept funding for this particular project.
Airport Noise Program

Noise Complaint Hotline

Noise Monitors
- 3 to the south, 1 to the north
- High Noise Event Thresholds
  - NMS 1: 93 dBA LMax
  - NMS 2-4: 90 dBA LMax

Noise & Operations Monitoring System (NOMS)

Monthly Noise Reports
- Presented at AAB meetings and published online

Airport Letter-Writing Campaign

Education
- One-on-One
- AAB meetings
  - ATC & Flight Instructors
- Presentations to Airport Users
- Posters in Fixed Based Operators (FBO) crew planning rooms

PDK Noise Monitor #4
(Heritage Dr near the Globe Academy)
PDK Noise Program

✓ Voluntary Curfew
✓ High Noise Event Monitoring
  ✈ NMS 1 – 93.0 dBA LMax
  ✈ NMS 2-4 – 90.0 dBA LMax
✓ Communication with corporate operators, flight schools, pilots, and the community
Other Initiatives

✈️ GPS-Y Approach
✈️ NBAA Close In Approach & Departure Procedures
✈️ Ground Run-up Procedures in specific locations on the airfield
Noise & Operations Management System (NOMS)

- Allows airport to track flights, complaints, and noise events
  - Flight Data (e.g., altitude, ID, type, speed, origin/destination, operation, PCAs, Flight Track Gates, etc.)
  - Complaint Data (address, number of complaints, etc.)
  - Noise Data (DNL, LMax, SEL, etc.)

- NOMS Demonstration

- Future developments
  - Public-facing Portal
  - Virtual Noise Contours
  - Improved data accuracy (locally-based ADS-B sensor)
Example NOMS Video
Community Challenges

- Metro Atlanta is growing!
- Encroachment/Land Use Challenges
  - Mixed-age development
    - Older 1950/60s homes coupled with brand new development
    - Redevelopment of older neighborhoods – new residents come and go
- Traffic/Road/Train/Urban Ambient Noise
Questions/Comments

❖ https://www.dekalbcountyga.gov/airport (www.pdkairport.org)
❖ https://www.dekalbcountyga.gov/airport/noise-program
❖ https://www.dekalbcountyga.gov/airport/thinking-about-moving-near-pdk