Phase Two Engagement Departures Material

Stage 2 Develop and Assess

MAG London Stansted Airport

Appendix 4 outlines the departures materials shared during the phase two stakeholder engagement.

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LONDON STANSTED AIRPORT FUTURE AIRSPACE

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

November 2021

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Contents

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London Stansted Airport – Airspace change timeline

We are here

2020		2021/2022	2022/ 2023	2023	Early 2024	Late 2024	2025 onwards
Stage 1 Define		**Stage 2 Develop and assess**	**Stage 3 Full public consultation**	**Stage 4 Update and submission of proposals**	**Stage 5 Decision**	**Stage 6 Implementation**	**Stage 7 Post-implementation review**
Step 1A In December 2018 we sent the CAA our Statement of Need, which was approved and provisionally classed as a Level 1 change. [1]	Step 1B We gathered views on Design Principles during early 2020. Our Stage 1 work was approved by the CAA in the summer of 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 the process we followed to create those design options to the CAA for approval in Spring 2022.	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 2022/ 2023.	We will update our airspace change proposal, taking stakeholders' feedback into account, before sending it to the CAA in 2023.	We expect the CAA's decision on whether to approve any airspace change in early 2024.	If approved, any airspace changes could be put in place in late 2024.	The CAP1616 process gives the CAA and airports 12 months to review any change that has been made to airspace.

[1] 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

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Stage 2 process – gathering views

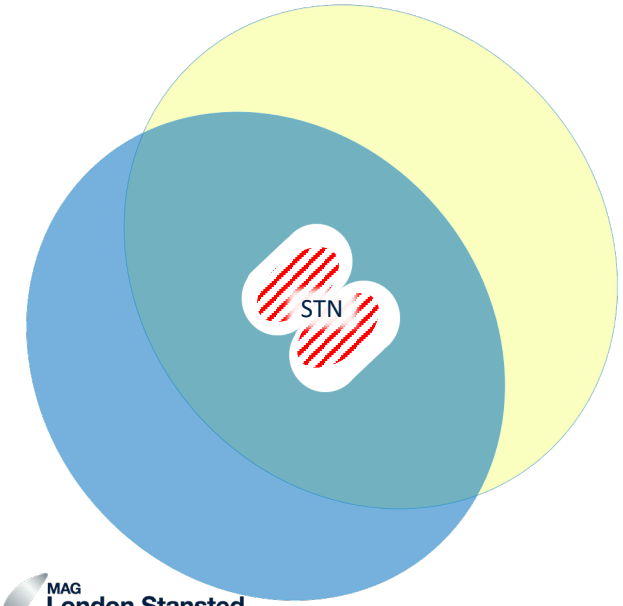
We are here

1	2	3	4	5
Step 2A	Step 2A	Step 2A	Step 2A	Step 2B
Engagement one - Sharing the design envelopes	Feedback considered, routes developed	Engagement two – sharing route designs and rationale	Feedback considered. Amended options assessed against the design principles.	Initial options appraisal
June	**July - September**	**November**	**November - December**	**December - February**
In the summer, we shared some broad design envelopes together with details of how these had been developed, for feedback and input.	Taking account of feedback, the design envelopes were amended, and specific route options were developed.	In discussion sessions like this one, we will be sharing the potential route options that have been developed, together with our rationale to explain how we believe they align with our design principles, for feedback and input.	Taking account of feedback, options will be refined further. These refined options will then be fully assessed against the design principles.	The options will be subject to an initial options appraisal to determine the likely impact of each. Once complete, full details of all the work undertaken at Stage 2 will be submitted to the CAA for assessment.

Departures – phase one recap

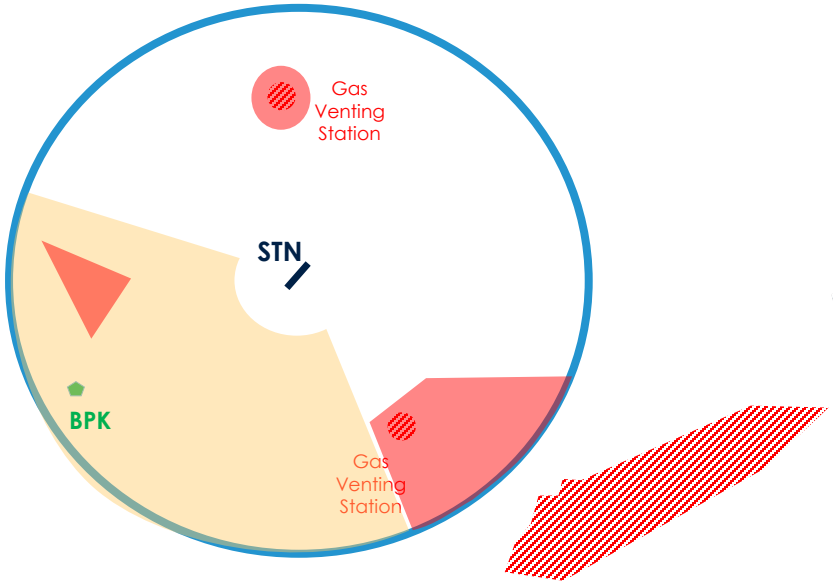
Step 1- Design Boundary

Determine where we could fly between the ground and 7,000ft. To do this we look at aircraft performance and the rules and regulations. This creates a 'design boundary'.



Step 2 - Constraints

Consider the airspace around us, identifying constraints, with a particular focus on safety.



Step 3 - Design envelopes

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

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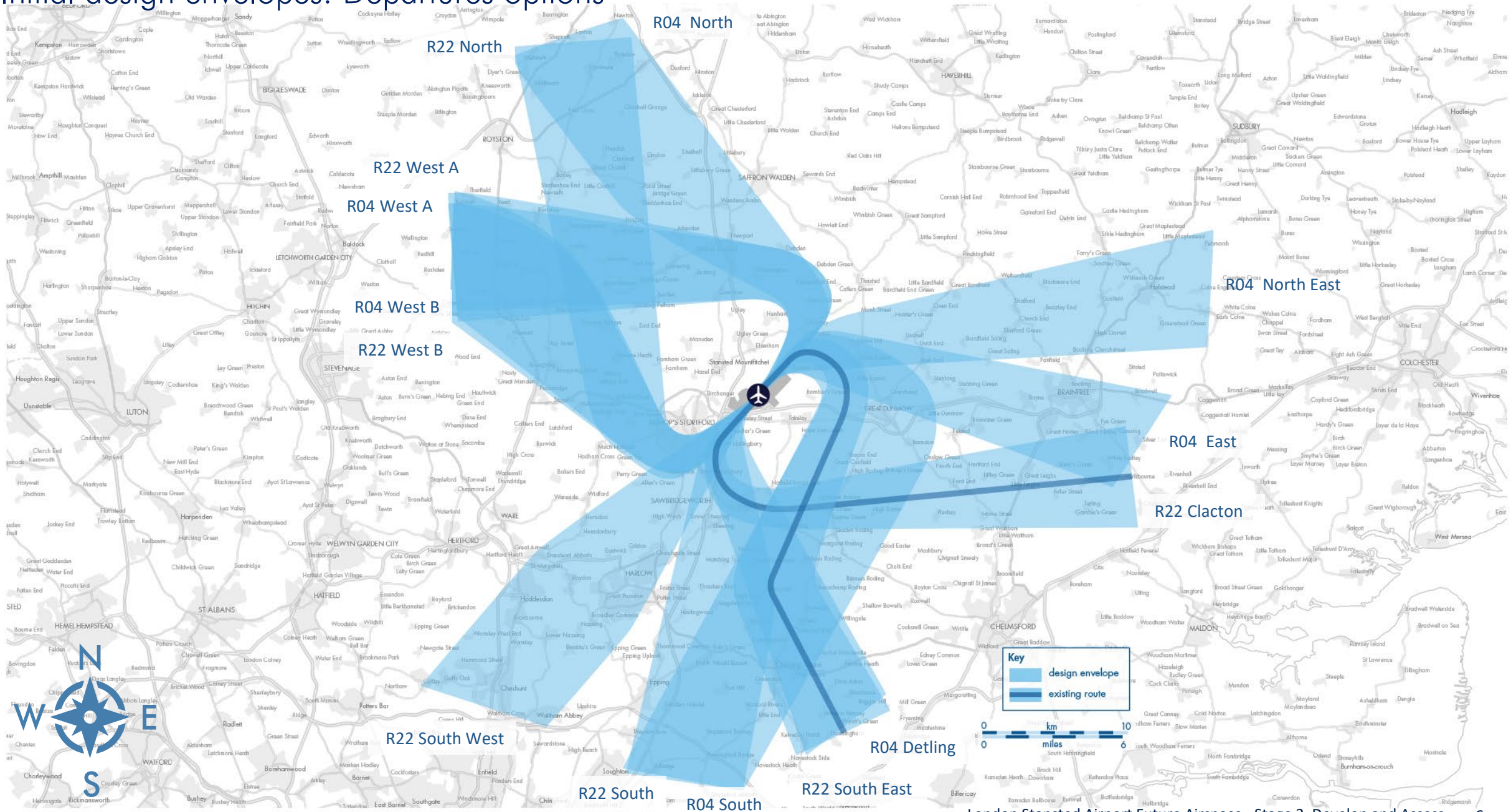
Initial design envelopes: Departures options



WHAT WILL WE BE ASKING?

- Is the process we have followed to identify departure route options clear and logical?
- Is it clear how feedback from our earlier stakeholder discussion sessions in June have influenced the development of the route options?
- Is it clear how 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?

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Phase one feedback – general themes

	Feedback	Response
Respite	Creating routes that could provide options for respite for areas that are frequently overflown is important as a means of minimising local impacts.	Additional design envelopes have been created and, some envelopes have been extended to create further opportunities to create respite. We will also explain how respite might be achieved, for your input in our discussions today. This will also become clearer at step 2B, when our options are refined and assessed further, and in Stage 3, when we establish how the refined routes could work together. Design principle link N2.
Community noise impacts	Managing potential noise impacts on overflown communities is a key concern. Further details of how noise impacts could be addressed through the route design is required.	Route options that take account of local areas that are highly populated have been included as options by applying design principles N1, N2, and C.
Environment	Options should demonstrate environmental benefit. Further detail on how this will be achieved should be provided.	As part of our design principles evaluation, in line with our 'Balance' principle, each route option will be assessed to understand the fuel burnt and emissions generated. This will enable a comparison to be made between each option to provide a clear picture of the comparative environmental impact of each. Design principles link B, T and A.
Housing plans	There are a large number of new housing developments in the local area, the location of these should be taken into account as options are developed.	All available details of committed housing allocations have been included on our options maps for this stage and, options that take account of these have been provided. Design principle link N3.
Sensitive areas	Green spaces, cultural and historic buildings are important. The location of AONBs (Area of Outstanding Natural Beauty), SSSIs (Site of Special Scientific Interest) and other sensitive sites and buildings should be considered.	The location of sensitive areas have been included in our route options maps to provide clarity for stakeholders. Options have been provided that take account of these areas and this will be formally assessed as part of Design Principle link N3.
Efficiency	The opportunity to create a more efficient overall route structure is welcomed. More detail is required on how Stansted's options will align with other airports airspace change programmes and the NATS network changes.	The process requires alignment with the network and our 'Policy' design principle provides assurance that each option must meet this requirement. Further detail will arise as other sponsors airspace change programmes progress. Design principle link P, E, T, A

DEVELOPING A COMPREHENSIVE LIST OF ROUTE OPTIONS

Andy Sampson

MAG London Stansted Airport

The phase one design process

Create Design Envelopes

Phase one engagement

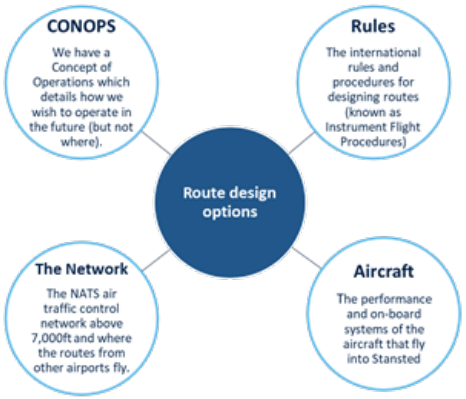
Stakeholder feedback

Update Design Envelopes Create Route Options

Phase two engagement

Apply the "Design Principles"

Design Principles
The high level considerations that guide the development of our route options.



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The route options development process – our design principles

C | Change

Where we choose routes that fly over new areas there will have to be a clear and objective benefit in doing so.

T | Technology

Routes should be designed to make use of the latest widely available aircraft navigation technology and facilitate continuous climb and descent to/from both ends of the runway.

Noise

N1 In order to address the effects of aircraft noise, each route should seek to minimise the number of people overflown.

N2 The use of multiple routes and/or other forms of respite, such as different time periods and balanced runway mode when operationally viable, will be considered.

N3 Where practical, our route designs should avoid, or minimise effects upon, noise sensitive receptors. These may include designated sites and landscapes (such as SSSI and AONB), cultural or historic assets, and sites providing care.

B | Balance

Our designs will consider both noise and emissions, and seek to strike the best balance. In so doing, we will take account of the Government's altitude-based priorities, which emphasise minimising noise below 7,000 feet.

E | Efficiency

We will seek to minimise the amount of controlled airspace that we require, and our future route designs should ensure an efficient and systemised operation at Stansted, minimising interactions with other airports and maintaining priority access for emergency services.

A | Alternatives

Where the adoption of modern navigation standards and/or flight profiles mean that some aircraft cannot fly the new routes, we will seek to minimise the environmental impacts from those aircraft.

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

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 departure route options which we are engaging with you upon.

S | Safety

Safety is our highest priority; our routes must be safe for airspace users and communities on the ground, and must comply with national and international industry standards and regulations.

P | Policy

Any changes must be consistent with the CAA's Airspace Modernisation Strategy and the FASI-S programme, taking into account the needs of other change sponsors and airspace users.

D | Demand

The airspace design must provide for the utilisation of aircraft movements permitted by planning permissions and within statutory limits in force at the airport.

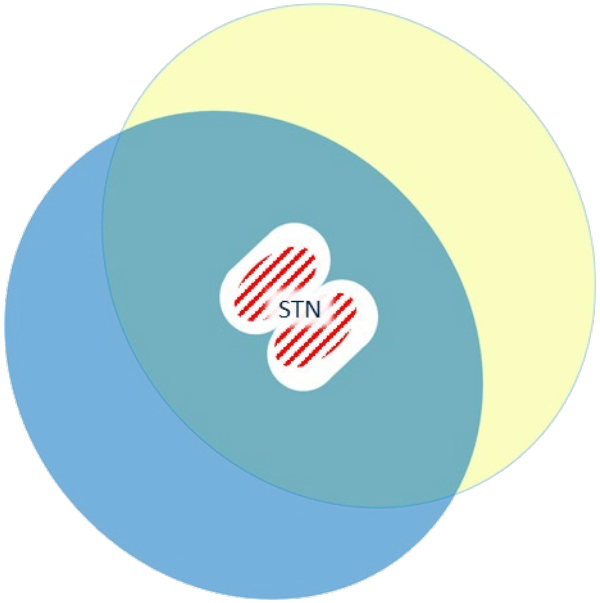
The staged approach to refining our options

Firstly, any options that do not meet PANS OPS 8168 (or do not have an approved safety justification) are considered 'unviable' and are discounted.

These include the rules and constraints we explained in our first engagement including route options that are non-compliant in relation to:

- Position of the first turn or the turn radius.
- Routes that would not meet obstacle clearance requirements.
- Routes that descend at a gradient above the recommended maximum.

Route options deemed as 'unviable' are outlined in our design options report but to avoid unnecessary work and complexity they have not been developed in detail or analysed within the design principles evaluation.



We have then classified the 'viable' routes

S | Safety
Safety is our highest priority; our routes must be safe for airspace users and communities on the ground, and must comply with national and international industry standards and regulations.

P | Policy
Any changes must be consistent with the CAA's Airspace Modernisation Strategy and the FASI-S programme, taking into account the needs of other change sponsors and airspace users.

D | Demand
The airspace design must provide for the utilisation of aircraft movements permitted by planning permissions and within statutory limits in force at the airport.

'Viable and poor fit' would not be expected to meet at least one of the three design principles with which all route options 'must' comply (Safety (S) , Policy (P) and Demand (D)).

- This will exclude any options that conflict with our identified safety constraints regarding danger areas, or complex airspace.
- Alternatively it may exclude options that do not comply with Policy such as the UK Government Airspace Modernisation Strategy.
- The concept design for these options is described, as is the reason for failing to meet the design principle.
- However, they will not be designed or taken forward for further analysis.

'Viable and good fit' options are defined as routes that would be expected to meet the three design principles with which all route options 'must' comply (Safety (S), Policy (P) and Demand (D)).

- These are the subject of our discussions todays
- These will be fully designed and evaluated against all of the design principles.

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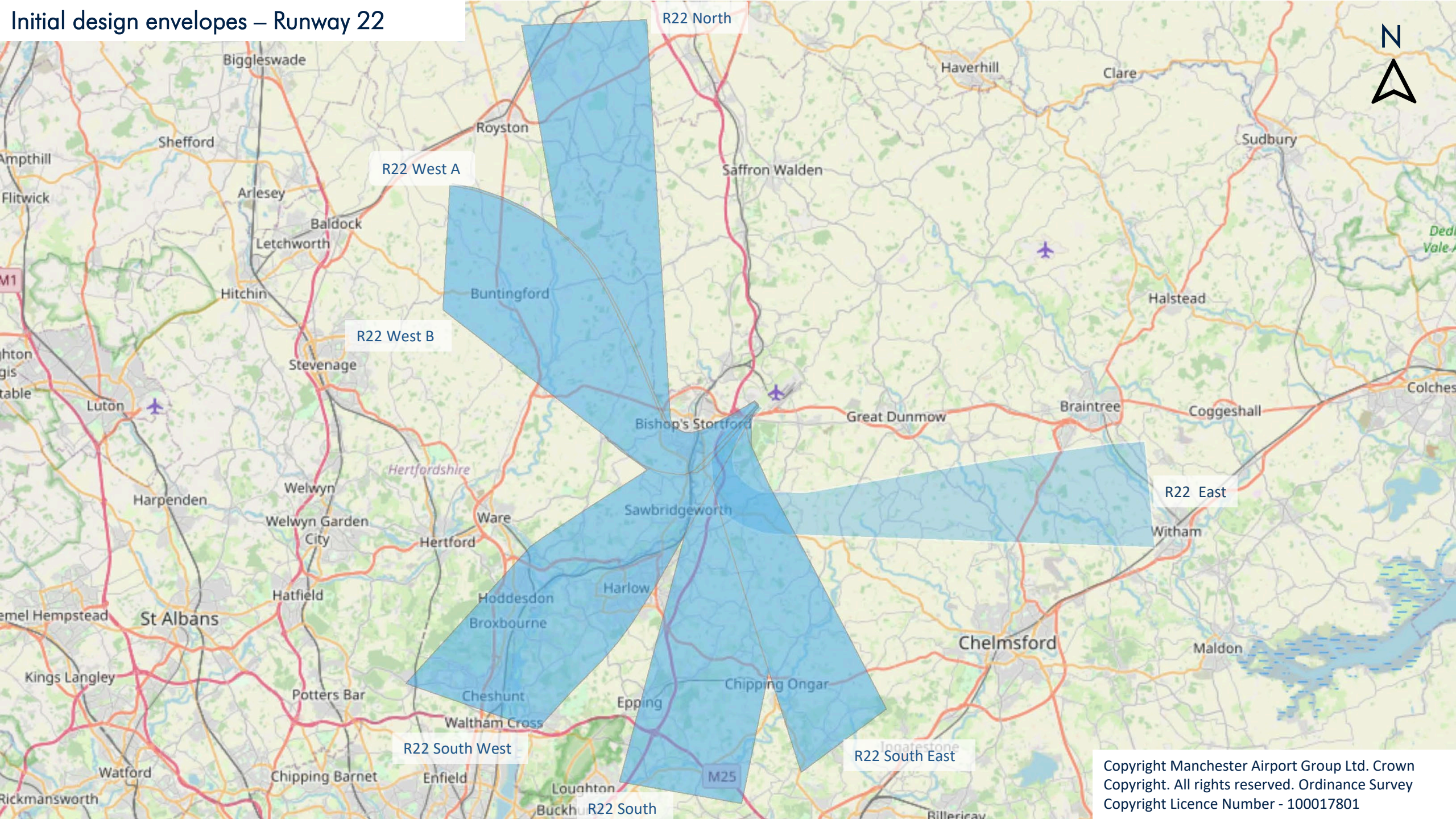
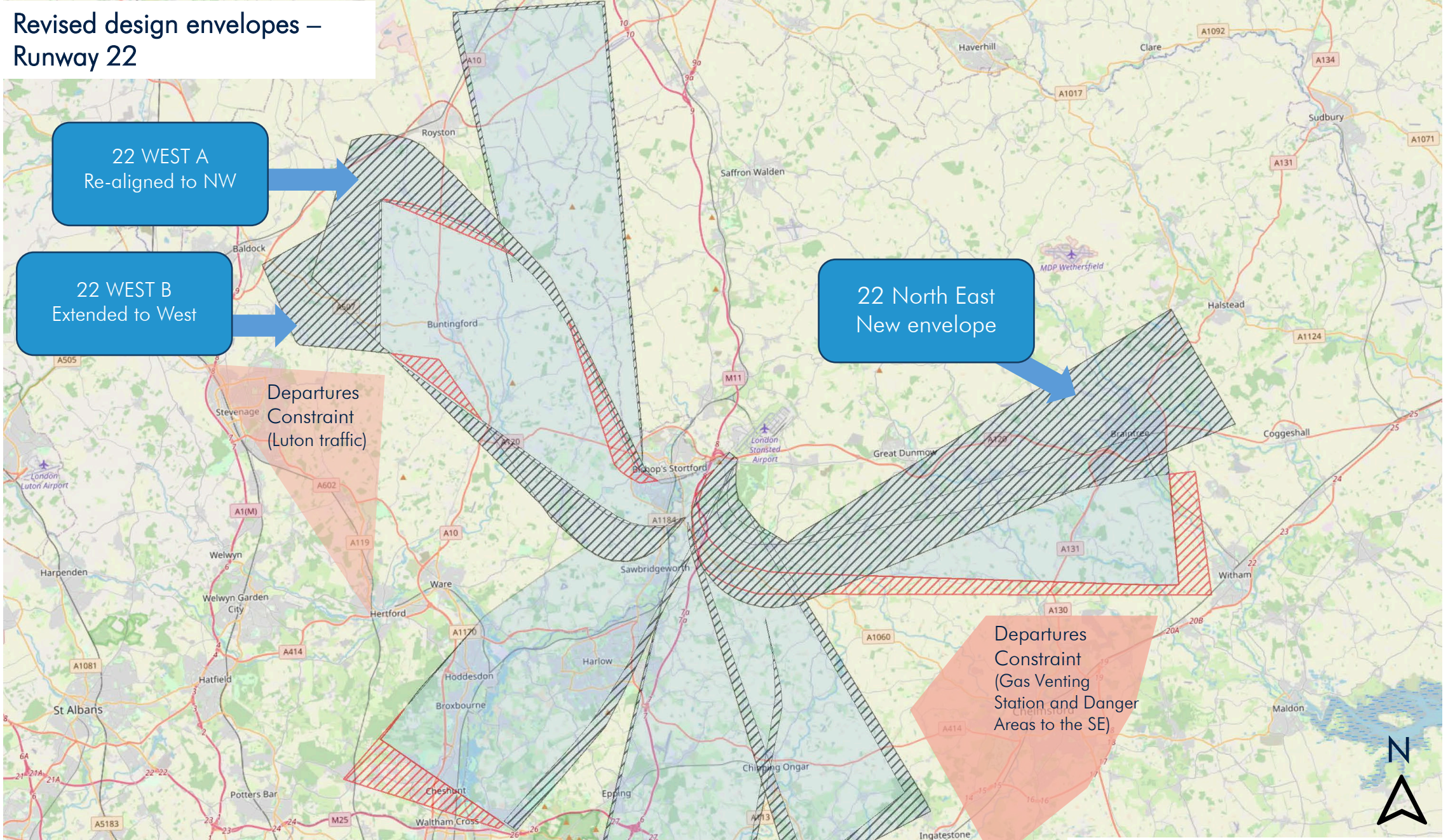
Initial design envelopes – Runway 22

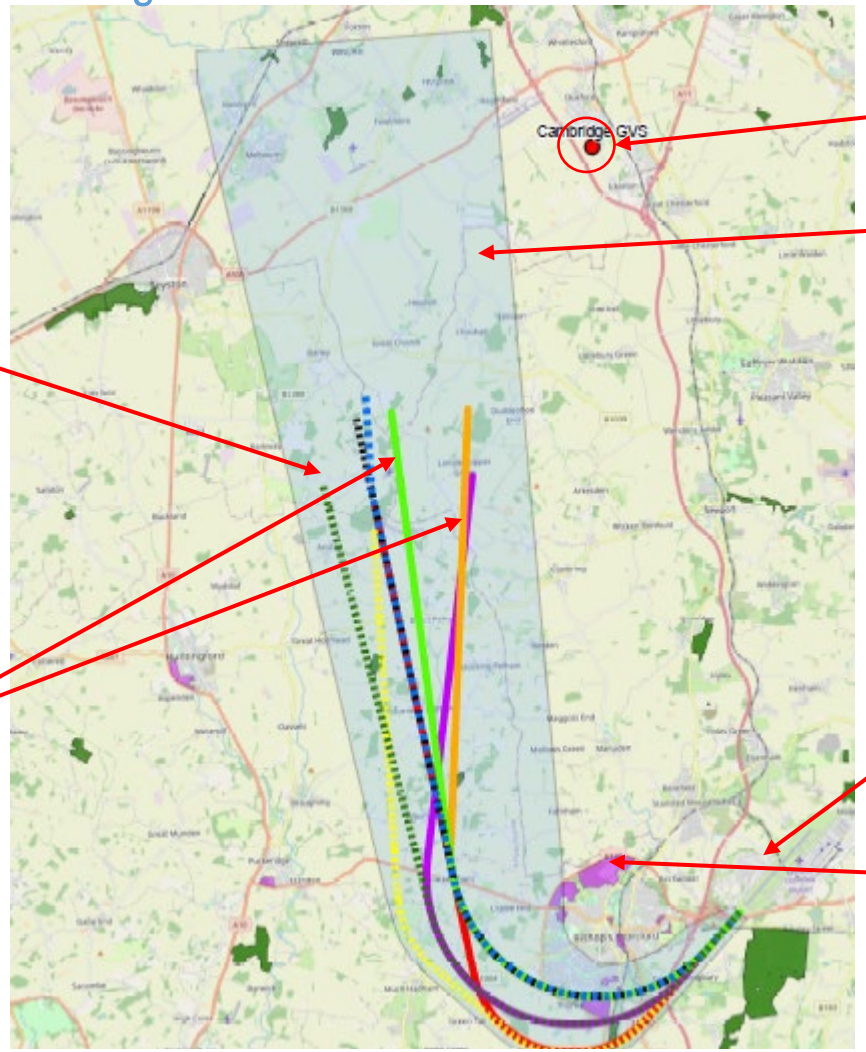


Revised design envelopes – Runway 22



How we are going to describe the options – an example

Departure options – Runway 22, North
8% climb gradient



Danger area constraint
(Gas Venting Station)

Design Envelope

The end of each route option is the 7,000ft point

Route Options

Stansted Airport runway

Proposed housing development

- Sites of Special Scientific Interest
- Proposed housing sites
- National Parks
- Areas Of Outstanding Natural Beauty
- Country parks
- Constraints building

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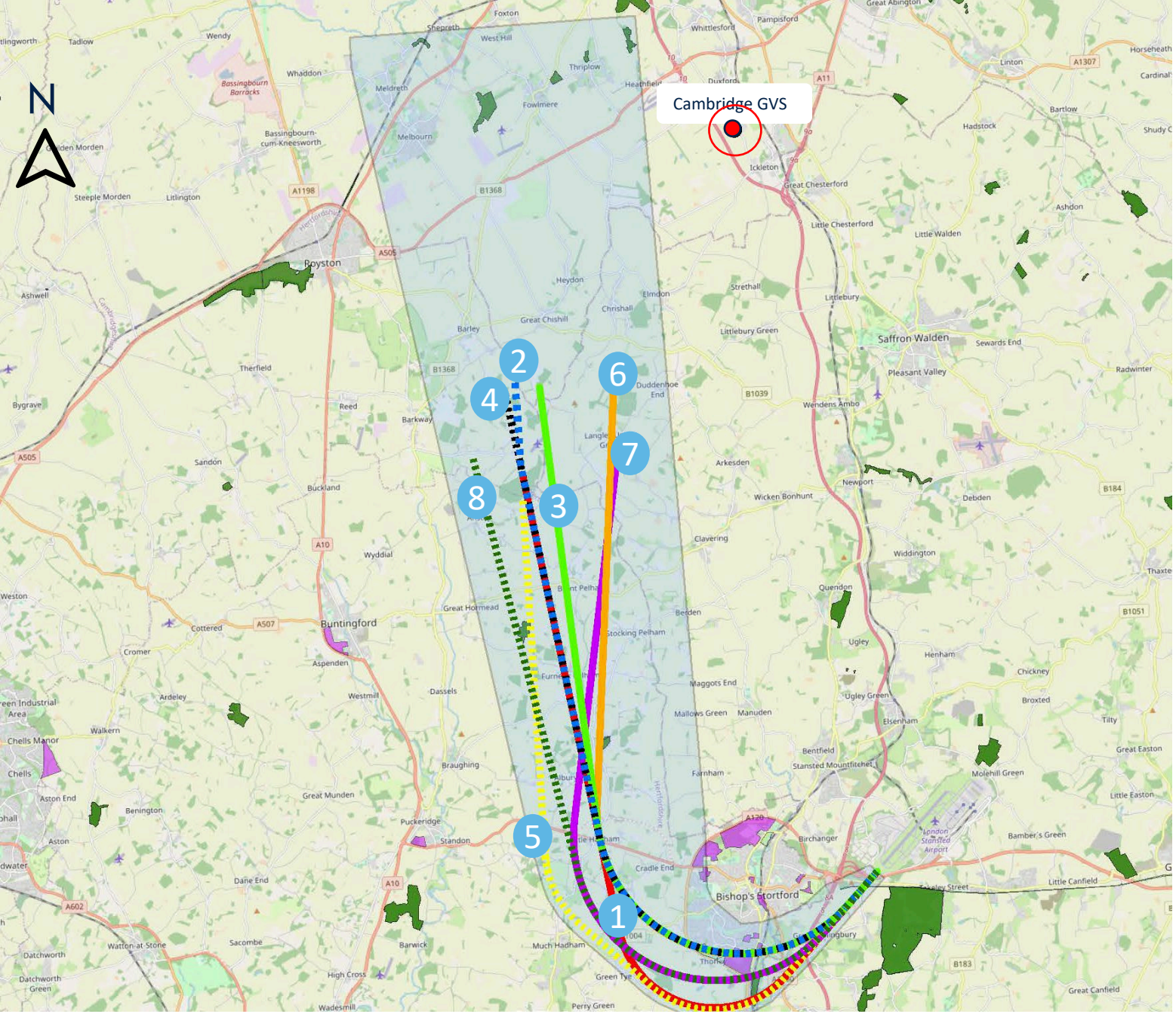


Departure options – Runway 22, North

8% climb gradient

Options 1 and 2 are included to provide **Replication** of the current route but using different technologies.

Option 3 & 4 are included to reduce track mileage/fuel burn and runway delays by turning departures earlier using different technologies.
Design Principle link: Alternatives, Balance.

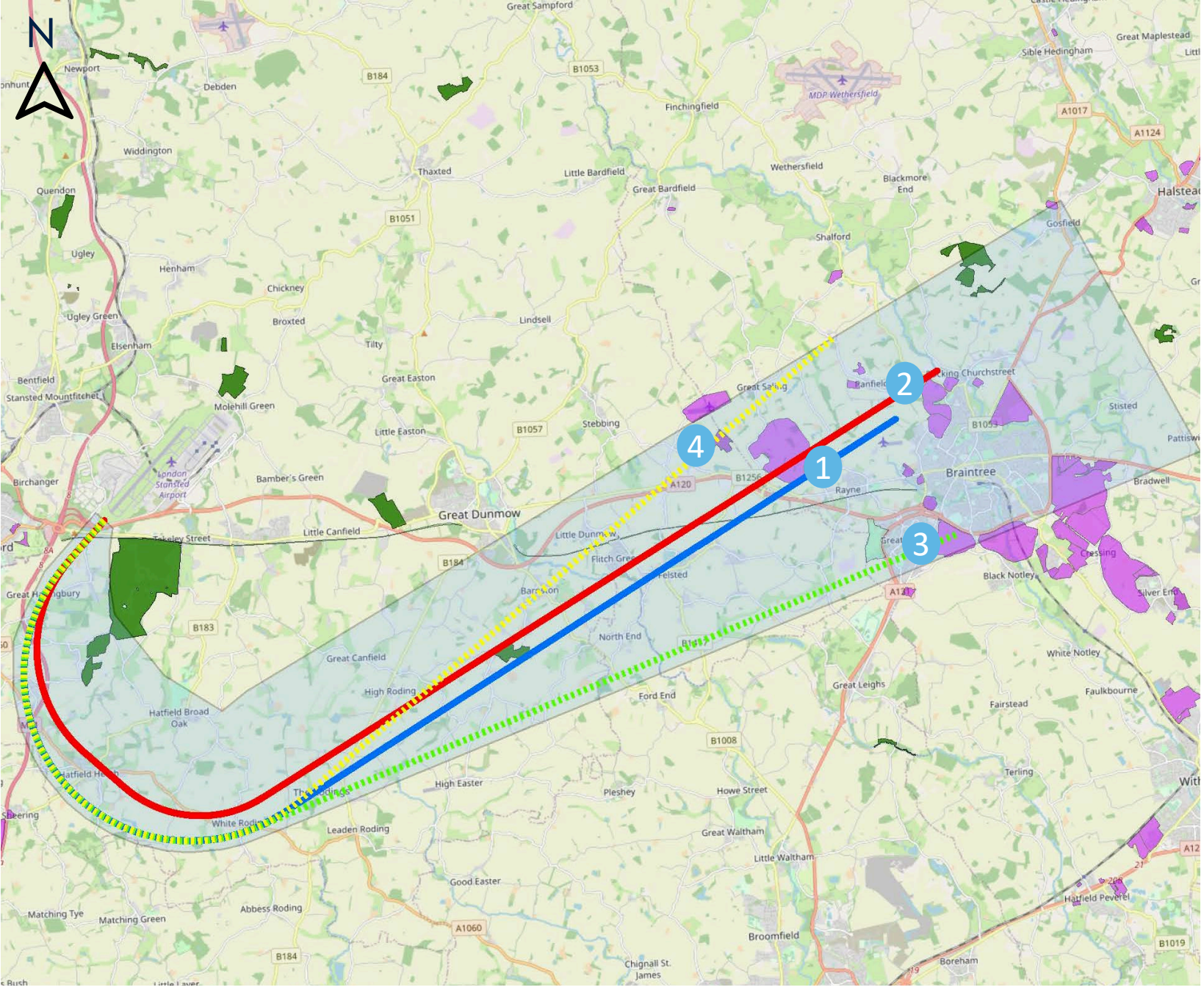
Option 5 initially follows the replicated route but has a later and wider turn before turning back towards the centre of the envelope.
Design Principle link: Noise N1.

Option 6 routes to the East of the envelope and is included to reduce track mileage/fuel burn and runway delays. This option may also provide an opportunity for noise relief from the 22 WEST routes.
Design Principle link: Demand, Noise N2 and Balance.

Option 7 provides a wider turn than Option 6 to avoid Thorley. As with Option 6, the remainder of the route has been created to provide an opportunity for noise relief from the 22 WEST routes.
Design Principle link: Noise N1 and N2.

Option 8 avoids Thorley before the first turn and then routes to the West side of the envelope. This option may provide potential for reduced track mileage/fuel burn depending on the interface with the NATS network.
Design Principle link: Noise N1 and Balance.

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



Departure options – Runway 22, North East

6% climb gradient

This is a new design envelope which has been created following feedback in the first round of engagement. It is driven by the DP to provide Alternatives and Noise N2 (respite or relief).

As a new envelope there is no replicated route.

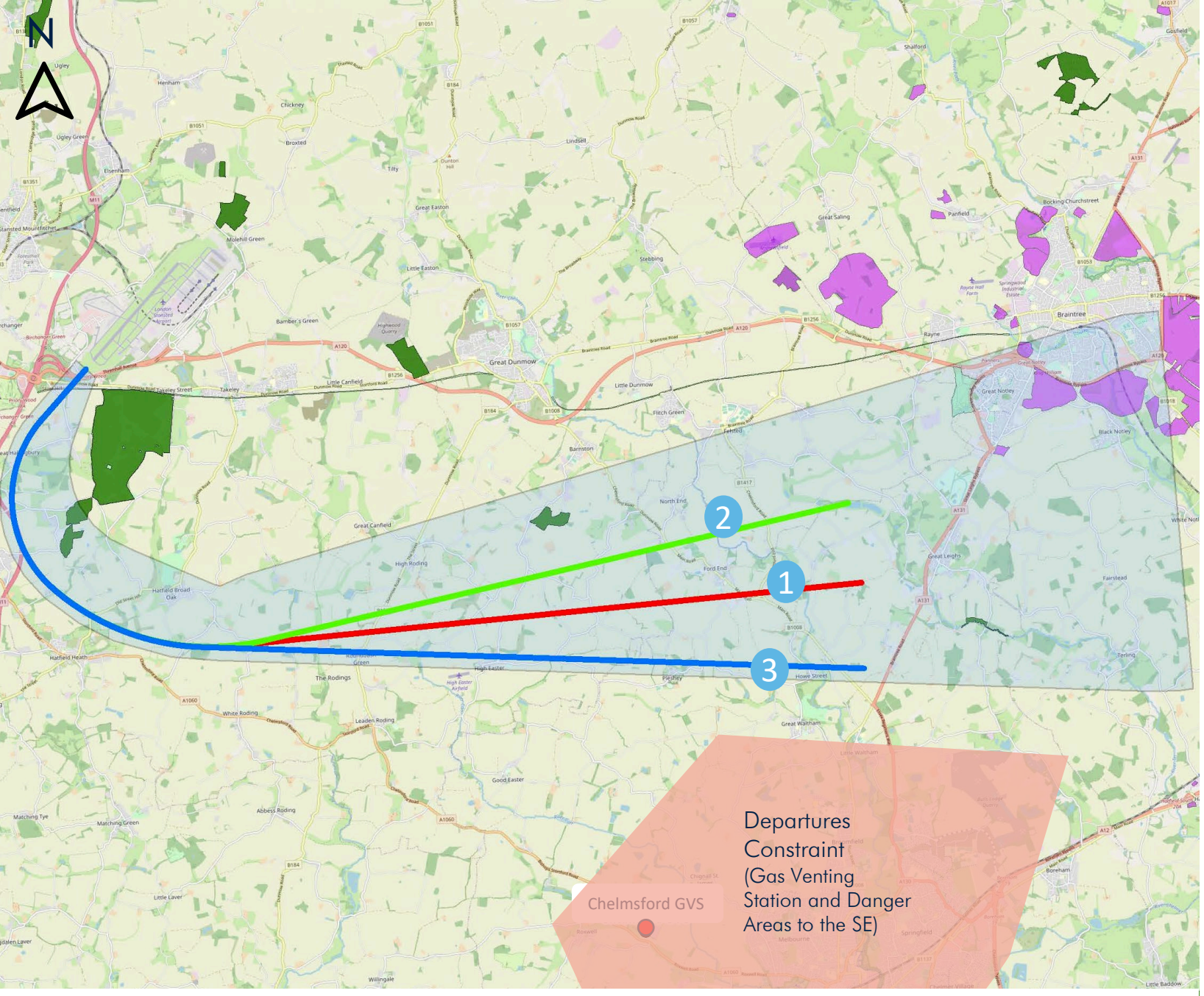
Option 1 turns left as soon as possible after departure and then follows a track to the north of Braintree. This is the tightest radius possible that would give concentrated aircraft tracks with little dispersion.
Design Principle link: Noise N1 and Technology.

Option 2 uses a slightly different design standard which results in a tighter first turn before heading to the north of Braintree. Designing to this standard may result in an element of dispersal especially within the turn.
Design Principle link: Noise N1, N2 and Alternatives

Option 3 uses the same design standard as Option 1, but then routes to the south of the design envelope to the south of Braintree.
Design Principle link: Noise N1.

Option 4 also uses the same design standard as Option 1, but then routes to the north of the design envelope to the south of Great Dunmow and north of Braintree.
Design Principle link: Demand, Noise N1 and N2.

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



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

Departure options – Runway 22, East

8% climb gradient

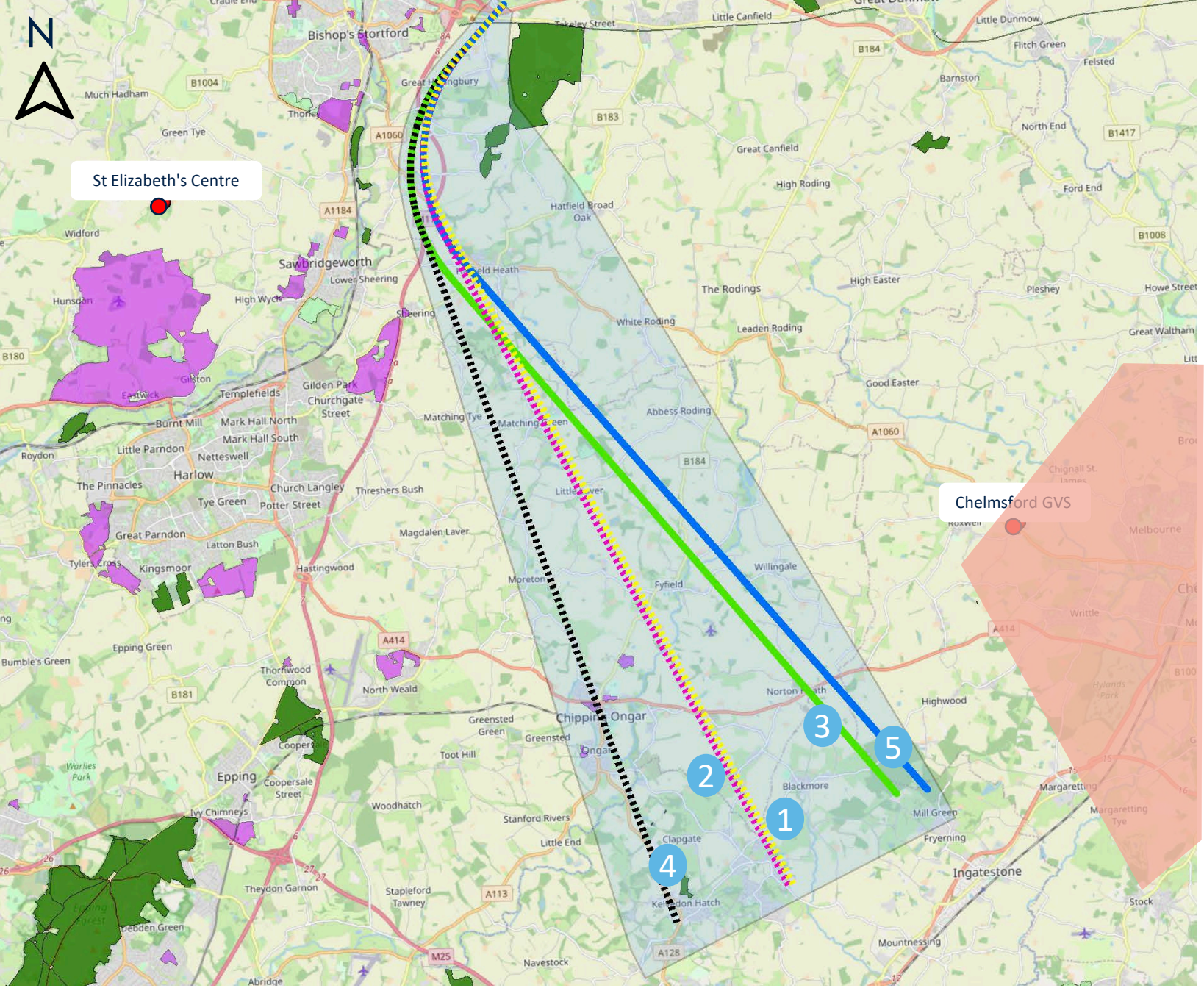
Although the current route within this envelope has already been designed to PBN standard, feedback has suggested the creation of additional route options in line with the DPs on Noise (N1 and N2).

We are also proposing to increase the climb gradient from the current 3% to 8%

Option 1 shows the design of the current route (CLN1E) but with an 8% climb gradient applied consistent with the design principle on technology.

Option 2 has the same initial turn and 8% climb but then routes slightly north of the current track to the north of High Easter and Great Leighs.
Design Principle link: Noise N1.

Option 3 also has the same initial route and 8% climb but the routes further to the south of Great Leighs.
Design Principle link: Noise N1.



Departure options – Runway 22, South East

8% climb gradient

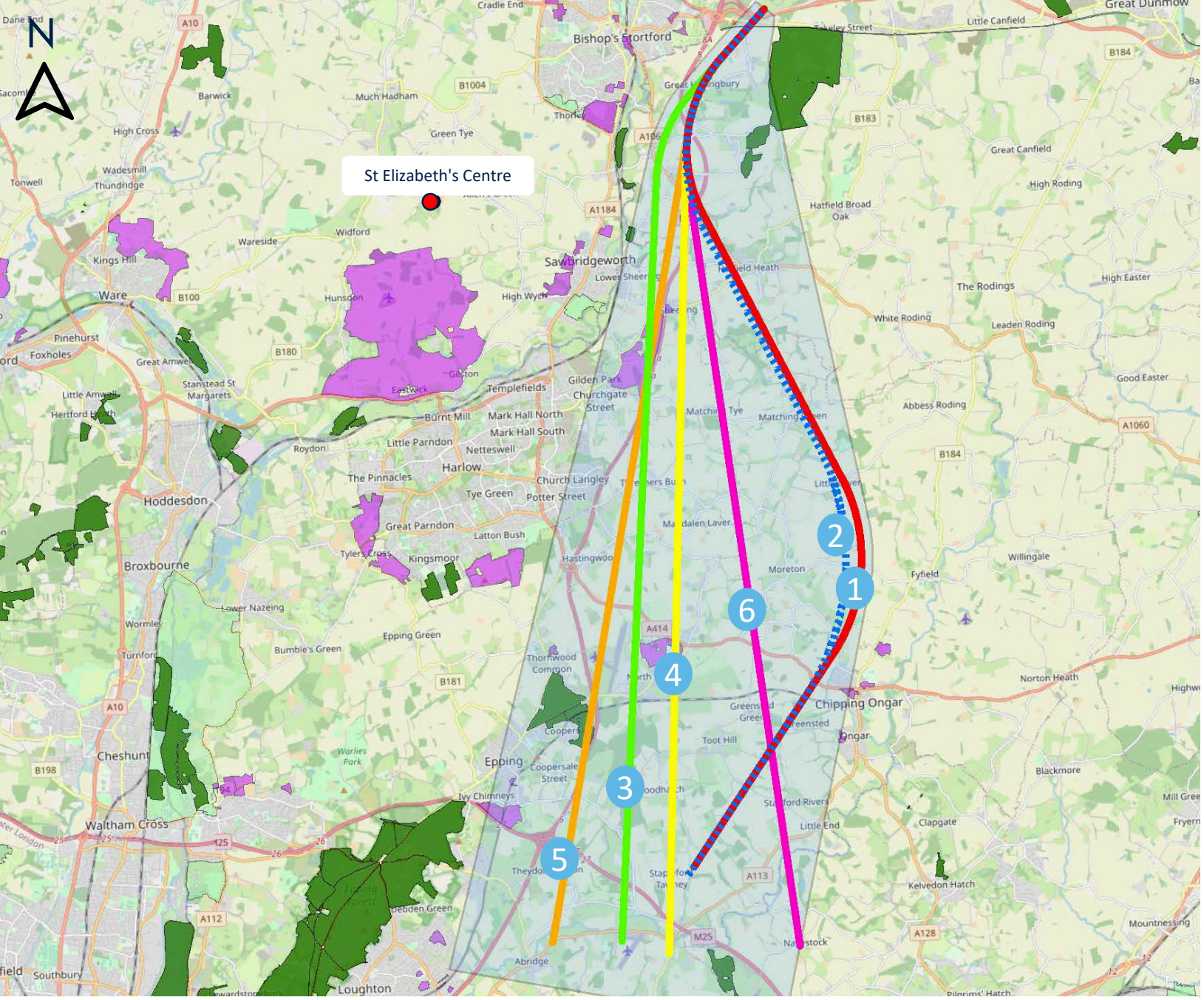
Options 1 and 2 are included to provide **Replication** of the current route but using different technologies.

Option 3 has a later turn than the current route and avoids direct overflight of Hatfield Heath. The track continues to the eastern edge of the envelope to avoid Chipping Ongar.
Design Principle link: Noise N1, N3.

Option 4 also includes a later turn and avoidance of Hatfield Heath and routes to the western edge of the envelope.
Design Principle link: Noise N1, N3.

Option 5 has the tightest first turn radius possible permissible under design rules and routes to the eastern edge of the envelope. It avoids Hatfield Heath, Matching Green and Chipping Ongar.
Design Principle link: Noise N1, N3.

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



Departure options – Runway 22, South

8% climb gradient

Options 1 and 2 are included to provide **replication** of the current route but using different technologies.

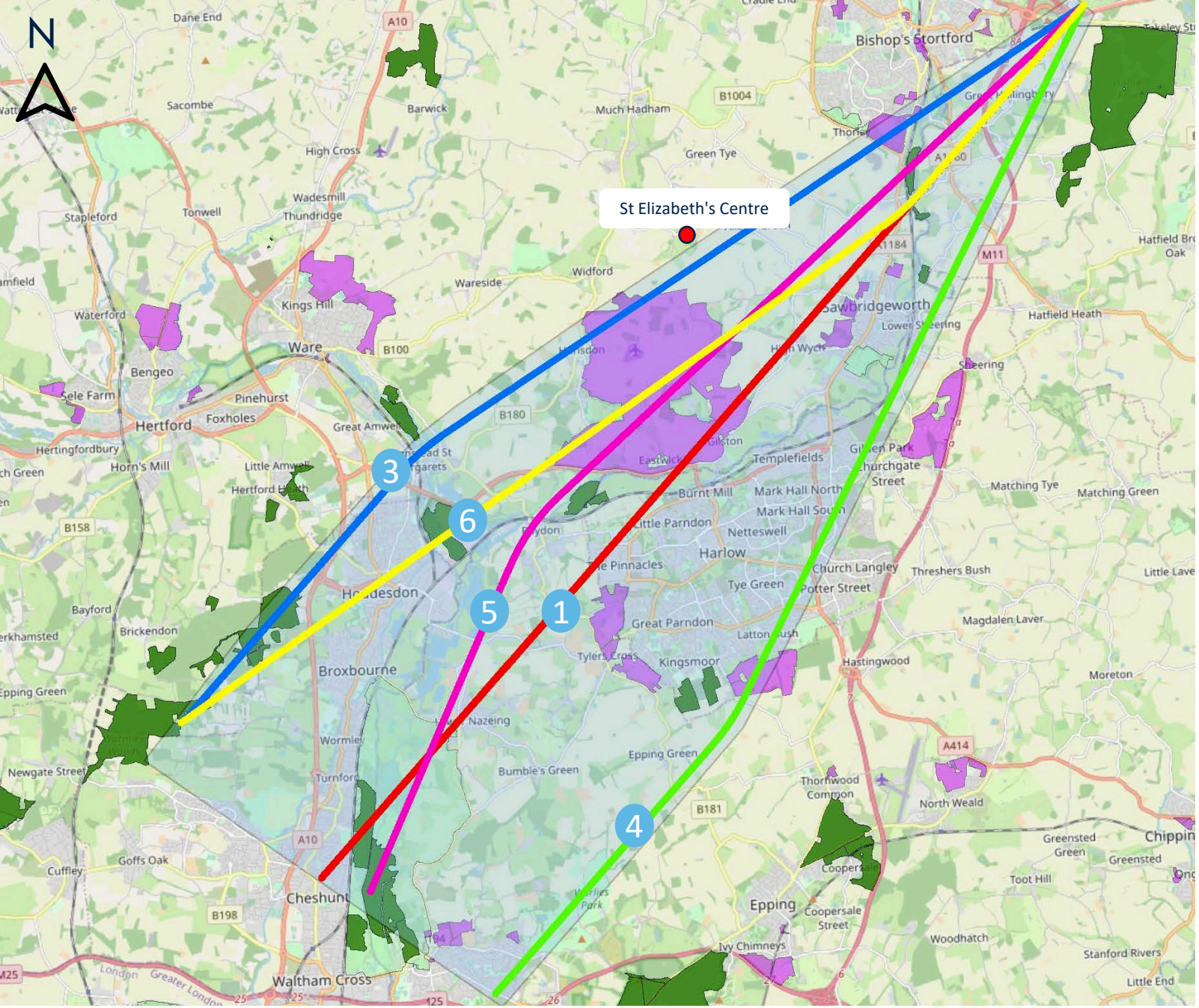
Option 3 is a more direct (fuel efficient) option that avoids the double turn of the replicated routes and the overflight of Hatfield Heath.
Design Principle link: Balance.

Option 4 is also a more direct (fuel efficient) option that avoids the overflight of Hatfield Heath routing further to the east of Epping.
Design Principle link: Balance and Noise N3.

Option 5 aims to avoid overflying major population centres by following the track of the M11 motorway as far as practicable.
Design Principle link: Noise N1.

Option 6 routes as far to the east of the envelope as possible and avoids major population centres.
Design Principle link: Noise N1.

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



Departure options – Runway 22 South West

8% climb gradient

This is a new design envelope which aligns with the Policy and Demand DPs. As a new envelope there is no Replicated route.

Option 1 is a straight ahead departure on a runway heading. This is the most fuel efficient route to the end of the design envelope.
Design Principle driver: Balance.

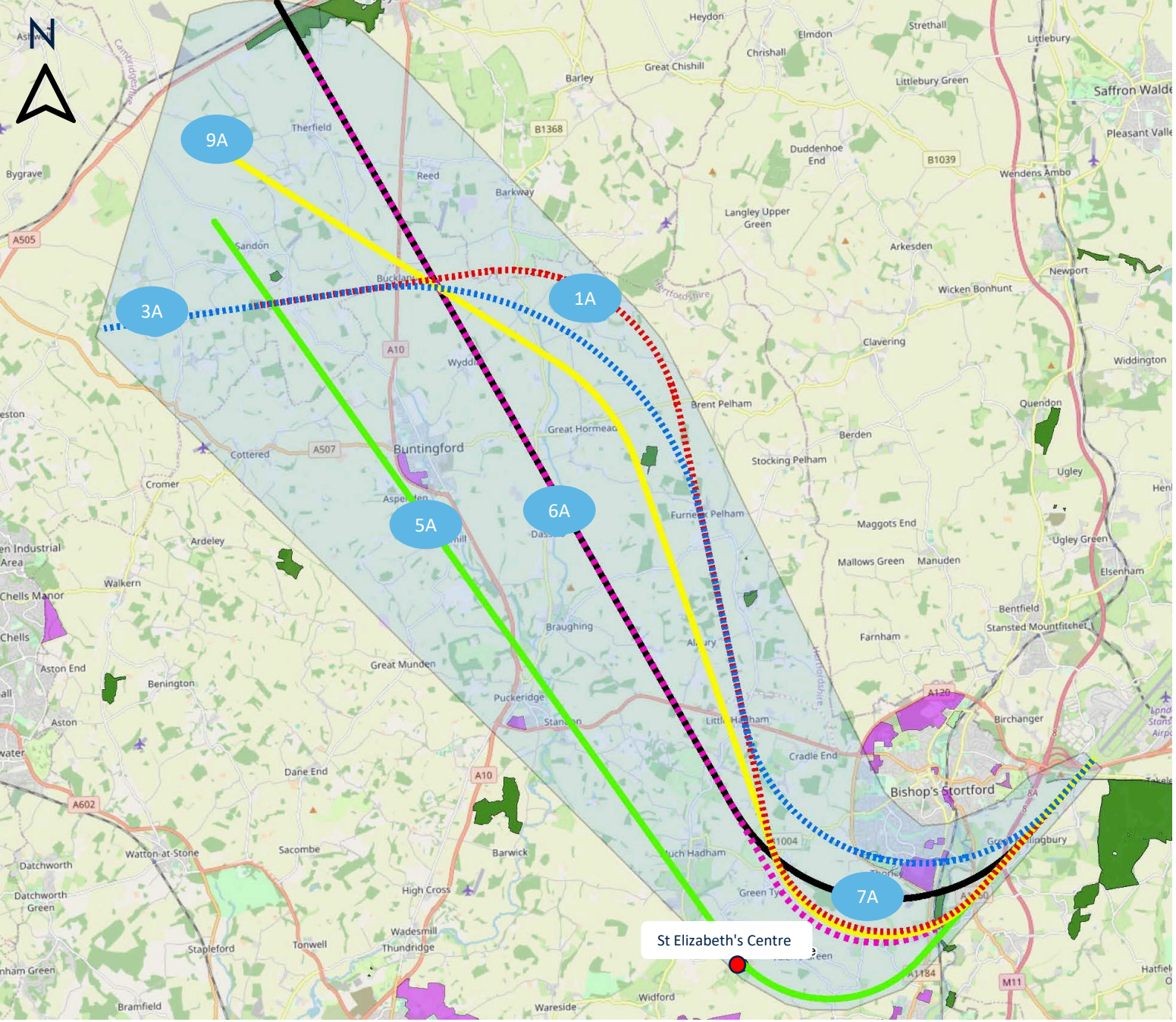
Option 3 routes aircraft to the northern edge of the envelope to avoid Sawbridgeworth, Harlow and Broxbourne .
Design Principle driver: Noise N1.

Option 4 routes to the southern edge of the envelope. This may help reduce runway delays by turning departures earlier, and aims to avoid parts of Harlow and Sawbridgeworth.
Design Principle driver: Demand and Noise N1

Option 5 routes to the north of Sawbridgeworth and Harlow, before taking up a direct track towards Cheshunt.
Design Principle driver: Noise N1

Option 6 also routes to the north of Sawbridgeworth and Harlow, but then continues on a direct track to the northern edge of the envelope.
Design Principle driver: Noise N1

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



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

Departure options – Runway 22, West A

6% climb gradient

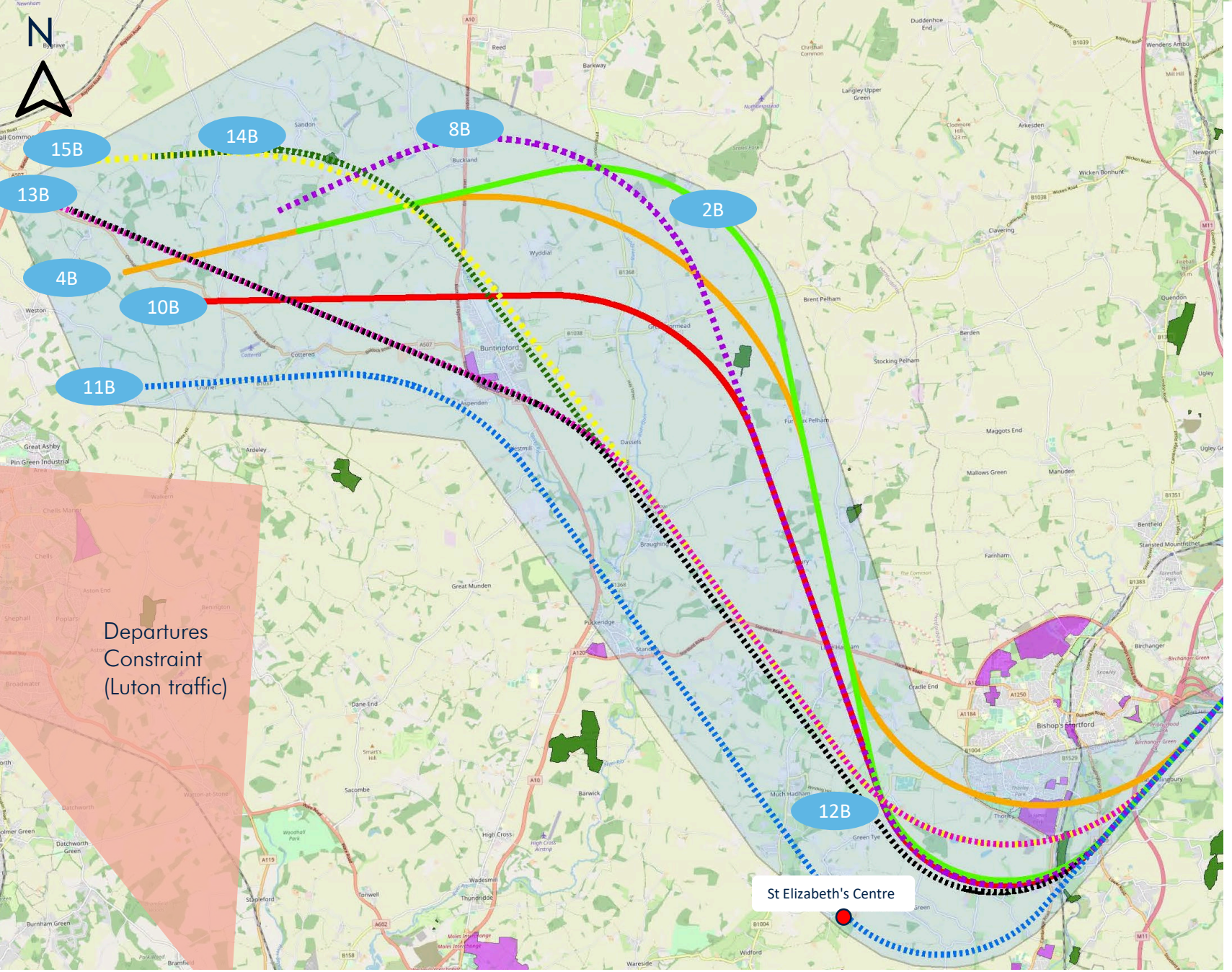
This envelope has been repositioned following discussions in the first engagement. It now orientates aircraft more in the NW direction they will be heading after the 7000ft point. This is aimed to reduce fuel burn in accordance with the DP on Balance and reduce interaction with Luton traffic in accordance with the DP on Efficiency.

Options 1A and 3A are included to provide **Replication** of the current route but using different technologies. Note, these routes do not place the aircraft in the expected NW heading after 7000ft.

Option 5A commences the turn later than the current route to avoid Thorley and Buntingford and provides a fuel efficient direct track to the NW by eliminating the turns in the replicated routes.
Design Principle link: Noise N1 and Balance.

Option 6A and Option 7A use different technologies to route through the centre of the envelope. Both avoid Thorley, Sawbridgeworth and Buntingford in accordance with Noise N1 and provide a fuel efficient direct track to the NW by eliminating the turns in the replicated routes.
Design Principle link: Balance.

Option 9A is a hybrid solution that may help reduce runway delays by turning further away from those on 22 WESTB. It also avoids overflying Thorley.
Design Principle link: Noise N1, N2 and Demand .



Departure options – Runway 22 West B

6% climb gradient

Options 2B and 4B are included to provide **Replication** of the current route but using different technologies.

Option 8B is similar to the replicated routes but routes further north to reduce possible interaction with Luton traffic. May permit noise relief if combined with option 11.
Design Principle link: Efficiency and Noise N2

Option 10B provides a more fuel efficient direct track to the centre of the envelope and avoids overflying Buntingford.
Design Principle link: Noise N1 and Balance.

Option 11B represents the shortest (fuel efficient) route and avoids centres of population. It may also permit noise relief if combined with routes 2,4 or 8.
Design Principle link: Balance, Noise N1 and N2.

Options 12B and 13B provide a more fuel efficient direct track to the north of the envelope using different technologies.
Design Principle link: Efficiency, Noise N1 and Balance.

Options 14B and 15B use different technologies to provide a more fuel efficient direct track to the north to reduce possible interaction with Luton traffic.
Design Principle link: Alternatives, Efficiency and Balance.

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

QUESTIONS & FEEDBACK – RUNWAY 22

- Is the process we have followed to identify route options for Runway 22 clear and logical?
- Is it clear how feedback from our earlier stakeholder discussion sessions in June have influenced the development of the route options?
- Is it clear how 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?

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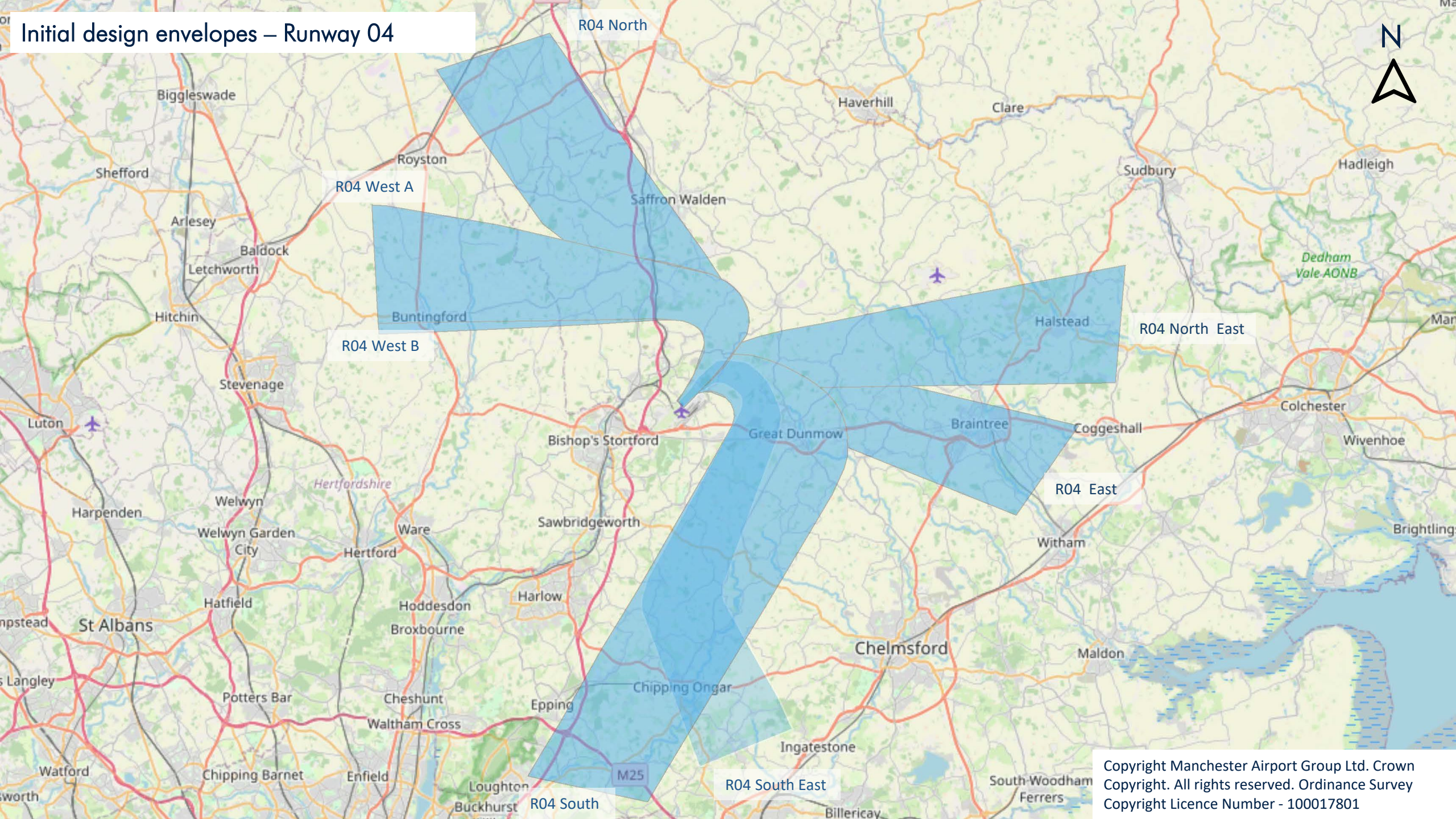
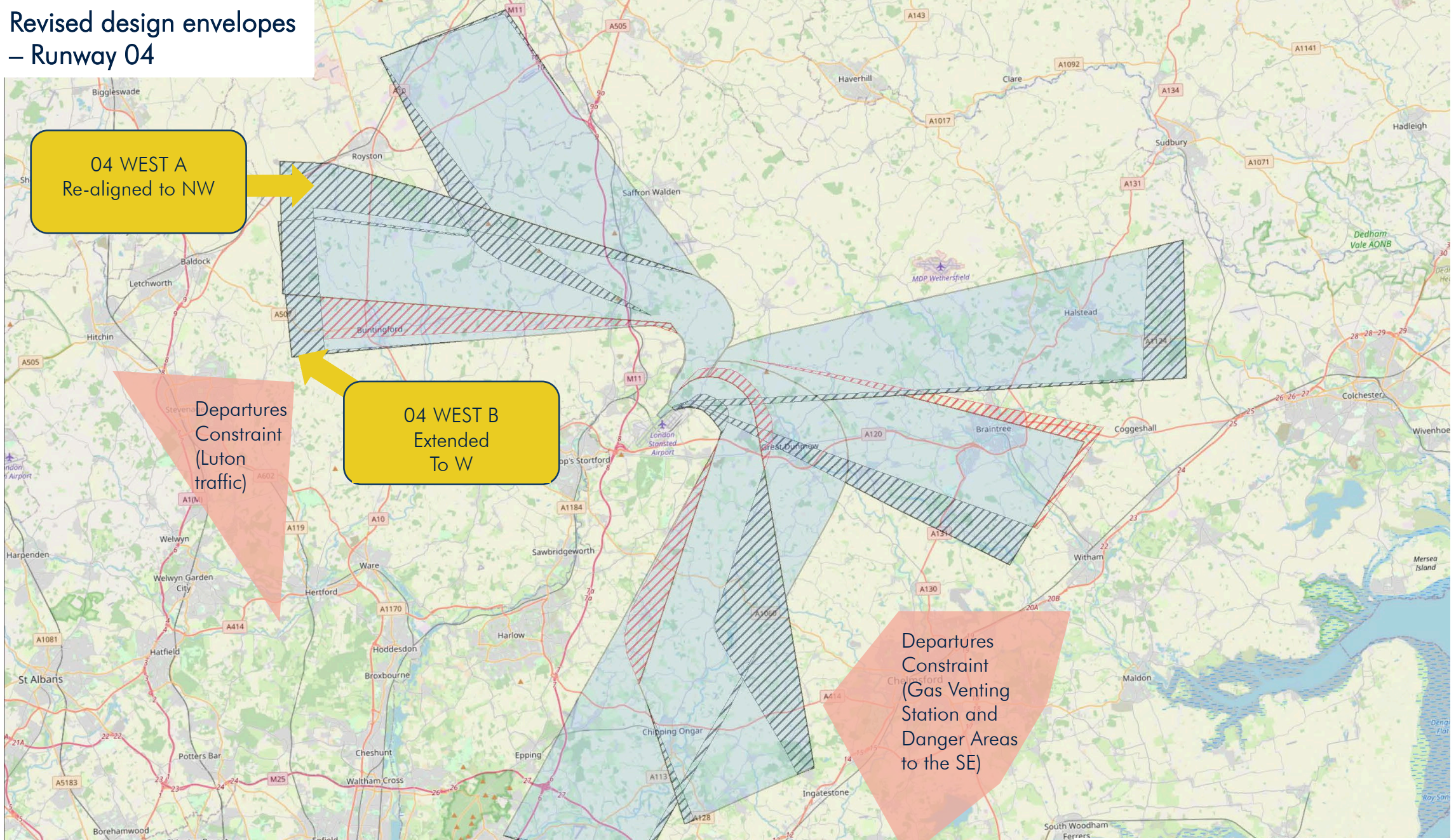
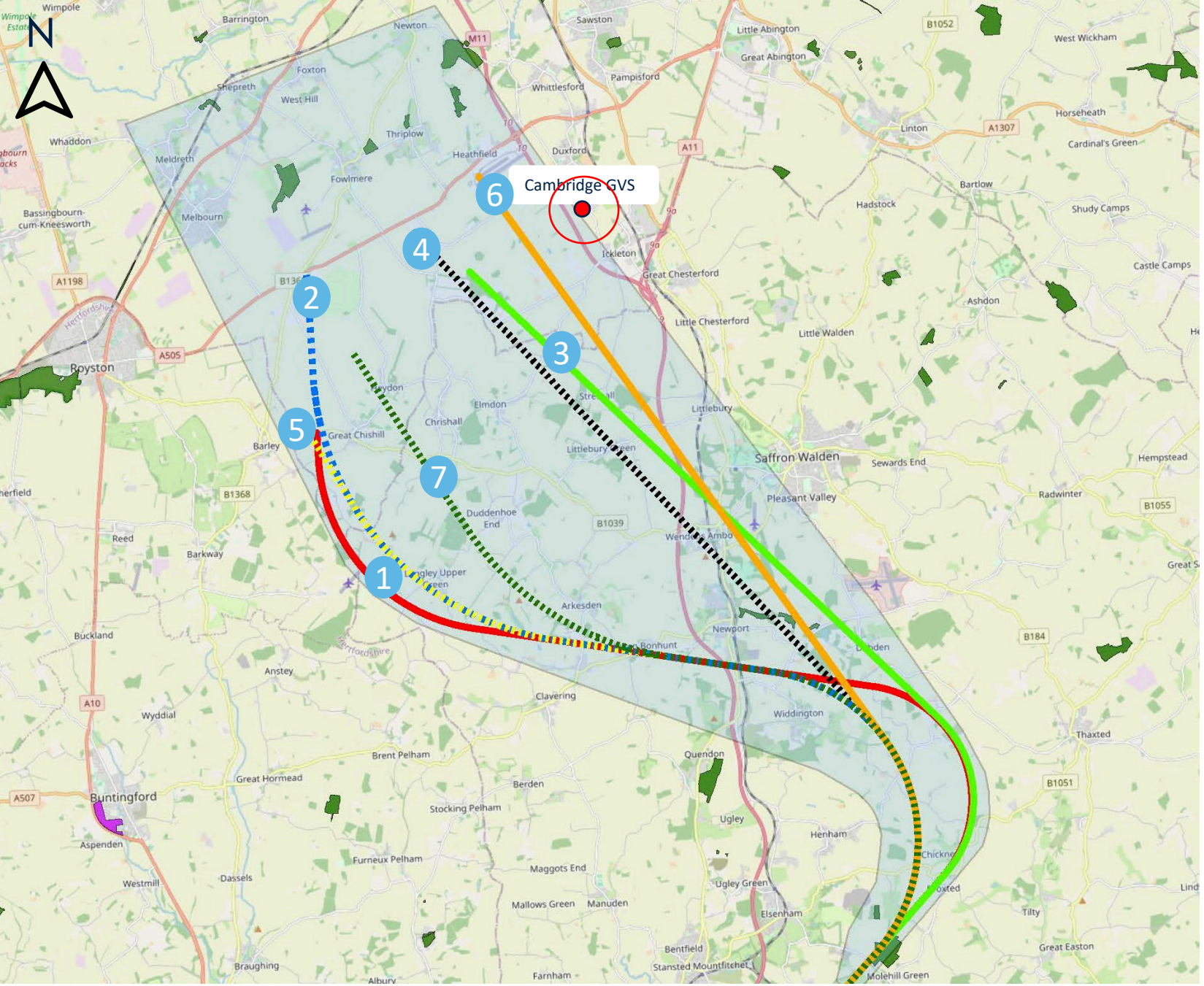
Initial design envelopes – Runway 04



Revised design envelopes – Runway 04





Departure options – Runway 04 North

8% climb gradient

Options 1 and 2 are included to provide **Replication** of the current Barkway SID but using different technologies. Option 2 commences the first turn earlier than Option 1.

Option 3 follows the same track as Option 1, but takes a more direct (fuel efficient) route that eliminates the double turn of the replicated routes. This has also been created as an option to reduce interaction with Luton traffic.
Design Principle link: Balance, Efficiency and Noise N1 and N2.

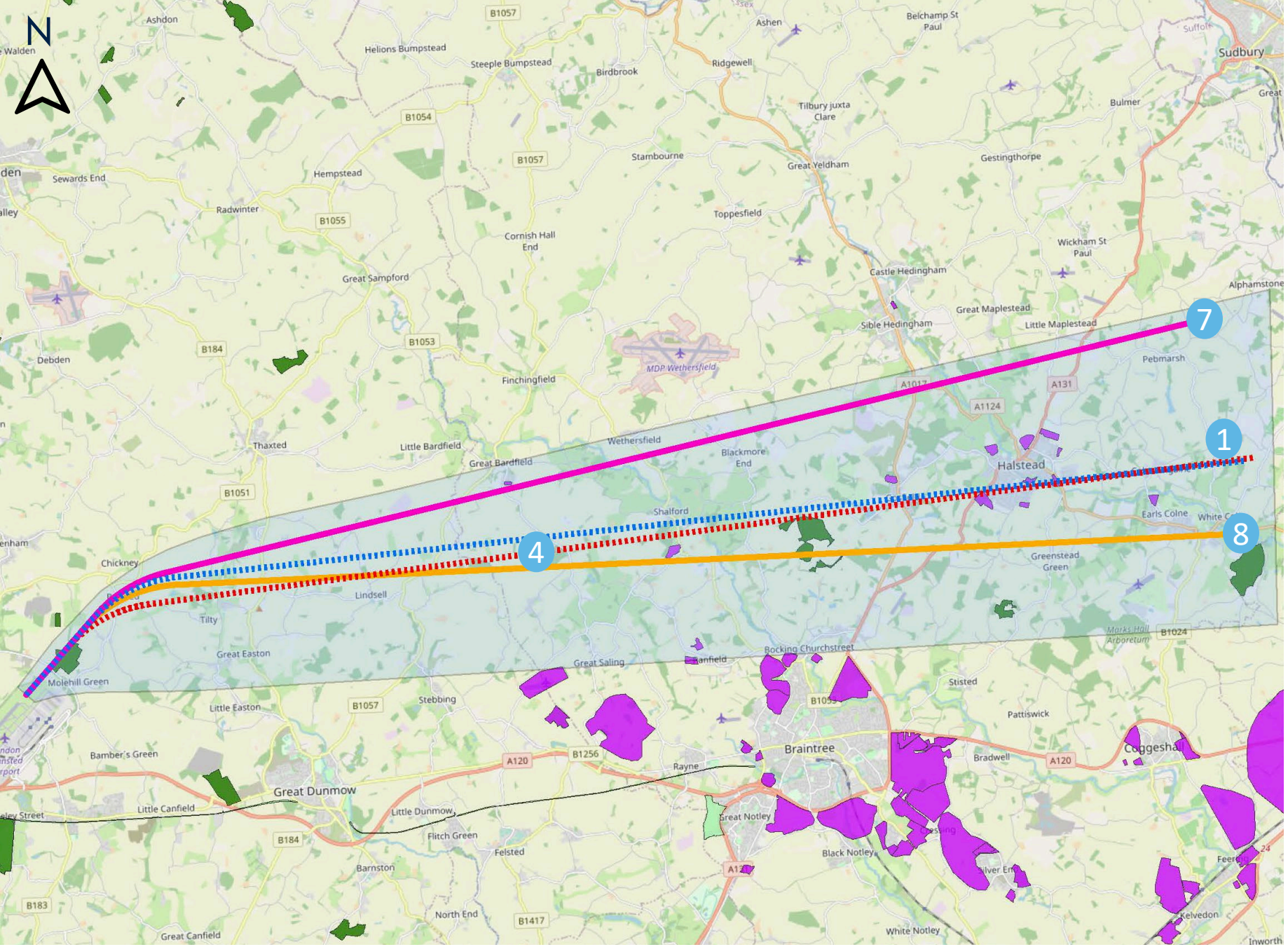
Option 4 has an earlier turn than option 3 and takes a more direct (fuel efficient) route that avoids Saffron Walden. It has also been created as an option to reduce interaction with Luton traffic.
Design Principle link: Balance, Efficiency and Noise N1

Option 5 follows the same track as Option 2 but routes towards the western edge of the envelope. It may also permit noise relief if combined with route 6.
Design Principle link: Efficiency and Noise N2.

Option 6 has the same turn as option 5 but maintains a straight track along the eastern boundary of the envelope. This has also been created as an option to reduce possible interaction with Luton traffic and possible noise relief with option 5.
Design Principle link: Noise N2, Efficiency and Demand.

Option 7 follows Options 2 initially but turns north once past Newport. This option has been designed to route west of Audley End heritage site.
Design Principle link: Noise N1 and Noise N3

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



Departure options – Runway 04 North East

6% climb gradient

This is a new design envelope which aligns with the Policy and Demand DPs. It has been designed at a climb gradient of 6% as an alternative to the 04 East in alignment with DP to provide Alternatives.

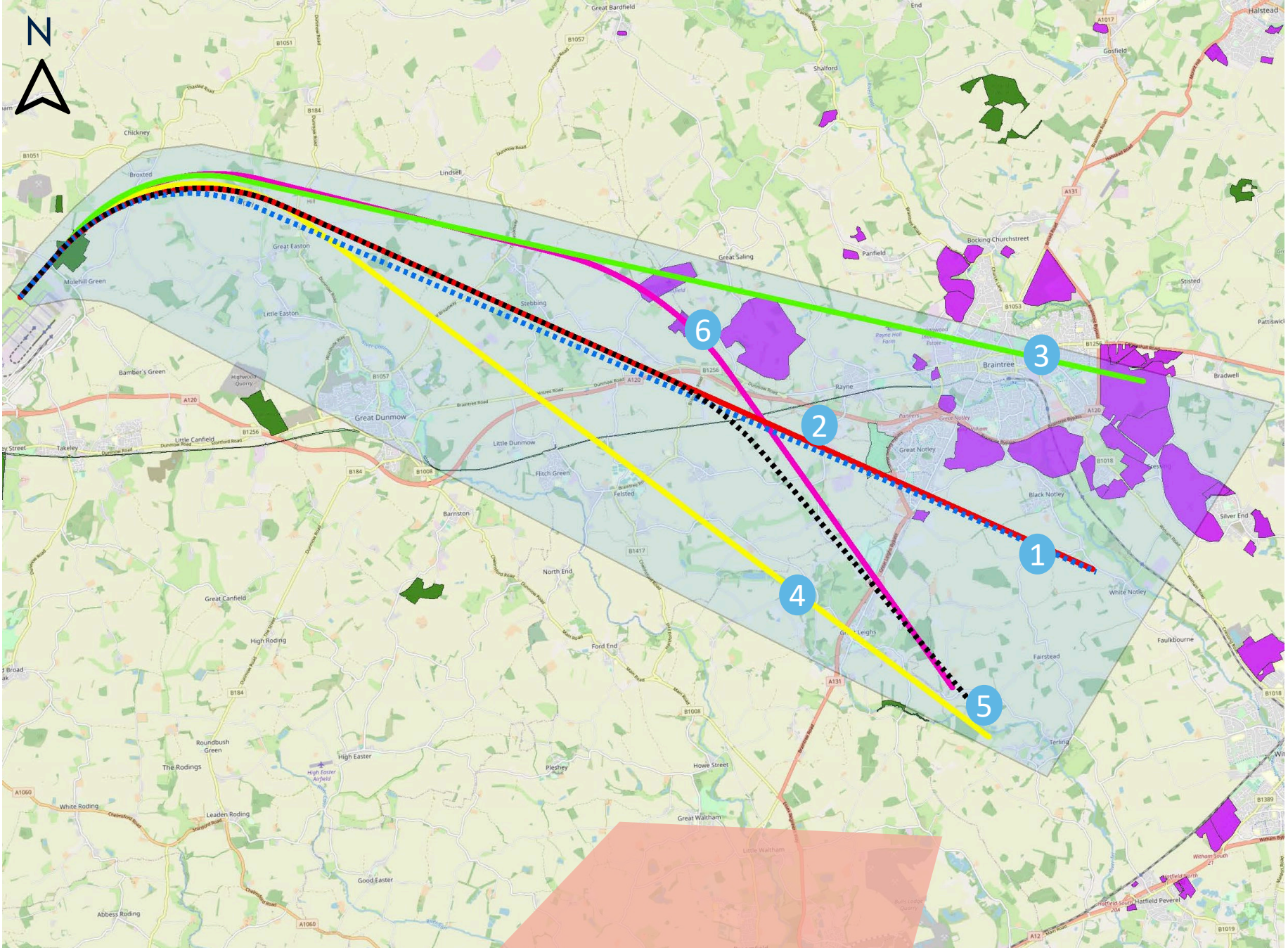
Option 1 turns right after departure and routes in the most direct track to the centre of the envelope.
Design Principle link: Balance.

Option 4 features a slightly earlier turn after departure than Option 1 which may help reduce runway delays.
Design Principle link: Demand.

Option 7 turns right and routes to the northern edge of the envelope to avoid direct overflight of Halstead.
Design Principle link: Noise N1.

Option 8 turns right and routes to the southern edge of the envelope. It avoids direct overflight of Halstead and routes north of Braintree.
Design Principle link: Noise N1.

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



Departure options – Runway 04 East

8% climb gradient

Options 1 and 2 are included to provide **Replication** of the current Clacton SID but using different technologies.

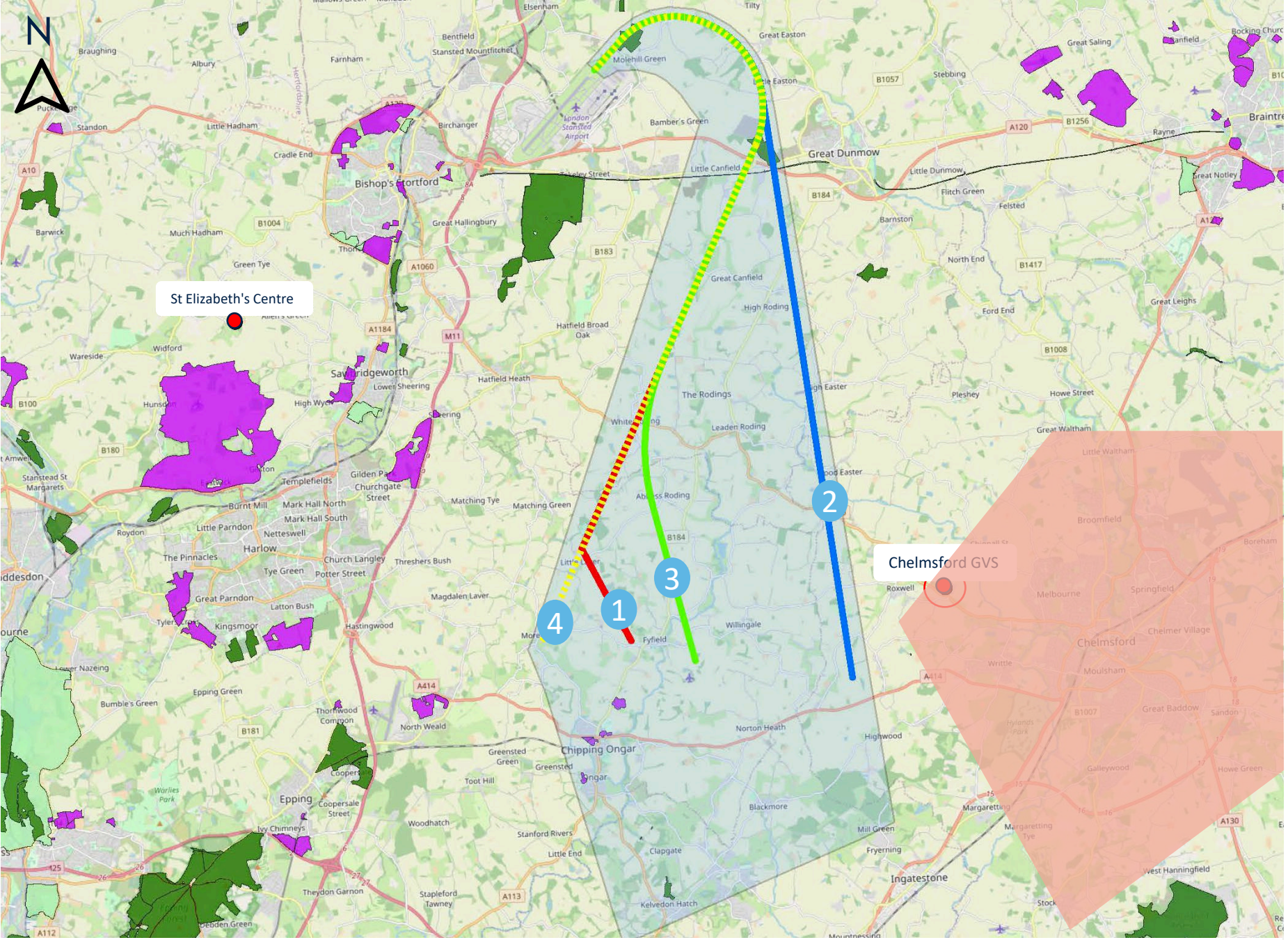
Option 3 turns right after departure and routes to the northern edge of the envelope. This avoids overflying Stebbing and is a slightly more direct (fuel efficient) route to exit UK airspace.
Design Principle link: Balance.

Option 4 after turning right this avoids Great Dunmow, Great Notley and Braintree by routing to the south of the envelope.
Design Principle link: Noise N1.

Option 5 initially follows the track of the current route but when level with Great Leighs Racecourse, it turns right to avoid Great Notley and Braintree.
Design Principle link: Noise N1.

Option 6 initially follows the northerly track of Option 3 to avoid Stebbing. Once past this point , it turns right to avoid Great Notley and Braintree.
Design Principle link: Noise N1.

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



Departure options – Runway 04 South East

8% climb gradient

Although the current route within this envelope has already been designed to PBN standard, feedback has suggested the creation of additional route options. We are also proposing to increase the climb gradient from the current 3% to 8%.

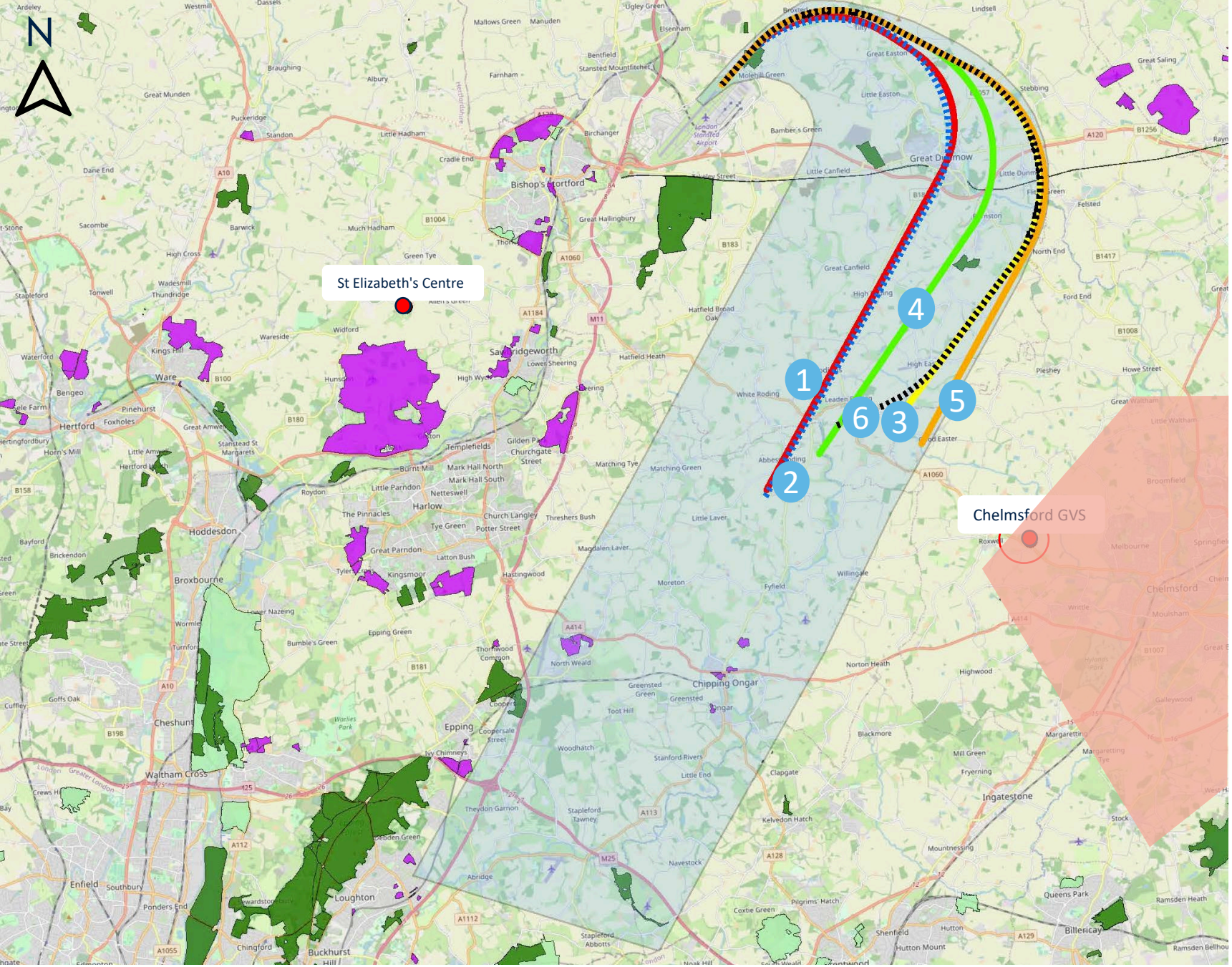
Option 1 provides a **Replication** of the current Detling 1D SID but with 8% climb gradient applied.

Option 2 follows the same initial turn but maintains a south-south easterly track along the eastern edge of the envelope. This has been included to be a more direct (fuel efficient) route.
Design Principle link: Balance.

Option 3 follows the same track as Option 1 until past the Rodings where the track turns on to a south-easterly track at an earlier position than the replicated route to avoid Chipping Ongar.
Design Principle link: Noise N1 and Balance.

Option 4 this follows the same lateral track as Option 1, and turns on to a south-westerly track, which is maintained until 7000ft. The route avoids both North Weald and Chipping Ongar and is included to offer options that reduce possible confliction with aircraft at adjacent airports.
Design Principle link: Noise N1 and Efficiency.

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



Departure options – Runway 04 South

8% climb gradient

Options 1 and 2 are included to provide **Replication** of the current Lambourne SID but using different technologies.

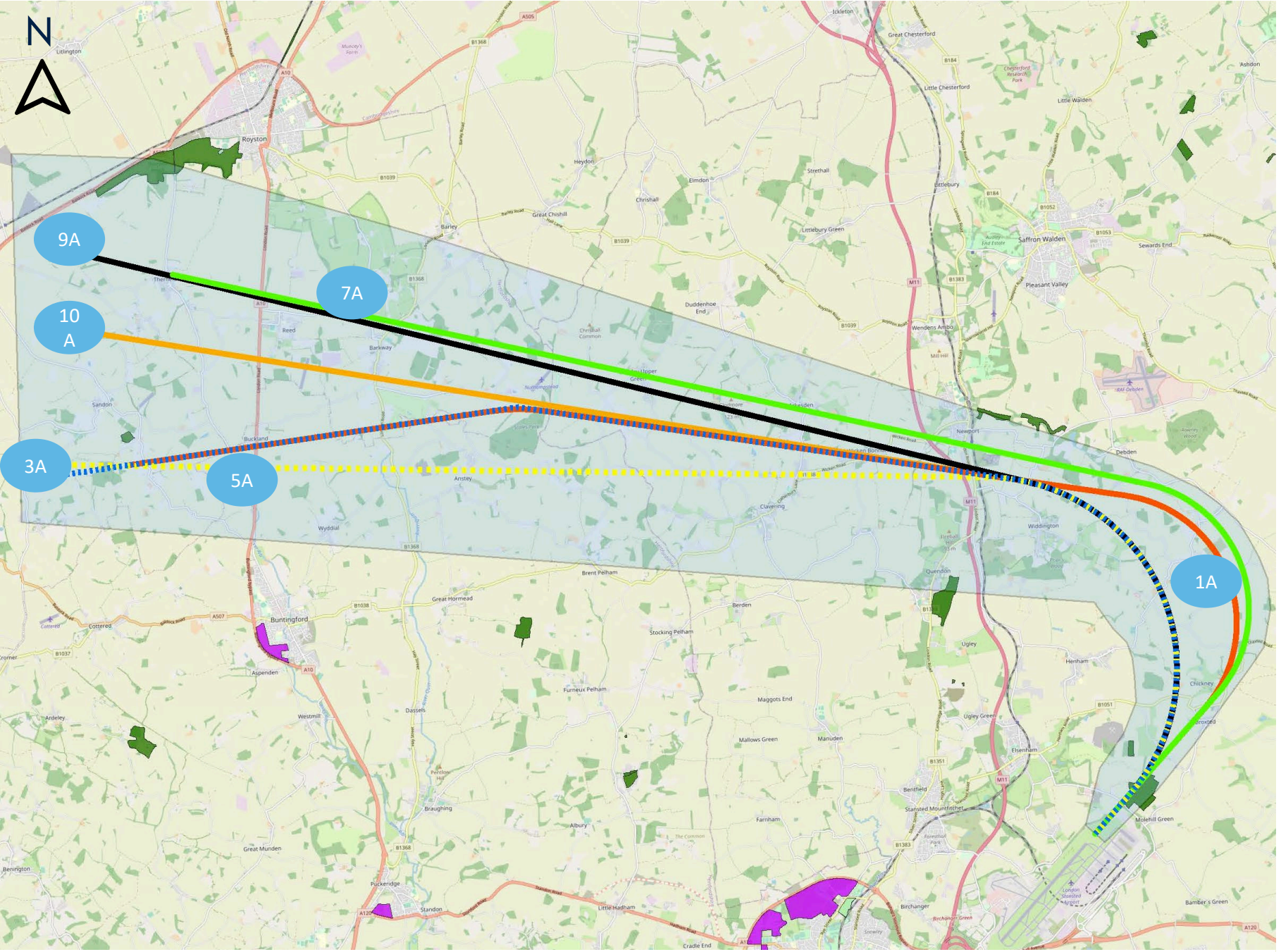
Option 3 follows a wider route to the north of Great Dunmow. The track then turns right to be parallel with Options 1 and 2 to route towards the South.
Design Principle link: Noise N1.

Option 4 has the same wide turn as Option 3 (and avoids Great Dunmow) but turns to the South slightly earlier to avoid High Easter.
Design Principle link: Noise N1.

Option 5 has the same wide turn as Option 3 but extends this slightly to route along the eastern edge of the envelope.
Design Principle link: Noise N1.

Option 6 has the same wide turn as Option 3 but makes a final turn to the South West. This options is included following stakeholder feedback to provide an alternative option to aircraft using the 04 WEST B envelope (used for aircraft heading south west).
Design Principle link: Noise N1 and N2 and Alternatives..

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



Departure options – Runway 04 West A

6% climb gradient

This envelope has been repositioned following discussions in the first engagement. It now orientates aircraft more in the NW direction they will be heading after joining the NATS network at 7000ft.

Options 1A and 3A are included to provide **Replication** of the current SID but using different technologies. Note, these routes do not place the aircraft in the required NW heading after 7000ft.

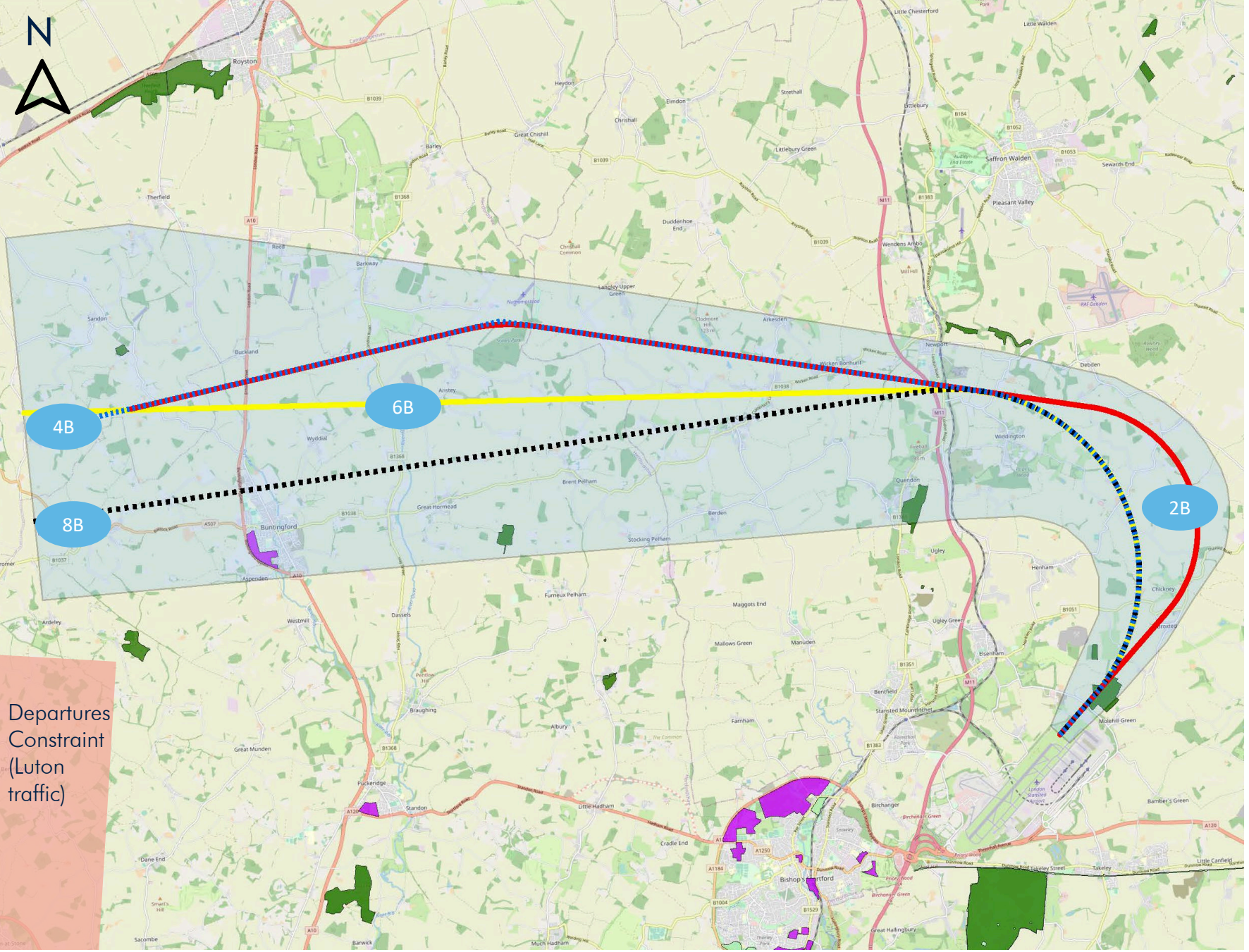
Option 5A has been designed with a earlier turn to remain south of Newport. This creates a slightly more fuel efficient route to the south of the envelope, and by turning early, may assist with reducing runway delays.
Design Principle link: Balance and Demand.

Option 7A takes a wider turn and routes to the north of the envelope to reduce possible interaction with Luton traffic and place aircraft in a NW direction.
Design Principle link: Efficiency.

Option 9A has been designed with an earlier turn to remain south of Newport before routing to the north of the envelope in a NW direction.
Design Principle link: Efficiency and Demand.

Option 10A has been designed with a earlier turn to remain south of Newport and routes to the centre of the envelope in a NW direction.
Design Principle link: Efficiency and Demand.

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



Departure options – Runway 04 West B

6% climb gradient

Aircraft using this envelope are heading south after joining the NATS network at 7000ft. The options within this envelope reflect this which has resulted in this envelope being slightly extended.

Options 2B and 4B are included to provide **Replication** of the current route but using different technologies. Note, these routes do not place the aircraft in the expected NW heading after 7000ft.

Option 6B incorporates the earliest possible turn to create a more direct (fuel efficient) route towards the centre of the envelope.
Design Principle link: Demand and Balance.

Option 8B also incorporates the earliest possible turn to create a more direct (fuel efficient) route but routes to the south of the envelope, remaining north of Buntingford.
Design Principle link: Demand, Balance, and Noise N1.

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

QUESTIONS & FEEDBACK – RUNWAY 04

- Is the process we have followed to identify route options for Runway 04 clear and logical?
- Is it clear how feedback from our earlier stakeholder discussion sessions in June have influenced the development of the route options?
- Is it clear how 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?

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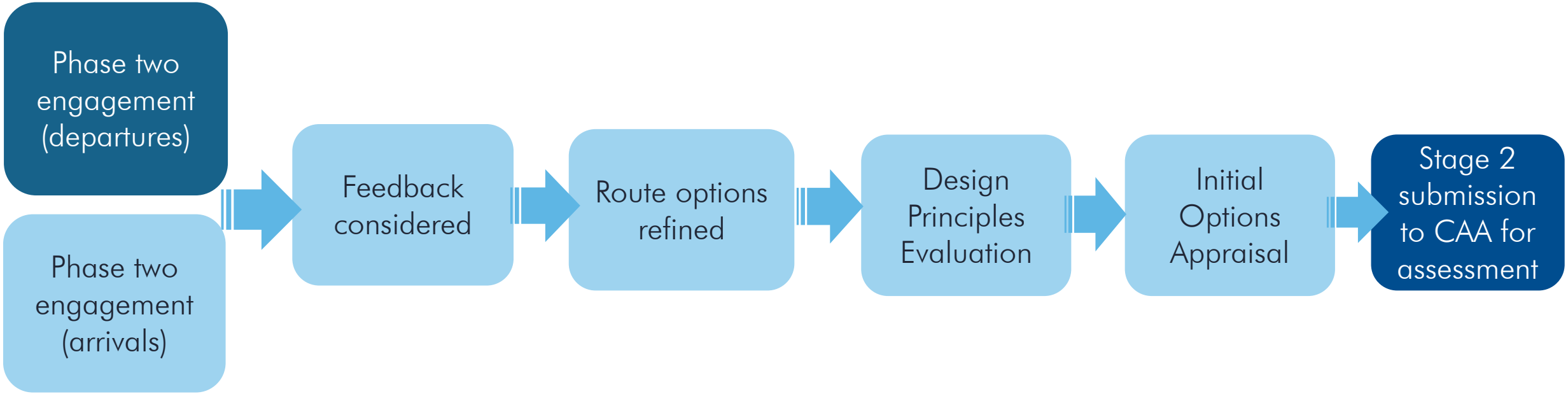
Next steps


Phase two engagement (departures)
Phase two engagement (arrivals)
Feedback considered
Route options refined
Design Principles Evaluation
Initial Options Appraisal
Stage 2 submission to CAA for assessment

Next steps – evaluating the options against our design principles

- Assessment criteria have been 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 alignment to the design principles overall and allow comparison between each route option.

Design Principle	Safety		
S	Safety is our highest priority; our routes must be safe for airspace users and communities on the ground, and must comply with national and international industry standards and regulations.		
	Not met There is insufficient evidence to substantiate the argument that the option is safe. From the assessment carried out, this option does not meet the requirement of being tolerably safe.	**Partial** There is satisfactory evidence to support the argument that the option is safe; however, additional safety mitigations or processes are required to be introduced to accommodate the option. OR The route is not compliant with PANS-OPS but there is sufficient evidence to support the argument that it can be flown safely.	**Met** There is sufficient evidence to substantiate the argument that the option is safe. This option meets the criteria of being tolerably safe.

Design Principles Evaluation – Design Principle Noise 2 (N2) – Using respite to share the impacts of noise

Respite can reduce the impact of noise in different ways, including

- **Varying** the routes used on different days, or depending on the time of day. This creates predictable periods of no or reduced overflight.
- Using **multiple** routes to reduce the frequency and number of flights using each individual route by spreading them out.
- The use of preferential runway mode (when weather conditions allow)

The extent to which these options can be used will become clearer as we progress through the process.

Design Principles Evaluation – Design Principle Noise 2 (N2) – Using respite to share the impacts of noise

To aid the development and evaluation of our options, we'd like to hear your views on your perception of respite.

Our working definition has been:

Relief is a break from or a reduction in aircraft noise.

Respite is a scheduled relief from aircraft noise for a period of time.

Does this align with your own views?

When considering the use of multiple routes to provide respite, what might constitute a sufficient period of respite?

Is it important to you that periods of lower noise are scheduled and predictable? Or, do you just wish to see a sharing of noise?

Are there any times of the day or days of the week where it would be preferable to have a period of respite?

Presentation, Q&A and feedback survey circulated

Feedback deadline – Friday19th November 2021

futureairspace@stanstedairport.com

MAG London Stansted Airport

London Stansted Airport Future Airspace

Stage 2 – Develop and Assess

Phase two engagement

November 2021

MAG London Stansted Airport

London Stansted Airport Future Airspace

Thank you for taking part in our discussions about the future of airspace at London Stansted Airport. 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 June 2021. 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 the statement of need and align with the design principles that were established through stakeholder engagement at 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 2022[1]. 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 2021 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 received in June 2021, 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. The session you will shortly be attending will cover **departure route options only.** You have been invited to another session which will cover arrival options.

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

[1] This date is currently still to be confirmed by the CAA

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.

S | Safety

Safety is our highest priority; our routes must be safe for airspace users and communities on the ground, and must comply with national and international industry standards and regulations.

P | Policy

Any changes must be consistent with the CAA's Airspace Modernisation Strategy and the FASI-S programme, taking into account the needs of other change sponsors and airspace users.

D | Demand

The airspace design must provide for the utilisation of aircraft movements permitted by planning permissions and within statutory limits in force at the airport.

C | Change

Where we choose routes that fly over new areas there will have to be a clear and objective benefit in doing so.

T | Technology

Routes should be designed to make use of the latest widely available aircraft navigation technology and facilitate continuous climb and descent to/from both ends of the runway.

Noise

N1 In order to address the effects of aircraft noise, each route should seek to minimise the number of people overflown.

N2 The use of multiple routes and/or other forms of respite, such as different time periods and balanced runway mode when operationally viable, will be considered.

N3 Where practical, our route designs should avoid, or minimise effects upon, noise sensitive receptors. These may include designated sites and landscapes (such as SSSI and AONB), cultural or historic assets, and sites providing care.

B | Balance

Our designs will consider both noise and emissions, and seek to strike the best balance. In so doing, we will take account of the Government's altitude-based priorities, which emphasise minimising noise below 7,000 feet.

E | Efficiency

We will seek to minimise the amount of controlled airspace that we require, and our future route designs should ensure an efficient and systemised operation at Stansted, minimising interactions with other airports and maintaining priority access for emergency services.

A | Alternatives

Where the adoption of modern navigation standards and/or flight profiles mean that some aircraft cannot fly the new routes, we will seek to minimise the environmental impacts from those aircraft.

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 our face-to-face discussion session, 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 absorb 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 future.airspace@stanstedairport.com

FURTHER INFORMATION

Full details of the work London Stansted completed at Stage 1 can be found on the CAA's airspace change portal at www.airspacechange.caa.co.uk

The CAA's Airspace Modernisation Strategy can be found here www.caa.co.uk

CAP1616 (the regulatory process for airspace change that we are required to follow) can be found here www.caa.co.uk

If you did not attend our earlier discussion sessions in June, please let us know and we will send you copies of the materials presented for your information.

London Stansted Airport Future Airspace Departures Feedback

Departures route options survey

* Required

Welcome

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

1

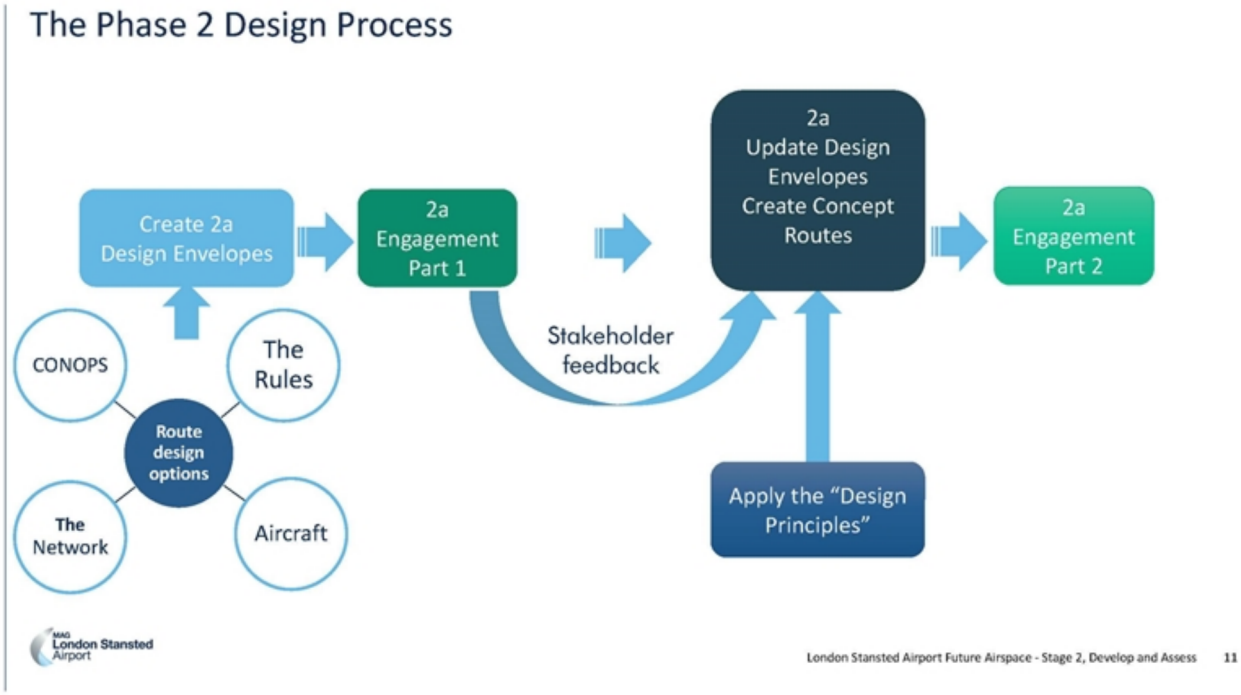
What is your name? *

2

What organisation are you representing? *

Please add N/A if this is not applicable

Stage 2 process



3

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

4

Please explain your answer *

5

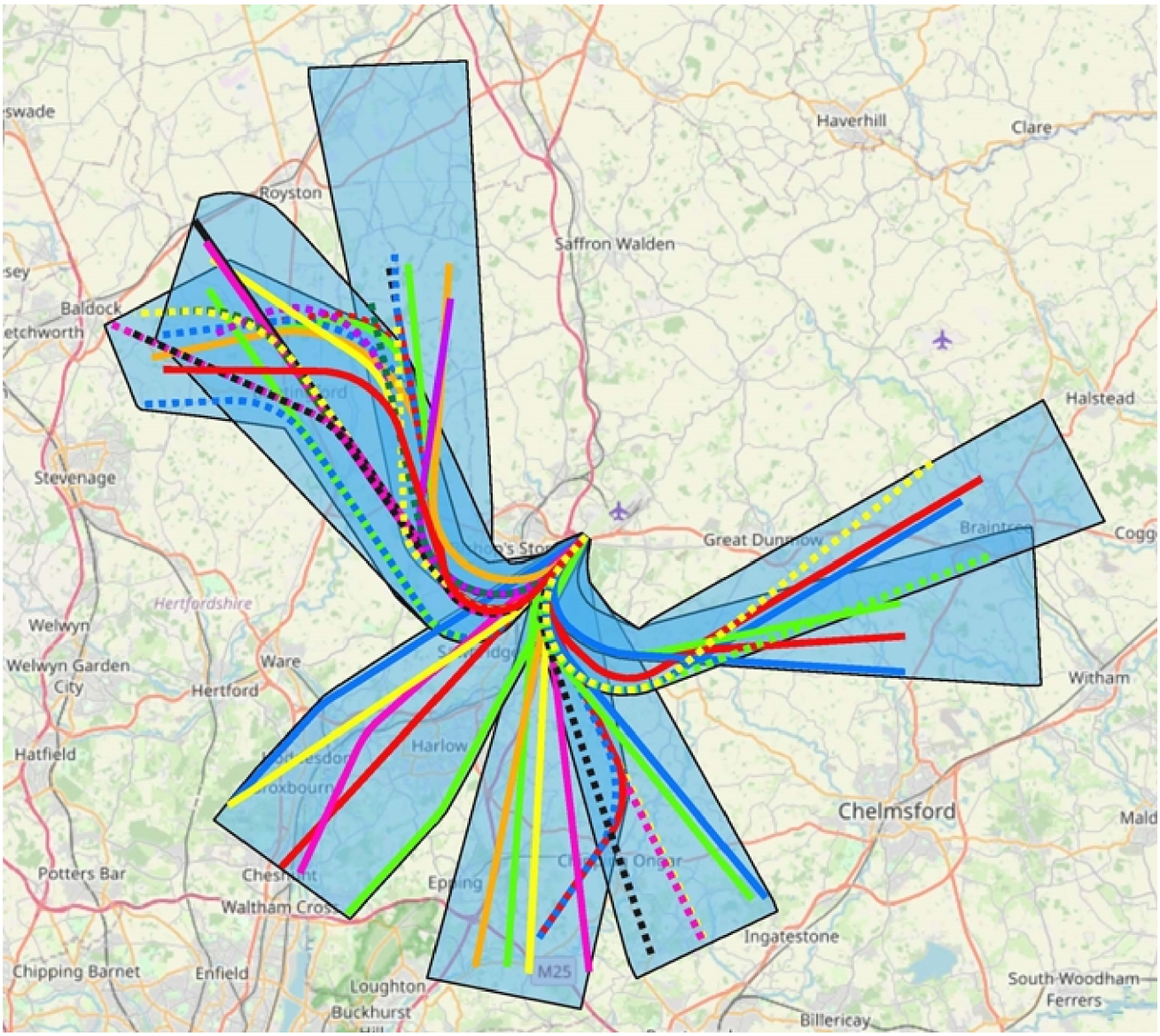
Is it clear how feedback from our earlier stakeholder discussion sessions in June have influenced the development of the route options? *

- ◯ Yes
- ◯ No
- ◯ Don't know

6

Please explain your answer *

Route options envelope for Runway 22



7

Have we clearly explained how the route options for Runway 22 have been developed? *

- ◯ Yes
- ◯ No

8

Please explain your answer *

9

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

- Yes
- No

10

Please explain your answer *

11

Is it clear that we have taken account of the design principles in developing the route options? *

- Yes
- No

12

Please explain your answer *

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

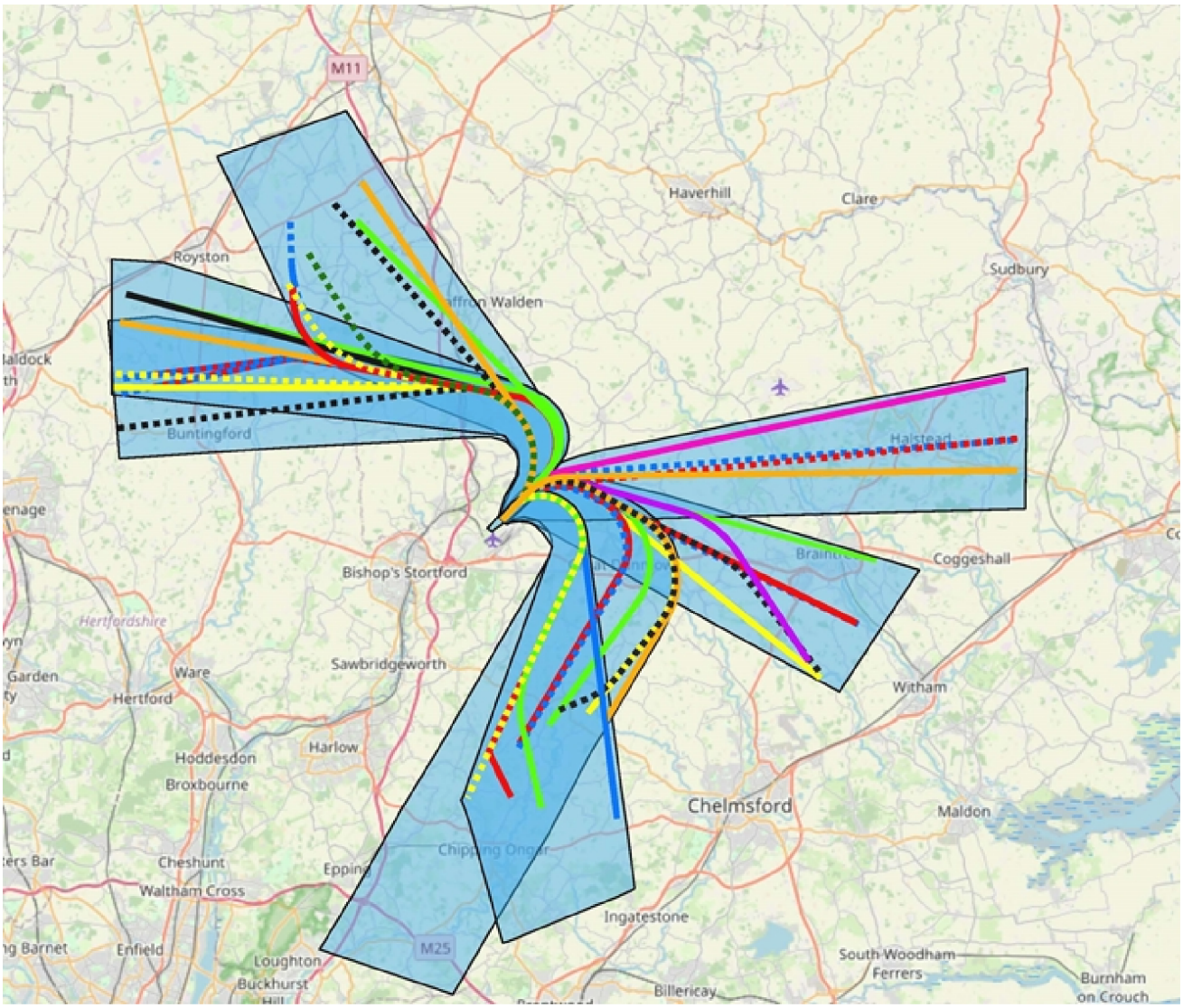
16

Please explain your answer *

17

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

Route options envelope for Runway 04



18

Have we clearly explained how the route options for Runway 04 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

Is it clear that we have taken account of the design principles in developing the route options? *

- ◯ Yes
- ◯ No

23

Please explain your answer *

24

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

- ◯ Yes
- ◯ No

25

Please explain your answer *

26

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

- ◯ Yes
- ◯ No

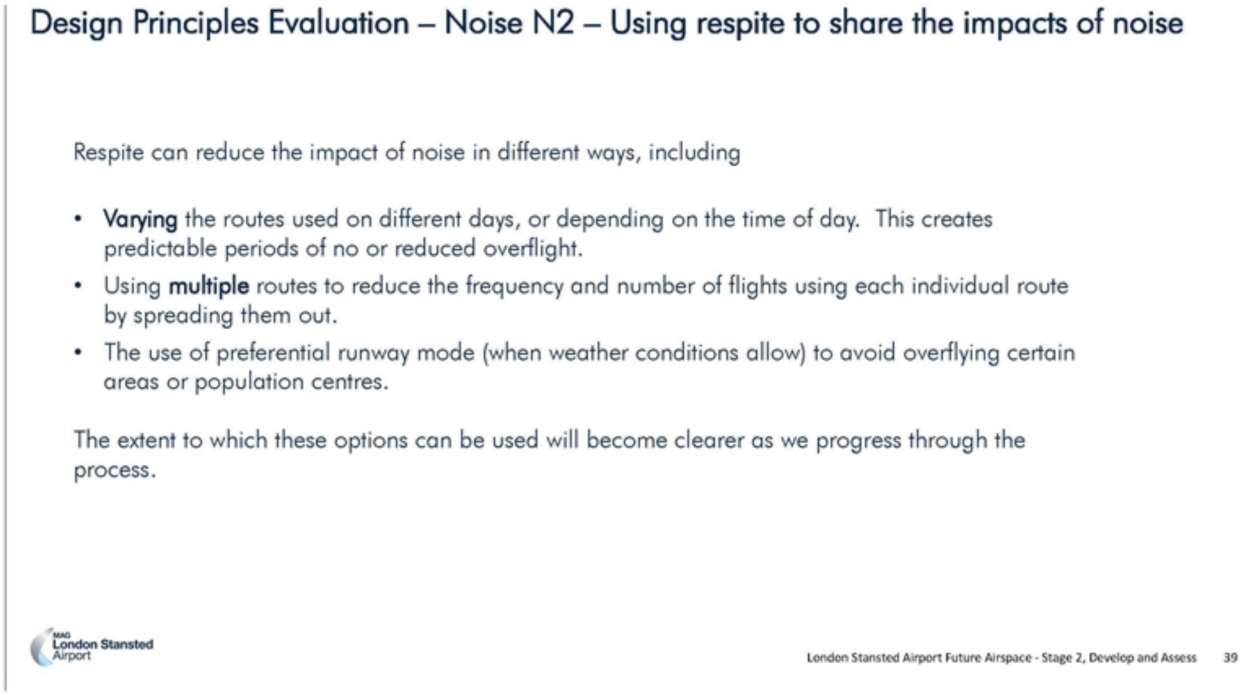
27

Please explain your answer *

28

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

Design principle evaluation - respite



29

Our working definition of respite is;

- Relief is a break from or a reduction in aircraft noise.

- Respite is a scheduled relief from aircraft noise for a period of time.

Does this align with your own views? *

- ◯ Yes
- ◯ No

30

Please explain your answer *

31

Is it important to you that periods of lower noise are scheduled and predictable? Or, do you just wish to see a sharing of noise? *

32

When considering the use of multiple routes to provide respite, what might constitute a sufficient period of respite? *

Are there any times of the day or days of the week where it would be preferable to have a period of respite? *

Thank you!