Why Are Airplanes Flying Over My House?

An introduction to the
DeKalb-Peachtree Airport traffic pattern
for non-pilots

The author is a pilot and flight instructor who has been operating out of PDK since 1985.

Residents living near the DeKalb-Peachtree airport (PDK) often have concerns about airport traffic. Why are airplanes flying over my house? Are they flying too low? Can't they fly somewhere else instead?

Chances are, if an airplane is flying over your house, the pilot is flying exactly where he/she is supposed to be flying. And why is that? The answer is quite simple:

Safety!

Safety is a pilot's number one priority, which overrides all other considerations. In fact, safety is so important in the aviation community that pilots are authorized to deviate from Air Traffic Control (ATC) instructions and violate Federal Regulations if it is necessary to preserve safety.

Flying at low altitude is risky. If the engine were to lose power, the ability to make a safe landing depends primarily on the airplane's altitude. More altitude means more gliding distance, more time to make decisions, and more options for selecting an emergency landing site.

Flying near other airplanes is also hazardous. Even for the smallest, slowest airplanes, the time from first seeing another airplane to collision can be as little as a few seconds. The visibility out of most cockpits is limited, with virtually no visibility above, below, or behind the airplane.

Operating at an airport combines all these risks. Flying at low altitudes is required for takeoff and landing, and airports naturally have many airplanes flying in close proximity.

To ensure safety at airports, standard airport operating procedures have been established. These procedures apply world-wide, and to every airplane from the smallest personal airplane, to the largest airliner, and even to the fastest military jets.

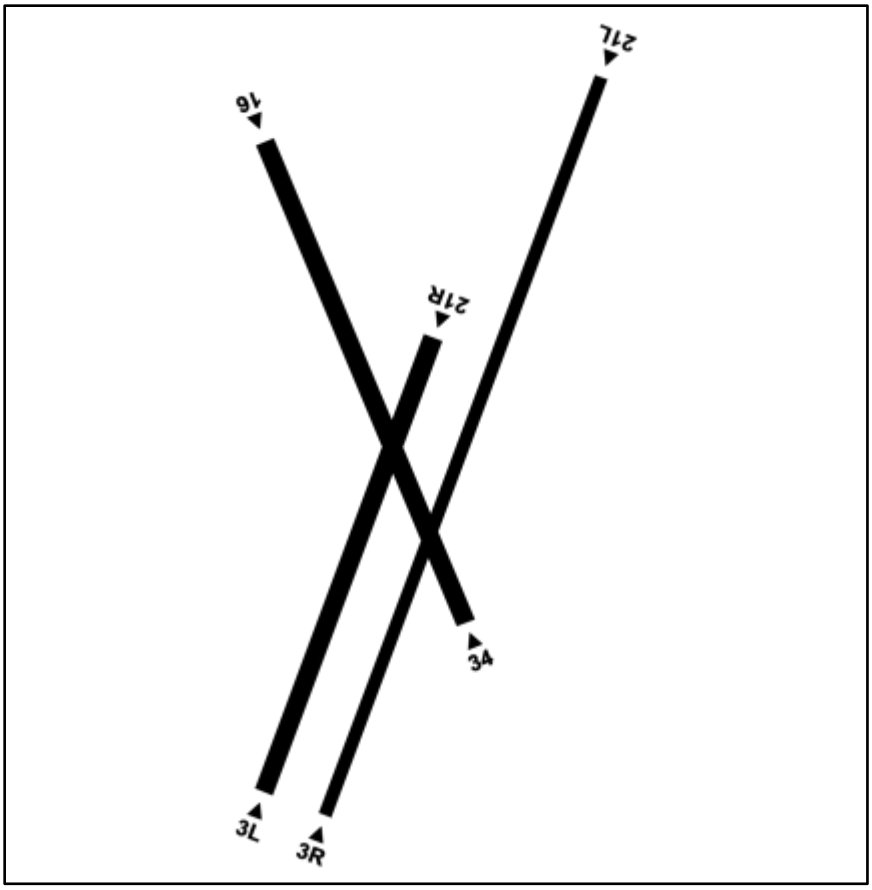
These safety standards were designed to achieve the following:

- On takeoff: Climb to a safe altitude as quickly as possible
- On landing: Descend in a safe and controlled manner, and minimize time spent at low altitude
- At all times: Avoid conflicts (potential collisions) with other aircraft

One of these standard procedures is called the "traffic pattern." Imagine the confusion if every city, county, and state had its own driving rules. It would be absolute chaos, and driving would be extremely hazardous. For the same reason, the standard traffic pattern procedure is used at every airport, with or without a control tower – it ensures that every pilot knows what every other pilot will be doing. Non-standard procedures can lead to confusion and pilot error, especially for students and low-time pilots.

Even with these standard procedures, the traffic pattern is a high-workload environment. The pilot must be focused on flying the airplane safely and communicating with ATC and other airplanes. The pilot determines the appropriate flight path by reference to the runway and perhaps a few large landmarks. The workload is too high, and the airplane is moving too fast, to single out individual houses or follow the winding path of surface streets.

The following pages provide various illustrations of the standard traffic pattern at PDK, showing the flight path and altitudes pilots are expected to follow.



Runways and Winds

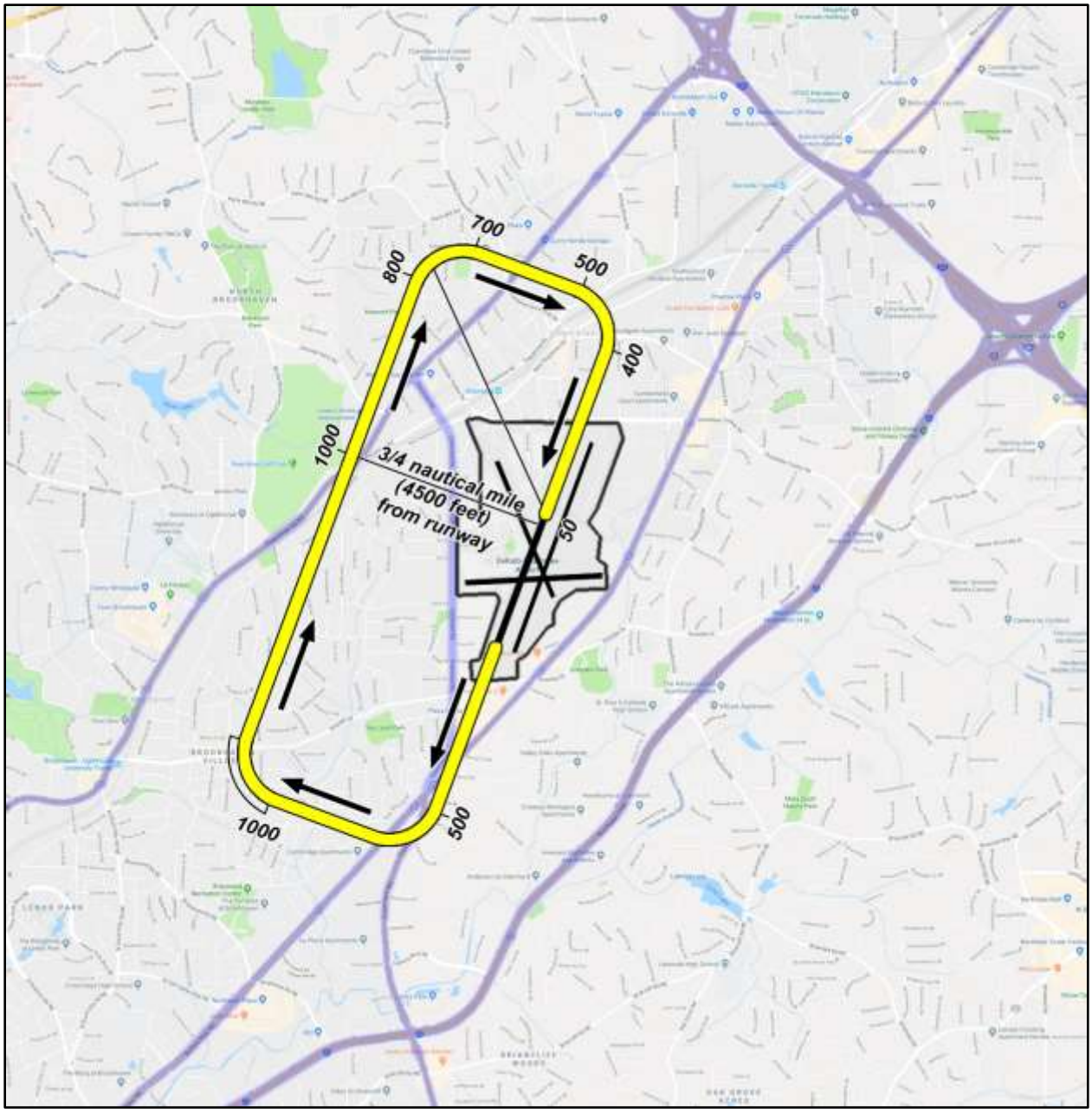
A runway's number is based on the airplane's compass heading when using that runway. Because a runway may be used in either direction, each has two numbers, one for each direction. Parallel runways will be distinguished by adding an L (left) or R (right) to the number.

Using a runway with a headwind is preferred, because flying into the wind reduces the airplane's ground speed and required runway length. Takeoff and landing with tailwind is a safety hazard, as this dramatically increases both the ground speed and the required length. As the winds change throughout the day, so will the runway being used.

At PDK, the two parallel runways are used for the majority of airplane operations. The shorter runway, 3L/21R, is used by smaller propeller-driven airplanes. The longer 3R/21L is used primarily by jets and turboprops, but it is also used by smaller airplanes for instrument approaches, either in bad weather or for training.

Because the parallel runways are nearly north-south, operations on runway 3L/R create what is called a "north flow" with airplanes departing towards the north, while operations on 21L/R create a "south flow." These terms will be used on later pages to illustrate common departure and arrival flight paths.

Runway 16/34 is known as the "crosswind" runway. It is used less often, usually when strong crosswinds make this runway more directly aligned with the wind.

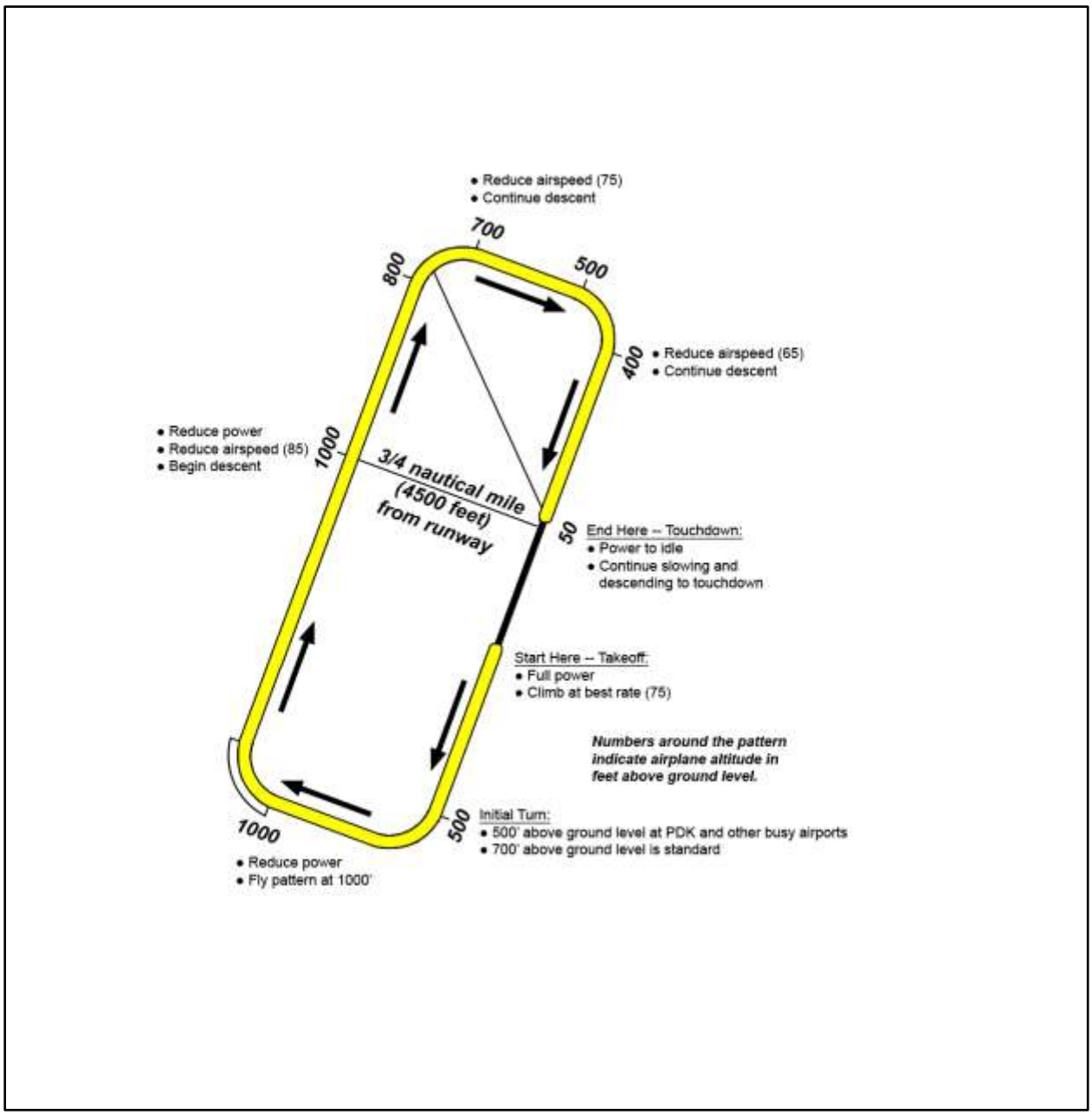


The standard traffic pattern at PDK, overlaid on a street map

The traffic pattern is normally flown on the side of the runway that allows left-hand turns, which gives the pilot (who sits on the left side) a better view of the runway and surrounding terrain. However, when parallel runways exist, the traffic pattern for both directions must be on the same side of the runway, to prevent conflicts with airplanes using the other runway.

This diagram illustrates the standard traffic pattern at PDK. The flight path indicated by the arrows is the "south flow" on runway 21R – airplanes take off towards the southwest and land from the northeast. The numbers around the pattern indicate the airplane's altitude above ground level (AGL) at that point. For the "north flow" on runway 3L, the flight path and altitudes are reversed, but the traffic pattern remains on the northwest side due to the parallel runway.

Note that the flight path shown is just the baseline – there will be variations based on airplane size and speed, wind and weather, instructions from the Control Tower, and pilot experience and skill level.

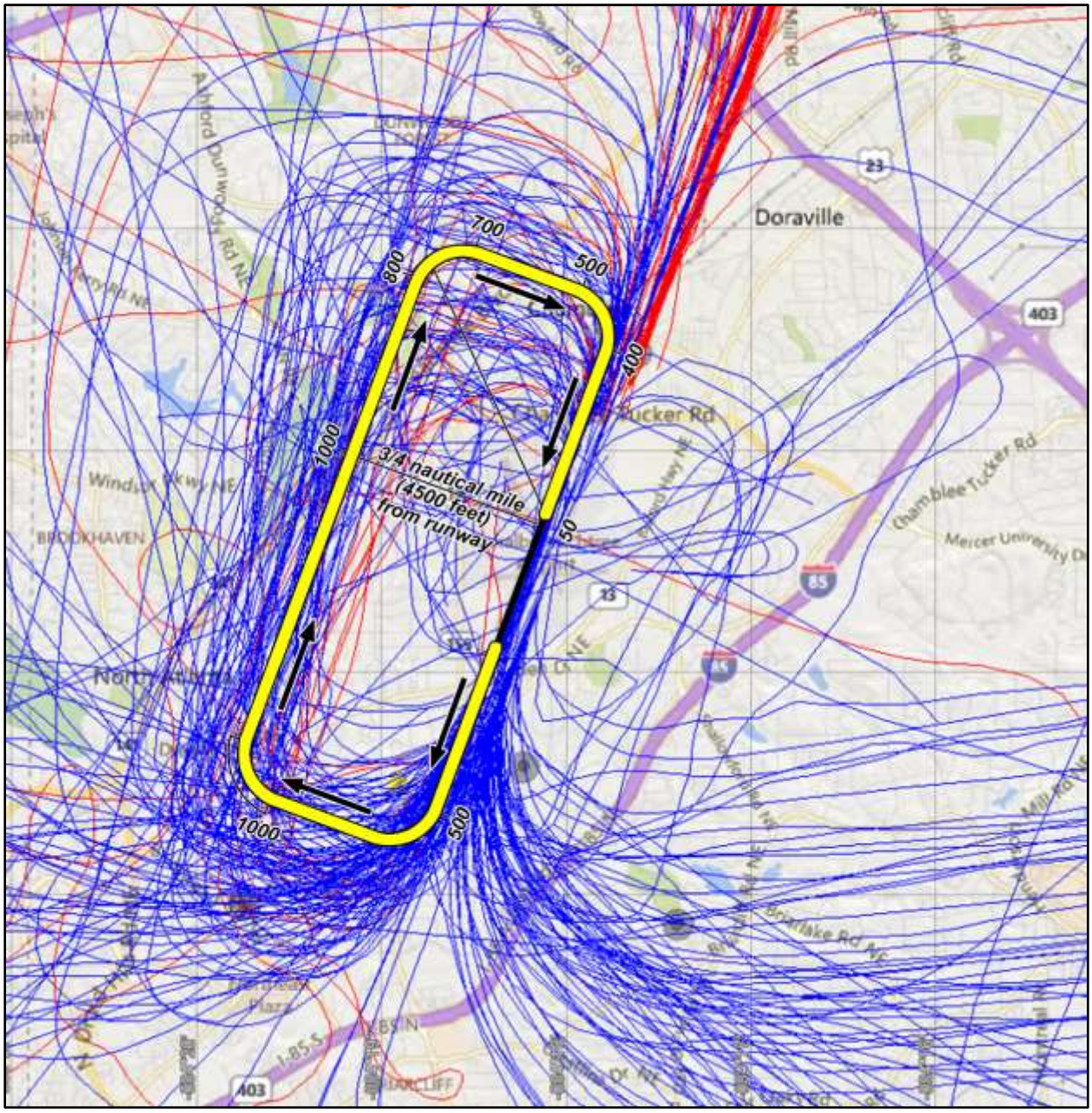


The standard traffic pattern at PDK, with each step of the procedure described

Because aviation is a "perishable skill," even the most experienced pilots must practice regularly to maintain proficiency and safety. This diagram illustrates the "pattern work" procedure flown on these practice flights, which involves repeating the takeoff, traffic pattern, and landing multiple times.

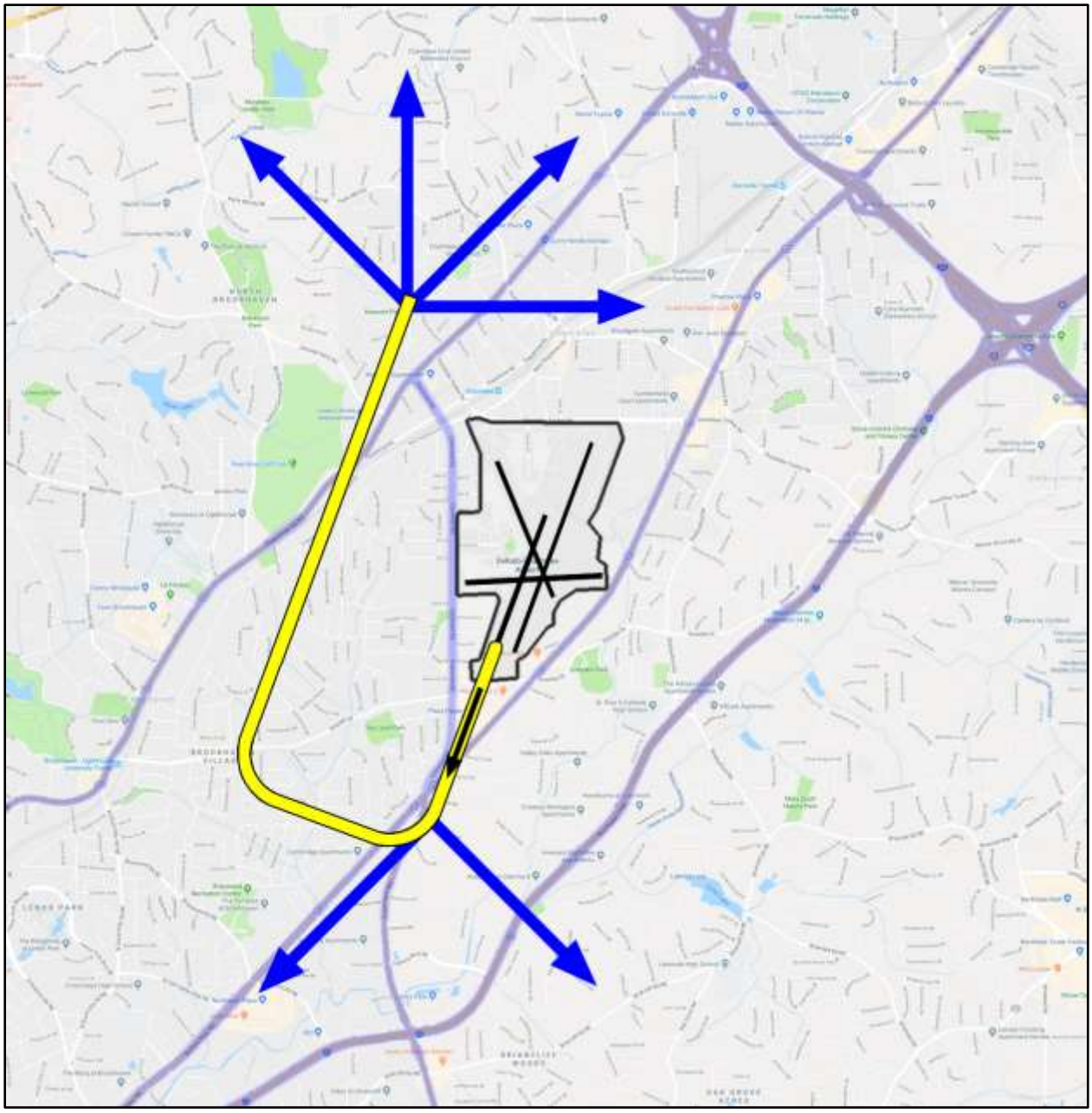
For other flights, a departure involves flying the first part of the pattern procedure until reaching the point where the airplane leaves the pattern, and an arrival involves entering the pattern at an appropriate point and flying the remainder of the pattern procedure until landing.

At PDK and other tower-controlled airports, the exit/entry points and departure/arrival flight paths are assigned by the Control Tower, and may be influenced by winds and weather or other air traffic.



The standard traffic pattern at PDK, overlaid on actual radar tracks

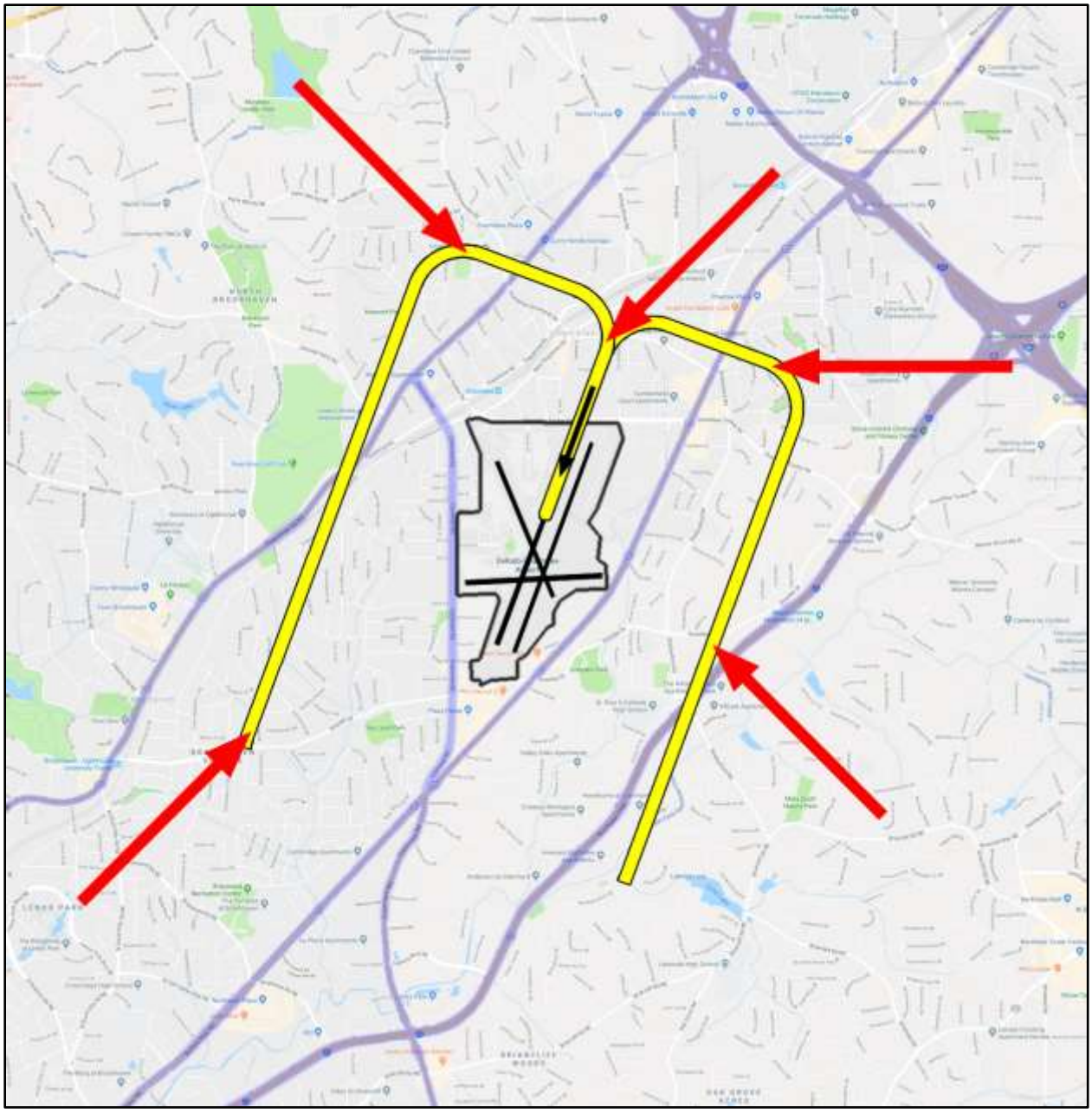
This diagram compares the standard traffic pattern at PDK, overlaid on radar track data obtained from Air Traffic Control. As explained previously, there are variations in the ground track airplane size and speed, winds and weather, other air traffic, instructions from the Control Tower, and pilot experience and skill level. Most of the variations shown here are well within the standards pilots are expected to follow.



Examples of south flow departures at PDK

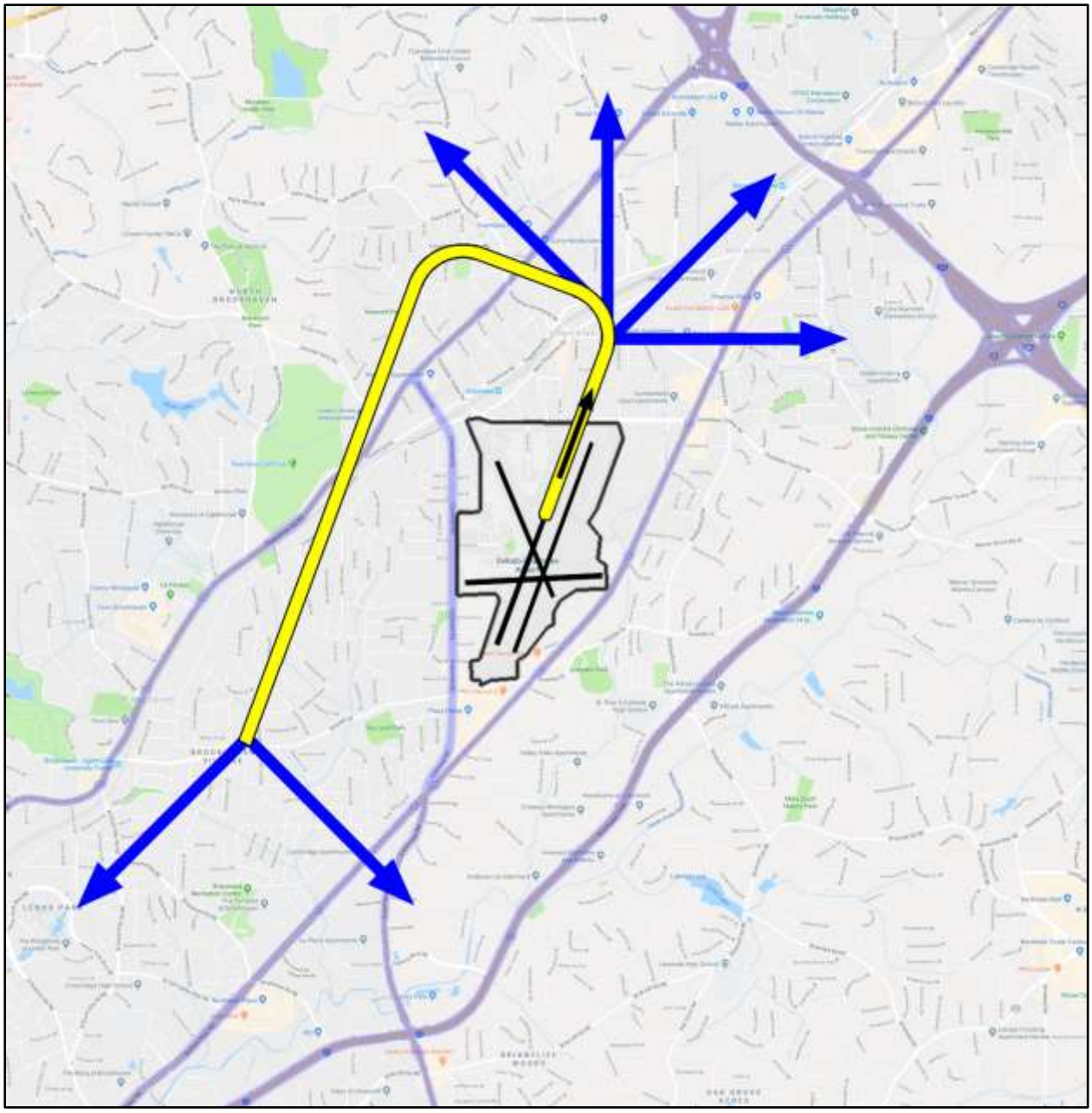
These are some common departure flight paths when using the “south flow” on runways 21L & R.

Note that southerly departure paths are affected by the cluster of large antennas directly off the end of the runway which reach over 1,100 feet in height, as well as controlled airspace for Dobbins AFB to the west and Atlanta International (Hartsfield) to the south. Departing airplanes must follow flight paths that avoid these obstacles.



Examples of south flow arrivals at PDK

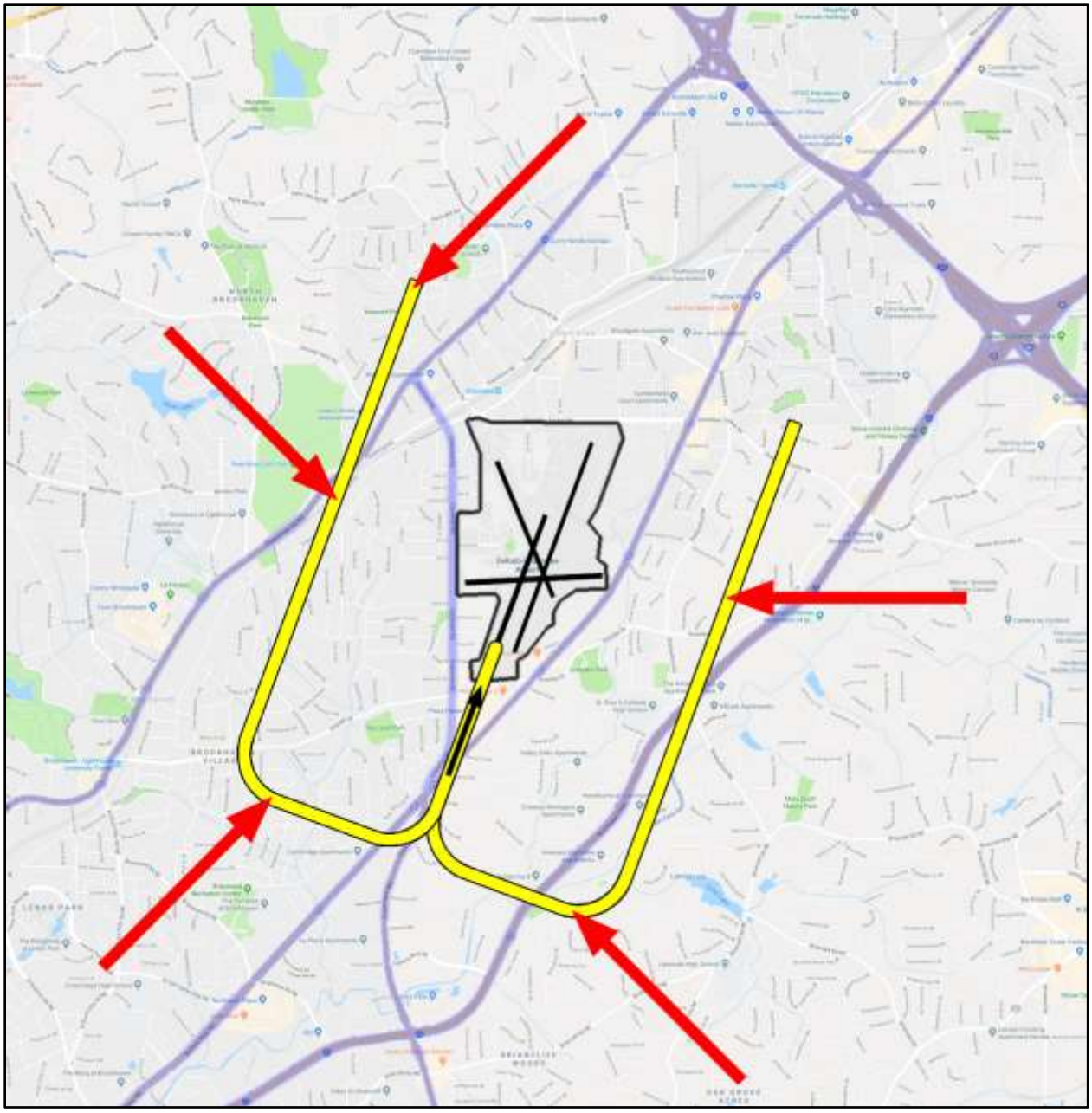
These are some common arrival flight paths when using the “south flow” on runways 21L & R.



Examples of north flow departures at PDK

These are some common departure flight paths when using the “north flow” on runways 3L & R.

Note that southerly departure paths are affected by the cluster of large antennas directly off the end of the runway which reach over 1,100 feet in height, as well as controlled airspace for Dobbins AFB to the west and Atlanta International (Hartsfield) to the south. Departing airplanes must follow flight paths that avoid these obstacles.



Examples of north flow arrivals at PDK

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