



# Phase Two Engagement Materials - Arrivals

Stage 2 Develop and Assess



Appendix 5 outlines the arrivals materials shared during phase two stakeholder engagement.

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# EAST MIDLANDS AIRPORT FUTURE AIRSPACE

Stage 2 – Develop and Assess  
Phase two engagement – arrivals route options

November 2022



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# East Midlands Airport – airspace change timeline

We are here

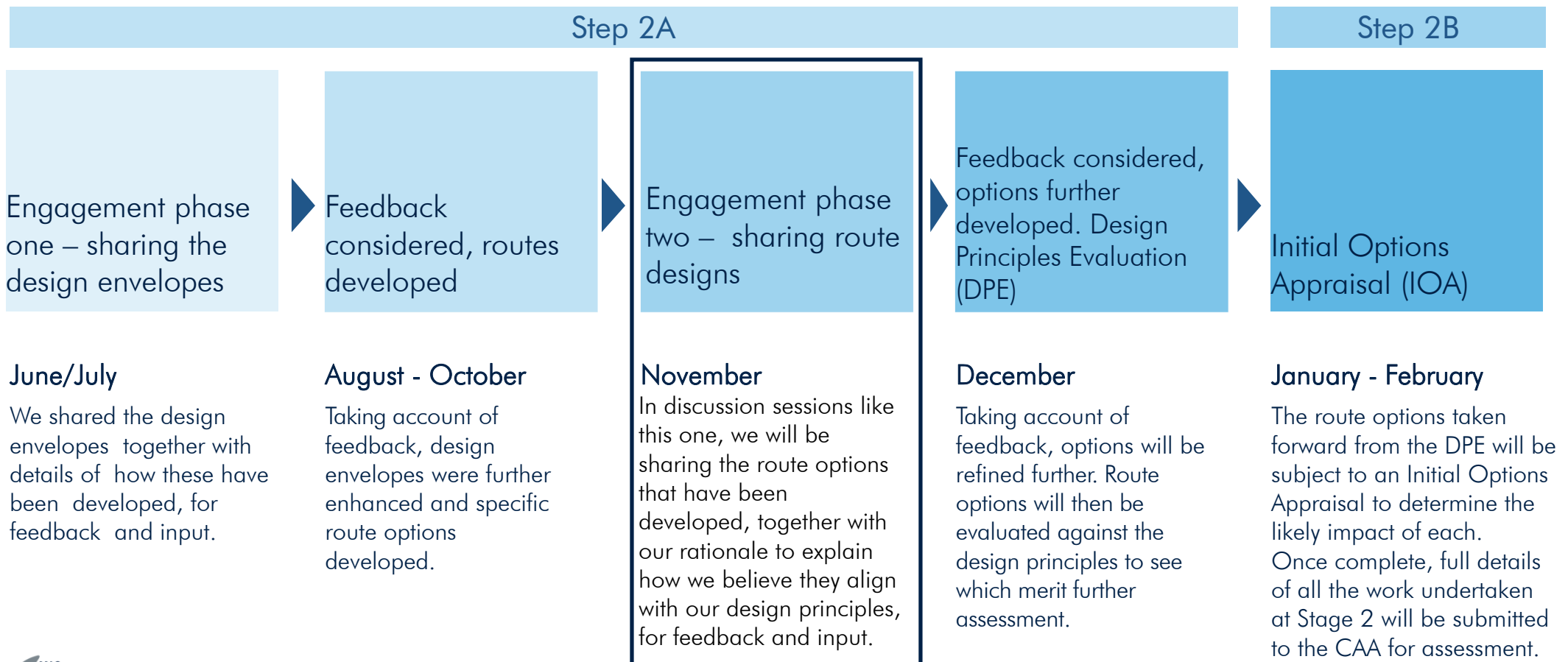
| 2019/2020  | 2022/2023   | 2023/2024   | 2024  | 2025   | 2026  | 2027 onwards   |   |
|--|---|---|---|--|---|--|---|
| <b>Stage 1</b><br><b>Define</b>  | <b>Stage 2</b><br><b>Develop and assess</b>   | <b>Stage 3</b><br><b>Full public consultation</b>   | <b>Stage 4</b><br><b>Update and submit proposals</b>  | <b>Stage 5</b><br><b>Decision</b>  | <b>Stage 6</b><br><b>Implementation</b>   | <b>Stage 7</b><br><b>Post-implementation review</b>              |   |
| <b>Step 1A</b><br>In May 2019 we sent the CAA our Statement of Need, which was approved and provisionally classed as a Level 1 change. | <b>Step 1B</b><br>We gathered views on Design Principles during 2019. Our Stage 1 work was approved by the CAA in January 2020. | Using the Design Principles produced during Stage 1 as a framework to evaluate different design options, we will develop and assess options for any airspace change. We will send details of those design options to the CAA for approval in Spring 2023. | We will prepare to consult the public on these options. Once we have approval from the CAA to proceed, a formal consultation will take place in late 2023/2024. | We will update our airspace change proposal, taking stakeholders' feedback into account, before sending it to the CAA in 2024. | We expect the CAA's decision on whether to approve any airspace change in 2025. | If approved, any airspace changes could be put in place in 2026. | The CAP1616 process gives the CAA and airports 12 months to review any change that has been made to airspace. |

<sup>1</sup> Level 1 changes are high impact changes to notified airspace design which have the potential to alter traffic patterns below 7,000ft

All future dates are provisional pending CAA approval and alignment with the wider Airspace Modernisation Strategy

## Stage 2 process – gathering views

We are here



# PHASE ONE RECAP



# Arrivals – phase one design process recap

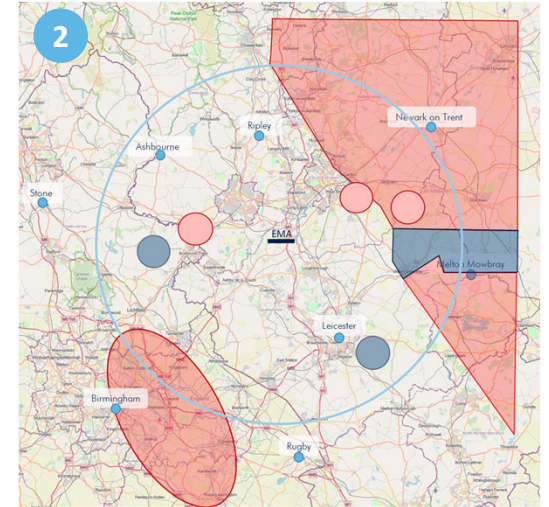
## 1 Design Boundary

Determine where we could fly between 7,000 feet and the runway. Using guidance we created a 'design boundary'.



## 2 Constraints

Consider the airspace around us to identifying constraints within the design boundary.



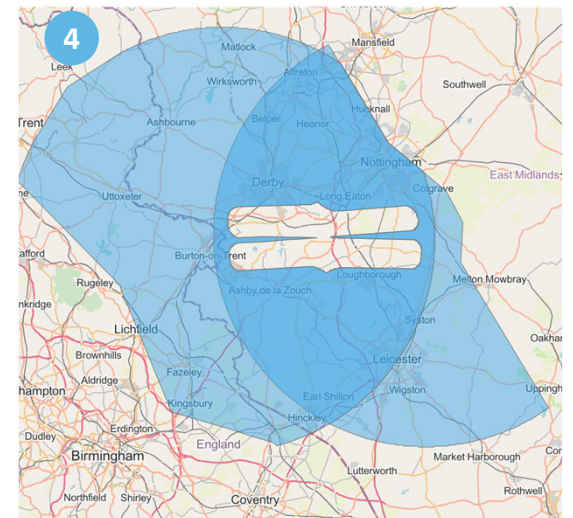
## 3 Design principles

Using our design principles and supporting CONOPS, consider what we want to achieve.



## 4 Design envelopes

This process created a set of design envelopes – broad areas where we could place routes for departures and arrivals.







# PHASE ONE ENGAGEMENT FEEDBACK



## Phase one feedback – general themes

|                             | Feedback   | Action  |
|-----------------------------|--|---|
| <b>Respite</b>              | Creating routes that could provide options for respite for areas that are overflowed is important as a means of minimising local noise impacts.                  | For arrivals, we have created a range of options within the design envelope. In addition, we have created options that provide different joining points onto final approach which could create a level of noise relief. ATC vectoring onto final approach will also provide some respite. <b>Design principle link, Sharing the Load.</b>   |
| <b>Community Overflight</b> | Managing noise impacts on communities close to the airport is a key concern. Many stakeholders asked us to avoid overflying specific villages, towns and cities. | Options have been included in each envelope that seek to avoid direct overflight of specific areas of population, wherever possible. <b>Design principle link, Limiting Disturbance.</b>  |
| <b>Route placement</b>      | Routes should be placed in areas where they cause the minimum noise disturbance to communities.  | The CAP1616 process requires us to consider routes that respond to all design principles, not just noise. However, options have been included that aim to follow non residential areas, for example by following the path of major road networks, where possible. <b>Design principle link, Responsive Flight Paths and Sharing the Load.</b>   |
| <b>Descent gradients</b>    | Consider steeper approaches for arrival routes.  | Stakeholders asked us to consider steeper descent gradients. There is a trade off between descent gradient and noise, so in line with our design principles Limiting our Footprint and Limiting Disturbance we have designed CDAs from 7,000 feet at a gradient that minimises both noise and fuel burn. However for the final approach, landings in poor weather require the ILS to be calibrated at a fixed gradient in line with UK and international regulations. <b>Design principle link, Keeping the Skies Safe.</b> |
| <b>Housing development</b>  | Consideration should be given to new/ proposed housing development within Local Plans.   | The CAP1616 process requires us to consider local plans. All known committed local plan allocations and large sites with planning consent will be included as part of the overflight analysis that will form part of the Initial Options Appraisal (IOA). <b>Design principle link, Limiting Disturbance.</b>   |

## Phase one feedback – general themes

|                             | Feedback   | Action  |
|-----------------------------|--|---|
| <b>Sensitive areas</b>      | Green spaces and other cultural sites are important. The location of SSSIs and other sensitive sites should be considered. | The location of sensitive sites as defined in the CAP1616 guidance has been included in our route options maps to provide clarity for stakeholders, options that take account of these have been provided. Sites that fall within the definition of tranquil areas will be identified and considered as part of the environmental appraisal of the route options. This will be extended to heritage sites and parks as well as sites with ecological designation such as Ramsar sites and SSSIs. <b>Design principle link, Noise Sensitive Locations.</b> |
| <b>Improving technology</b> | Consider the use of Performance Based Navigation (PBN).  | Like departures, all our route options for arrivals will be designed to utilise Performance Based Navigation (PBN) technology. This will ensure aircraft fly a more accurate route to the ground than currently. We will cover this in further detail later in the session. <b>Design principle link, Limiting Disturbance, Embracing Technology.</b>   |
| <b>Environment impacts</b>  | Consideration should be given to environmental impacts of any changes.   | As part of our design principles evaluation, in line with our Limiting our Footprint principle, each route option will be assessed to estimate the fuel burnt and emissions generated. This will enable a comparison to be made between each option to provide a picture of the comparative environmental impact of each. <b>Design principle link, Limiting our Footprint.</b>   |
| <b>Runway 09</b>            | Consider more direct routes that would give an earlier turn towards base leg on Runway 09 when arriving from the south.    | We have created a range of options in the 09 South envelope to provide a turn onto base leg at an earlier point. <b>Design principles Link: Limiting our Footprint.</b>   |

## Phase one feedback – general themes

|                          | Feedback   | Action   |
|--------------------------|--|--|
| <b>Night operations</b>  | Operations at night are of particular concern.   | At this stage of the process we are required to look at the location of route options only, not how each route might be used as part of the system of routes. This will come later in the process after the completion of Stage 2. However, the Sharing the Load design principle leads us to consider how we can create predictable respite or relief, either through the design (where the routes are) or how they are operated and that would include night operations. <b>Design principle link, Sharing the Load.</b>   |
| <b>Training flights</b>  | Training flights are most disruptive, these should be considered as part of airspace change. | Our airspace change relates to routes used by aircraft that join the NATS national route network at 7,000 feet. Training flights do not join this network and therefore do not form part of the airspace change process. Training flights are however considered as part of the Noise Action Plan, more detail on how these are being addressed and the progress that has been made can be found in the pre read material.   |
| <b>Flight procedures</b> | Consider curved approaches.  | <p>We have considered curved approaches for our arrivals, but have not designed these as options for two reasons. Firstly our Embracing Technology design principle requires us to design options to the latest widely available navigation technology. Curved approaches require aircraft technology, which is not widely available, and specialist aircrew training, and for this reason these approaches are not in operation at any UK airport. Secondly, to implement a mix of ILS approaches with only a very limited number of curved approaches would not be aligned to our design principle Meeting Demand. This is because the flow of ILS arrivals would have to be paused to enable a curved approach to safely take place. This would cause inefficiencies by delaying arriving traffic and would increase the incidence of arrival traffic holding while waiting to land.</p> <p>This option has therefore been considered but determined as viable but poor fit with our must have design principles.</p> |

# QUESTIONS



# DEVELOPING A COMPREHENSIVE LIST OF ROUTE OPTIONS



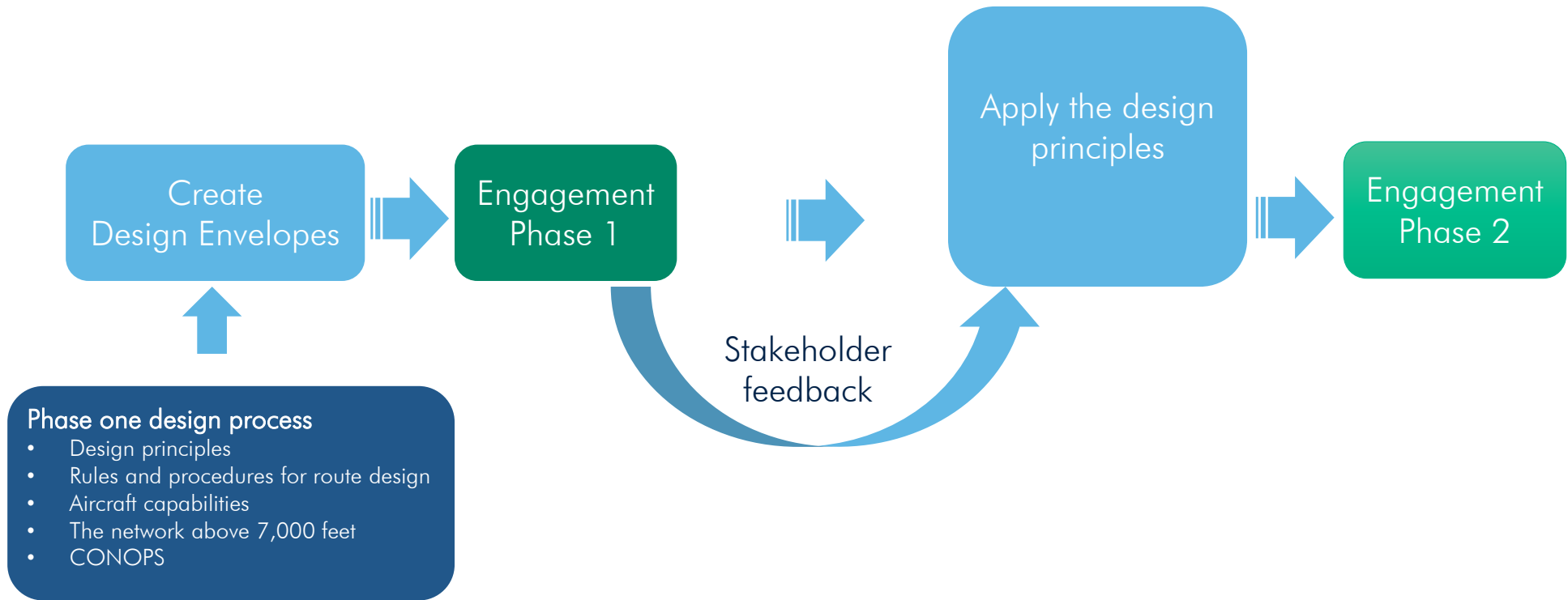
# WHAT WILL WE BE ASKING?

- Is the process we have followed to identify route options for arrivals clear and logical?
- Is it clear how feedback from our earlier stakeholder discussion sessions in June have influenced the development of the route options?
- Do the route options align with the design principles?
- Are there any further options or improvements that could deliver additional benefits that you feel we haven't included? If so, please explain.
- Aside from those already mentioned, are there any additional local factors we should be aware of when evaluating these route options?





# The phase 2 design process



# The route options development process – applying the design principles

## Keeping the Skies Safe

Safety must take precedence over all other factors. Flight paths must be safe for airspace users, the airport and communities on the ground.

## A Joined-up Approach

Any changes must align with the broader national airspace modernisation strategy, comply with national, international and industry regulations and legislation, and align with current and future Airspace Change Programmes in the north and south of the UK through involvement in the Future Airspace Strategy Implementation groups.

## Meeting Demand

New flight paths must ensure the continuation of services offered today and meet any future demand, in keeping with local and national planning policy, and the Government's policy on 'making best use' of existing runway capacity.

## Limiting our Footprint

Flight paths that limit and, where possible, reduce emissions should be implemented.

## Sharing the Load

Flight paths should, where practical, be spread out to avoid concentration of aircraft activity to share any noise impacts.

## Responsive Flight Paths

Where flight paths have overfly communities, we will consider existing noise in the local area, and will select flight paths to mitigate effects on areas with relatively low levels of ambient noise.

## Limiting Disturbance

Flight paths should seek to limit and, where possible, reduce noise disturbance to communities – especially at night.

## Noise Sensitive Locations

Flight paths should, where practical, avoid locations that are especially sensitive to noise.

## Fit for the Future

Flight paths should be designed to futureproof our airspace and cannot be constrained by existing arrangements.

## Airspace for All

Our controlled airspace should be open to all authorised users; however, priority will be given to airport traffic over other airspace users, except for emergency aircraft.

## Embracing Technology

Flight paths should be designed using the latest, widely available navigational technology and flying techniques.

To create arrival options we looked at ways to route to the runway, through the design envelope from 7,000 feet.

This created a comprehensive list of options.

Not all of the options which we considered are viable when assessed against our design principles, specifically the three design principles that we determined all of our options *must* meet. So we have therefore adopted a staged approach to refine these.

The result is a range of **viable** arrival route options which we are presenting to you.

## The staged approach to refining our options

### UNVIABLE

Options that do not meet PANS-OPS 8168 (the rules for designing instrument approach and departure procedures) or have a justifiable safety case.

For example, this could be due to:

- The position of the first turn or the turn radius
- Not meeting obstacle clearance requirements
- Descending at a gradient above the recommended maximum

**Unviable** options will be outlined in our Design Options Report (DOR) but will not be developed in detail or analysed in the Design Principles Evaluation.

### VIABLE BUT POOR FIT

Options that would not meet one or more of the three design principles with which routes 'must' comply (Keeping the Skies Safe, A Joined-up Approach, Meeting Demand)

- This will exclude any options that conflict with our identified safety constraints, or complex airspace.
- Alternatively it may exclude options that do not comply with policies such as the UK Government Airspace Modernisation Strategy.

The concept design for **Viable but Poor Fit** options will be described in our Design Options Report (DOR), as is the reason for failing to meet the design principle. However, they will not be designed or taken forward for analysis.

### VIABLE AND GOOD FIT

Options that would be expected to meet the three design principles with which routes 'must' comply (Keeping the Skies Safe, A Joined-up Approach, Meeting Demand)

- These are the subject of our discussion today

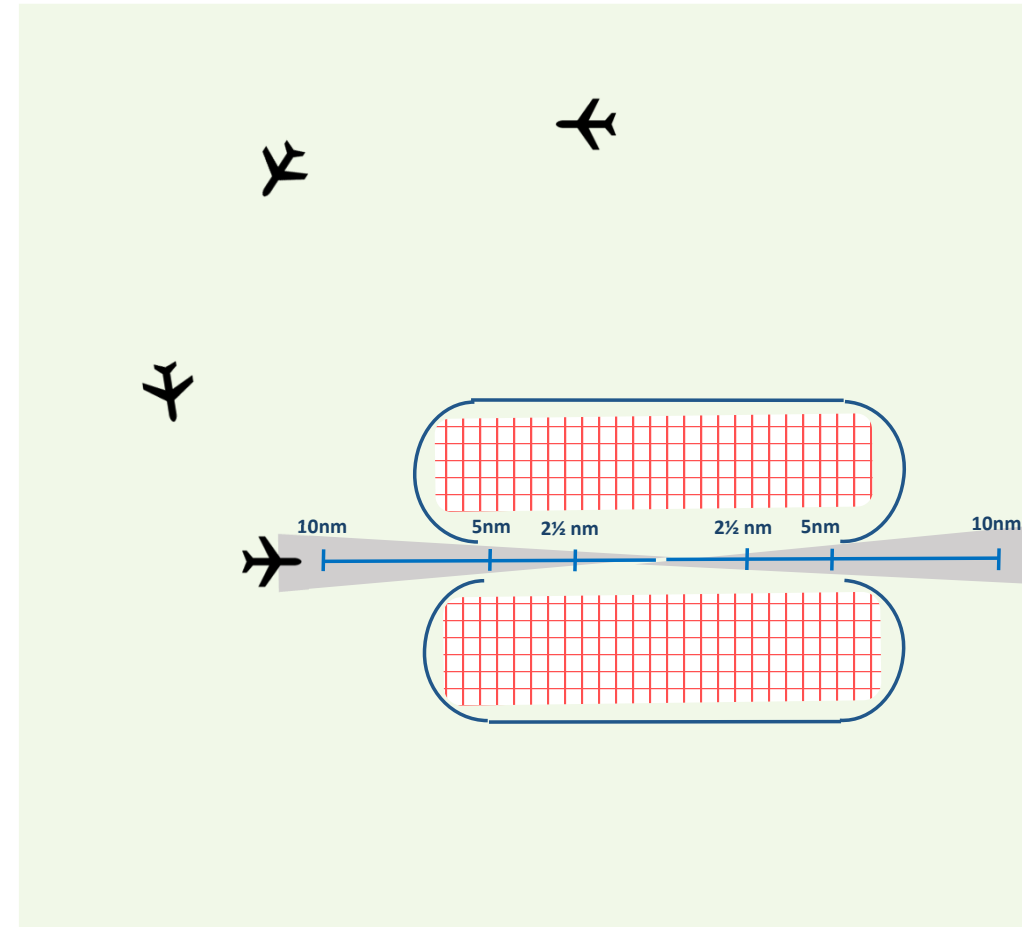
**Viable and Good Fit** options will be fully designed and evaluated against all of the design principles.

## Unviable arrival options

PANS-OPS 8168 (Procedures for Air Navigation Services – Aircraft Operations) sets out criteria such as when an aircraft can turn onto final approach, how tightly and at what speed.

Applying these rules creates a hatched area within which it is not viable to design an arrival procedure. This is defined by a combination of the turn radius, speed and the minimum height for final approach. Route options designed in this area that do not have justifiable safety case are classed as **unviable**.

The minimum height for aircraft to be established on final approach is 2,000 feet above sea level. At East Midlands Airport this equates to just over 5 nautical miles from the runway threshold.



## Applying Keeping the Skies Safe and Meeting Demand **Viable but poor fit**

The **Keeping the Skies Safe** design principle requires us to comply with international standards and regulations and makes safety our highest priority.

This covers PANS-OPS 8168 but also the rules that relate to:

- Danger areas and restricted airspace
- Route spacing
- ATC procedures for safely managing aircraft

Any options that would fail to meet these criteria are classified as viable but poor fit.

Our designs have a safety process running in parallel that ensures these factors have been accounted for.

The **Meeting Demand** design principle requires us to provide an airspace design that allows the continuation of services offered today and meet any future demand in line with local and national planning policy. To achieve this will require routes that operate effectively as a system and in conjunction with other airports.

However, at this stage there is uncertainty on

- The route options at other airports within the Manchester Terminal Manoeuvring Area (MTMA)
- The position of the NATS arrival structure above 7,000 feet

Until there is more certainty on these aspects we will not have groups of interdependent route options to assess.

We therefore cannot evaluate whether a route meets the demand design principle at this stage and we propose to delay this until a later stage.

## Applying A Joined up Approach **Viable but poor fit**

The A Joined-up Approach design principle requires us to align with the Governments overall Airspace Modernisation Strategy (AMS) and comply with national, international and industry regulations and legislation.

By reference to this and CAP1616 we also need to consider:

- The Transport Act 2000.
- The Air Navigation Guidance 2017 (ANG)

Both the ANG and the AMS highlight the use of Continuous Descent Approaches/Operations as a means to achieving the objectives in the policy.

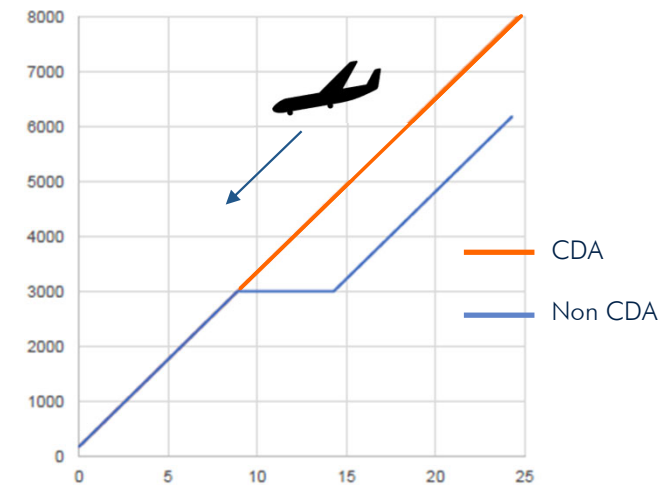
Our arrivals designs must therefore provide continuous descents to both runway ends to meet the A Joined-up Approach design principle.

Any route option that does not do so becomes viable but poor fit as it fails to meet the requirements of the design principle.



## What are Continuous Descent Approaches?

- Continuous Descent Approaches (CDA) involve arriving aircraft using minimum thrust and avoiding prolonged level flight
- The objective of a CDA is to reduce the environmental impact of the arrival by:
  - Reducing noise
  - Minimising CO<sub>2</sub>
- There are a range of descent gradients for a CDA which will provide benefits
  - The optimal is between around 3.5% and 5.25%
  - Below this may require engine power, creating noise
  - Above this may result in air brakes being needed, which also create noise
- Our route options have been created to provide a CDA within this optimal range
  - This equates to an arrival track of between 25-32 miles from 7,000 feet

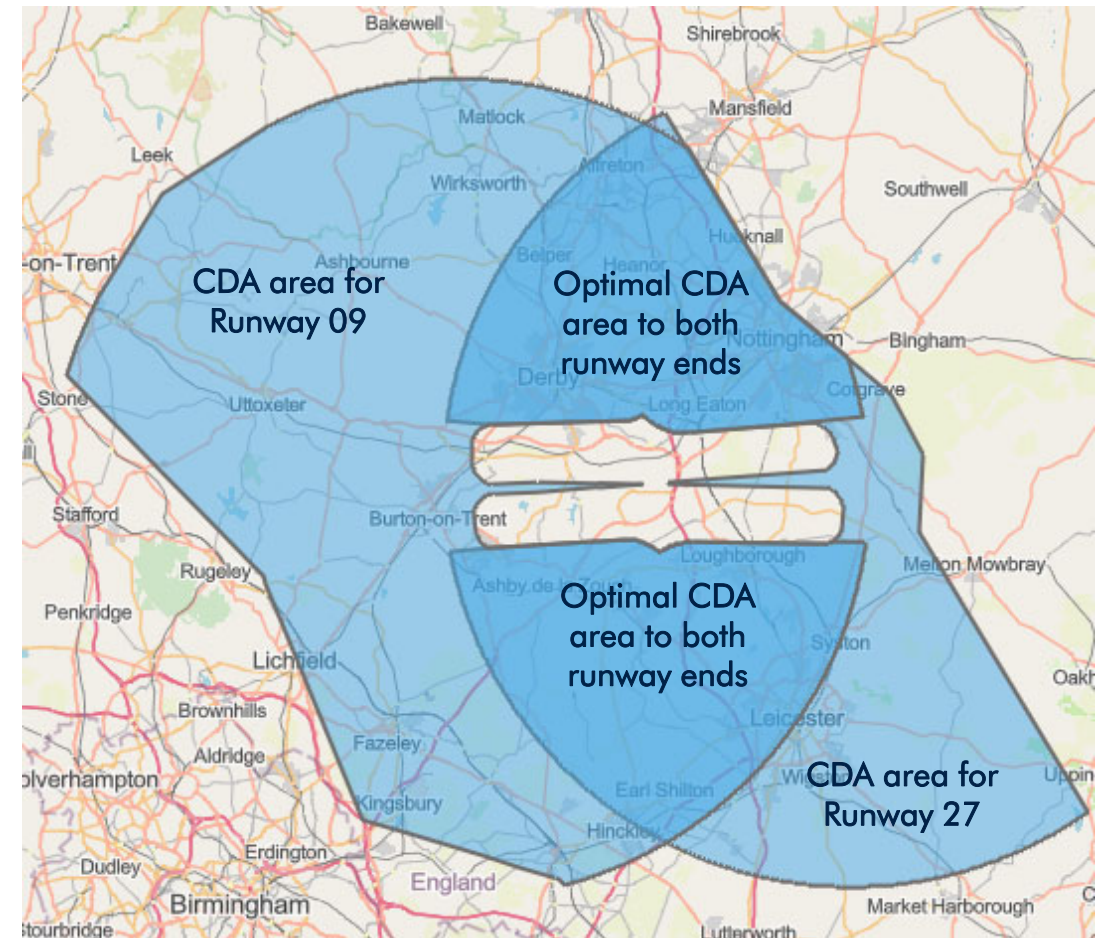


## The viable design envelope

The blue areas are where we can put the start of our arrival routes, this will be at 7,000 feet.

The lighter blue areas show where a CDA could start to one runway end.

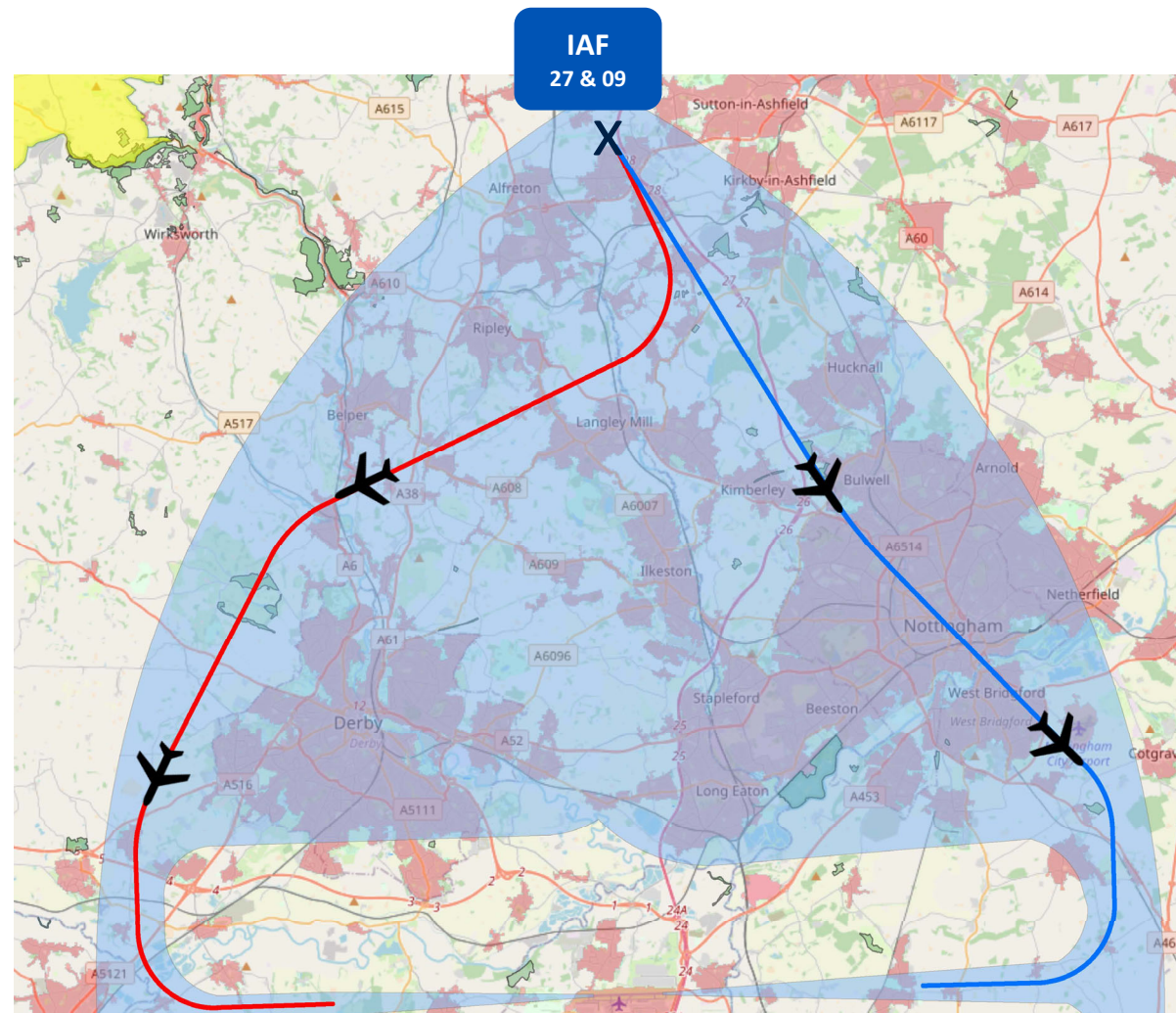
The darker blue area of overlap demonstrates where we can be assured an optimal CDA to both runway ends can start.





# How are arrivals options designed?

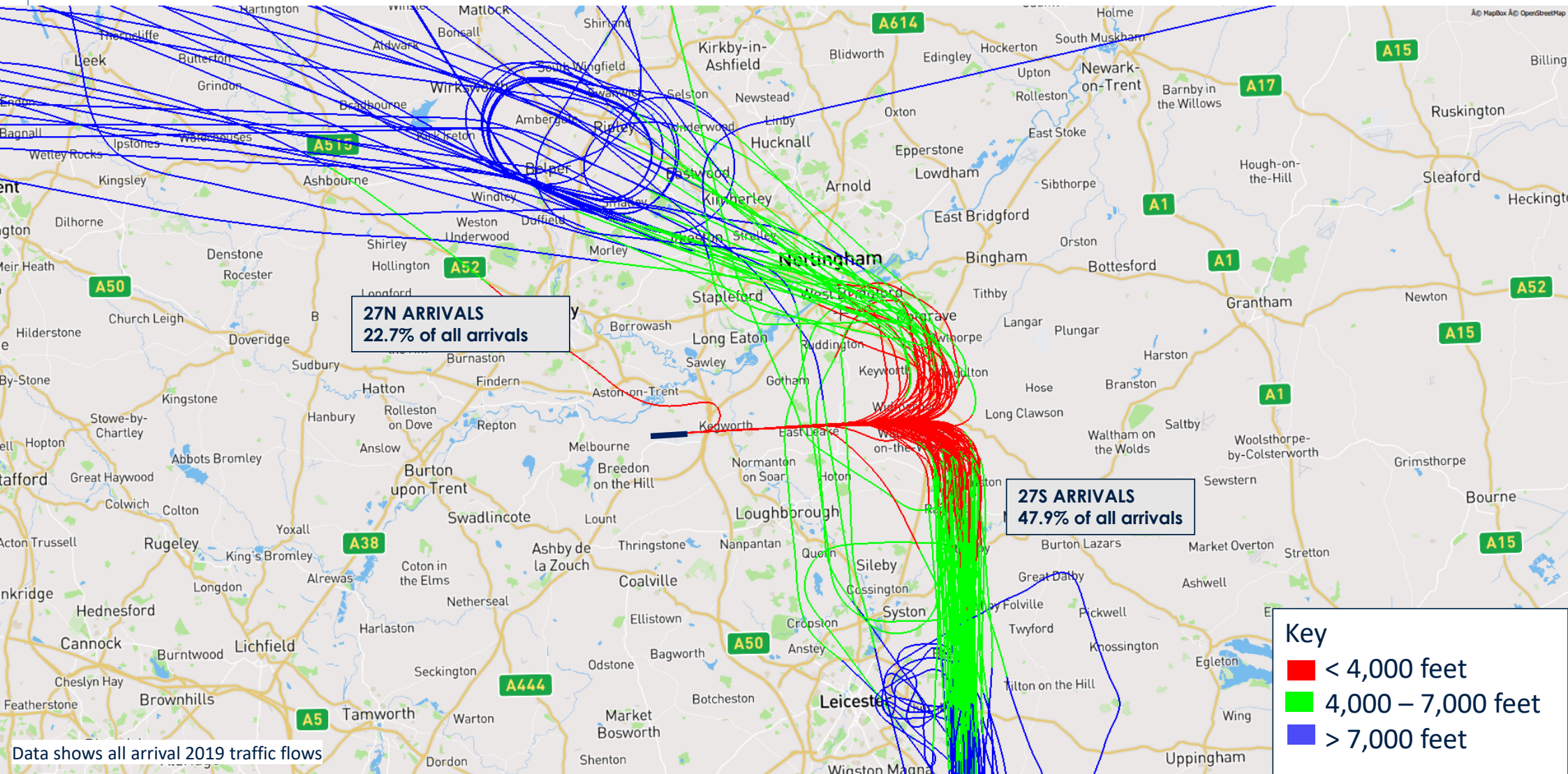
- All arrival route options start at 7,000 feet a point called the Initial Approach Fix (IAF).
- This is the point the aircraft leaves the NERL (NATS En-Route) upper airspace network and enters East Midlands Airport airspace.
- While only one end of the runway is in operation at any one time, to be considered Viable and Good Fit, the position of the IAF must enable a CDA to both runway ends.
- We have established a number of IAFs and all of them fall within the dark blue overlapping area described in the previous slide.
- Each IAF has routes that are viable to both runways.
- We have not created IAFs and routes that only work for one runway end because this would not be aligned to either our design principles Keeping the Skies Safe or Joined-Up Approach.
- Our options also seek to create some “replication” of the paths flown today. This is feasible for flights from the north, but more difficult from the south because the position of the current IAF is outside the CDA area.



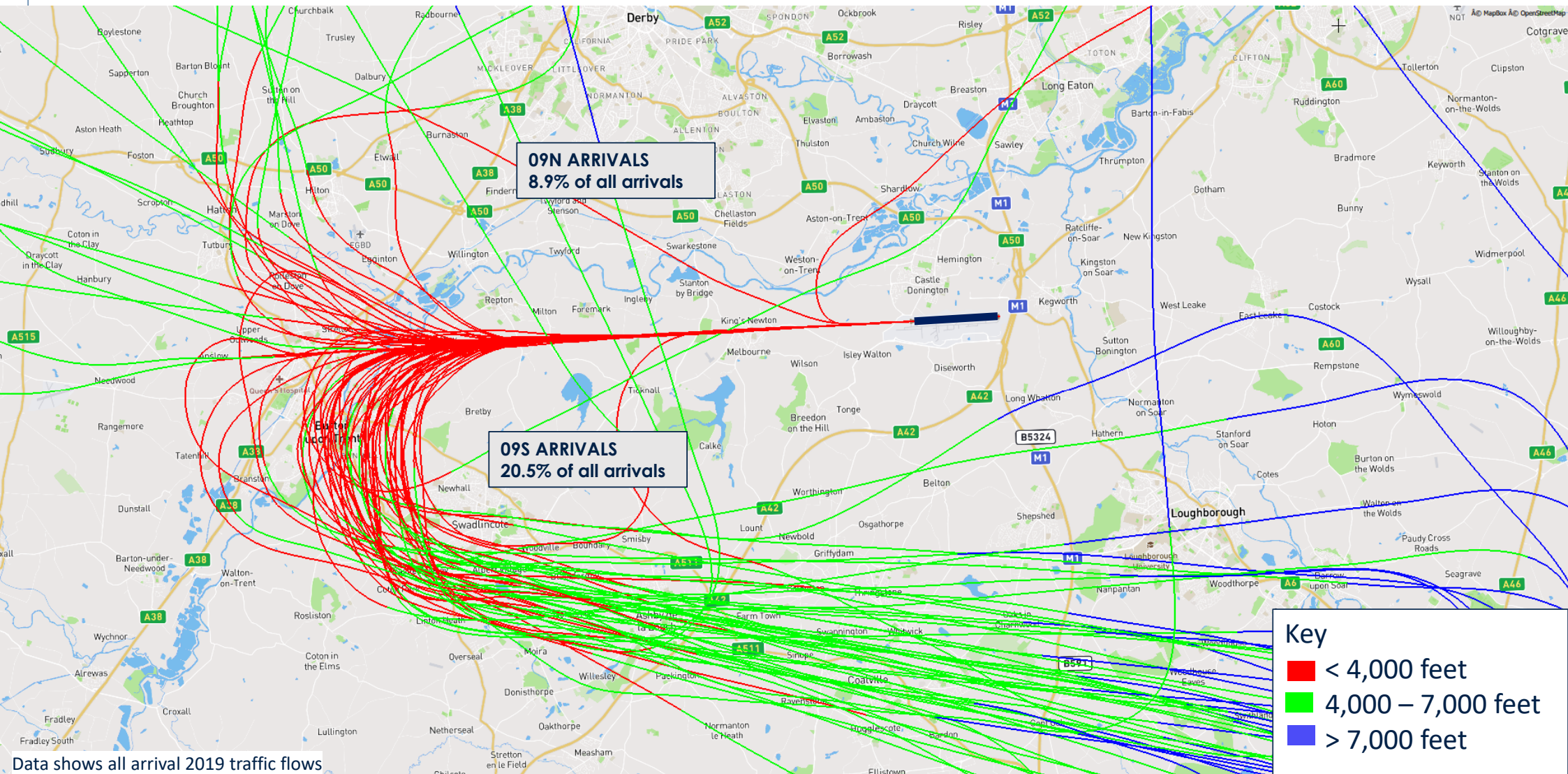
# CURRENT OPERATIONS



# Current operations – typical arrivals on Runway 27



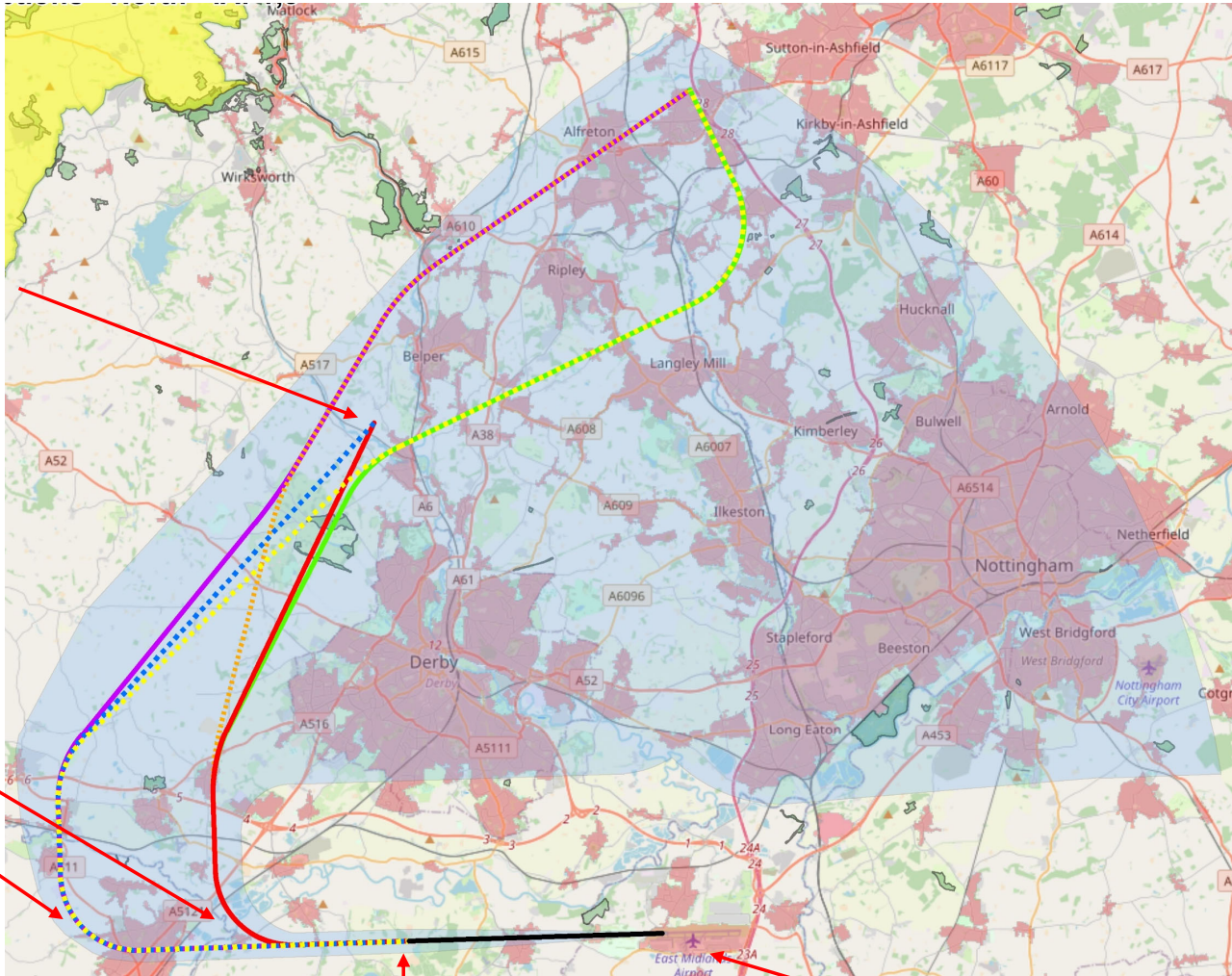
# Current operations – typical arrivals on Runway 09



# How we are going to describe the arrivals options – an example

The start of each route option at 7,000 feet (the IAF)

Alternative joining points onto final approach



Final approach (ILS)

East Midlands Airport runway

# RUNWAY 27

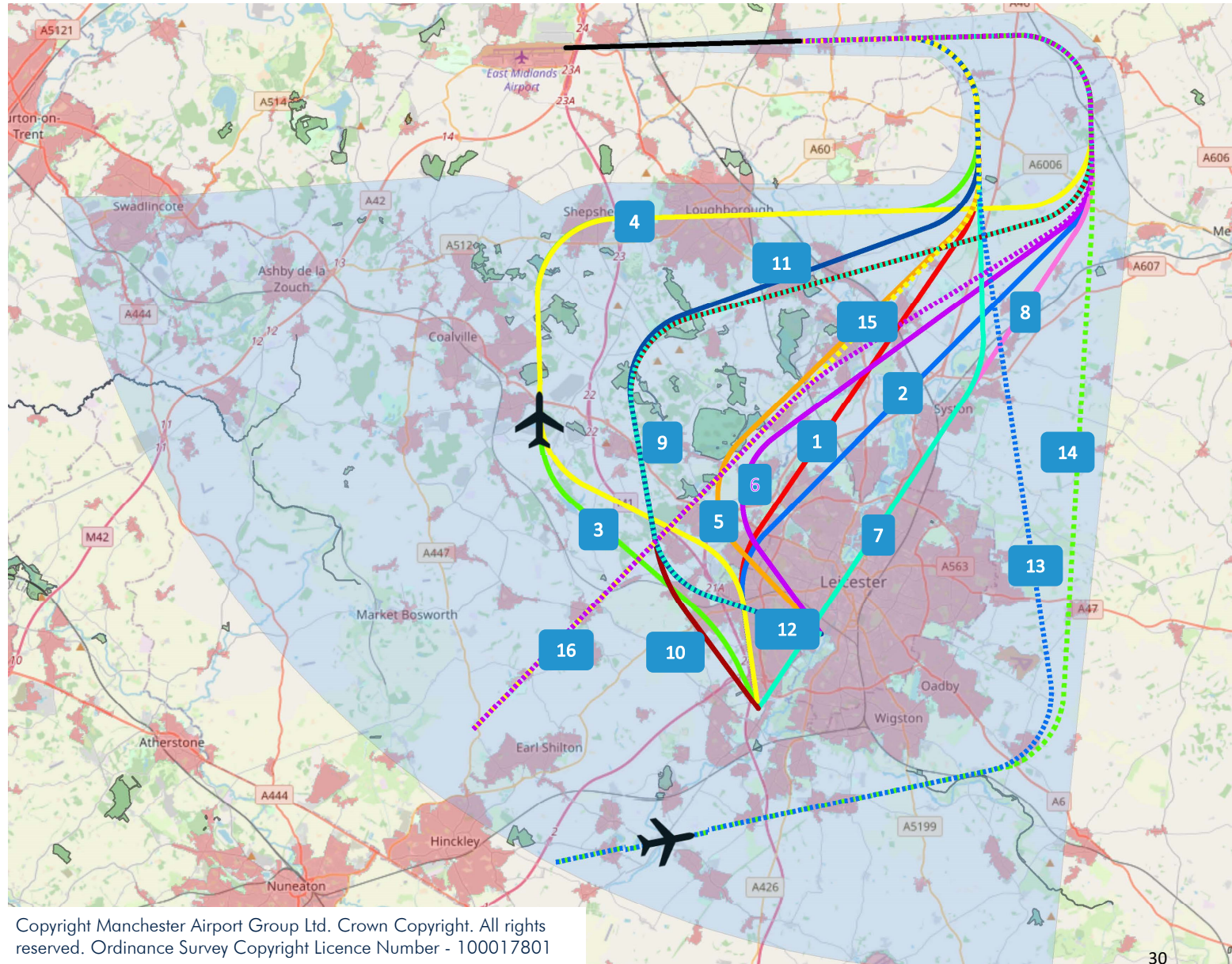




# Runway 27 South

## R27 Arrival Options

- Arrival Runway 27 South Option 1
- Arrival Runway 27 South Option 2
- Arrival Runway 27 South Option 3
- Arrival Runway 27 South Option 4
- Arrival Runway 27 South Option 5
- Arrival Runway 27 South Option 6
- Arrival Runway 27 South Option 7
- Arrival Runway 27 South Option 8
- Arrival Runway 27 South Option 9
- Arrival Runway 27 South Option 10
- Arrival Runway 27 South Option 11
- Arrival Runway 27 South Option 12
- Arrival Runway 27 South Option 13
- Arrival Runway 27 South Option 14
- Arrival Runway 27 South Option 15
- Arrival Runway 27 South Option 16
- R27 Design Area
- National Parks England
- Areas of Outstanding Natural Beauty
- SSSI
- Built-Up Areas



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Options shown are for illustration only and are subject to change as we progress through the CAP1616 process.



# QUESTIONS & FEEDBACK – RUNWAY 27

- Is the process we have followed to identify route options for Runway 27 clear and logical?
- Is it clear how feedback from our earlier stakeholder discussion sessions in June have influenced the development of the route options?
- Do the route options align with the design principles?
- Are there any further options or improvements that could deliver additional benefits that you feel we haven't included? If so, please explain.
- Aside from those already mentioned, are there any additional local factors we should be aware of when evaluating these route options?



# RUNWAY 09

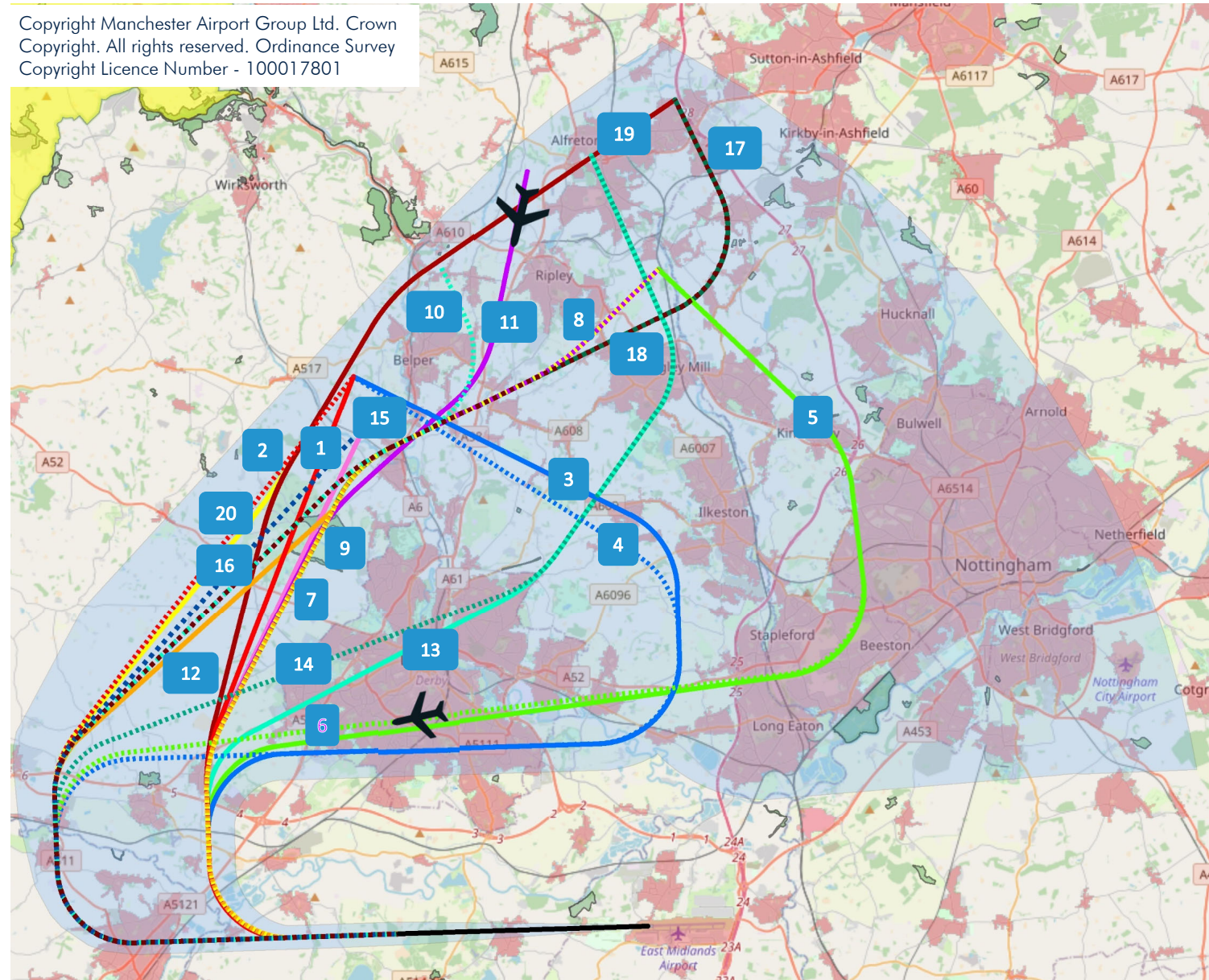


# Runway 09 North

## R09 Arrival Options

- Arrival Runway 09 North Option 1
- - - Arrival Runway 09 North Option 2
- Arrival Runway 09 North Option 3
- - - Arrival Runway 09 North Option 4
- Arrival Runway 09 North Option 5
- - - Arrival Runway 09 North Option 6
- - - Arrival Runway 09 North Option 7
- - - Arrival Runway 09 North Option 8
- - - Arrival Runway 09 North Option 9
- - - Arrival Runway 09 North Option 10
- Arrival Runway 09 North Option 11
- Arrival Runway 09 North Option 12
- Arrival Runway 09 North Option 13
- - - Arrival Runway 09 North Option 14
- Arrival Runway 09 North Option 15
- - - Arrival Runway 09 North Option 16
- Arrival Runway 09 North Option 17
- - - Arrival Runway 09 North Option 18
- Arrival Runway 09 North Option 19
- Arrival Runway 09 North Option 20
- R09 Design Area
- National Parks England
- Areas of Outstanding Natural Beauty
- SSSI
- Built-Up Areas

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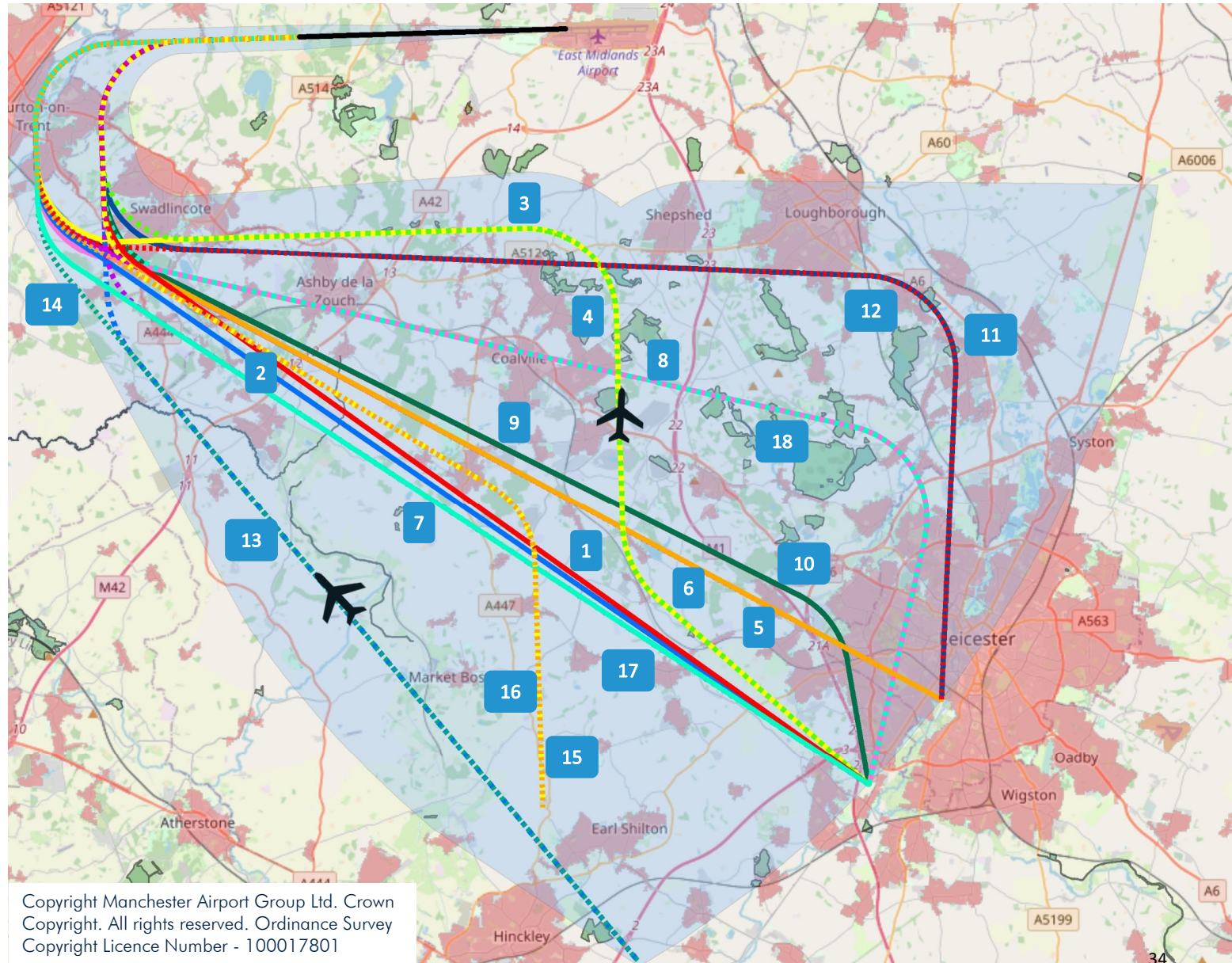


Options shown are for illustration only and are subject to change as we progress through the CAP1616 process.

# Runway 09 South

## R09 Arrival Options

- Arrival Runway 09 South Option 1
- Arrival Runway 09 South Option 2
- - - Arrival Runway 09 South Option 3
- Arrival Runway 09 South Option 4
- Arrival Runway 09 South Option 5
- Arrival Runway 09 South Option 6
- Arrival Runway 09 South Option 7
- Arrival Runway 09 South Option 8
- Arrival Runway 09 South Option 9
- Arrival Runway 09 South Option 10
- Arrival Runway 09 South Option 11
- - - Arrival Runway 09 South Option 12
- - - Arrival Runway 09 South Option 13
- - - Arrival Runway 09 South Option 14
- - - Arrival Runway 09 South Option 15
- - - Arrival Runway 09 South Option 16
- - - Arrival Runway 09 South Option 17
- - - Arrival Runway 09 South Option 18
- R09 Design Area
- National Parks England
- Areas of Outstanding Natural Beauty
- SSSI
- Built-Up Areas



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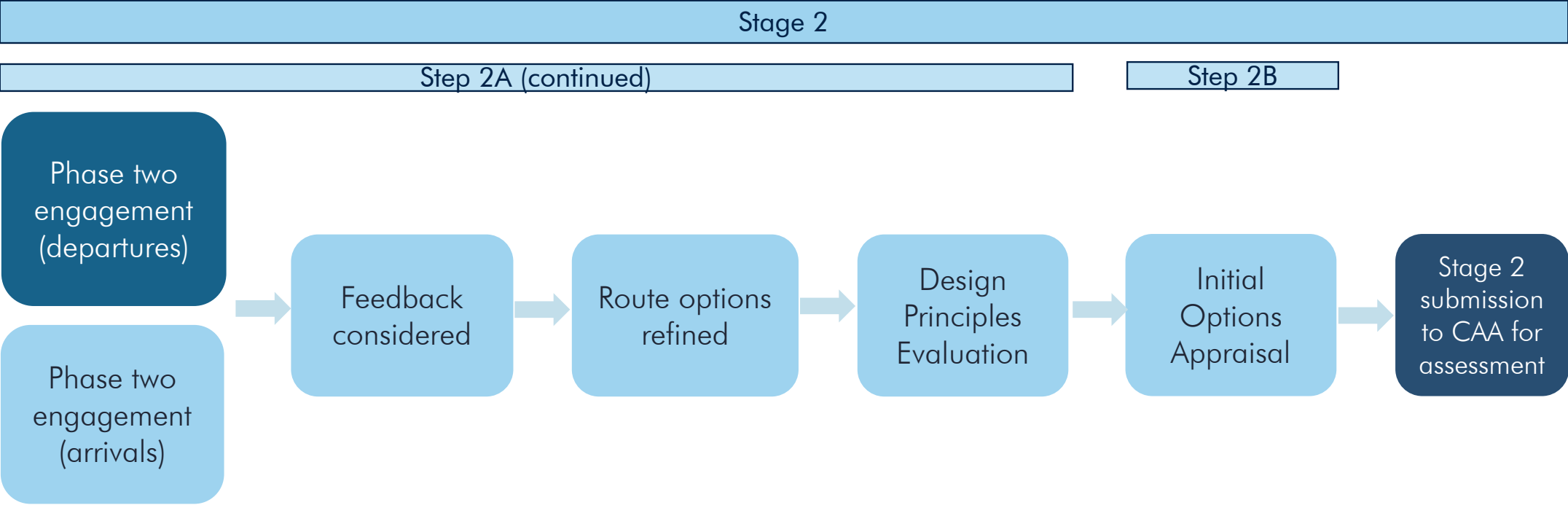
Options shown are for illustration only and are subject to change as we progress through the CAP1616 process.

# QUESTIONS & FEEDBACK – RUNWAY 09

- Is the process we have followed to identify route options for Runway 09 clear and logical?
- Is it clear how feedback from our earlier stakeholder discussion sessions in June have influenced the development of the route options?
- Do the route options align with the design principles?
- Are there any further options or improvements that could deliver additional benefits that you feel we haven't included? If so, please explain.
- Aside from those already mentioned, are there any additional local factors we should be aware of when evaluating these route options?



# Next steps



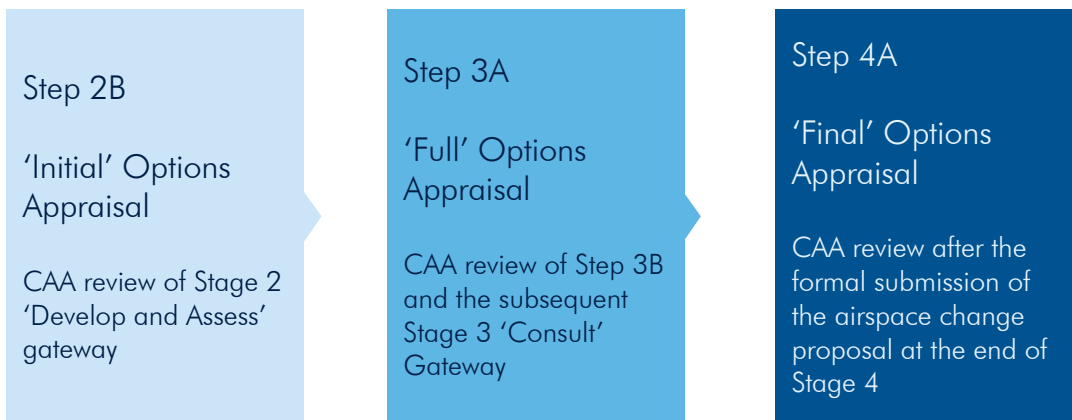
## Design Principles Evaluation (DPE) - Process

- Assessment criteria will be developed for each principle.
- Performance against these criteria will be used to establish the extent to which each option meets each principle.
- Each option will be determined to have **met**, **partially met** or **not met** each design principle.
- A matrix will then be produced to determine overall alignment to the design principles and allow comparison between all route options.
- Options which merit further analysis will be taken forward to the Initial Options Appraisal (IOA).

|  |  |   |   |
|--|--|---|---|
| <b>Design Principle</b><br><br><b>Keeping the Skies Safe</b> | <b>Keeping the Skies Safe</b><br>Safety must take precedence over all other factors. Flight paths must be safe for airspace users, the airport and communities on the ground.  |   |   |
|  | <b>Not met</b><br><br>There is insufficient evidence to demonstrate that the option is safe.<br><br>AND/OR<br><br>From the assessment carried out, this option does not meet the requirement of being within safety tolerances as understood in the aviation industry. | <b>Partial</b><br><br>There is satisfactory evidence to demonstrate that the option is safe. However, additional safety mitigations or processes would be required to safely accommodate the option.<br><br>OR<br><br>The route is not compliant with PANS-OPS but there is sufficient evidence to demonstrate that it can be flown safely. | <b>Met</b><br><br>There is sufficient evidence to demonstrate that the option is safe.<br><br>This option meets the criteria of being justifiably safe. |

# Initial Options Appraisal (IOA)

- The purpose of the IOA is to provide an assessment of each design option carried forward from the DPE to understand its likely benefits compared to the baseline (current operations).
- Each design option is assessed against the impacts defined within CAP1616 (shown in the table on the right).
- Options are shortlisted based on performance against each criteria and then categorised giving us preferred options, favoured options, acceptable options, and rejected options.
- The IOA is the first of three options appraisals in the CAP1616 process and provides the foundation for the quantitative assessments that follow at Stages 3 and 4.



| Affected Group                          | Impact  |
|---|---|
| Communities                             | <ul style="list-style-type: none"> <li>• Noise impact on Health and quality of life</li> <li>• Air Quality</li> </ul>             |
| Wider Society                           | <ul style="list-style-type: none"> <li>• Greenhouse Gas Impact</li> <li>• Capacity and resilience</li> </ul>                      |
| General Aviation                        | <ul style="list-style-type: none"> <li>• Access</li> </ul>  |
| General Aviation/commercial airlines    | <ul style="list-style-type: none"> <li>• Economic impact from increased effective capacity</li> <li>• Fuel burn</li> </ul>        |
| Commercial airlines                     | <ul style="list-style-type: none"> <li>• Training costs</li> <li>• Other costs</li> </ul>   |
| Airport/Air Navigation Service Provider | <ul style="list-style-type: none"> <li>• Infrastructure costs</li> <li>• Operational costs</li> <li>• Deployment costs</li> </ul> |
| Safety Assessment                       | <ul style="list-style-type: none"> <li>• Safety Assessment</li> </ul>   |
| Wider Society                           | <ul style="list-style-type: none"> <li>• Tranquillity</li> <li>• Biodiversity</li> </ul>  |



Presentation, Q&A and feedback survey circulated  
Feedback deadline – 5pm, Friday 9<sup>th</sup> December 2022

[futureairspace@eastmidlandsairport.com](mailto:futureairspace@eastmidlandsairport.com)



# ADDITIONAL CONTENT

The following slides show the envelopes in more detail.



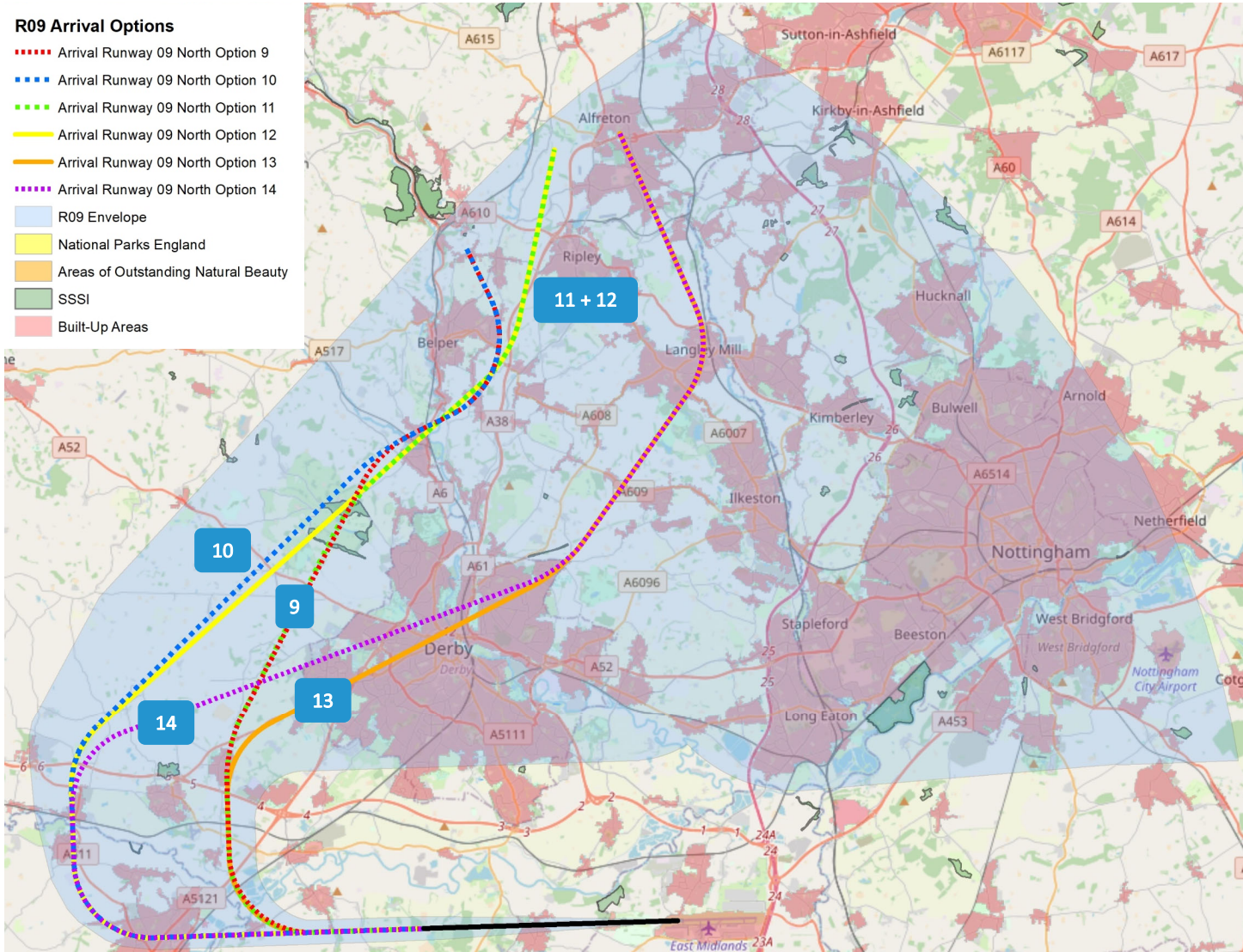


# Runway 09 North

All routes have different joining points and could be used together to create noise respite or relief.

## R09 Arrival Options

- Arrival Runway 09 North Option 9
- Arrival Runway 09 North Option 10
- Arrival Runway 09 North Option 11
- Arrival Runway 09 North Option 12
- Arrival Runway 09 North Option 13
- Arrival Runway 09 North Option 14
- R09 Envelope
- National Parks England
- Areas of Outstanding Natural Beauty
- SSSI
- Built-Up Areas



**Options 9 and 10** route around Belper and then travels west of Derby.

*Design principle link – Limiting Disturbance and Sharing the Load*

**Options 11 and 12** start between Belper and Ripley and follow a similar track to option 9 and 10.

*Design principle link – Limiting Disturbance and Sharing the Load.*

**Options 13 and 14** start at Alfreton and follow the railway. They turn west at Langley Mill towards Derby.

*Design principle link – Responsive Flight Paths and Sharing the Load*

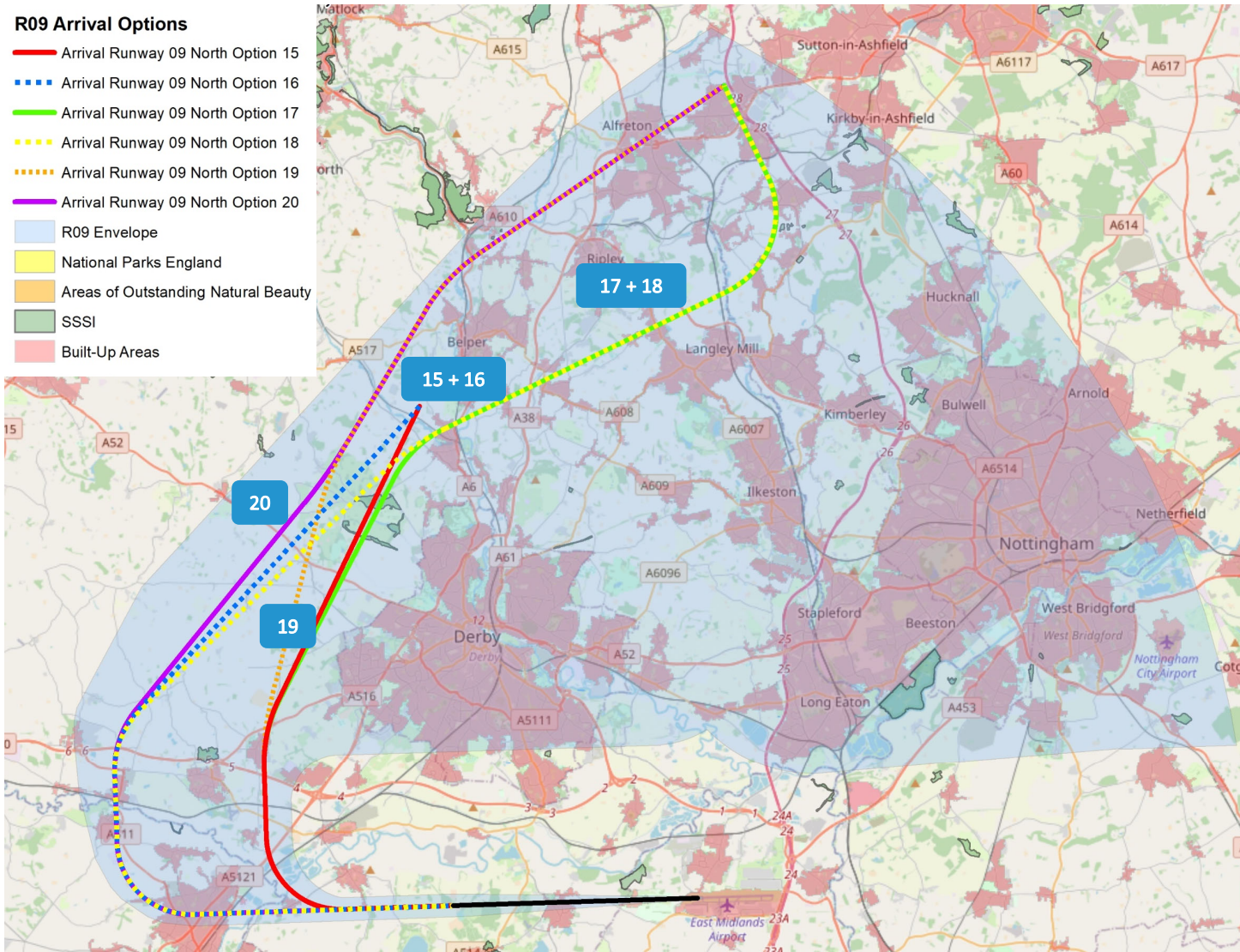
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# Runway 09 North

All routes have different joining points and could be used together to create noise respite or relief.

## R09 Arrival Options

- Arrival Runway 09 North Option 15
- - - Arrival Runway 09 North Option 16
- Arrival Runway 09 North Option 17
- - - Arrival Runway 09 North Option 18
- - - Arrival Runway 09 North Option 19
- Arrival Runway 09 North Option 20
- R09 Envelope
- National Parks England
- Areas of Outstanding Natural Beauty
- SSSI
- Built-Up Areas



**Options 15 and 16** have a short track that routes west of Derby.

*Design principle link – Limiting Our Footprint and Sharing the Load*

**Options 17 and 18** start at the northern point of the design envelope and travel south of Ripley and west of Derby.

*Design principle link – Limiting Disturbance and Sharing the Load.*

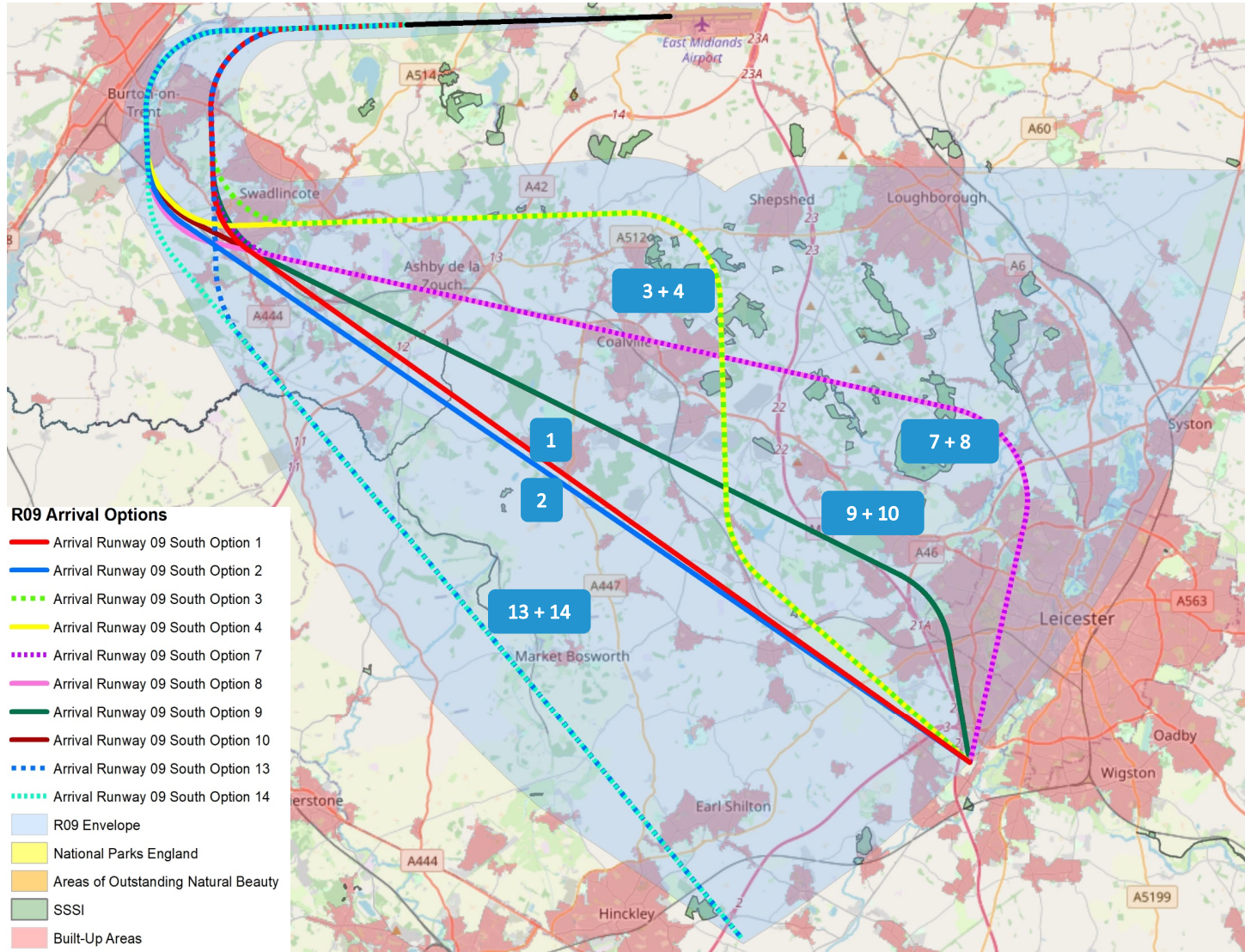
**Options 19 and 20** follow the outskirts of the envelope avoiding communities.

*Design principle link – Limiting Disturbance and Sharing the Load*

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# Runway 09 South

All routes have different joining points and could be used together to create noise respite or relief.



**Options 1 and 2** avoid overflying large communities.

*Design principle link – Limiting Disturbance and Sharing the Load*

**Options 3 and 4** follow a similar route to today's arrivals but avoid large communities.

*Design principle link – Limiting Disturbance and Sharing the Load.*

**Options 7 and 8** overfly Leicester to resolve possible interactions with departures and are similar to today's operation.

*Design principle link – Sharing the Load*

**Options 9 and 10** route west of Leicester to provide an alternative option south of Coalville and Ashby de la Zouch.

*Design principle link – Limiting Disturbance and Sharing the Load*

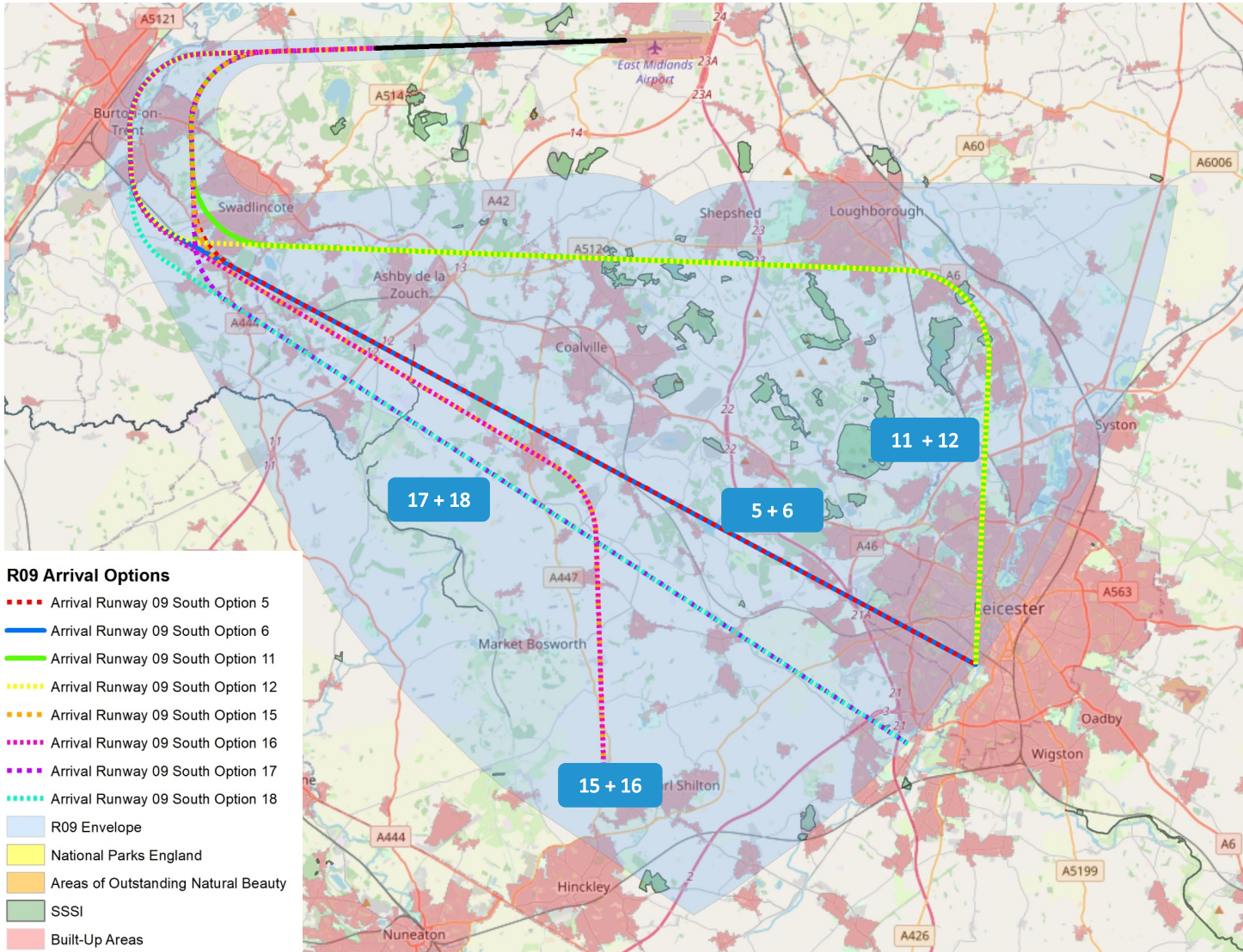
**Options 13 and 14** follow the outskirts of the design envelope avoiding large communities.

*Design principle link – Limiting Disturbance and Sharing the Load*

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# Runway 09 South

All routes have different joining points and could be used together to create noise respite or relief.



**Options 5 and 6** start over Leicester and take a direct fuel efficient track to different joining points.  
*Design principle link – Limiting our Footprint and Sharing the Load*

**Options 11 and 12** start over Leicester and follow a similar route to today's arrival operation.  
*Design principle link – Sharing the Load*

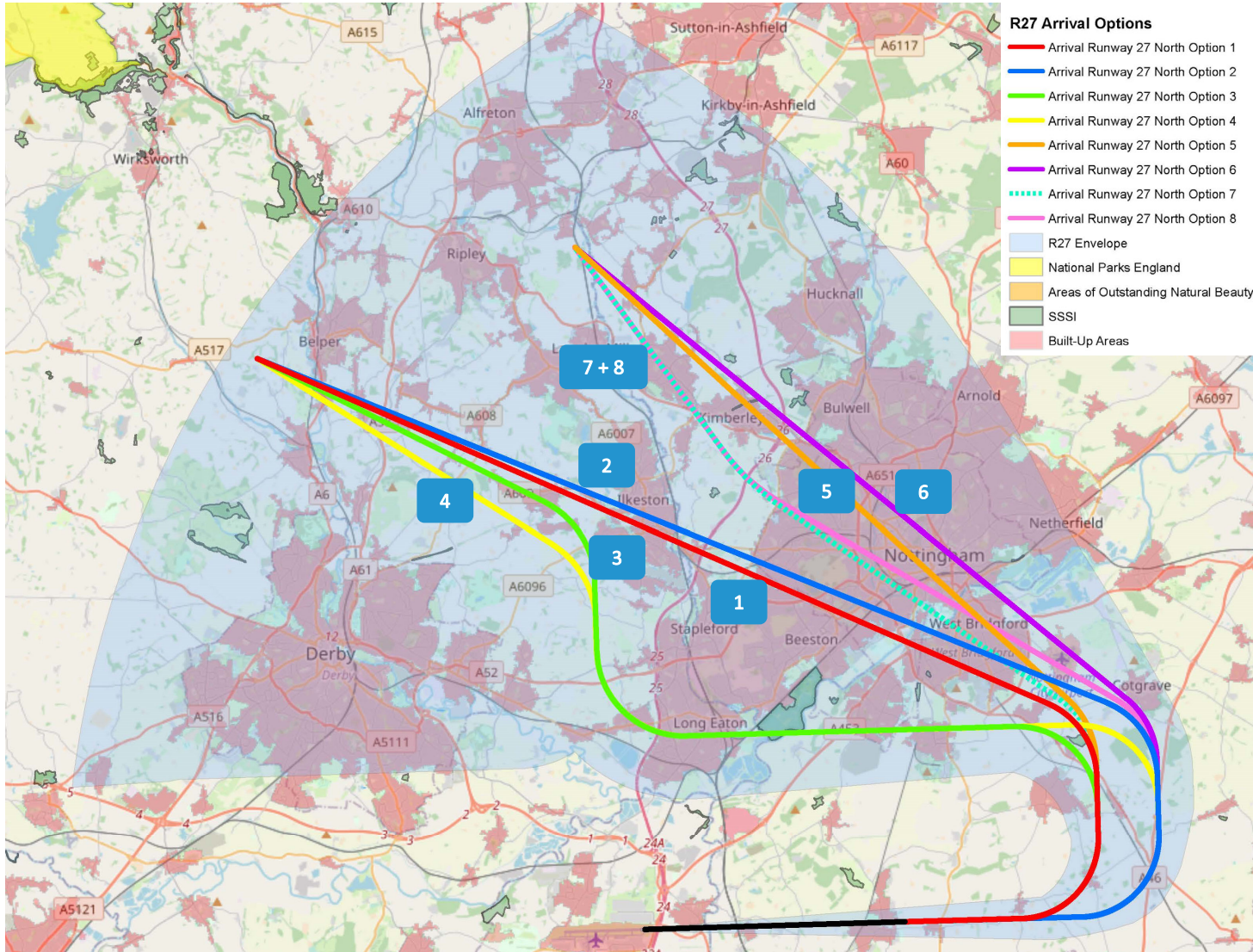
**Options 15 and 16** start at the southern point of the envelope and take a direct fuel efficient track avoiding Leicester and other centres of population.  
*Design principle link – Limiting Disturbance, Limiting our Footprint and Sharing the Load*

**Options 17 and 18** avoid overflying Leicester and can be used together to create respite.  
*Design principle link – Limiting Disturbance and Sharing the Load*

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# Runway 27 North

All routes have different joining points and could be used together to create noise respite or relief.



**Options 1 and 2** are routes that align most closely to the current traffic patterns currently vectored by ATC.

*Design principle link – Sharing the Load*

**Options 3 and 4** route between Nottingham and Derby to reduce noise impact and reduce interaction with departures.

*Design principle link – Limiting Disturbance and Sharing the Load.*

**Options 5 and 6** have a direct fuel efficient track that passes over Nottingham.

*Design principle link – Limiting Footprint, Sharing the Load*

**Options 7 and 8** have a direct fuel efficient track that passes south of Nottingham city centre.

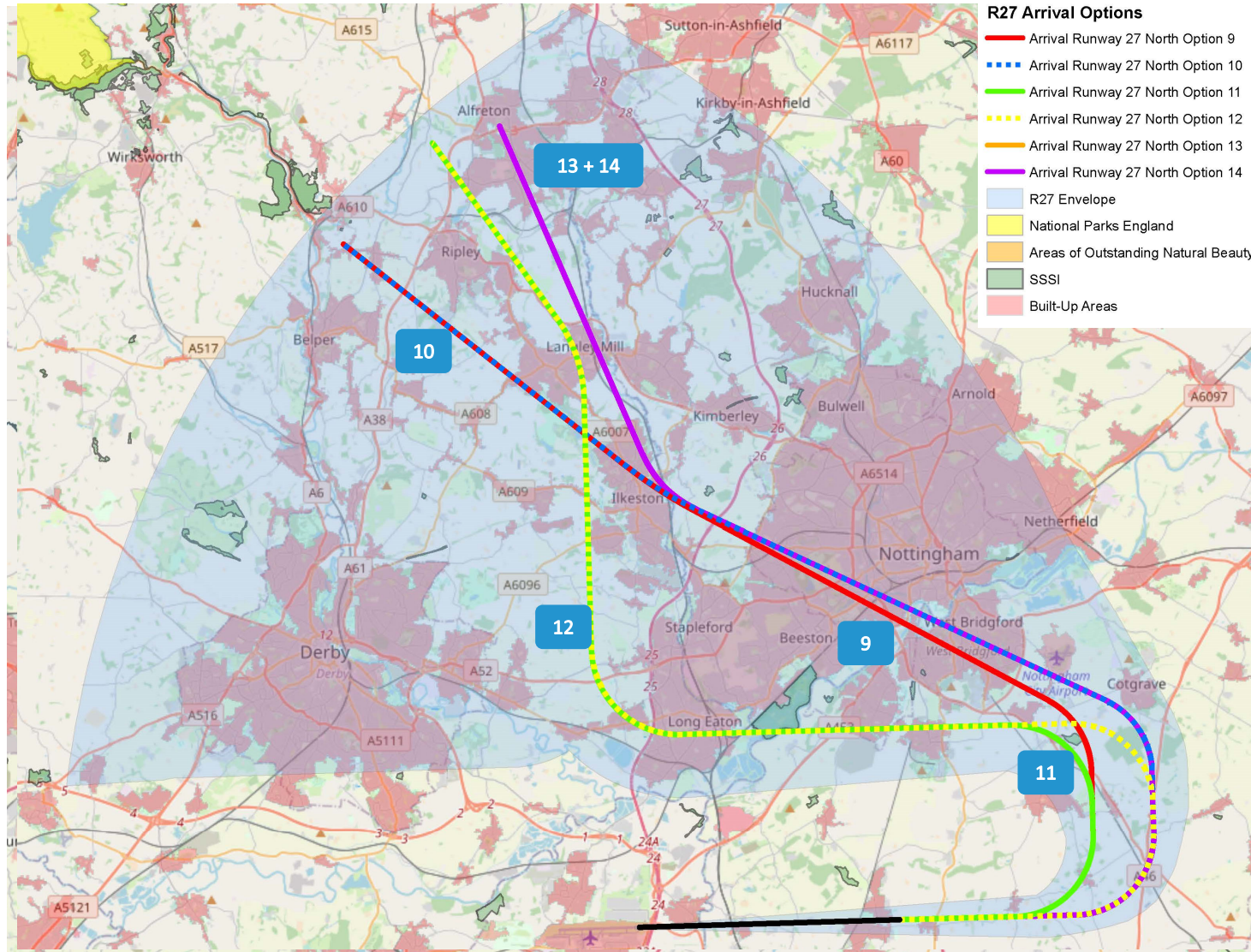
*Design principle link – Limiting Footprint, and Sharing the Load.*

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# Runway 27 North

All routes have different joining points and could be used together to create noise respite or relief.



**Options 9 and 10** start between Belper and Ripley. These could be used together to create respite for communities close to the airport.  
*Design principle link – Sharing the Load*

**Options 11 and 12** start west of Alfreton and avoid overflight of Nottingham and Derby. These have been designed to reduce interaction with departures.  
*Design principle link – Limiting Disturbance and Sharing the Load.*

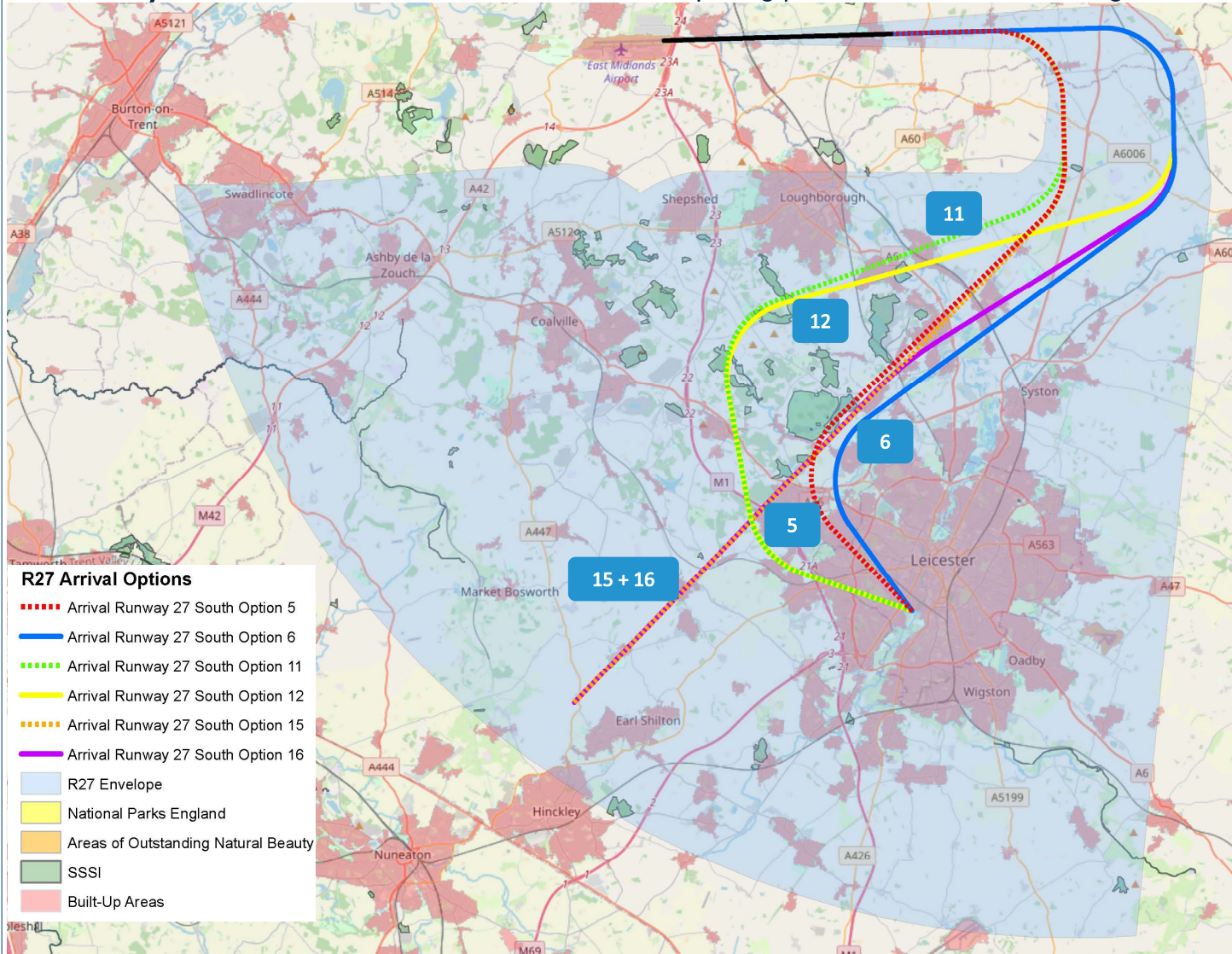
**Options 13 and 14** are routes that initially follow the railway line and fly between the gap of Nottingham and south of Nottingham. They can be used together to create respite.  
*Design principle link – Responsive Flight Path, and Sharing the Load*

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# Runway 27 South

All routes have different joining points and could be used together to create noise respite or relief.



**Options 5 and 6** are routes that start close to the current upper network joining point at PIGOT and route between Leicester and Loughborough.  
*Design principle link – Joined Up Approach, Limiting Disturbance and Sharing the Load*

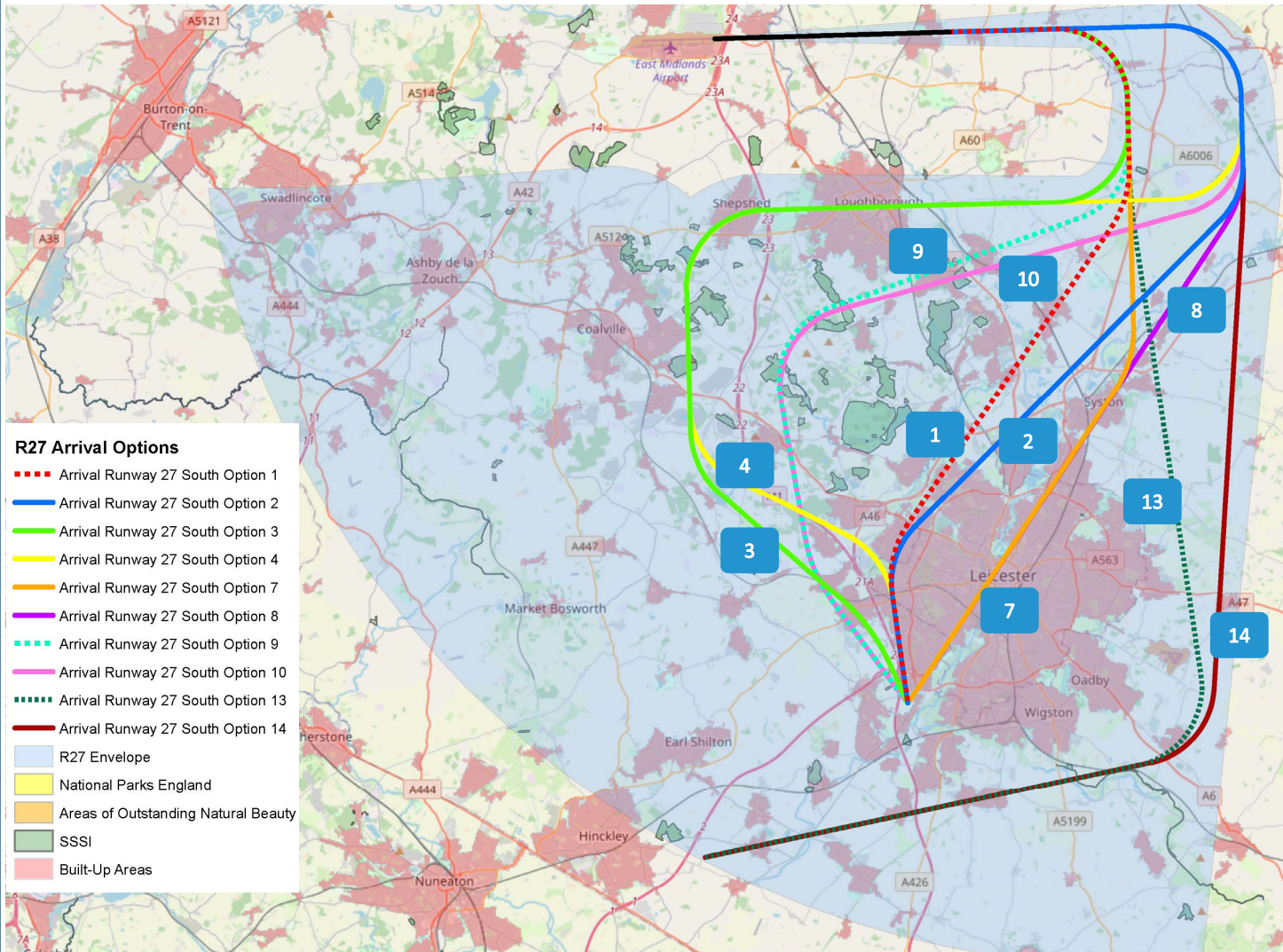
**Options 11 and 12** are routes that start close to the current upper network joining point at PIGOT and route between Leicester and Loughborough.  
*Design principle link – Joined Up Approach, Limiting Disturbance and Sharing the Load*

**Options 15 and 16** take a direct fuel efficient track to route between Loughborough and Leicester.  
*Design principle link – Limiting Disturbance, Limiting our Footprint and Sharing the Load*

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# Runway 27 South

All routes have different joining points and could be used together to create noise respite or relief.



**Options 1 and 2** fly west of Leicester and have been designed for fuel efficiency by having a direct track.  
*Design principle link – Limiting Footprint, Limiting Disturbance and Sharing the Load*

**Options 3 and 4** seek to follow the line of the M1 and avoid Coalville before turning east.  
*Design principle link – Responsive Flight Path, Limiting Disturbance and Sharing the Load.*

**Options 7 and 8** overfly Leicester and have been designed for fuel efficiency by having a direct track.  
*Design principle link – Limiting Footprint, and Sharing the Load*

**Options 9 and 10** are routes that start close to the current upper network joining point at PIGOT and route between Leicester and Loughborough.  
*Design principle link – Limiting Disturbance and Sharing the Load.*

**Options 13 and 14** start east of Hinckley and route east of Leicester on a track that is similar to the paths taken by current arrivals from the south.  
*Design principle link – Limiting Disturbance and Sharing the Load.*



# East Midlands Airport Future Airspace

Stage 2, Develop and Assess

Phase two discussion sessions – pre-read material

November 2022

# East Midlands Airport Future Airspace

Thank you for taking part in our discussions about the future of airspace at East Midlands Airport (EMA). As we develop our plans, the feedback we receive from stakeholders (the people and organisations who can affect, or be affected by, any changes to airspace) will influence the decisions we make.

This document provides useful background information for the upcoming discussion session(s) which follow on from the sessions we held in the summer. Sources of further information are provided in this document and there will also be the opportunity to ask any questions on the information provided here at our discussion sessions.

## STAGE 2 – DEVELOP AND ASSESS

This stage focuses on developing route options that address our statement of need and align with our design principles created through stakeholder engagement in Stage 1. There are two steps within Stage 2. At Step 2A, a comprehensive list of route options is developed, refined and assessed against the design principles. In Step 2B, the options are more closely assessed to understand their likely effects, both positive and negative.

Once we have completed this further evaluation, details of the work carried out at Stage 2 will then be submitted to the CAA for assessment at the end of February 2023. Subject to the CAA's approval, the airport will then proceed to Stage 3 of the airspace change process where the refined options will be subject to full public consultation.

## GATHERING VIEWS AT STAGE 2

At Step 2A we are undertaking two phases of stakeholder engagement. The first phase took place in June/July 2022 and in these sessions, we explained the process our route designers followed to identify the broad areas where it would be possible to place departure and arrival routes that align with our statement of need and the design principles developed through stakeholder engagement at Step 1B. We then sought stakeholders' views on this work and the broad areas identified. Taking those views on board, a second stage of design work has now been completed to identify potential routes. In our forthcoming engagement sessions, we will explain the changes we made as a result of stakeholder feedback, and present specific route options that align with the design principles and take account of stakeholder views.

Following feedback from these sessions, the specific route options will be further refined and will then be fully assessed to see how well they meet the design principles. This will complete the requirements of Step 2A.

In Step 2B, the refined options will be subject to an initial assessment to understand their likely effects, both positive and negative

## DESIGN PRINCIPLES

The design principles established at Step 1B continue to guide the development of our route options. After this next phase of engagement, each of the refined options will be formally assessed against each of these design principles.

### Keeping the Skies Safe

Safety must take precedence over all other factors. Flight paths must be safe for airspace users, the airport and communities on the ground.

### Sharing the Load

Flight paths should, where practical, be spread out to avoid concentration of aircraft activity to share any noise impacts.

### Fit for the Future

Flight paths should be designed to futureproof our airspace and cannot be constrained by existing arrangements.

### A Joined-up Approach

Any changes must align with the broader national airspace modernisation strategy, comply with national, international and industry regulations and legislation, and align with current and future Airspace Change Programmes in the north and south of the UK through involvement in the Future Airspace Strategy Implementation groups.

### Responsive Flight Paths

Where flight paths have overfly communities, we will consider existing noise in the local area, and will select flight paths to mitigate effects on areas with relatively low levels of ambient noise.

### Airspace for All

Our controlled airspace should be open to all authorised users; however, priority will be given to airport traffic over other airspace users, except for emergency aircraft.

### Meeting Demand

New flight paths must ensure the continuation of services offered today and meet any future demand, in keeping with local and national planning policy, and the Government's policy on 'making best use' of existing runway capacity.

### Limiting Disturbances

Flight paths should seek to limit and, where possible, reduce noise disturbance to communities – especially at night.

### Embracing Technology

Flight paths should be designed using the latest, widely available navigational technology and flying techniques.

### Limiting our Footprint

Flight paths that limit and, where possible, reduce emissions should be implemented.

### Noise Sensitive Locations

Flight paths should, where practical, avoid locations that are especially sensitive to noise.

## WHAT TO EXPECT FROM THE DISCUSSION SESSION?

If you are attending the online discussion session, this will be held on Microsoft Teams and is expected to run for one and a half hours. You will be sent a link to the session in advance.

If you are attending one of our in person discussion sessions, venue details and timings will have been provided to you with your invite.

Each session will consist of a presentation from the airport team and a Q&A session. There will be opportunity to ask questions and offer comments on the information shown throughout. Copies of the materials presented will be provided to you after the session with a feedback survey to enable you to consider the content before sharing your views.

Please note that the sessions will be recorded so feedback can be analysed.

If you have any questions or concerns before the session, or if there is anything we can do to help you take part, please let us know by contacting [futureairspace@eastmidlandsairport.com](mailto:futureairspace@eastmidlandsairport.com)

## FURTHER INFORMATION

The links below provide more information on the topics covered in this document.

[Full details on the Airspace Modernisation Strategy \(AMS\)](#)

[The CAA's CAP1616 guidance on the regulatory process for airspace change](#)

[Further details on the work East Midlands Airport completed at Stage 1](#)

[Additional information – training flights](#)



## GLOSSARY

| Term                                  | Definition   |
|---------------------------------------|--|
| Airspace Modernisation Strategy (AMS) | The CAA's strategy and plan for the use of UK airspace, including the modernisation of airspace.   |
| Air Traffic Control (ATC)             | Air traffic control make sure aircraft fly safely within airspace, often issuing commands to aircraft to climb, descend or turn.   |
| CAA                                   | Civil Aviation Authority, the industry's regulator.  |
| CAP1616                               | The CAA's guidance document which sets out the regulatory process which all airspace change proposals must follow.   |
| Continuous Descent Approach (CDA)     | Method by which arriving aircraft descend on a smooth continuous glide path, therefore staying higher above the ground for longer and reducing the level of arrival noise heard on the ground. |
| Future Airspace Implementation (FASI) | Group accountable for delivering airspace changes (includes airports and NERL (NATS En Route) in the UK.   |
| Instrument Landing System (ILS)       | A precision runway approach aid based on two signals which provide vertical and horizontal guidance to aircraft on approach to land.   |
| NATS                                  | The UK's air traffic navigation service provider, formerly known as National Air Traffic Services.   |
| Noise Preferential Route (NPR)        | Locally agreed defined initial flight paths that departing aircraft must remain within until they have reached a set minimum height.   |
| Performance Based Navigation (PBN)    | Satellite based navigation system designed to improved track keeping accuracy for aircraft.  |



# East Midlands Airport

Future Airspace – Stage 2

Additional information – Training Flights



November 2022

## INTRODUCTION

During the first phase of engagement, some stakeholders wanted to understand how the airspace change programme might affect how training flights are managed at East Midlands Airport (EMA).

The purpose of the following information is to summarise:

- How training flights are managed at EMA and what restrictions are in place.
- How we continue to work with local stakeholders to minimise the impact of training flights on our local communities.
- Why training flights do not form part of the airspace change programme.
- Where you can find out more.

## WHAT ARE TRAINING FLIGHTS

Training flights involve pilots under training: flying in circuits, making approaches to the runway, touching down and then applying power to take off again. This means that pilots will usually be flying aircraft close to the airport, practicing several landings and take-offs.

Training flights are a necessary procedure for airlines and are undertaken at many airports. Training flights are different to normal airport operations in that they are conducted visually. This means they do not follow any designated departure routes but navigate in a broadly rectangular circuit around the airport. This circuit uses visual reference to the ground and the track over the ground is not fixed. However, all training flights remain close to the airport and below 3,000 feet.

## WHAT RESTRICTIONS APPLY TO TRAINING FLIGHTS?

There are controls in place covering training flights at EMA. These controls have been developed over many years and have been informed by discussions with our local communities and their representatives. The main controls that we apply are:

- **No weekend flights – Training flights can only operate Monday to Friday.**
- **No night time or evening flights –** Training flights can only take place during the daytime (07:00 – 20:00).
- **Minimum height requirements.** During the level segment of flight (i.e. aside from when climbing from or descending to the runway), aircraft must not fly below 2,000 feet.
- **Restricted to based airlines.** Only airlines that have regular commercial operations at EMA are permitted to undertake training flights.

Training flights are continuously monitored by the airport in line with our Noise Action Plan (NAP). We report the number of training flights and supporting details to our Independent Consultative Committee (ICC), who closely scrutinise our operations.

## WHAT IS THE NOISE ACTION PLAN?

We publish a NAP to set out the noise impact that aircraft operations at EMA have and the measures we take to minimise the impact of aircraft noise. Consistent with our regulatory obligations, we review, update and consult on our NAP every five years, submitting the plan to the Government for approval. Our current NAP runs from 2019-2023 and we will therefore be reviewing and updating it in 2023.

We regularly report on progress against the NAP to the ICC.

## WHY ARE TRAINING FLIGHTS OUTSIDE THE SCOPE OF THE AIRSPACE CHANGE PROGRAMME?

Our airspace design process considers the routes used by normal aircraft operations, which join the NATS upper airspace network at 7,000 feet or above. For departing aircraft, these routes are known as standard instrument departures, or SIDs. As we have set out throughout our engagement to date, in order to be part of the national airspace network, our routes need to meet national and international rules which require use of various techniques and technologies. Our design principle 'Embracing technology' requires that we design routes that use the latest, widely available navigational technology.

Training flights do not fly any of our Standard Instrument Departure (SID) routes, they are simply practising the final stages of landing and the initial stages of departure and performing a short circuit in between. The circuits they fly are visual circuits flown at a lower altitude, under the supervision of our air traffic controllers. This means that the changes being made under the airspace change programme do not apply to training flights and will have no impact on their operation. As a result, there is no change in airspace design for the purposes of CAP1616 in relation to training flights.

## RECENT PROGRESS

In addition to the requirements in our current NAP, we continue to work with local communities, and their representatives, to respond to concerns around aircraft noise and in recent years this has included developments in the way that we manage training flights at the airport.

We have been working collaboratively with local communities to develop and where possible implement changes to training flights, including considering ways in which the circuits they fly can avoid local villages. We will continue this work and will incorporate our conclusions in the next NAP.

## FURTHER INFORMATION

You can view the East Midlands Noise Action Plan 2019-2023 on our website here [www.eastmidlandsairport.com/community/local-environmental-impacts/noise/noise-action-plan/](http://www.eastmidlandsairport.com/community/local-environmental-impacts/noise/noise-action-plan/)

# East Midlands Airport Phase Two Arrivals Feedback



Arrivals route options survey

\* Required

## Welcome

We are very grateful to you for completing this feedback survey!

1 What is your name? \*

2 What organisation are you representing? \*

Please add N/A if this is not applicable.

3 What type of session did you attend? \*

- East Midlands Airport Stakeholders Briefing Session
- YouGov Focus Groups
- N/A

## Stage 2 process

4 Based on the information we shared at the workshop and the materials we have provided, is the process we have followed to identify route options clear and logical? \*

- Yes
- No

5 Please explain your answer \*

6 Is it clear how feedback from our earlier stakeholder discussion sessions in June have influenced the development of the route options? \*

- Yes
- No
- Don't know

7 Please explain your answer \*

## Route options envelope for Runway 27

8 Have we clearly explained how the route options for Runway 27 have been developed? \*

- Yes
- No

9 Please explain your answer \*

10 Are there any improvements you think we should consider to the route options shown? \*

- Yes
- No

11 Please explain your answer \*

12 What extent do the route options align with the design principles? \*

13 Are there any further options that could deliver additional benefits that you feel we haven't included? \*

- Yes
- No

14 Please explain your answer \*

15 Aside from those already mentioned, are there any additional local factors we should be aware of when evaluating these route options? \*

- Yes
- No

16 Please explain your answer \*

17 Do you have any further feedback on the initial route options presented? \*

## Route options envelope for Runway 09

18 Have we clearly explained how the route options for Runway 09 have been developed? \*

- Yes
- No

19 Please explain your answer \*

20 Are there any improvements you think we should consider to the route options shown? \*

- Yes
- No

21 Please explain your answer \*

22 What extent do the route options align with the design principles? \*

23 Are there any further options that could deliver additional benefits that you feel we haven't included? \*

- Yes
- No

24 Please explain your answer \*

25 Aside from those already mentioned, are there any additional local factors we should be aware of when evaluating these route options? \*

- Yes
- No

26 Please explain your answer \*

27 Do you have any further feedback on the initial route options presented? \*



Thank you!

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