MAG Manchester Airport

Updated 2024

RUNWAY DATA SHEET

MANCHESTER AIRPORT
COMMUNITY INFORMATION

manchesterairport.co.uk/community

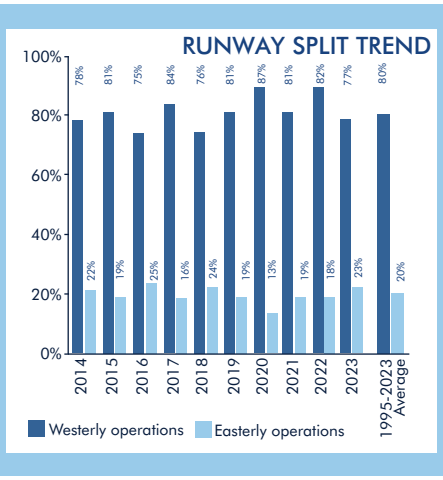
ARRIVING AND DEPARTING AIRCRAFT

Manchester Airport has two runways, Runway 1 (Runways 23R/05L) opened on 17th May 1937 and Runway 2 (Runway 23L/05R); which became operational on 5th February 2001.

Many of our procedures and practices have been in place for decades with some refinements made in 2001; all are designed to ensure the safest and quietest operations possible for our neighbouring communities.

If you live within 20 miles of a major international airport such as Manchester it is inevitable you will see and hear aircraft.

This Data Sheet has been written to explain our operations, for the benefit of our neighbouring communities. Supporting film clips, where a pilot and air traffic controller explain our operations can be found online at manchesterairport.co.uk/runwaydatasheet



OUR AIRSPACE

The airspace immediately above/around the site is controlled from Manchester Airport. As aircraft pass above or away from this airspace they are controlled from the Prestwick Air Traffic Control Centre in Scotland. Aircraft related to other aerodromes are able to obtain permission to pass through our airspace en route to their destination. Such movements are coordinated from the Manchester Airport Tower, for safety, but are not Manchester movements.

For information on the Manchester Airport Future Airspace project please see our website:

manchesterairport.co.uk/futureairspace

OPENING HOURS

Manchester Airport has operated on a 24-hour basis since 1952. Planning permission for Runway 2 permits its' use between 0600 and 2200 hrs. At night between 2200 and 0600 hrs revert to single runway operations we usually based on Runway 1. When we carry out routine (or emergency maintenance) on Runway 1 then we use Runway 2 instead and we publish details on our website:

manchesterairport.co.uk/runwayclosures.

DUAL RUNWAY OPERATIONS

We operate both runways when we require the capacity to permit large numbers of aircraft to arrive and depart. The hours of operation therefore change according to the season. We publish details on our website:

manchesterairport.co.uk/dualrunwayuse.

We return to single runway operations, usually based on Runway 1, at other times.

DIRECTION OF OPERATIONS

Like all airports Manchester operates according to the weather conditions, principally the wind direction. In order to ensure a safe take-off and landing aircraft fly in to the wind. The prevailing wind direction in the UK is westerly so normally aircraft approach Manchester Airport from the northeast over Stockport, Cheadle and Heald Green and depart to the southwest towards and around Knutsford. In dual runway operations aircraft land on to Runway 1 and depart from Runway 2.

During periods of easterly winds, for safety reasons, the flight patterns are reversed, with aircraft departing to the northeast and arriving from the southwest over Northwich and Knutsford. In dual runway operations aircraft land on to Runway 2 and depart from Runway 1.

Wind direction and speed is measured on the ground and at higher levels. Aircraft establish on their approach 3,000-4,000ft above ground level and the wind speed and direction above ground level may determine our operating mode.

The graph left shows our experience of easterly operations since 2014. We are obviously entirely dependent on the weather conditions for this directional split. Over the last 29 years 20% of aircraft operations were in an easterly direction. We are aware that easterly operations cause greater disturbance to those living near to the Airport and so we operate in a westerly direction whenever it is safe to do so.

AIRCRAFT ON DEPARTURE

Air Traffic Control (ATC) sequence departing aircraft on the taxiways before they line up to take-off, to ensure that there is adequate separation between aircraft types and routes.

The departure procedures described on this page are those currently used at Manchester Airport and have remained largely unchanged since the 1980/90s. The procedures described here may change in future years; for more information see 'Future Airspace' on the back page or www.manchesterairport.co.uk/futureairspace.

ROUTES FLOWN ON DEPARTURE

Most departing commercial aircraft will follow a Preferred Noise Route (PNR) until they reach a certain height (called a 'release altitude'), unless otherwise instructed by Air Traffic Control. To minimise disturbance to our local community, Routes have been designed to take aircraft away from built up areas wherever possible, for the initial potentially more noisy stages of flight.

There are eight PNRs (four off each runway) used by aircraft departing to the southwest in westerly operations and six (three off each runway) used to depart to the northeast during easterly operations. Because departures to the northeast are rare from Runway 2 (Runway 05R), the PNRs are not illustrated on the map overleaf. The Preferred Noise Route issued to an aircraft will depend on the runway in use, the final destination and flight routing of the aircraft.

Once the aircraft has reached the necessary height above sea level, known as the release altitude, (see map overleaf for details) the aircraft will be given an onward instruction by Air Traffic Control. This usually diverts them away from the PNR and onwards to the main air 'highways'. Because of this, areas not directly underneath the Preferred Noise Route may see overflights of aircraft that have exceeded the release altitude. If you live within 20 miles of the Airport you are likely to see and hear aircraft.

PNR NAMES

Each PNR has a name (shown overleaf), that is designed to sound completely different so that they cannot be mistaken for one another. Some names have changed over the last decade (for instance HONILEY has become SANBA); these changes reflect changes to the navigational instructions many miles away and not the track of aircraft close to Manchester Airport depicted on the map overleaf.

NON STANDARD DEPARTURES (NSDS)

Occasionally, aircraft are specifically instructed to fly away from the Preferred Noise Route corridors by Air Traffic Control. This type of movement is known as a Non Standard Departure. NSDs are given to direct aircraft away from poor weather (thunder/snow storms etc) or sometimes in order to maintain adequate safety separation between aircraft. In 2023 NSDs accounted for less than 2.3% of our departures. NSDs are less common at night. We publish a separate data sheet about NSDs should you wish to know more.

EARLY TURNS

Certain smaller types of jet and propeller driven aircraft can be instructed to carry out an 'early turn'. This means that they too, can legitimately be directed away from the standard PNR's. Early turns have been sanctioned to reduce the incidence of larger jet aircraft having to be issued an NSD. In 2023 less than 0.05% of departures were issued an 'early turn' instruction.

AIRCRAFT NOISE

We use a series of measures to restrict and contain the noise created by our operations. The Manchester Airport Noise and Track Information System (MANTIS) provides constant 'real time' monitoring of noise levels and track keeping of all aircraft operating from or to the Airport. Here are further examples of our measures to restrict and contain noise:

- Through our fees and charges we differentiate between noisier and quieter aircraft and offer incentives to airlines to operate quieter aircraft types.
- Operation of a Night Noise Policy (manchesterairport.co.uk/nightnoisepolicy) to restrict the types and numbers of aircraft that operate at night.
- Use of Preferred Noise Routes to direct aircraft over less populated areas; for the initial potentially more noisy stages of flight.
- Operate Westerly Operations, to overfly fewer people, whenever it is safe to do so.
- We fine departing aircraft that exceed predefined limits that are far more stringent than our peer airports (Heathrow and Gatwick). Fining levels are currently 90 dB(A) during the day and 82 or 81 dB(A) at night. The income from noise fines is redistributed into the community through the Manchester Airport Community Trust Fund. Please visit: manchesterairport.co.uk/CommunityTrustFund for more information.

More detail on our policies and procedures to reduce and control Airport noise can be found in the Manchester Airport Noise Action Plan (manchesterairport.co.uk/noiseactionplan).

MONITORING PERFORMANCE

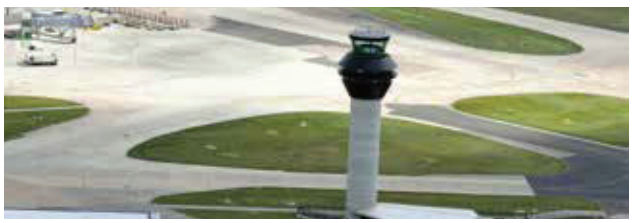
We have automatically monitored how accurately each aircraft follows their PNR for decades; using MANTIS. Performance information is fed back to airlines on a monthly basis to help them improve their track keeping accuracy. Some Routes are more difficult than others to fly and we work hard liaising with the airlines to make sure that their performance is as accurate as possible. Overall across all Routes in 2023 over 88% of aircraft flew correctly 'On Track' within the tolerances of the Preferred Noise Routes until achieving their minimum release altitude.

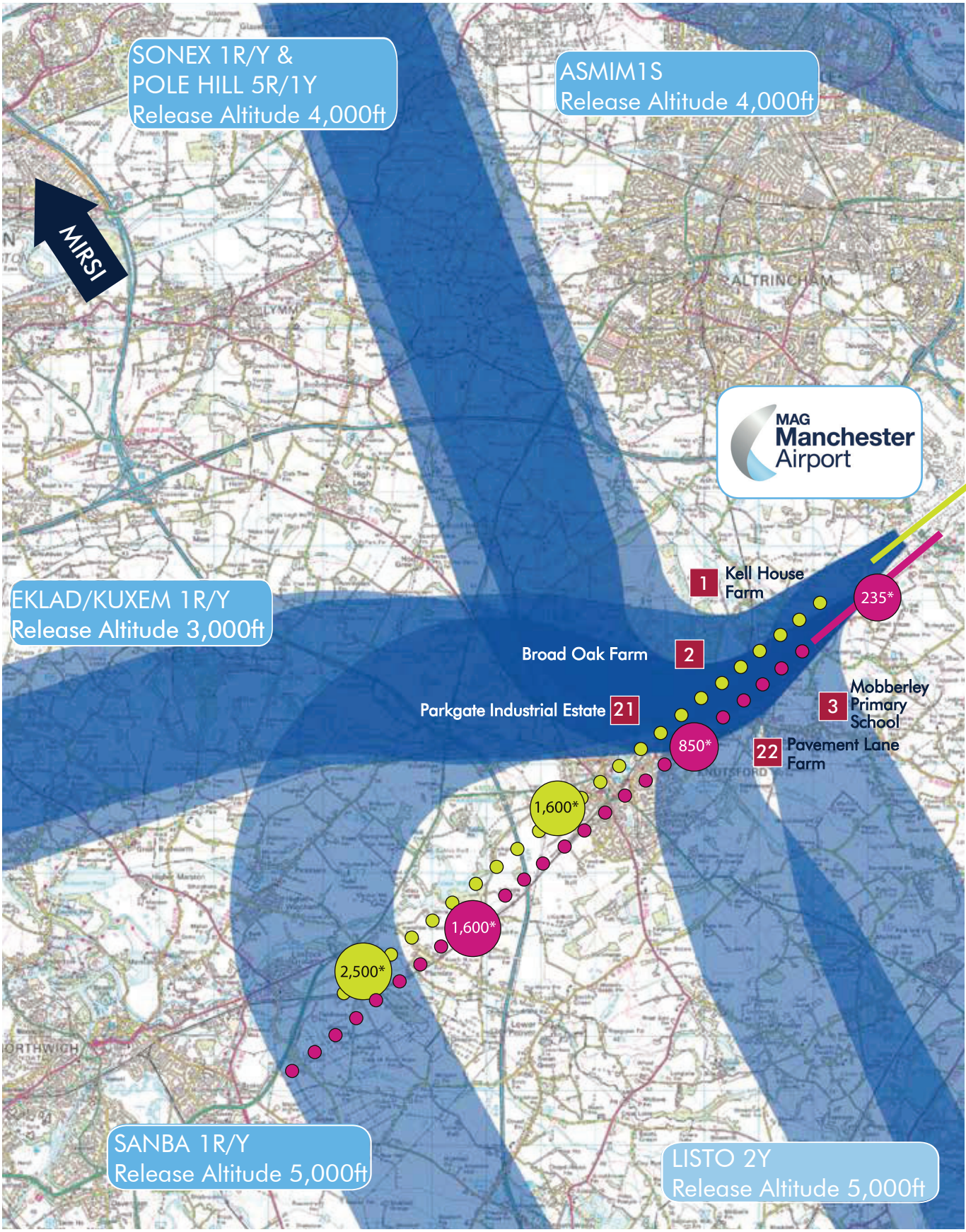
In 2015 we introduced an improved MANTIS with a web portal featuring 'Webtrak' that allows people to see aircraft operations relative to their own area and investigate their own concerns. Future updates will enable the comparison of operations over a period of time to be viewed. You can access 'Webtrak' through the web page **manchesterairport.co.uk/webtrak**.

COMPLAINTS

We have produced a short video clip that outlines the care we take to investigate and reply to complaints made: manchesterairport.co.uk/livingneartheairport.

If you are particularly disturbed by Airport operations please visit: manchesterairport.co.uk/webtrak and provide us the details/your details and we will investigate and reply.



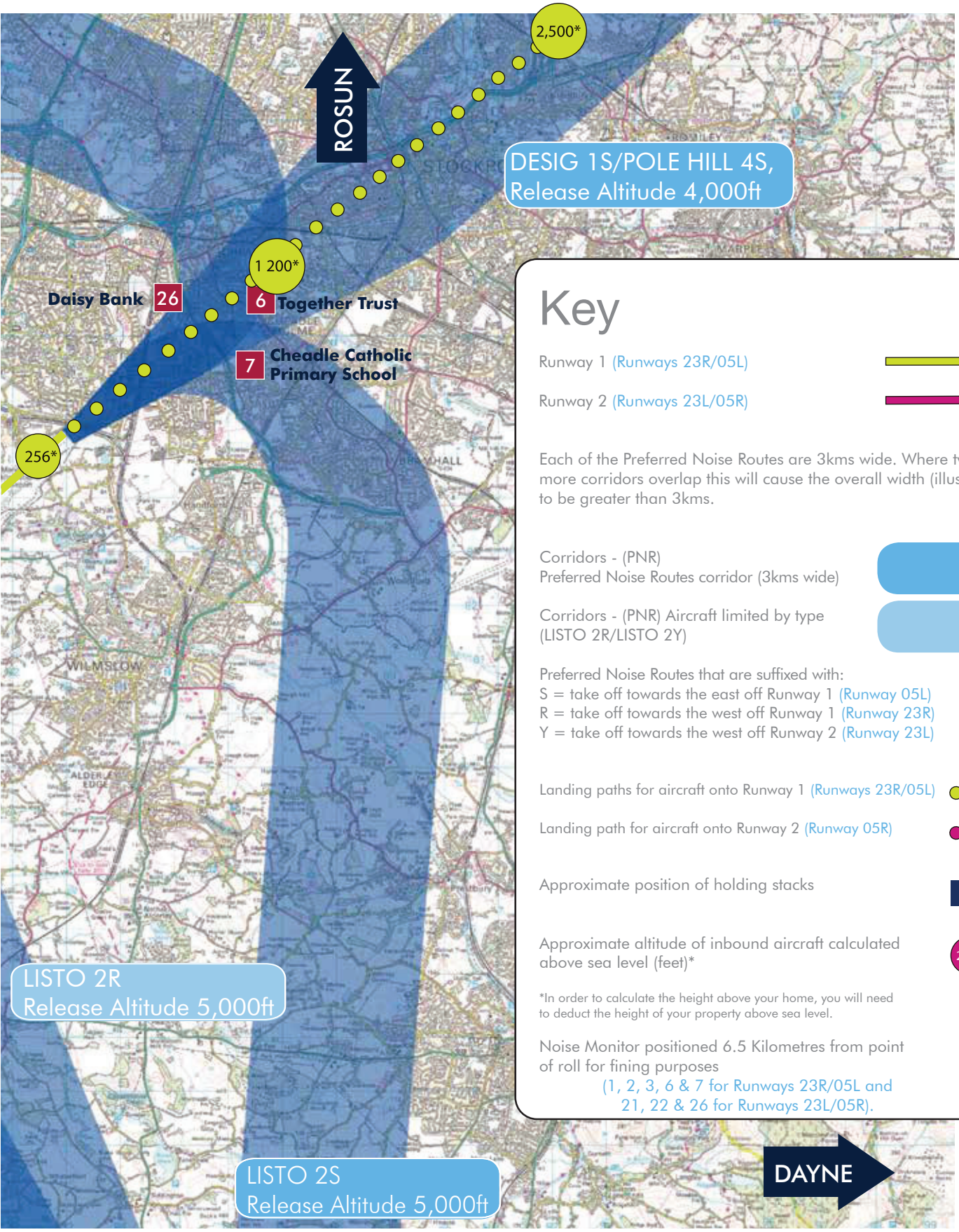


Approx 20% movements

During periods of Easterly winds (avg 20% p.a) aircraft will land from the South West over Cheshire. Their approach path will depend on which runway is in use.

Approx 80% movements

During periods of Westerly prevailing winds (avg 80%p.a) aircraft will land from the North East over Greater Manchester onto Runway 1.



Key

Runway 1 (Runways 23R/05L)

Runway 2 (Runways 23L/05R)

Each of the Preferred Noise Routes are 3kms wide. Where two or more corridors overlap this will cause the overall width (illustrated) to be greater than 3kms.

Corridors - (PNR)
Preferred Noise Routes corridor (3kms wide)

Corridors - (PNR) Aircraft limited by type
(LISTO 2R/LISTO 2Y)

Preferred Noise Routes that are suffixed with:
S = take off towards the east off Runway 1 (Runway 05L)
R = take off towards the west off Runway 1 (Runway 23R)
Y = take off towards the west off Runway 2 (Runway 23L)

Landing paths for aircraft onto Runway 1 (Runways 23R/05L)

Landing path for aircraft onto Runway 2 (Runway 05R)

Approximate position of holding stacks

Approximate altitude of inbound aircraft calculated above sea level (feet)*

235* 256*

*In order to calculate the height above your home, you will need to deduct the height of your property above sea level.

Noise Monitor positioned 6.5 Kilometres from point of roll for fining purposes
(1, 2, 3, 6 & 7 for Runways 23R/05L and 21, 22 & 26 for Runways 23L/05R).

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ARRIVING AIRCRAFT

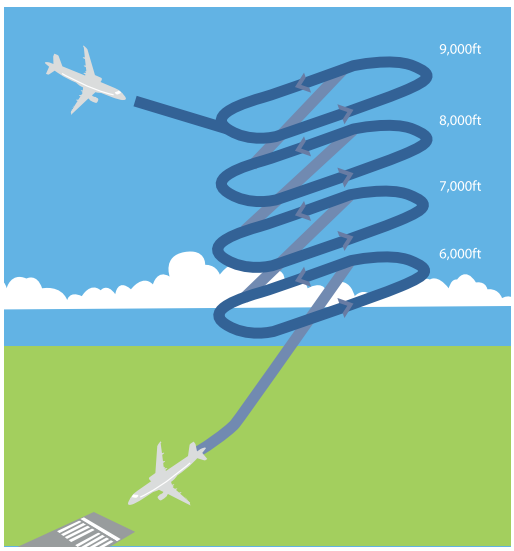
The arrivals procedures described on these pages are those currently used at Manchester Airport and have remained largely unchanged for many decades. The procedures described here are likely to change in future years; for more information see 'Future Airspace' on the back page or page www.manchesterairport.co.uk/futureairspace.

Air Traffic Control (ATC) currently position and sequence aircraft on a descent pattern into the Airport from many directions relating to their point of origin.

Aircraft inbound to Manchester usually follow a prescribed route known as a Standard Arrival Route (STAR) which is a series of instructions that do not constitute a ground track. Sometimes aircraft will follow their STAR to a holding stack, or, more often be directed from 50/60 nautical miles out onto a heading to intercept the Instrument Landing System (ILS).

THE HOLDING STACKS (15/20 NAUTICAL MILES)

If an approach delay is expected instructions may be given to enter a holding pattern or 'Stack'. Aircraft in the holding pattern circle at different heights around a central point until the way is clear for them to be guided into sequence for landing. Aircraft in the stack are separated vertically by 1,000ft. The lowest level of the stack is 6,000ft. There are three Stacks in use at Manchester Airport, DAYNE, MIRSI, and ROSUN. DAYNE serves arrivals from the South and East, ROSUN from the North and East and MIRSI from the West. The stacks are located approximately 15/20 miles away from the Airport. Stacks are more likely to be used in poor weather when our movement rate decreases.

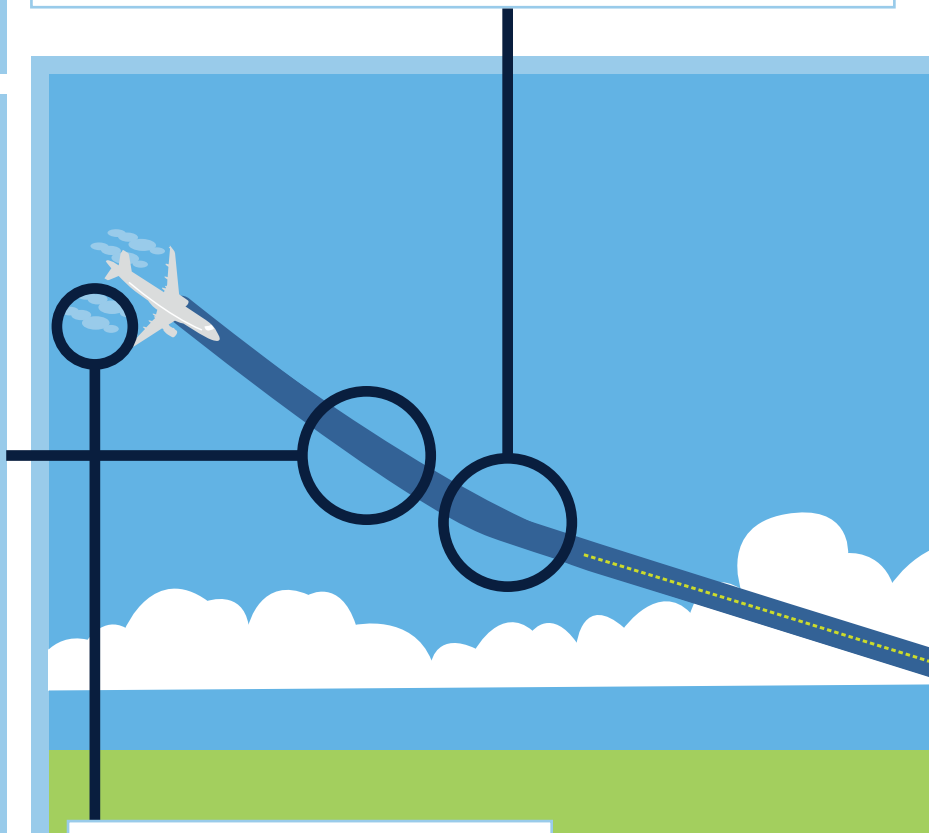


CLEARED TO LAND (6,000FT APPROX.)

The Approach Radar Controllers work closely together to establish the correct landing intervals between aircraft on final approach by instructing the pilots to adjust their height, speed and route so they are correctly separated. The spacing required between arriving aircraft depends on a number of factors, such as the prevailing weather conditions, the size of aircraft involved and the number of aircraft waiting to depart in between the landing aircraft.

A guide would be approximately three miles apart. Once established on the Instrument Landing System the pilot is in contact with the Aerodrome Controller who monitors the progress of the aircraft to the runway.

The Aerodrome Controllers also have the facility to monitor the aircraft's progress once on the ground by means of a special radar. This is extremely useful at night and in poor weather.



CONDENSATION TRAILS

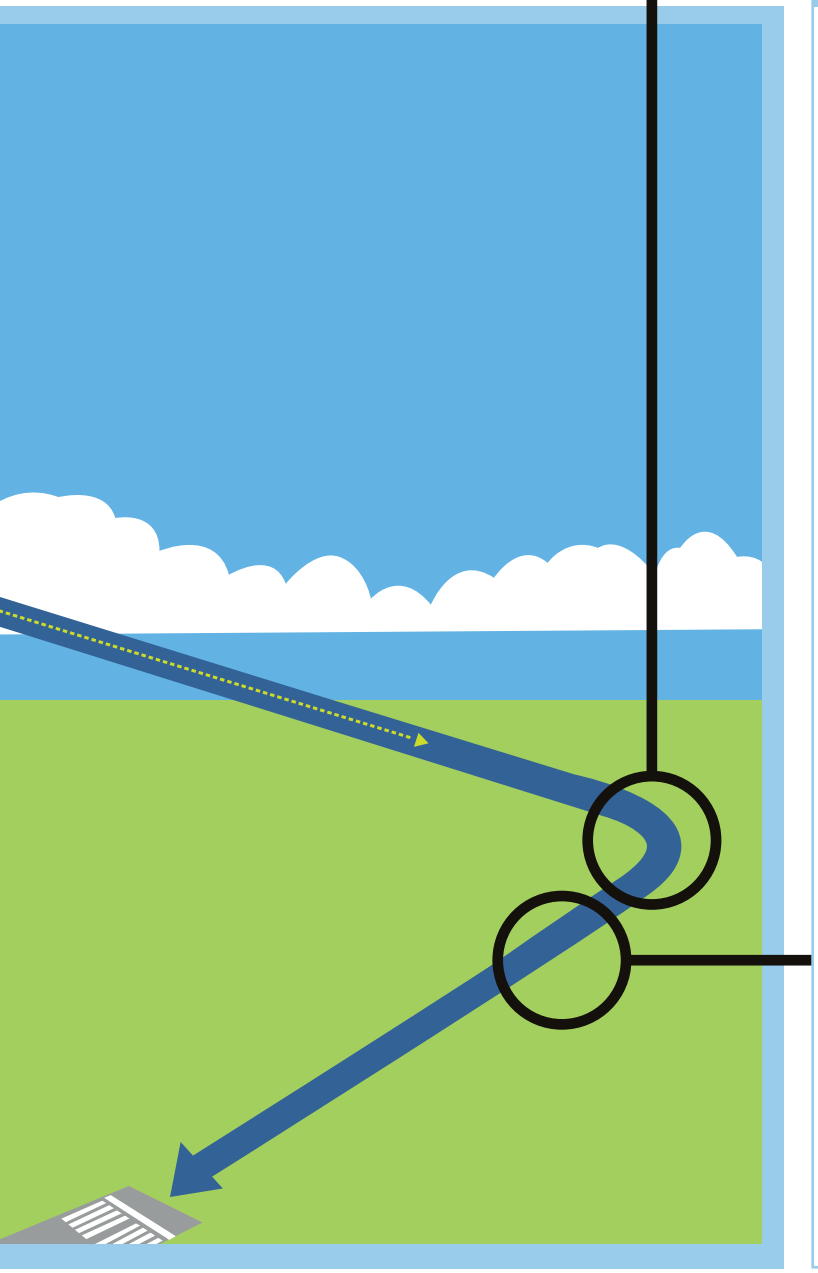
In the upper atmosphere water vapour from the engine exhausts instantly condenses into ice crystals, forming 'contrails'.

CONTINUOUS DESCENT APPROACH

Whenever possible aircraft follow a smooth and continuous rate of descent, from level cruise to the runway, joining the Instrumental Landing System for the final stages of approach. These Continuous Descent Approaches reduce the noise heard on the ground and are better for the environment and airline as it saves fuel.

THE INITIAL DESCENT (10 NAUTICAL MILES, 3,000-2,500FT APPROX.)

Arriving aircraft converge onto the Instrument Landing System from many points of origin. Because of this, in the early stages of landing, the distribution of aircraft will be over a wide geographical area.



GO AROUNDS

Occasionally an aircraft may not be able to land on the first approach and will go around for another. Go arounds may occur for a variety of reasons. Just one example might be; the cabin of an aircraft must be fully secured in terms of occupants and equipment before the captain will execute a landing. If this is not the case the captain will initiate a 'go-around'.

Manchester Airport, like all airports, has published procedures for 'go-arounds'. All such occurrences are fully co-ordinated with Air Traffic Control. Safety is paramount. Indeed, these manoeuvres occur in the interest of safety.

VISUAL APPROACHES

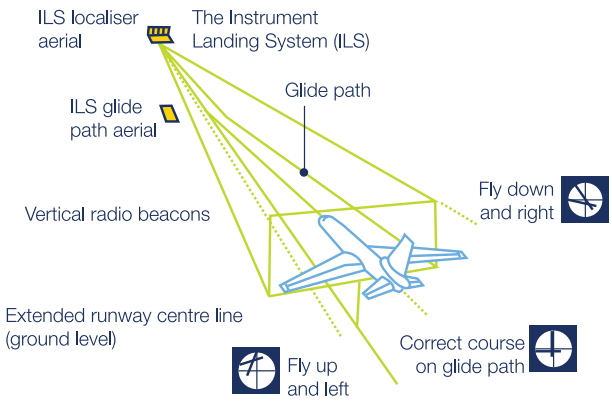
Sometimes navigational aids such as the Instrument Landing System need to be taken out of use for maintenance or replacement. In these circumstances aircraft approach Manchester Airport using different navigational aids and/or visual references. These landings are in no way unsafe but because they are likely to be offset from the usual approach path they have the potential to cause community disturbance.

THE FINAL DESCENT (7 NAUTICAL MILES, 2,200FT APPROX.)

Most aircraft flying into Manchester Airport use the Instrument Landing System to guide them on a long and straight approach path. The ILS is a series of aerials and radio transmitters, which are illustrated in the drawing below. Aircraft usually lock on to the System at distances greater than seven miles from the runway.

The Instrument Landing System is an extremely sophisticated piece of equipment that gives aircraft a 'precise' trajectory of descent. Its accuracy is such that most aircraft have the ability to land 'blind' in poor visibility.

Manchester, in line with most other airports, has a glide slope of 3 degrees equal to descending 318 feet per nautical mile. All aircraft will therefore be at the same height when passing the same point. However an Airbus A380 by the nature of its size can look lower than a much smaller Embraer 145 for example.



THE COMMUNITY TRUST FUND

The Community Trust Fund has gifted over £3.9 million since its launch. The Trust awards grants to local groups to help support:

1. Community,
2. Social, and
3. Environmental projects within our Area of Benefit

Information on the Community Trust Fund is available online and applications can be uploaded electronically at: manchesterairport.co.uk/CommunityTrustFund.
For further information please email

trust.fund@manairport.co.uk

or telephone 0161 489 5281.

How we started

How we are doing

RUNWAY DATA SHEET

We have a web-based version of this data sheet available on-line. There are film clips of a pilot and air traffic control officer describing how they control aircraft when landing and taking off from Manchester Airport. There are also clips of Airport colleagues describing how we monitor aircraft noise and track keeping and distribute aircraft noise fines to the communities that have been disturbed through the Manchester Airport Community Trust Fund. For more information please visit:

manchesterairport.co.uk/runwaydatasheet.

MANCHESTER AIRPORT FUTURE AIRSPACE

In 2017, the Secretary of State tasked the CAA with preparing and maintaining a coordinated strategy and plan for the use of UK airspace up to 2040, including modernisation. A framework for how UK airspace can be improved to accommodate predicted future growth in aviation, has been established, whilst addressing noise, emissions, and flight delay issues. The current departure and arrival routes for aircraft (as described in this data sheet) are based on navigation equipment on the ground. Modern aircraft can replace this method of navigation by using satellites. Satellite-based routes enable aircraft to follow departure and arrival routes with much greater precision.

The CAA consulted on a process for airports to work with communities when they modernise their airspace. This process was introduced in 2017 (and was last amended in March 2021), in a document called CAP1616, this sets out the detailed seven stage process that Manchester Airport must follow. You can read and/or download the latest version of CAP1616 on the CAA website.

In April 2023 we passed through Stage 2, 'Develop and assess', of the CAP1616 process and we commenced Stage 3 'Consult'.

In Stage 3, we have a great deal of work to complete in order to build a network of route options that can work together, safely and efficiently, to arrive and depart aircraft. Much later in Stage 3 we will need to test these route options against our Statement of Need and Design Principles in a full public consultation.

Keeping in touch

To keep up to date please visit:

manchesterairport.co.uk/futureairspace

If you would like us to contact, you directly please email **futureairspace@manairport.co.uk** with the following information and we will add you to our mailing list:

- Your name.
- Your postcode (to help us direct bespoke information to you).
- Your email address.

Your information will be used solely for the purpose of corresponding with you about Future Airspace and all details will be destroyed at the end of the consultation period.

YOU CAN REACH US AT:

Flight Evaluation Unit, Manchester Airport,
Manchester M90 1QX

FREEPHONE 08000 967 967

- community.relations@manairport.co.uk
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