Airport Noise Office

Frequently Asked Questions

1. How do I contact the Airport Noise Office?

   **Web Comment Form:** [http://phl.org/ourcommunity/Pages/NoiseComplaintForm.aspx](http://phl.org/ourcommunity/Pages/NoiseComplaintForm.aspx)

   **Email:** noise@phl.org

   **Phone:** (215) 937-6750

   **Mail:**
   
   Division of Aviation  
   Airport Noise Office  
   Philadelphia International Airport  
   Terminal E  
   Philadelphia, PA 19153

   **In Person (by Appointment):**
   
   Airport Noise and Community Service Office  
   2801 Island Ave. Suite 13  
   Philadelphia, PA 19153

2. What determines which direction aircraft fly in and out of the airport?

   Aircraft take off and land into the prevailing winds. FAA Air Traffic Control determines which runway will be used based on wind and other weather conditions as well as ground conditions, such as runway closures due to periodic maintenance. At PHL, the primary runways face east to west. In east flow, aircraft depart the primary runways to the east; arriving aircraft approach from the west. Generally, east flow conditions occur during periods of inclement weather. Conversely, in west flow, aircraft depart the primary runways to the west and arrivals come from the east. Historically, PHL has operated in west flow about 70% of the time and in east flow about 30% of the time.

   Due to prevailing winds, the FAA Air Traffic Control Tower can sometimes use the same runways for an extended period of time. If there are times that there seems to be a shift in the way airplanes fly over an area, this is usually because the “flow” has changed and different runways are in use.

   The below graphics show actual flight tracks for a day in east flow and a day in west flow.
A regional view of a typical day in east flow. Departures are in blue and arrivals in orange. (Source: Airscene)

A regional view of a typical day in west flow. Departures are in blue and arrivals in orange. (Source: Airscene)
3. **Who controls the aircraft in the sky?**

Airports do not control aircraft in flight. Only the FAA (Air Traffic Control) and the pilot operating the aircraft hold this authority. Specific flight paths are determined based on several factors including weather conditions as well as other air traffic flying in the region.

4. **Why do flights go over residential neighborhoods? Isn’t that prohibited?**

Due to the large number of flights that operate out of PHL, most areas within 30 miles of the Airport will have times when flights go overhead. Where and when this occurs will depend on which runways and traffic flows are in use. However, areas located directly off the ends of runways can expect to have air traffic pass overhead as aircraft land or depart. The line of arriving flights can extend up to 15 or 20 miles out from the end of a runway.

Flying over residential areas is not prohibited, although PHL departure procedures usually keep large jet aircraft close to the Delaware River and near industrial areas when they are at their loudest and lowest.

5. **Is there a minimum altitude airplanes can fly over residential areas?**

Per Part 91.119 of the Federal Aviation Regulations, fixed wing airplanes must maintain a minimum altitude of 1,000 feet when operating over congested or densely populated areas. This requirement does not apply when aircraft are landing or taking off.

6. **Is there a minimum altitude helicopters can fly over residential areas?**

Per Part 91.119 of the Federal Aviation Regulations, helicopters are not subject to a minimum altitude restriction provided operation of the helicopter is conducted without hazard to persons or property on the ground.

7. **Who do I call if I think I saw a plane do something that I thought was unsafe?**

The Airport Noise Office only monitors aircraft noise activity. Aircraft safety questions should be referred to the FAA’s local Flight Standards District Office (FSDO). A list of FSDOs can be found at:

http://www.faa.gov/about/office_org/field_offices/fsdo/

8. **Why doesn’t the Airport require pilots to fly at higher altitudes or routes directing them over non-residential areas?**

Airports do not dictate the altitudes or flight paths aircraft use, as this authority is held exclusively by the FAA (Air Traffic Control) and the pilot operating the aircraft. Neither the Airport nor the City of Philadelphia controls air traffic. Any routing for noise abatement can only be implemented at the Airport with the approval of the FAA.
9. What is the Airport doing to decrease noise over residential areas?

Given the large amount of local and transient flight activity in the Philadelphia region, some exposure to aircraft noise is inevitable. However, Philadelphia International Airport is working hard to minimize aircraft noise exposure as much as possible while still serving the needs of the region.

There are existing policies in place that reduce noise exposure. For example:

- Having jets fly their assigned departure heading until reaching a designated altitude before they turn towards their next checkpoint.
- Designated altitudes at arrival checkpoints.
- At night (between 10:00 PM and 6:00 AM), designated noise abatement departure headings are used. These headings direct jet aircraft down the middle of the Delaware River until they reach their turning altitude. This procedure keeps departing jets further from residential areas while they are at their lowest and loudest.

Also, as part of the Airspace Redesign Project, the FAA is developing new GPS arrival and departure procedures that may reduce noise impacts in some areas. PHL supports the FAA in its efforts to reduce noise whenever possible and the Airport Noise Office regularly interacts with Air Traffic Control on noise-related issues.

PHL is updating its Noise Compatibility Plan, which is conducted under Part 150 of the Federal Aviation Regulations. This is a voluntary study that an airport undertakes to review the noise impacts that are occurring now and forecasted to occur five years into the future. The community is invited and encouraged to participate in the process. Please visit the Part 150 Noise Compatibility Study Update at http://www.phlpart150update.com for more information.

10. Why doesn't the airport close at night?

In 1990, a federal law titled the Airport Noise and Capacity Act (ANCA) limited the restrictions public-use airports can impose on aircraft operations. Following this Act, the FAA must approve use-restrictions, including curfews.

There are no restrictions on aircraft flying over residential neighborhoods at night. However, PHL has a preferential night-runway plan, where aircraft arriving or departing at night should use the primary runways by the Delaware River as much as possible. Occasionally, airfield construction or other temporary situations may require alteration of the preferential runway program.

Also, departing jets are instructed to fly noise abatement departures when taking off between 11:00 PM and 6:00 AM. Once the aircraft climbs to a specific altitude, it is turned to its next checkpoint. While this doesn’t eliminate aircraft flying over homes at night, it does reduce the noise levels in local communities. The Airport Noise Office tracks flight activity to confirm that this policy is followed by air traffic control.

11. Can the Airport or the FAA order airlines to move flights to other area airports?

No. Under the Airline Deregulation Act of 1978, airports or local, state and federal government entities cannot dictate to airlines which airports to use, what routes to serve, how much to charge or how many flights they operate.
12. Must the FAA, airlines or pilots get my permission to fly over my property?

No. Permission is not required from property owners. Federal law gives the public the right to transit through airspace and the United States Government maintains “exclusive sovereignty” over all airspace in the United States. (Source: 49 USC § 40103).

13. How is compliance with noise abatement policies enforced?

When deviations are observed by the Noise Office or reported by local residents, the Airport Noise Office investigates aircraft deviations to determine a cause. If it is determined that the deviation was not due to safety concerns or weather, the Airport contacts the organization responsible to advise them of the unauthorized deviation and to ensure the personnel involved are retrained and reminded of the importance of noise abatement procedures. The Airport remains committed to promoting compliance with noise abatement and mitigation efforts, including the use of published noise abatement procedures whenever possible.

Noise abatement measures are voluntary and PHL cannot fine or penalize airlines or pilots for deviations, but the Airport’s cooperative program of working with Airline Chief Pilots and Air Traffic Control has been successful in reducing the types of noise events that frequently bother residents.

14. I’m thinking about buying a home; will flights go over it? Is the real estate agent required to tell me if flights operate nearby?

Only local communities can decide if they want to require disclosure of aircraft activity. However, homes that have been improved under the Residential Sound Insulation Program (RSIP) do have an easement that notifies future homeowners that sound insulation was installed.

Most areas within 30 miles of Philadelphia International Airport will have times when aircraft fly overhead. However, areas directly located off the ends of the runways will experience aircraft overflights more frequently than other locations. Also, lines of landing flights can extend up to 15-20 miles off the end of a runway, particularly east and west of the Airport. If you have particular questions about a specific area, please contact the Airport Noise Office and we would be happy to discuss it with you.

15. Can I get soundproofing done to my home, such as new doors and windows?

In 2012, Philadelphia International Airport completed a Residential Sound Insulation Program (RSIP) for homes located within the 65 dB DNL contour inside Tinicum Township, as determined by the Airport’s 2002 FAR Part 150 Noise Compatibility Study.

The Airport updated its FAR Part 150 Study in 2012 to account for changes caused by the Airspace Redesign dispersal headings and the extension of Runway 17/35. This study indicated no additional areas in Tinicum Township were eligible for sound mitigation treatments, but that a small portion of the Eastwick neighborhood in Philadelphia may be eligible in the future, depending on the amount of flight activity and runway utilization. For more information on PHL’s sound insulation programs, please visit:

http://www.phl.org/AboutPHL/Environmentalinitiatives/Documents/RSIP.pdf
16. **How many runways does Philadelphia International Airport have?**

PHL has 4 runways. The 2 primary runways are 09R/27L and 09L/27R. There are also 2 runways used for turboprops and smaller jets, Runway 08/26 and Runway 17/35. The runway numbers are the magnetic compass heading that an aircraft landing or taking off would use, so a runway numbered 09/27 faces east to west (compass headings of 090° and 270°).

![Map of PHL (With the Runways Labeled)](image)

17. **What is a noise abatement procedure and are there any at PHL?**

A “noise abatement procedure” is a flight procedure primarily intended to minimize the noise exposure over residential areas. A noise abatement procedure includes instructions that pilots use for landing or during take off from an airport. Noise abatement procedures may not be implemented without FAA approval.

Pilots departing and arriving at PHL are advised in the FAA’s Airport and Facility Directory (AFD), that the airport is located in a noise sensitive area. Signs located on the ends of the runways also remind pilots to follow the established procedures. PHL also publishes noise abatement information on Boeing’s Airport Noise website, which provides a list of noise abatement policies in place at airports around the world.

PHL has an official noise abatement procedure, which instructs jet aircraft to fly a heading of 255° until 3,000 feet when departing Runways 27L and 27R. This procedure is used between 10:00 PM and 6:00 AM to reduce overnight noise.

There also are air traffic control procedures that have noise reduction benefits, although they may not be officially termed “noise abatement procedures” since their primary purpose may be operational and not noise reduction. For example, jet aircraft departing PHL climb out on their initial departure heading until reaching a designated altitude and then turn to their next checkpoint. This is not officially a noise abatement procedure, but it does reduce noise exposure.
to local communities. Similarly, for safety reasons, aircraft landing on instrument approaches have target altitudes at checkpoints as they descend towards the Airport. While these altitudes are primarily for safety reasons, they keep aircraft close to specified altitudes, which can reduce noise exposure.

There are also aircraft specific practices that pilots can use to fly quietly, which are not published by the FAA or the Airport because they will vary substantially by aircraft type. Pilots are encouraged to operate their aircraft using the manufacturer’s recommended noise reduction steps indicated in their Pilot Operating Handbook.

Noise Abatement Sign at PHL

18. Are noise abatement practices optional?

In an effort to reduce noise over residential areas, the Airport, as a policy, requests airlines and the FAA Air Traffic Control Tower to follow standard procedures. Deviations from these procedures occur and when they do, the deviation is investigated. The Airport Noise Office works closely with the local airlines and the Air Traffic Control Tower to ensure compliance with noise abatement and mitigation efforts, and compliance levels have steadily improved.

Deviations may occur to avoid hazardous weather (such as an approaching thunderstorm), air traffic needs, or due to safety concerns (like avoiding another aircraft or a flock of birds). Pilots and air traffic controllers maintain the authority to deviate from published noise abatement policies and procedures as required.

The Airport cannot fine or penalize pilots for not utilizing noise abatement procedures because noise abatement measures are voluntary.

19. Does the Airport Noise Office monitor noise levels?

The Airport Noise Office has 9 permanently installed noise monitors in the region that monitor noise levels, both from aircraft and other sources in the community. The collected data is then correlated with flight activity to distinguish between aircraft noise and community noise. Since these monitor locations are permanent, fixed sites, they are located off the ends of runways and in areas where they are most likely to be impacted by aircraft noise.
20. **Does the Airport Noise Office provide Noise Monitoring for Residents?**

The Airport Noise Office does provide noise monitoring as a free service for area residents within 25 miles of Philadelphia International Airport. A homeowner can request monitoring once per calendar year.

For more information, please visit the Airport Noise Office website.

21. **Is a noise monitor like surveillance equipment in my neighborhood? Are my conversations going to be recorded?**

Noise monitors only measure sound levels and do not record audio, so your privacy is protected. Any noise that comes from sources other than aircraft is only noted as a “community noise event” and we only know the intensity and duration of the sound.

22. **How is noise measured? Why do you average noise exposure over an entire year?**

There are various ways to measure noise levels and it is important to account for both the intensity (how loud) and duration (how long) of a sound. The FAA approved standard for measuring noise exposure is an annual average called DNL, which is short for Day Night Average Sound Level. For detailed information on measuring noise, please see the “General Information on Aircraft Noise” section below.

23. **Can I meet with someone at the Airport Noise Office to discuss my concerns or answer questions?**

Yes, you may schedule an appointment with the Airport Noise Abatement Program Manager at 215-937-6750. The Airport Noise Office is conveniently located at the PHL Community Service and Noise Office at 2801 Island Ave, Suite 13, Philadelphia, PA 19153. We have meeting space for up to 10 people. Please understand that any individual meetings with the Airport Noise Abatement Program Manager are informational sessions provided as a community service and are not official workshops or public hearings related to airport noise or any specific airport projects.
General Information on Aircraft Noise

Sound is measured in “A Weighted Decibels” (dBA), which is a logarithmic scale of energy. There are different “weighting” scales for measuring sound and “A weighting” is the scale that resembles the range of sounds heard by the human ear. Environmental noise monitoring is usually done in A-weighted decibels.

Figure 1 below shows an actual noise measurement of an aircraft passing over a noise monitor at PHL. As an aircraft approaches, the sound level will increase to a maximum point and then will decrease. A measurement taken at the maximum noise level (the loudest point) is called the Lmax. However, this measurement alone only accounts for the intensity of the sound, not the duration of it.

A noise may not be “loud,” but if it lasts for a long time, the sound may still be bothersome. For example, if there were 2 aircraft noise events, both of which were measured at 70 dB at their loudest, but one lasted 30 seconds and the other 5 seconds. Which one is “louder?” A firecracker will have a high Lmax but a short duration, while a rattling appliance could have a low Lmax but a long duration. Both could be annoying and disturbing to people.

Because it is important to account for the duration of a noise event, another measurement called Sound Exposure Level (SEL) is used to measure all of the sound energy that occurred during the entire event. SEL places all the sound energy into a one-second measurement and this allows for meaningful comparisons to be made between sounds of varying duration and intensity.

In Figure 1, the Lmax is approximately 70 dB, the duration of the event was about 12 seconds, and the SEL is about 78 dB.
Similarly, an average of the noise energy over a period of time is called Equivalent Sound Level (LEQ). All of the sound energy that occurs during the measured time is accounted for and averaged out.

Under federal regulations, the national standard used in the United States for measuring airport noise is called the Day Night Average Sound Level (DNL or sometimes LDN). This is similar to the average LEQ observed for a 24-hour period, but with a 10 dB penalty assessed for noise that occurs between the hours of 10:00 PM and 7:00 AM. Part 150 of the Federal Aviation Regulations requires use of the DNL metric for an average annual day to determine eligibility for noise mitigation.

However, there are other ways to communicate noise exposure that are useful, even if they cannot determine which areas may qualify for noise mitigation. These are often called “supplemental metrics.” Two common supplemental metrics are “Time Above” (TA) and “Number of Events Above” (NA). TA measures the amount of time per average day that an area can expect to have aircraft noise levels exceed a given decibel threshold and NA measures the number of aircraft events per average day that would exceed a given decibel threshold. PHL is using TA and NA metrics in its Part 150 Noise Compatibility Study Update to examine noise levels throughout the region, including areas outside the 65 dB DNL threshold.

For more detailed information on aircraft noise measurements and metrics, please visit the Noisequest website at http://www.noisequest.psu.edu

Each individual will have varying standards as to what sounds they find bothersome or excessive, so a national standard is used to evaluate aircraft noise exposure. The Aviation Safety and Noise Abatement Act (ASNA) of 1979 directed the United States Department of Transportation to develop a national noise standard for airports. The Day Night Average Sound Level (DNL) was chosen as the standard method of measurement.

Areas around an airport that exceed the 65 dB DNL level per the approved Noise Exposure Map (NEM) are considered to be incompatible for noise sensitive uses such as homes, schools and places of worship. Pre-existing incompatible development within the 65 DNL area may be eligible for the Residential Sound Insulation Program (RSIP) where improvements such as sound reducing windows and doors are installed to lower interior noise exposure.

Noise Exposure Maps (see Figure 2) are created and updated through an airport’s Part 150 Noise Compatibility Study. More information is available regarding PHL’s Noise Compatibility Study at: http://www.phl.org/AboutPHL/Environmentalinitiatives/SustainabilityInitiatives/Pages/Noise.aspx
Lastly, there are federal regulations on the emission of noise from civilian aircraft, as specified in Part 36 of the Federal Aviation Regulations (FARs). The noise standards for jet aircraft (called “stages”) are as follows:

- **Stage 1 (Uncertificated)**
  - Examples: original Boeing 707 or original Douglas DC-8
- **Stage 2 (1969 noise standards)**
  - Examples: LearJet 25, Boeing 737-200 (without hushkit*)
- **Stage 3 (1977 noise standards)**
  - Examples: Boeing 727-200 (with hushkit*), McDonnell Douglas MD-80
- **Stage 4 (2006 noise standards)**
  - Examples: Boeing 737-700, Airbus A-321

* A hushkit is a device (similar to a muffler) that reduces the noise emitted from an aircraft engine. It can be used to quiet an older aircraft to an acceptable noise level.

Over time, federal law has required older jets to be retired or upgraded to meet newer noise standards. Stage 1 aircraft over 75,000 lbs were no longer allowed to operate in the continental United States after January 1st, 1985 and Stage 2 commercial aircraft over 75,000 lbs were no longer allowed to fly in the continental United States after December 31st, 1999. Use of Stage 2 aircraft under 75,000 lbs will be phased out in the continental United States by December 31st, 2015.