Future Airspace Strategy Implementation South (FASI-S)

London Terminal Manoeuvering Area (LTMA)

Airspace Change Proposal (ACP)

ACP-2020-043

ACP-2020-044

ACP-2020-045

Gateway Documentation

Stage 2: Develop and Assess

Annex A

Engagement Evidence

Example of Engagement Evidence	Pages
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1) Example of Engagement launch email sent to all targeted stakeholders

Airspace Engagement

From: Airspace Engagement <[redacted]>
Sent: 22 August 2022 10:05
To: [redacted]
Subject: NERL Airspace Change Proposals: Stage 2 Engagement

Good Morning,

NATS (NERL) are contacting you about the **London Airspace Management Programme (LAMP)** – our part of a UK-wide airspace modernisation programme. We would like to invite you to attend an online briefing session about our Airspace Change Proposals (ACPs), LAMP 2, LAMP 3 and LAMP 4, which relate to the London Terminal Manoeuvring Area (TMA) airspace.

Background
Along with several airports across the UK, NATS (NERL) is required by the Department for Transport (DfT) and the Civil Aviation Authority (CAA) to modernise its airspace to remove reliance on old technology.

NERL's airspace modernisation programme will enable us to better manage the route network, without compromising on safety, whilst delivering a number of benefits through optimisation. As well as engaging with the CAA, the DfT and associated airport sponsors, we seek views from you, our aviation stakeholders.

LAMP 2, LAMP 3 and LAMP 4 have successfully passed Stage 1 of the UK's airspace change process known as CAP1616 (link) and have now commenced Stage 2.

Note: LAMP 1, which seeks to introduce systemisation of lower airspace across the southwest of England and most of Wales, is at Stage 5 of the CAP1616 process.

Attend a briefing session about our ACPs
As part of Stage 2 we must engage with our stakeholders in order to produce a comprehensive list of design options for each of the three ACPs. Each list must satisfy our Statement of Need (SoN) and align with our Design Principles (DPs).

To support this, we will be hosting online stakeholder briefing sessions, and we invite you to attend at least one.

Documentation relating to our SoN and DPs can be found on the CAA's Airspace Change Portal here LAMP 2, LAMP 3, LAMP 4; we will discuss this with you during the engagement.

We ask that your organisation selects a representative to attend one of the following briefing sessions:

Date: 23/09/22
Time: 09:00 - 11:30
Audience: Open session

- Or -

Date: 27/09/22
Time: 09:00 - 11:30
Audience: Open session

- Or -

Date: 30/09/22
Time: 13:30 - 16:00
Audience: Open session

The briefing sessions will include a presentation giving more detail about the CAA's Airspace Change process, our design options and next steps, followed by an opportunity to ask questions. After the briefing sessions, stakeholders will have an opportunity to provide feedback via an online form.

Please register your attendance no later than Tuesday 13th September by emailing AirspaceEngagement@NATS.co.uk with the name of your organisation, the name of the nominated attendee, and which briefing they will attend.

If you are unable to attend the sessions above, please email AirspaceEngagement@NATS.co.uk as we may be able to arrange an alternative.

Have we got the right contact for your organisation?
It is important that we keep our stakeholder records up-to-date. We are required to engage with aviation stakeholders who may be affected by any future changes to NERLs airspace; as such, please let us know if we need to update our contact information for your organisation by emailing AirspaceEngagement@NATS.co.uk

Further Information
We thank all those who have contributed to date to the NERL ACPs; we remain committed to ensuring your organisation can provide feedback on how we should progress our part of the UK-wide Airspace Modernisation Strategy.

You can find out more about the Airspace Modernisation Strategy here (link), and NERL ACPs here LAMP 2, LAMP 3, LAMP 4

Kind regards,

[redacted]

NATS

[redacted]
Airspace Engagement Manager

[redacted]

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NATS PRIVATE

Airspace Change Proposal – London Airspace Management Programme (LAMP)

NERL Stage 2 Formal Stakeholder Engagement

CAA IDs: ACP-2020-043
ACP-2020-044
ACP-2020-045

NATS Airspace Development Team

Today's Briefing

- Introduction – Formal CAP1616 Stage 2 stakeholder engagement
- Project overview – What is LAMP & why change the LTMA airspace?
- Our approach to developing the long list of options
- What the options and constraints are, for both network and airport arrival structures
- How can you help? These options are still evolving – your feedback will help that evolution and refinement
    - When considering your feedback, please consider
        - Whether the Network options align with our Design Principles
        - Whether the Airport Arrival Structure options and design envelopes align with our Design Principles
        - Whether the Network options align with the aspirations of your organisation
        - Whether the Airport Arrival Structure options and design envelopes align with the aspirations of your organisation
        - Changes we should consider to the options shown
        - Any new options not shown here
- Next steps

There will be an opportunity for you to ask questions at intervals during, and at the end of, this briefing. The slide pack and a feedback questionnaire will be supplied later, to help you formulate your response.

Why?

The core of our current airspace route system in the LTMA was designed many years ago.

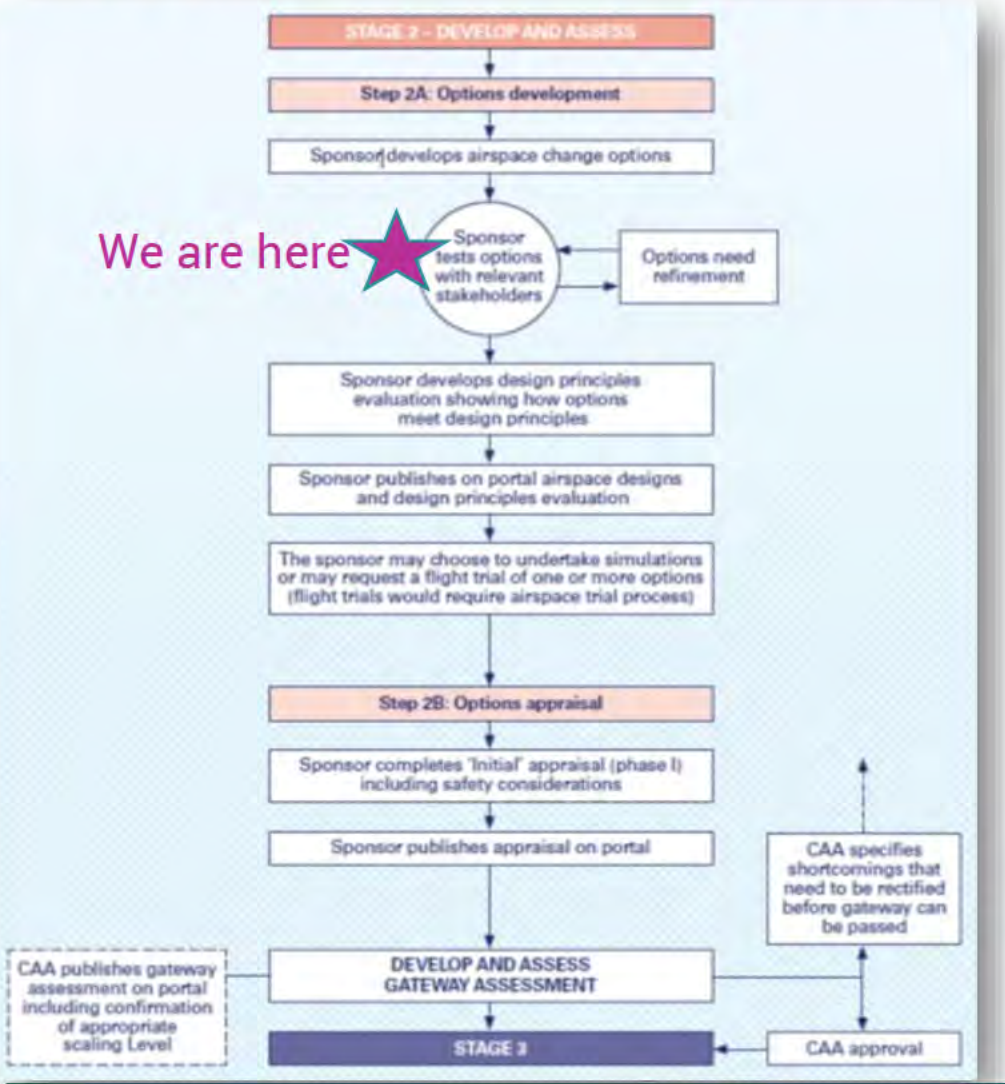
Although the airspace has been upgraded piecemeal over the years, the design is not as efficient as it could be, it can create delay and tactical intervention is routinely required to ensure the efficient management of the airspace.

Our airspace hasn't kept up with the capabilities and technologies of modern aircraft (e.g. PBN).

Airspace Modernisation is now part of UK Government policy (CAA's Airspace Modernisation Strategy).

We are therefore aiming to improve and modernise the airspace.

The Airspace Change Process



- Airspace modernisation in the UK is being delivered via a single co-ordinated programme known as Future Airspace Strategy Implementation (FASI).
- This briefing relates to the NERL ACPs only within south-east England.
- All ACPs are required to follow the CAA seven step process for changing airspace, known as CAP1616.
- The NERL ACPs are currently at Stage 2 of this process (Develop and Assess).

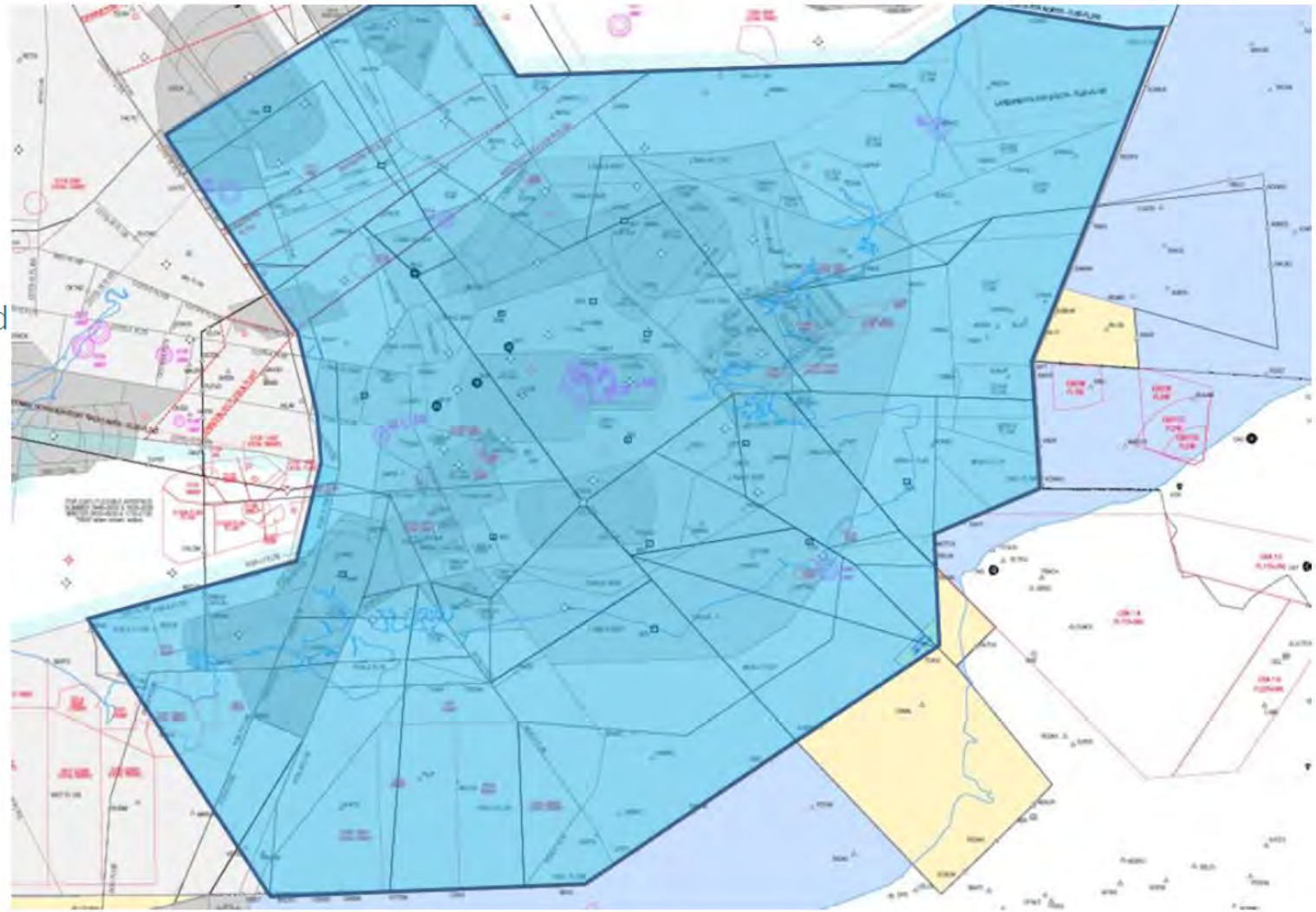
Scope of the Changes

Every airport-led ACP to upgrade arrival and departure routes below 7,000ft shares airspace design interdependencies with a corresponding NERL-led, network ACP, that sits above it.

NERL and the airports must work together to develop the design options associated with their respective ACPs collaboratively, with the airports leading below 7,000ft and NERL leading at & above 7,000ft.

The scope of the NERL changes includes, but is not limited to…

- Airspace and route structures (at & above 7,000ft).
- The interface with neighbouring ANSPs.
- The interface with airports within the LTMA airspace, in particular Biggin Hill, Bournemouth, Farnborough, Gatwick, Heathrow, London City, Luton, Manston, Northolt, Southampton, Southend and Stansted.
- Changes may be needed outside this area, to enable those within.



Area of scope

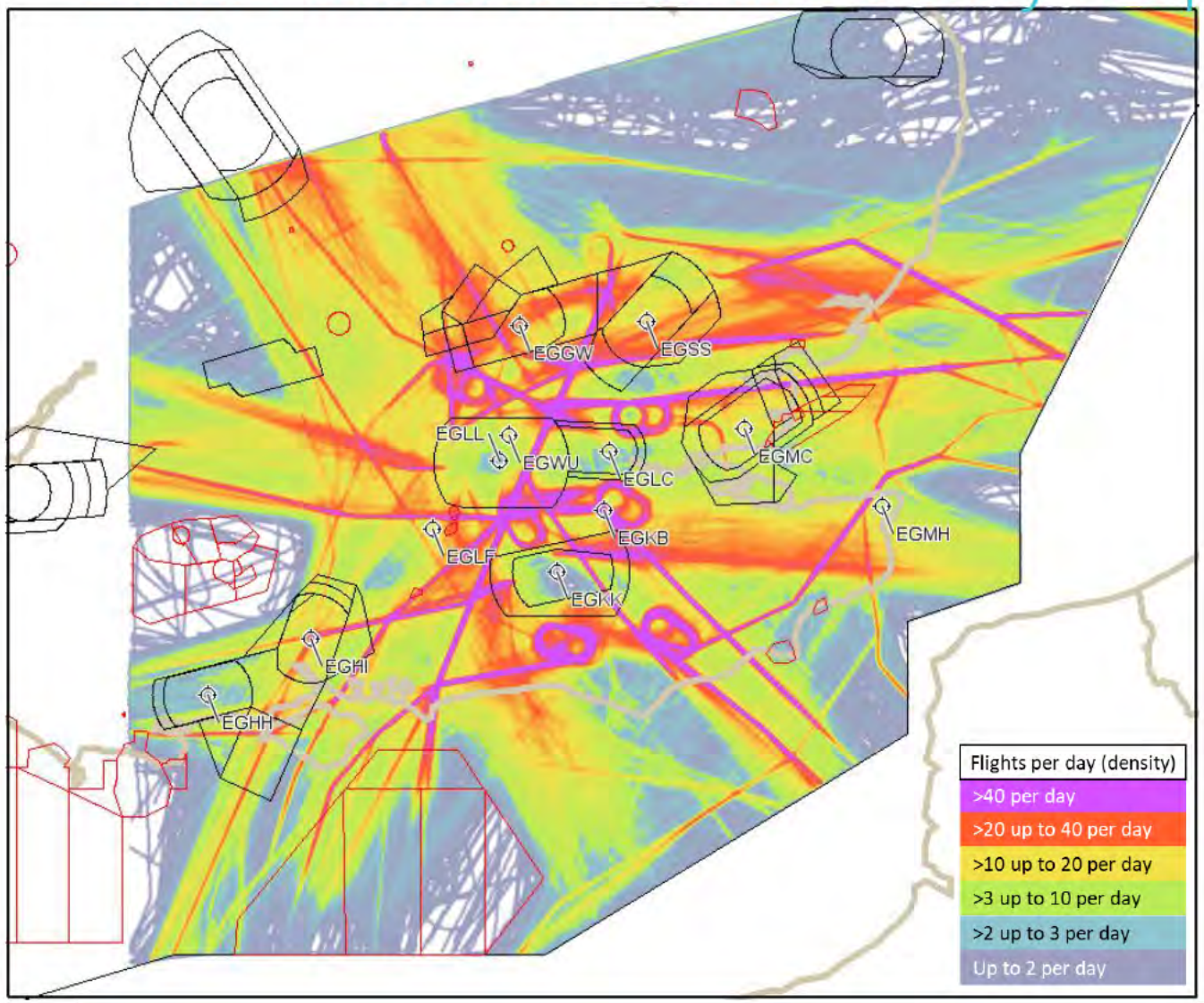
Understanding the Baseline

Our first step in developing a comprehensive list of options was to understand what happens today – the baseline.

We took initial steps to better understand the existing LTMA airspace and how we might be able to change/improve it to meet our 'Statement of Need' and 'Design Principles'. This included:

- Engaging with the airport sponsors to understand their current operations and future aspirations.
- Engaging with airlines, via the NERL Lead Operator Carrier Panel, to understand their future fleet capabilities and arrival structure preferences.
- Analysing flight track data to assess how aircraft operate in LTMA airspace.
- Engaging with Subject Matter Experts (SMEs) on the current LTMA operation.

LTMA Current Traffic Density Map



The London Terminal Manoeuvring Area (LTMA) is a designated area of controlled airspace surrounding multiple airports with a high volume of traffic. Within the LTMA is an ATS route structure, which includes routes of varying PBN standards that follow the original locations of the, now obsolete, ground based navigational aids.

The legacy requirement to utilise these has also led to suboptimal routes that often converge onto specific points. Routes of a lower PBN standard are also often not deemed separated requiring tactical intervention through vectoring which increases controller workload. The existing design results in environmental inefficiencies and limits capacity within the airspace.

This baseline radar density plot was compiled using one week of traffic data from August 2019, showing all traffic between FL70-FL245*

This is representative of a recovered COVID 19 traffic scenario.

*(This is pre-Farnborough ACP, pre-Luton Arrivals ACP changes, does not include Northolt data as its runway was closed during this period, and Manston was not operational).

NERL Design Principles & Options Appraisal

The Design Principles describe the qualities this proposal is seeking to achieve. They have been developed through engagement with our stakeholders at Stage 1 of the CAP1616 process. The options appraisal is an assessment of the cost and benefits of the option. Feedback on how each option responds to the design principles or an assessment of the impact of each option is welcomed.

Design Principles*

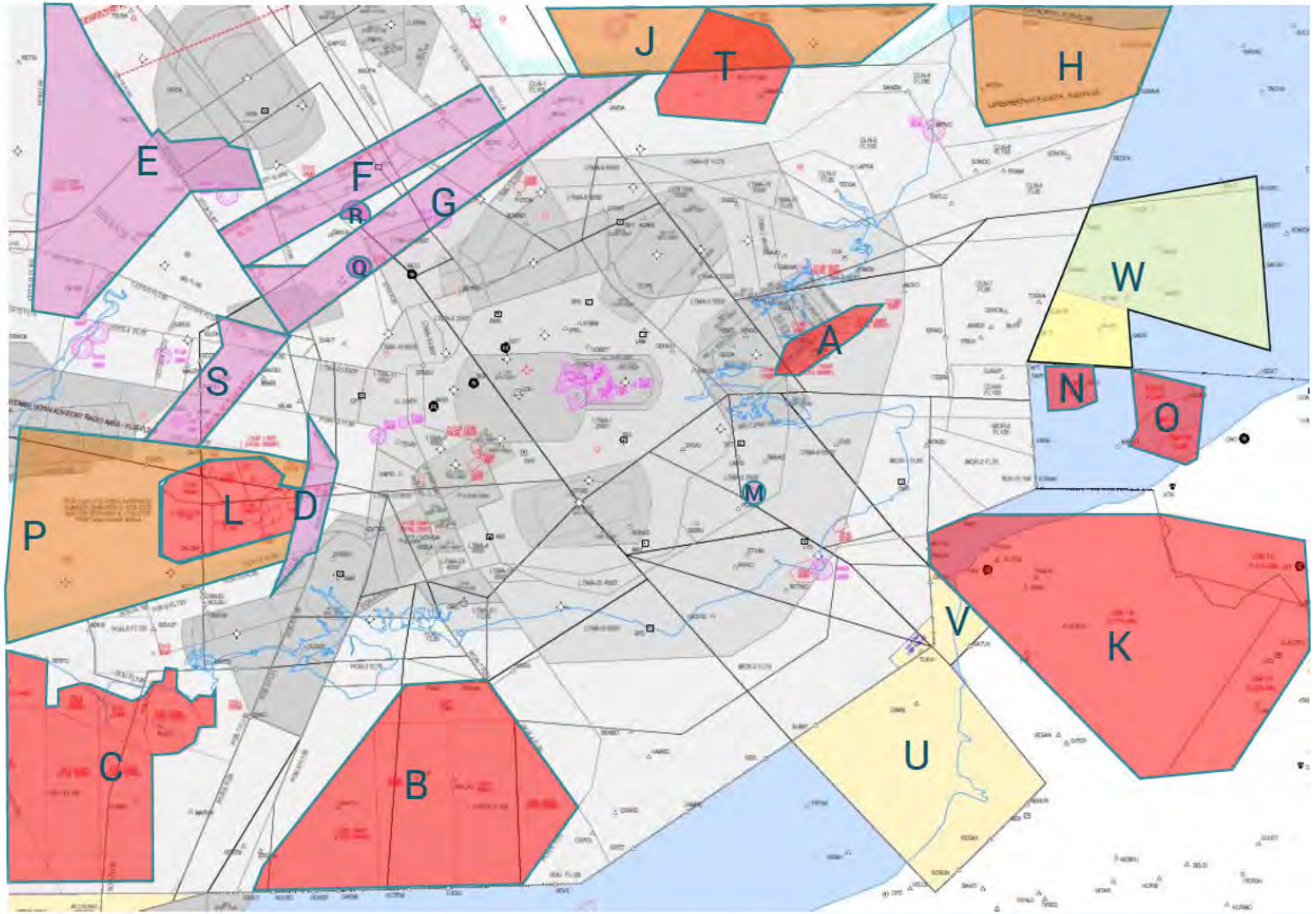
DP	Priority	Quick Ref	Description
0	A	Safety	Safety is always the highest priority
1	B	Operational	The airspace will enable increased operational resilience
2	C	Economic	Optimise network fuel performance
3	C	Environmental	Optimise CO_2 emissions per flight
4	C	Environmental	Minimising of noise impacts due to LAMP influence will take place in accordance with local needs
5	C	Technical	The volume of controlled airspace required for LAMP should be the minimum necessary to deliver an efficient airspace design, taking into account the needs of the UK airspace users
6	C	Technical	The impacts on GA and other civilian airspace users due to LAMP will be minimised
7	C	Technical	The impacts on MoD users due to LAMP will be minimised
8	B	Operational	Systemisation will deliver the optimal capacity and efficiency benefits
9	B	Technical	The main route network linking airport procedures with the En Route phase of flight will be spaced to yield maximum safety and efficiency benefits by using an appropriate standard of PBN
10	A	Policy	Must accord with the CAA's published Airspace Modernisation Strategy (CAP1711) and any current or future plans associated with it

Options Appraisal Criteria (standard CAP1616)

Group	Impact
Communities	Noise impact on health and quality of life
	Local air quality
Wider society	Greenhouse gas impact
	Capacity / resilience
General Aviation	Access
General Aviation / commercial airlines	Economic impact from increased effective capacity
	Fuel burn
Commercial airlines	Training costs
	Other costs
Airport / Air navigation service provider	Infrastructure costs
	Operational costs
	Deployment costs

*DP2 and 3 currently have priority C on the CAA's portal. We are engaging with the CAA to increase this priority to B to align with the changes in the priorities of the aviation sector.

Constraints

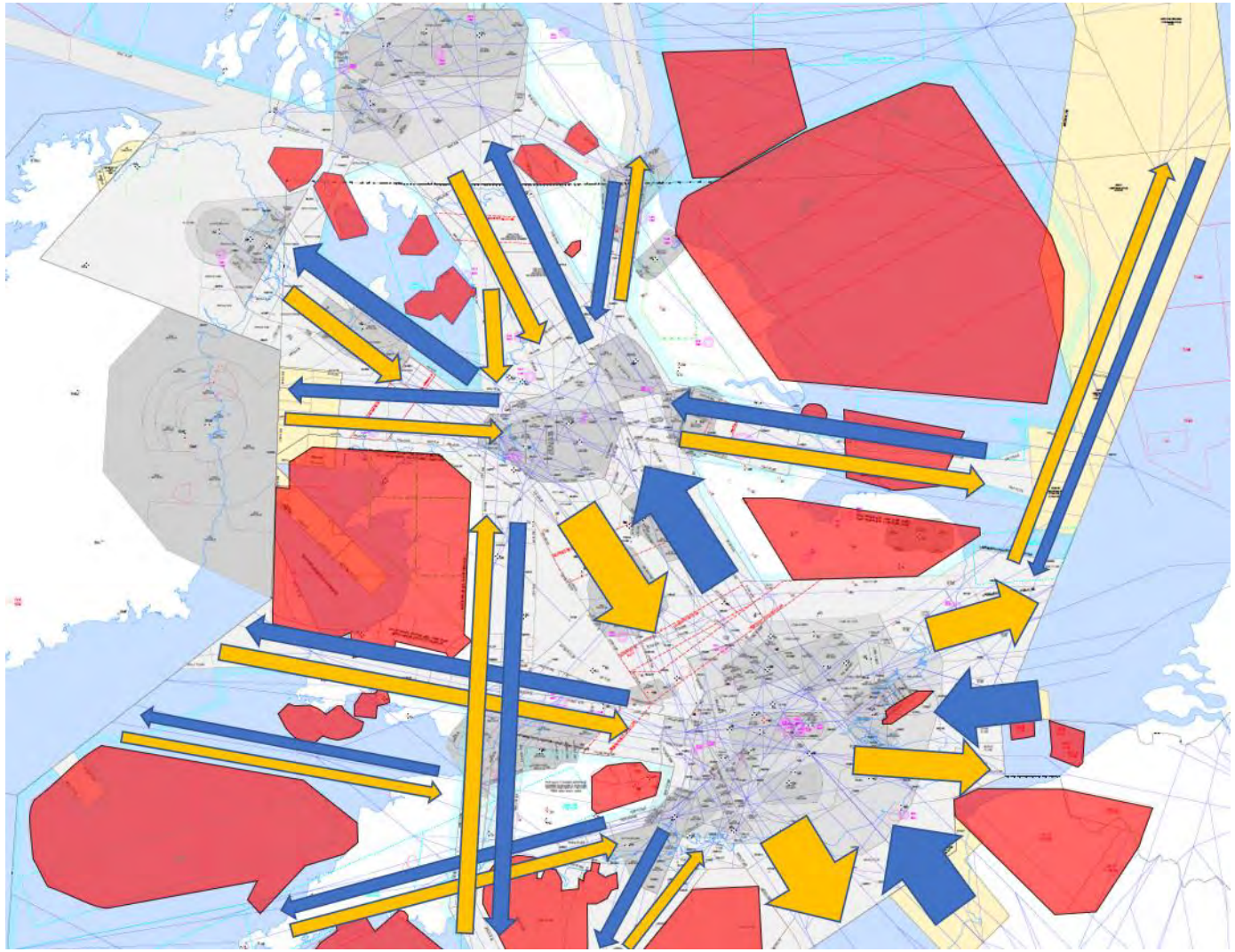


- **RED** - segments of airspace where changes may be exceptionally challenging to make.
- **ORANGE** – segments of airspace where changes may be challenging to make.
- **PURPLE** – segments of airspace that currently has unusual activity that needs to be taken into account through the design process.

A Shoeburyness DA Complex time & level dependent
B Portsmouth DA Complex time & level dependent
C Plymouth DA Complex time & level dependent
D Solent FUA time dependent
E Cotswold FUA time dependent
F DTY Radar Corridor FL100/110
G WCO Radar Corridor FL230/240
H Lakenheath ATA
J East Anglian MTA
K CBA1 (Military Training Area)
L Salisbury Plain DA Complex
M Headcorn Paradrop site
N Belgium DA time dependent
O Belgium DA time dependent
P TRA002
Q Weston-On-The-Green Paradrop site
R Hinton Paradrop site
S Swindon Radar Corridor FL230/240
T USAFE Lakenheath and Mildenhall local area

Note: *Nothing in this diagram will preclude engagement taking place on potential change of use where clear benefit can be identified*

Traffic Flow Demand and Interfaces



Displayed here is the current network route structure.

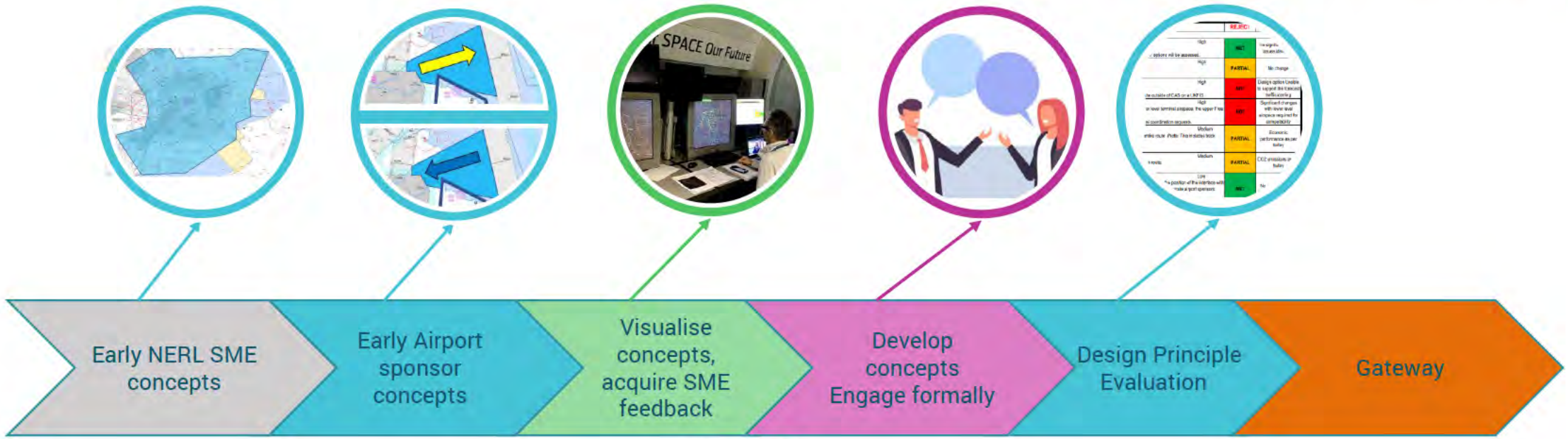
The red areas depict SUAs.

The yellow arrows are Eastbound flows.

The blue arrows are Westbound flows.

Due to the interactions with neighbouring ANSPs it is anticipated that, whilst efficiencies/improvements may be made, the route orientation will not change significantly.

Design Methodology



Stage 2

Key points –

- The list of options aim to address the 'Statement of Need' and align with the 'Design Principles'.
- Options in Stage 2 are conceptual with detailed designs coming together early in Stage 3.

Options

At this stage of the ACP process the NATS (NERL) options are high level and conceptual.

This allows for maximum compatibility with other Sponsors at this very early stage of the design process.

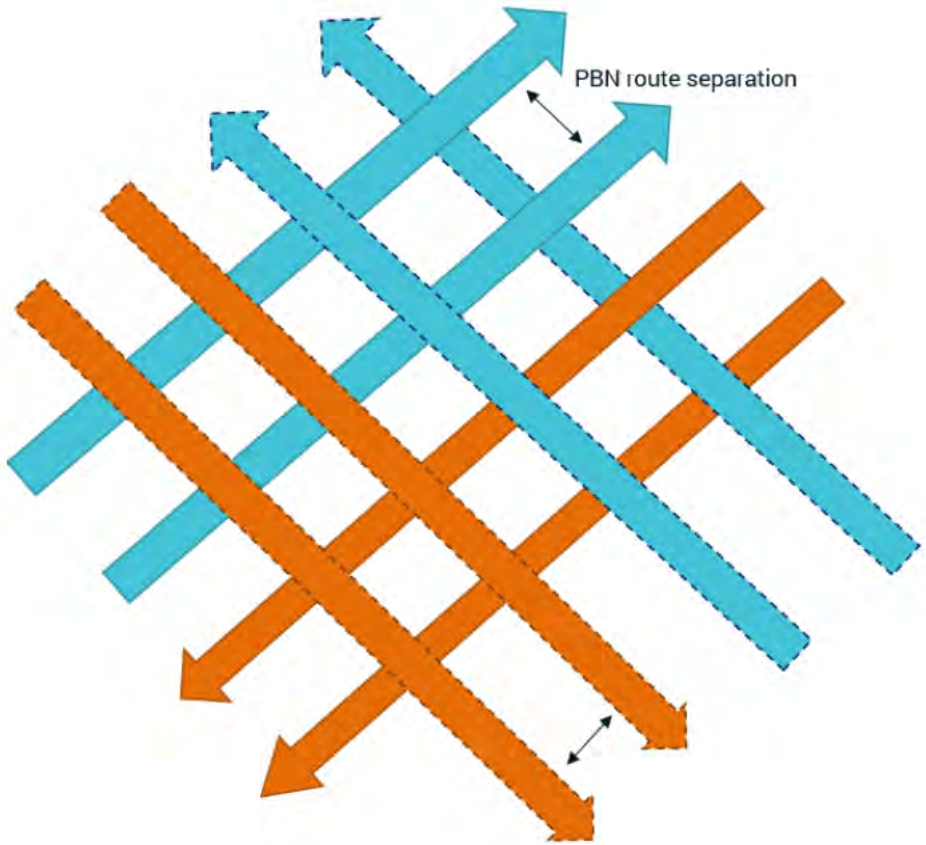
The NATS (NERL) options are divided into two key components:

- The ATS Route Network – these options have been developed with SMEs.
- Airport Arrival Structures – these options have been developed with SMEs and during two way engagement Airport Sponsors.

Network Options

Option 1: Highly Systemised

Systemisation of airspace is characterised by creating a structured route network where aircraft follow defined PBN routes. Option 1 is based upon maximum use of systemisation to create a highly structured network. This network would allow aircraft to be safely separated with minimal ATC intervention, using an appropriate standard of PBN.

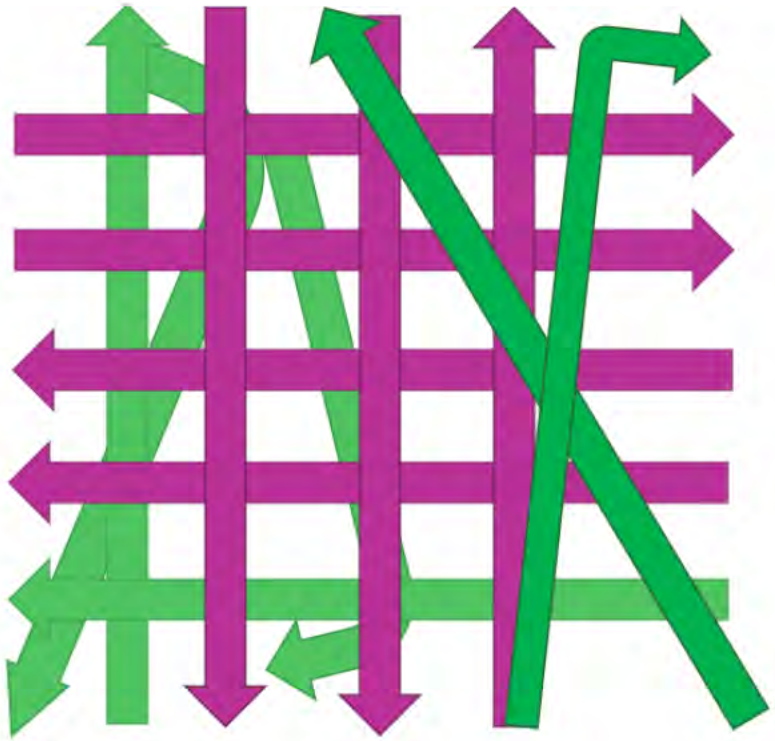


Blue arrows are indicative departure routes within a systemised structure

Orange arrows are indicative arrival routes within a systemised structure

Option 2: Hybrid Systemisation

Systemisation of airspace is characterised by creating a structured route network where aircraft follow defined PBN routes. Option 2 is based upon the predominant use of systemisation to create the route network, using an appropriate standard of PBN. However, unlike Option 1, some routes may not be wholly separated by design thereby creating a balance between capacity and environmental performance. Where routes are not separated by design, this will be managed tactically, as per today, to ensure a safe and efficient service.

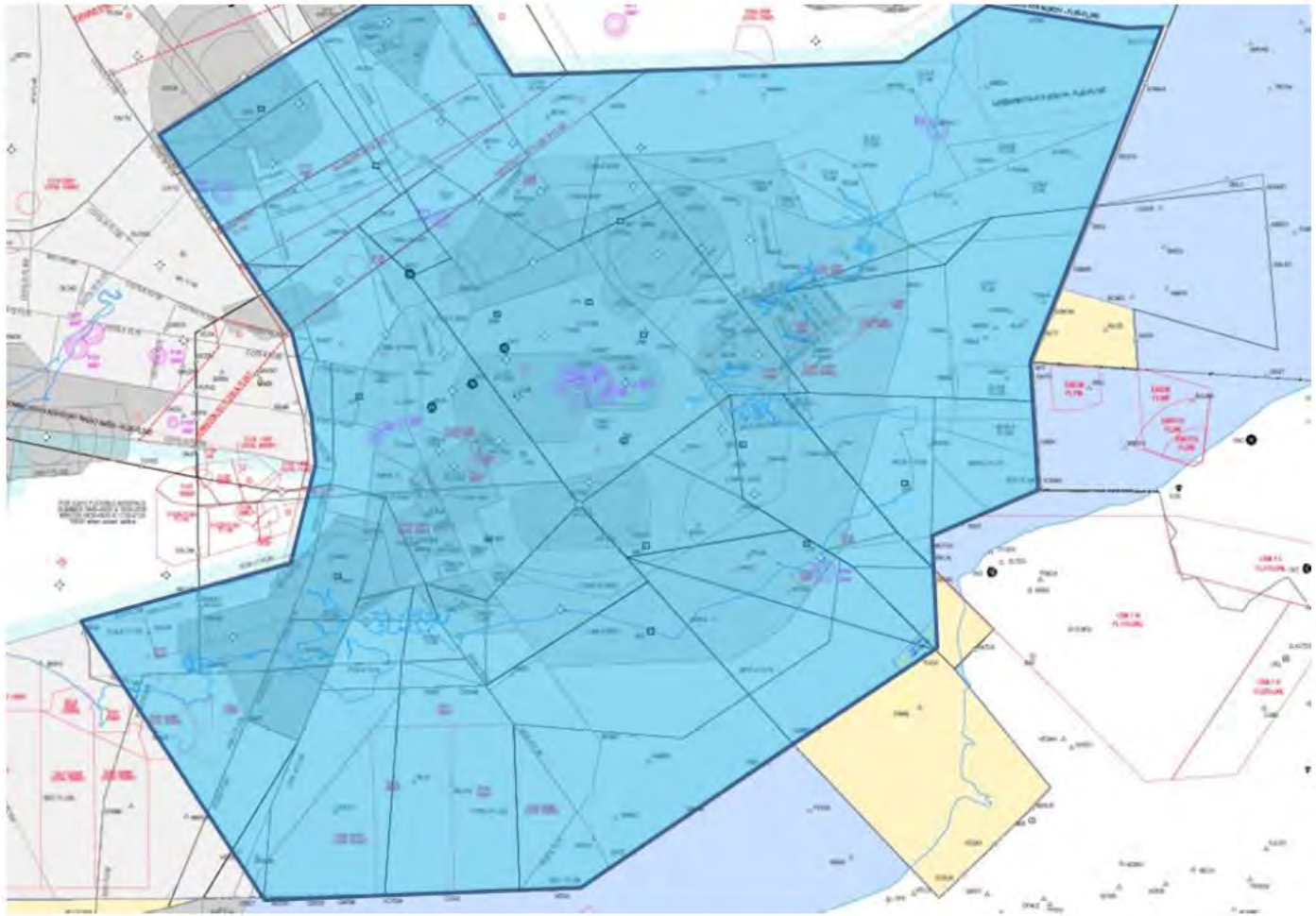


Purple arrows are indicative systemised routes/volumes

Green arrows are indicative of non systemised routes/non systemised volumes

Option 3: Do Minimum*

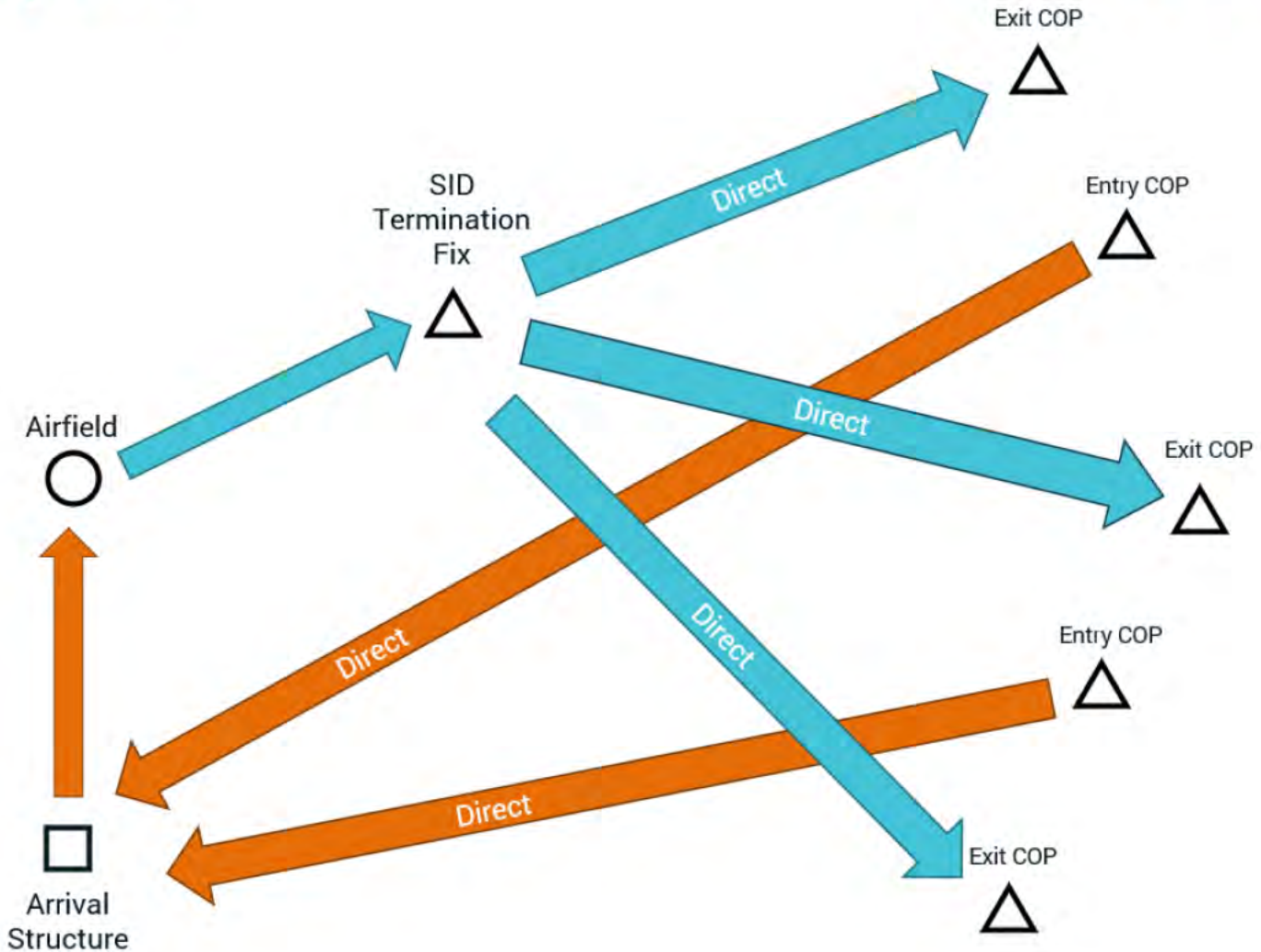
Option 3 would retain the general existing ATS route structure. Changes would be the minimum required to facilitate the airports' ACP changes and may also include; amending routes at the interface with other sponsors changes, upgrading routes to greater PBN standards, adjusting route orientations.



* "Do nothing" is not an option for this ACP as changes will be required in order to accommodate the other FASI sponsors' ACPs. This "do minimum" is the minimum required to accommodate these changes.

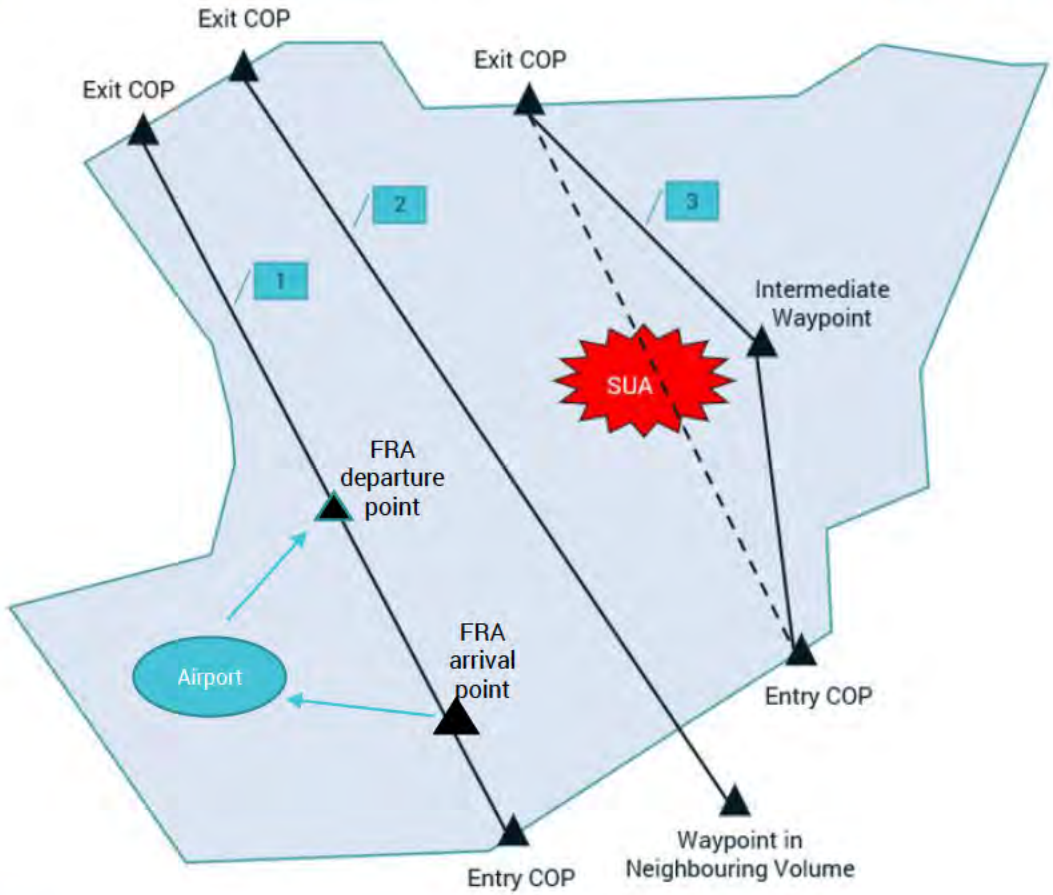
Option 4: Direct Route Airspace

Flight Plannable Direct Routes (DCTs) provide route connectivity in the form of direct routes linking airports' STAR start points and SID end points with the UK airspace boundary, intermediate points or FRA. DCT airspace has no associated PBN standard.



Option 5: Free Route Airspace

Free Route Airspace (FRA) is defined as "A specified airspace within which users may freely plan a route between a defined entry point and a defined exit point, with the possibility to route via intermediate (published or unpublished) waypoints, without reference to the ATS route network, subject to airspace availability." Within this airspace, flights remain subject to air traffic control and any structural limitations. FRA has no associated PBN standard.



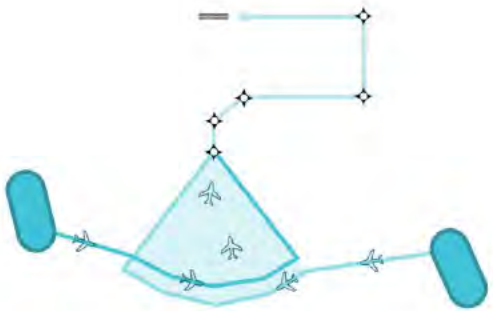
In this indicative example....
Route number 1 is an example of a flight plan between a FRA Entry point and a FRA Exit point.
Route number 2 is an example of cross border FRA, routing to a FRA exit point from a waypoint in the neighbouring FRA volume.
Route number 3 is an example of a FRA flight plan where the use of an intermediate waypoint is needed – in this example to avoid an SUA, dotted line would be available when the SUA is inactive.

Airport Arrival Options

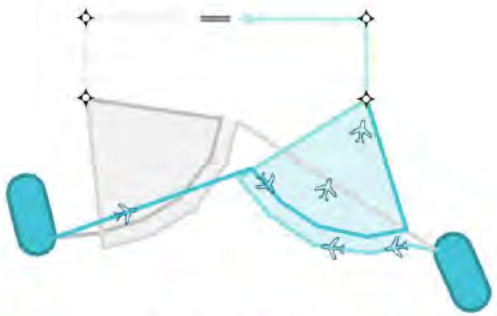
Concepts of Operation – Sequencing and Merging

Optimised Hold(s) - within 30nm
(Linked with either a traditional Radar Manoeuvring Area (RMA) or Transitions)

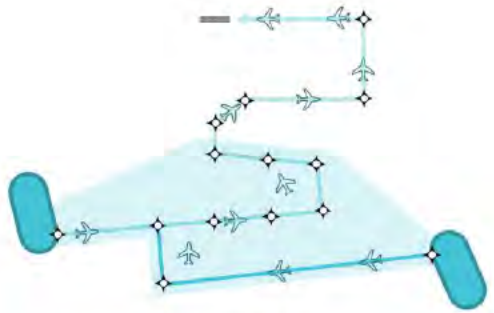
Hold(s) further out - more than 30nm
(Linked with either a traditional Radar Manoeuvring Area (RMA) or Transitions)



Point Merge
(Fixed location)



Switch Merge
(Point Merge location dependent on runway in use)



Trombone
(Trombone via PBN transitions)

Format of Airport Arrival Design Envelopes

Typical proportion of arrivals from this direction (2019)

Concept Design Envelope

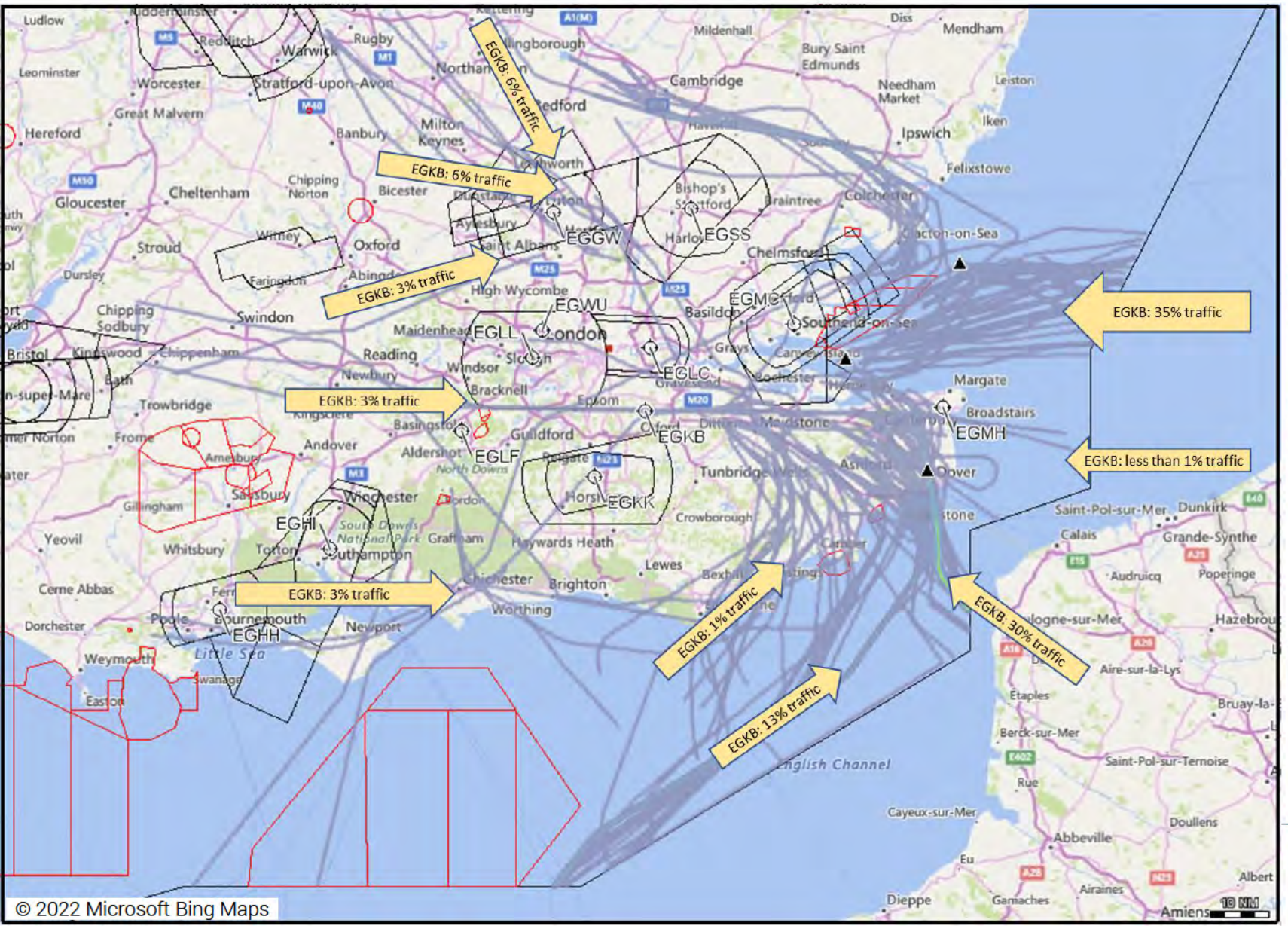
Area of Additional Complexity (e.g. danger area)

For a structure to be considered viable:

1. There must be sufficient airspace available for the structure.
2. The location of the structure should not conflict with the predominant traffic flows as detailed in the constraints.
3. The structure should be proportionate to the runway throughput demand (provided by the airports' requirements).

Biggin Hill

Baseline: EGKB Arrivals



Baseline Description

Traffic density is based on arrivals between FL245 – FL70 between 5th – 11th August 2019.

EGKB had around 8,600 arrivals in 2019.

4% of traffic is equipped to RNAV 5 or a lower standard, based on Q3 2019.

>40 per day
>20 up to 40 per day
>10 up to 20 per day
>3 up to 10 per day
>2 up to 3 per day
Up to 2 per day

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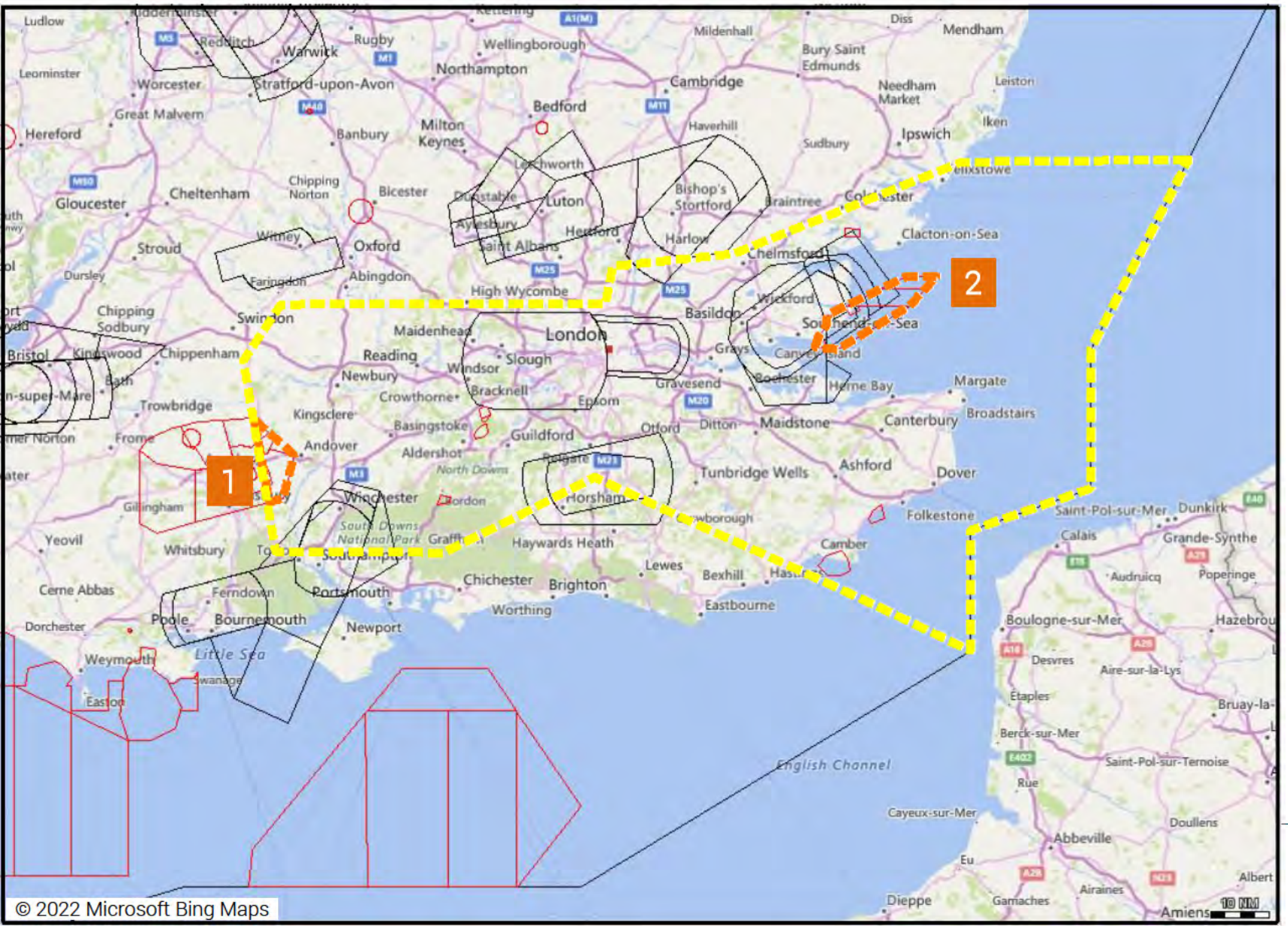
Biggin Hill Arrival Design Envelope



Biggin Hill Arrival Design Envelope

1 Salisbury Plain Danger Areas

2 Shoeburyness Danger Areas

Location	Viability Comments
North	An arrival structure, and associated connectivity, to the north of the airfield would likely conflict with LTMA traffic.
East	An arrival structure to the east of the airfield is already in place within the current design, albeit shared with another sponsor. Consideration will be given to the proximity of the Shoeburyness DA Complex.
South	An arrival structure, and associated connectivity, to the south of the airfield would likely conflict with EGKK traffic.
West	A dedicated arrival structure, and associated connectivity, to the west / SW of the airfield would likely conflict with EGLL traffic. A shared arrival facility may be possible.
Overhead	An arrival structure overhead the airfield is already in place within the current design, albeit for another sponsor.

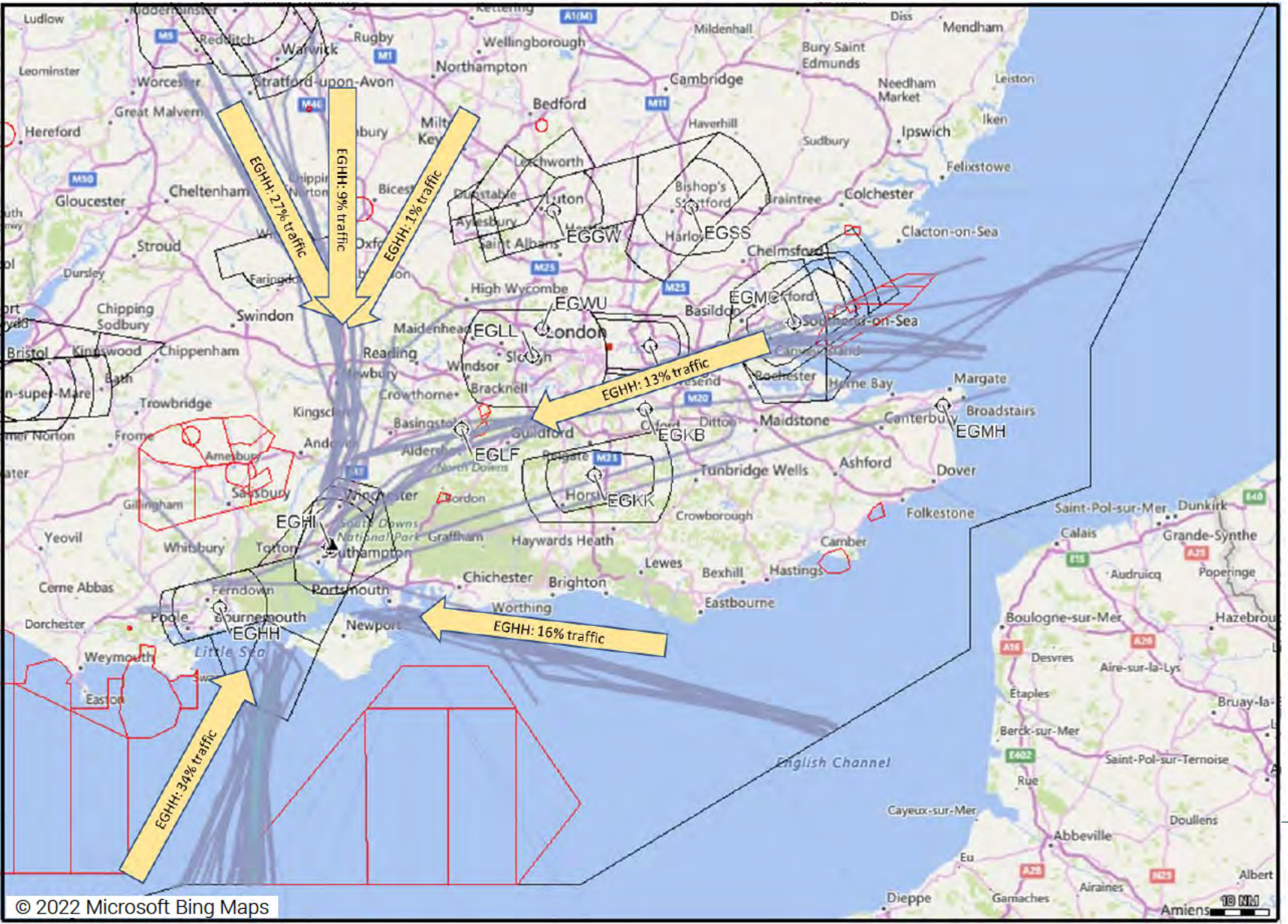
Structure	Viability Comments
Optimised (inner) hold(s)	There is sufficient airspace for optimised hold(s), and this would likely meet the runway throughput demands.
Hold(s) further out	There is sufficient airspace for hold(s) further out, and this would likely meet the runway throughput demands.
Point merge	Optimisation of the current day structures. There is sufficient airspace to suitably place a point merge. Based on traffic throughput, this may need to be a shared facility.
Switch merge	There is sufficient airspace to suitably place a switch merge, to the east. Based on traffic throughput, this may need to be a shared facility.
Trombone	There is sufficient airspace to suitably place a trombone. Based on traffic throughput, this may need to be a shared facility.

Arrival Structure Viability Assessment

Arrival Structure Type	Location								
	N	NE	E	SE	S	SW	W	NW	OH
Do nothing	✗	✗	✗	✗	✗	✗	✗	✗	✗
Optimised (inner) hold(s)	✗	✓	✓	✓	✗	✓	✓	✗	✓
Hold(s) further out	✗	✓	✓	✓	✗	✓	✓	✗	✗
Point merge	✗	✗	✓	✗	✗	✗	✗	✗	✗
Switch merge	✗	✗	✓	✗	✗	✗	✗	✗	✗
Trombone	✗	✓	✓	✗	✗	✗	✗	✗	✗

Bournemouth

Baseline: EGHH Arrivals



Baseline Description

Traffic density is based on arrivals between FL245 – FL70 between 5th – 11th August 2019.

EGHH had around 6,300 arrivals in 2019.

4% of traffic is equipped to RNAV 5 or a lower standard, based on Q3 2019.

>40 per day
>20 up to 40 per day
>10 up to 20 per day
>3 up to 10 per day
>2 up to 3 per day
Up to 2 per day

30

Bournemouth Arrival Design Envelope

Bournemouth Arrival Design Envelope

1. Salisbury Plain Danger Areas
2. Portsmouth Danger Areas
3. Lulworth and Portland Danger Areas

Location	Viability Comments
North	No CAS north of EGHH. Airspace currently used extensively by MoD / GA.
East	Integration would likely be required with EGHI.
South	Limited airspace with some restrictions due to SUAs other LTMA traffic, however potential for improved interface from the south / SE.
West	There is currently limited low-level CAS in this region, with little inbound demand from the west. Would likely interact with current LTMA traffic.
Overhead	An arrival structure, and associated connectivity, to the north of the airfield would likely be challenging unless it formed part of the approach facility for both EGHH and EGHI.

Structure	Viability Comments
Optimised (inner) hold(s)	Optimisation of current day structures. There is sufficient airspace for optimised hold(s), and this would likely meet the runway throughput demands.
Hold(s) further out	Hold(s) further out would likely interact with predominant traffic flows within the LTMA.
Point merge	There is sufficient airspace to suitably place a switch merge. Based on traffic throughput, this may need to be a shared facility.
Switch merge	There is insufficient airspace to suitably place a switch merge.
Trombone	There is insufficient airspace to facilitate a trombone. It would not be suitable for the runway throughput requirement as the airspace required for such a structure is disproportionate to the traffic volumes.

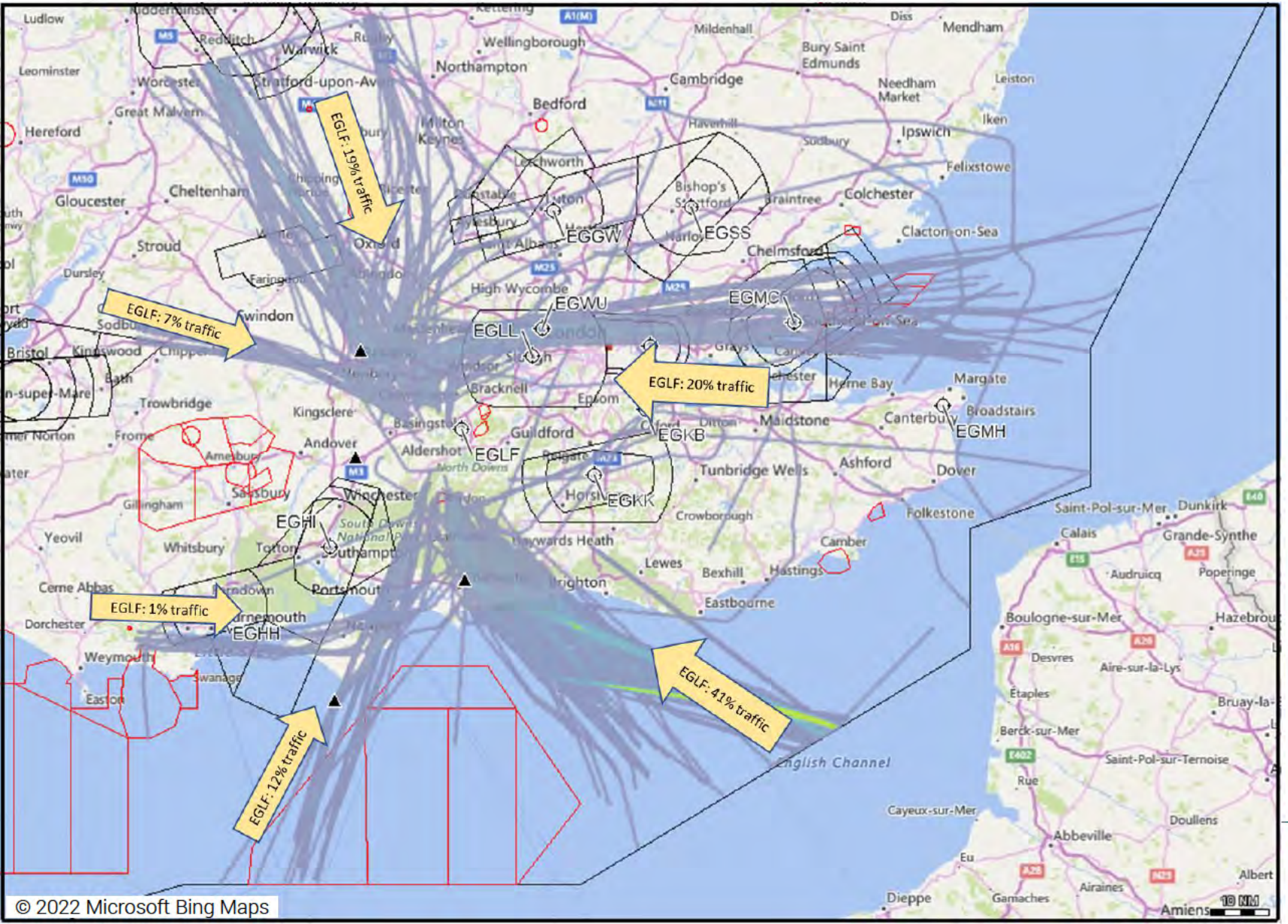
NATS

Arrival Structure Viability Assessment

Arrival Structure Type	Location								
	N	NE	E	SE	S	SW	W	NW	OH
Do nothing	✗	✗	✗	✗	✗	✗	✗	✗	✗
Optimised (inner) hold(s)	✗	✓	✓	✓	✓	✗	✗	✓	✓
Hold(s) further out	✗	✗	✗	✗	✗	✗	✗	✗	✗
Point merge	✗	✓	✓	✓	✓	✗	✗	✗	✓
Switch merge	✗	✗	✗	✗	✗	✗	✗	✗	✗
Trombone	✗	✗	✗	✗	✗	✗	✗	✗	✗

Farnborough

Baseline: EGLF Arrivals Pre-ACP



Baseline Description

Traffic density is based on arrivals between FL245 – FL70 between 5th – 11th August **2019**.

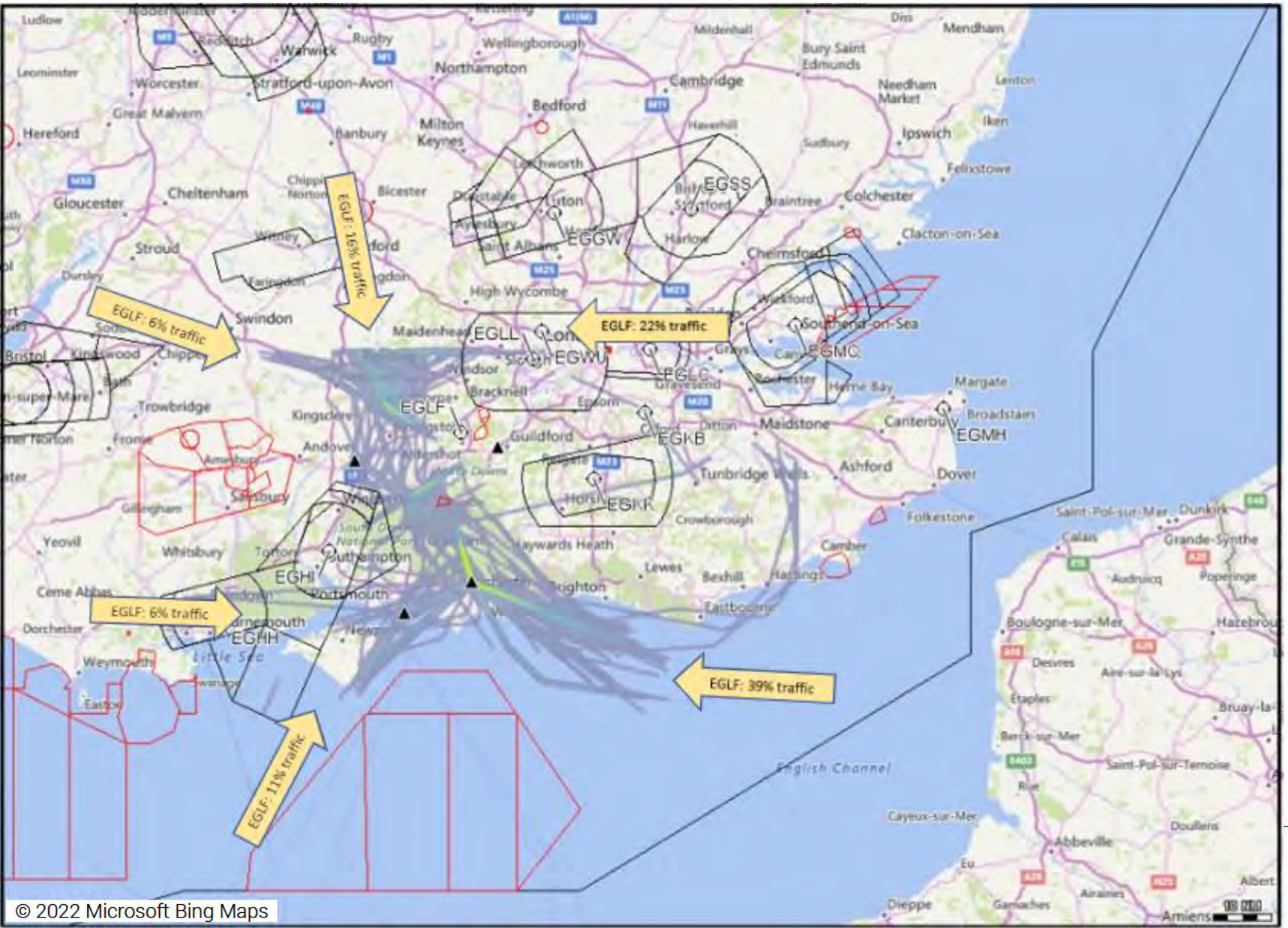
EGLF had around 15,400 arrivals in 2019.

Less than 1% of traffic is equipped to RNAV 5 or a lower standard, based on Q3 2019.

(NB this is pre-ACP. The PIR traffic flows will be considered the baseline, once completed).

>40 per day
>20 up to 40 per day
>10 up to 20 per day
>3 up to 10 per day
>2 up to 3 per day
Up to 2 per day

Baseline: EGLF Arrivals Post-ACP Pre-PIR



Baseline Description

Traffic density is based on arrivals between 12,000ft – 7,000ft between 5th – 11th August 2022 in a smaller area than the previous slide (due to tool issues).

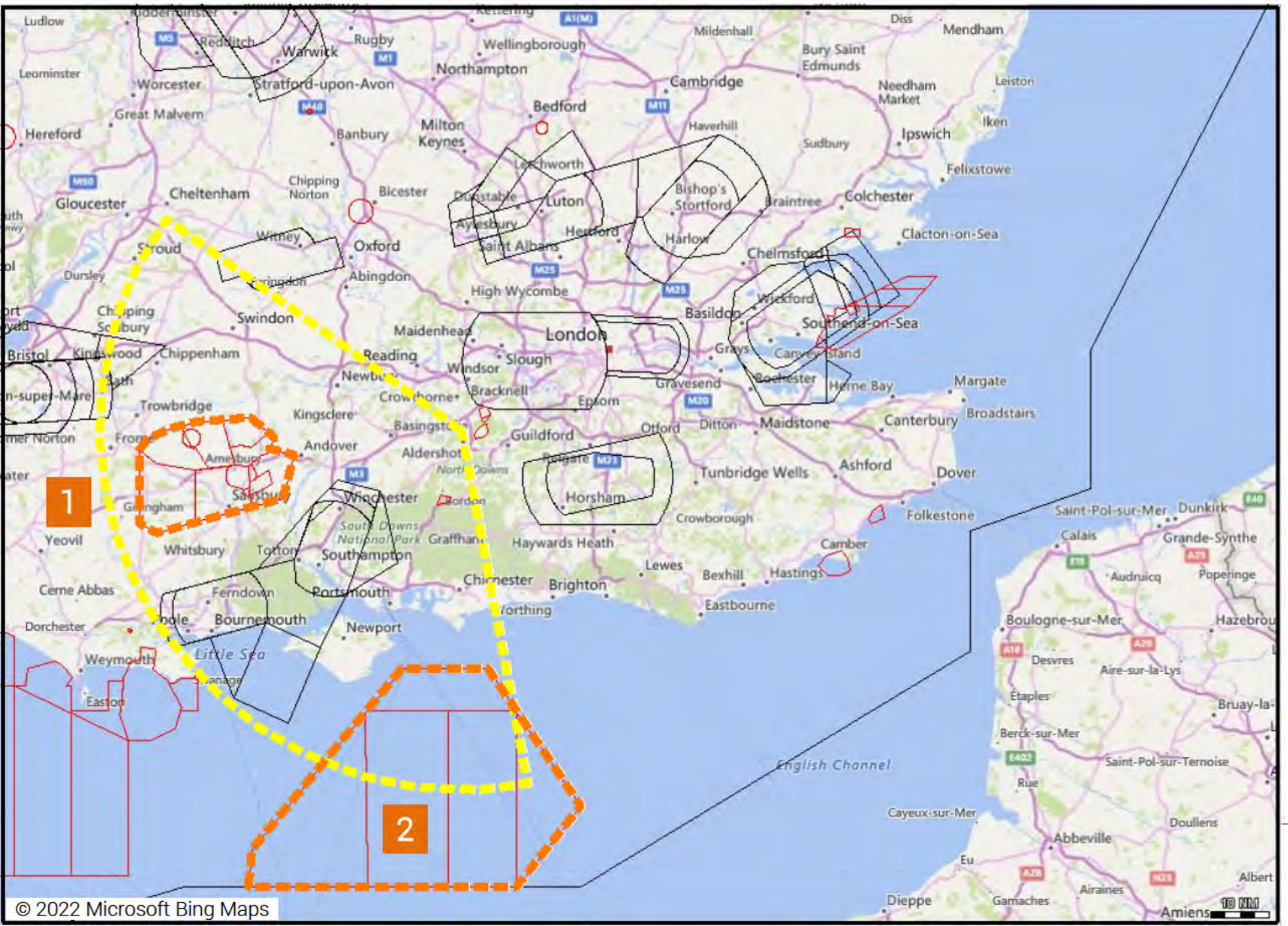
For this slide, traffic proportions are taken from 1st January to 31st August 2022. EGLF had around 11,000 arrivals during this period.

Less than 1% of traffic is equipped to RNAV 5 or a lower standard, based on Q3 2019.

(NB this is post-ACP but pre-PIR and should considered as illustrative only, at this early stage. PIR traffic flows will be considered the baseline, once completed).

- >40 per day
- >20 up to 40 per day
- >10 up to 20 per day
- >3 up to 10 per day
- >2 up to 3 per day
- Up to 2 per day

Farnborough Arrival Design Envelope



Farnborough Arrival Design Envelope

1 Salisbury Plain Danger Areas

2 Portsmouth Danger Areas

Location	Viability Comments
North	An arrival structure, and associated connectivity, to the north of the airfield would likely conflict with LTMA traffic.
East	An arrival structure, and associated connectivity, to the east of the airfield would likely conflict with LTMA traffic.
South	CAS and EGLF procedures already exist to the south of the airfield. Efficiency would likely be improved with further systemisation and integration with EGHH / EGHI / EGKK / EGLL traffic.
West	CAS and existing EGLF procedures already exist to the west of the airfield, and efficiency would likely be improved with further systemisation and integration with EGHH / EGHI traffic.
Overhead	An arrival structure, and associated connectivity, overhead the airfield would likely conflict with LTMA traffic.

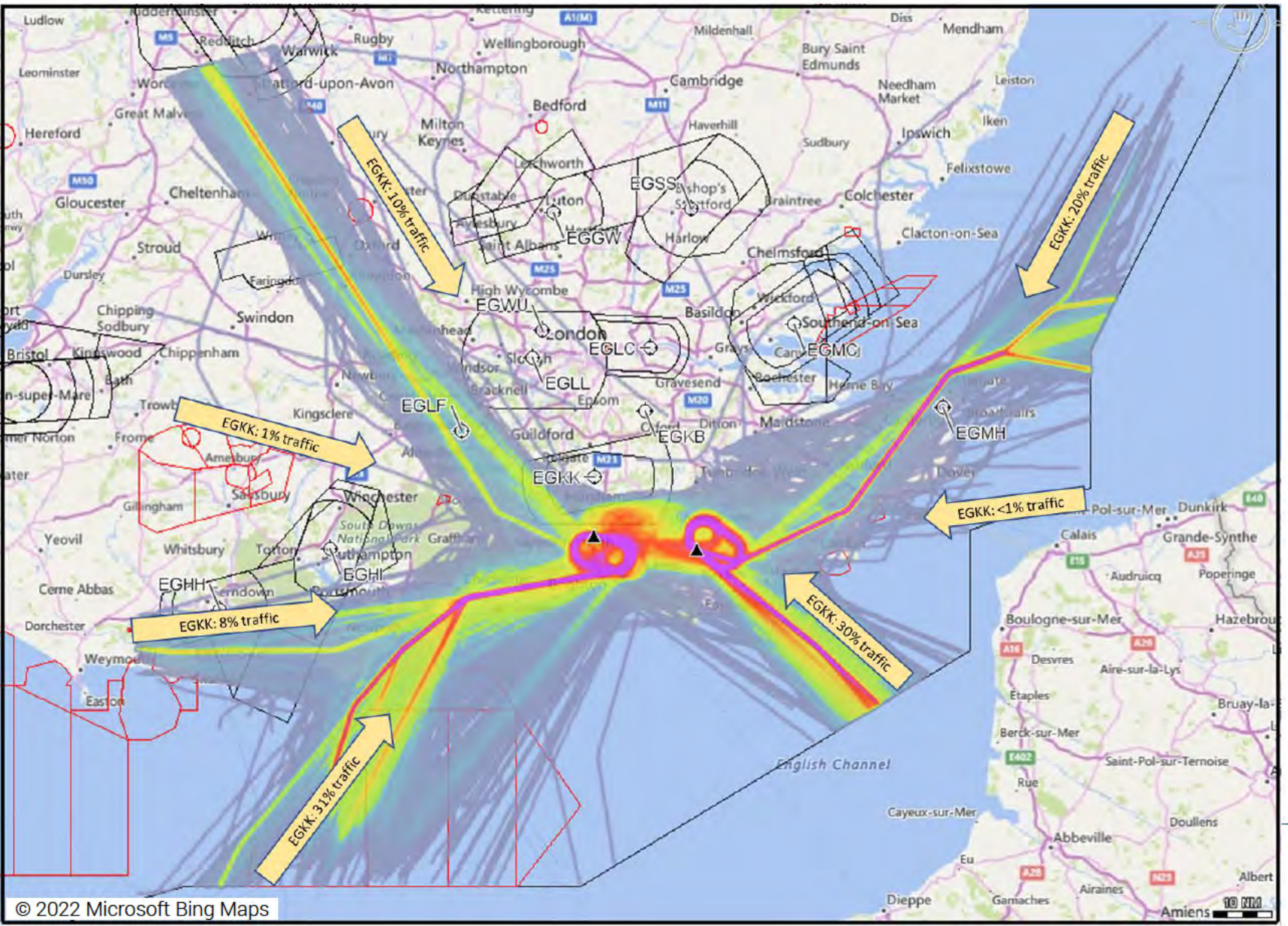
Structure	Viability Comments
Optimised (inner) hold(s)	Optimisation of current day structures. There is sufficient airspace for optimised hold(s), and this would likely meet the runway throughput demands.
Hold(s) further out	There is sufficient airspace for hold(s) further out, and this would likely meet the runway throughput demands.
Point merge	A point merge structure would likely interact with predominant traffic flows within the LTMA. It would not be suitable for the runway throughput requirement as the airspace required for such a structure is disproportionate to the traffic volumes.
Switch merge	There is insufficient airspace to suitably place a switch merge.
Trombone	There is sufficient airspace for a trombone, and this would likely meet the runway throughput demands.

Arrival Structure Viability Assessment

Arrival Structure Type	Location								
	N	NE	E	SE	S	SW	W	NW	OH
Do nothing	✗	✗	✗	✗	✗	✗	✗	✗	✗
Optimised (inner) hold(s)	✗	✗	✗	✗	✓	✓	✓	✓	✗
Hold(s) further out	✗	✗	✗	✗	✓	✓	✓	✓	✗
Point merge	✗	✗	✗	✗	✗	✗	✗	✗	✗
Switch merge	✗	✗	✗	✗	✗	✗	✗	✗	✗
Trombone	✗	✗	✗	✗	✗	✓	✓	✓	✗

Gatwick

Baseline: EGKK Arrivals



Baseline Description

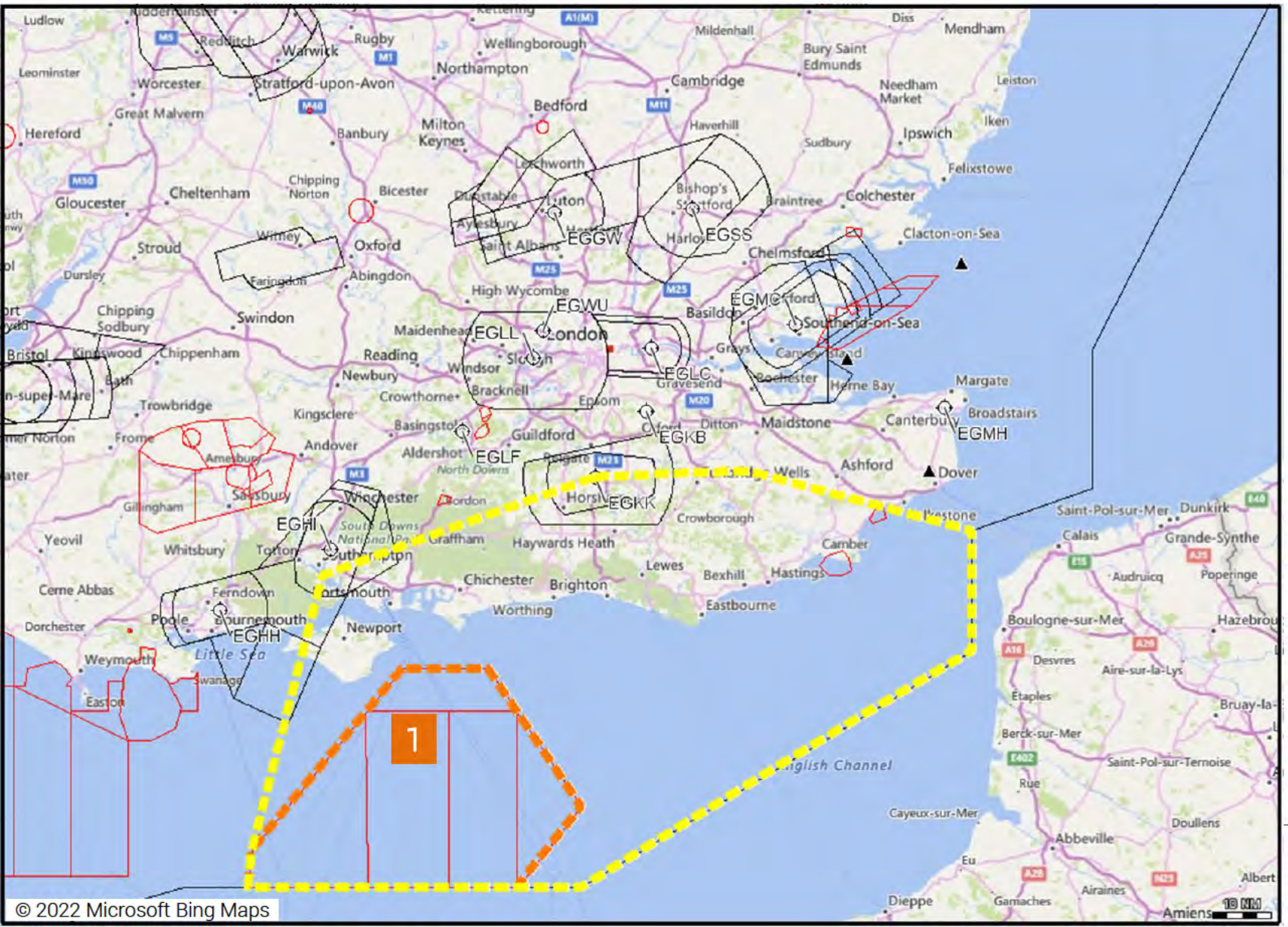
Traffic density is based on arrivals between FL245 – FL70 between 5th – 11th August 2019.

EGKK had around 142,400 arrivals in 2019.

Less than 1% of traffic is equipped to RNAV 5 or a lower standard, based on Q3 2019.

>40 per day
>20 up to 40 per day
>10 up to 20 per day
>3 up to 10 per day
>2 up to 3 per day
Up to 2 per day

Gatwick Arrival Design Envelope



Gatwick Arrival Design Envelope

1 Portsmouth Danger Areas

Location	Viability Comments
North	An arrival structure, and associated connectivity, to the north of the airfield would likely conflict with LTMA traffic.
East	An arrival structure, and associated connectivity, to the east of the airfield would likely conflict with LTMA traffic.
South	Arrival structures to the south of the airfield are already in place within the current design.
West	An arrival structure, and associated connectivity, to the west of the airfield would likely conflict with LTMA traffic.
Overhead	An arrival structure, and associated connectivity, overhead the airfield would likely conflict with EGLL traffic.

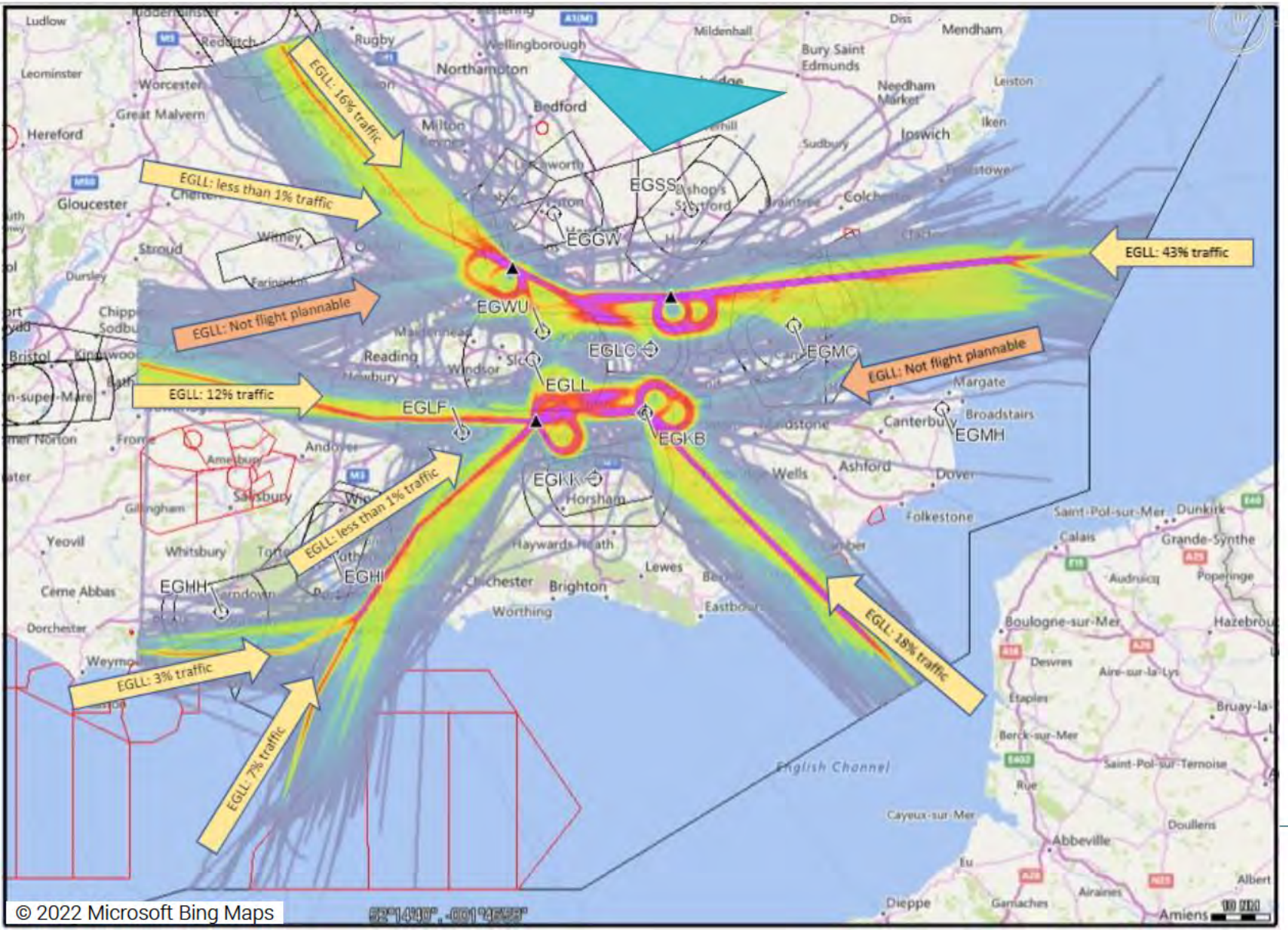
Structure	Viability Comments
Optimised (inner) hold(s)	Optimisation of current day structures. There is sufficient airspace for optimised hold(s), and this would likely meet the runway throughput demands.
Hold(s) further out	There is sufficient airspace for hold(s) further out, and this would likely meet the runway throughput demands.
Point merge	There is sufficient airspace for point merge, and this would likely meet the runway throughput demands.
Switch merge	There is sufficient airspace for switch merge, and this would likely meet the runway throughput demands.
Trombone	There is sufficient airspace for a trombone. It may not meet the required runway throughput.

Arrival Structure Viability Assessment

Arrival Structure Type	Location								
	N	NE	E	SE	S	SW	W	NW	OH
Do nothing	✗	✗	✗	✗	✗	✗	✗	✗	✗
Optimised (inner) hold(s)	✗	✗	✗	✓	✓	✓	✗	✗	✗
Hold(s) further out	✗	✗	✗	✓	✓	✓	✗	✗	✗
Point merge	✗	✗	✗	✓	✓	✓	✗	✗	✗
Switch merge	✗	✗	✗	✓	✓	✓	✗	✗	✗
Trombone	✗	✗	✗	✓	✓	✓	✗	✗	✗

Heathrow

Baseline: EGLL Arrivals



Baseline Description

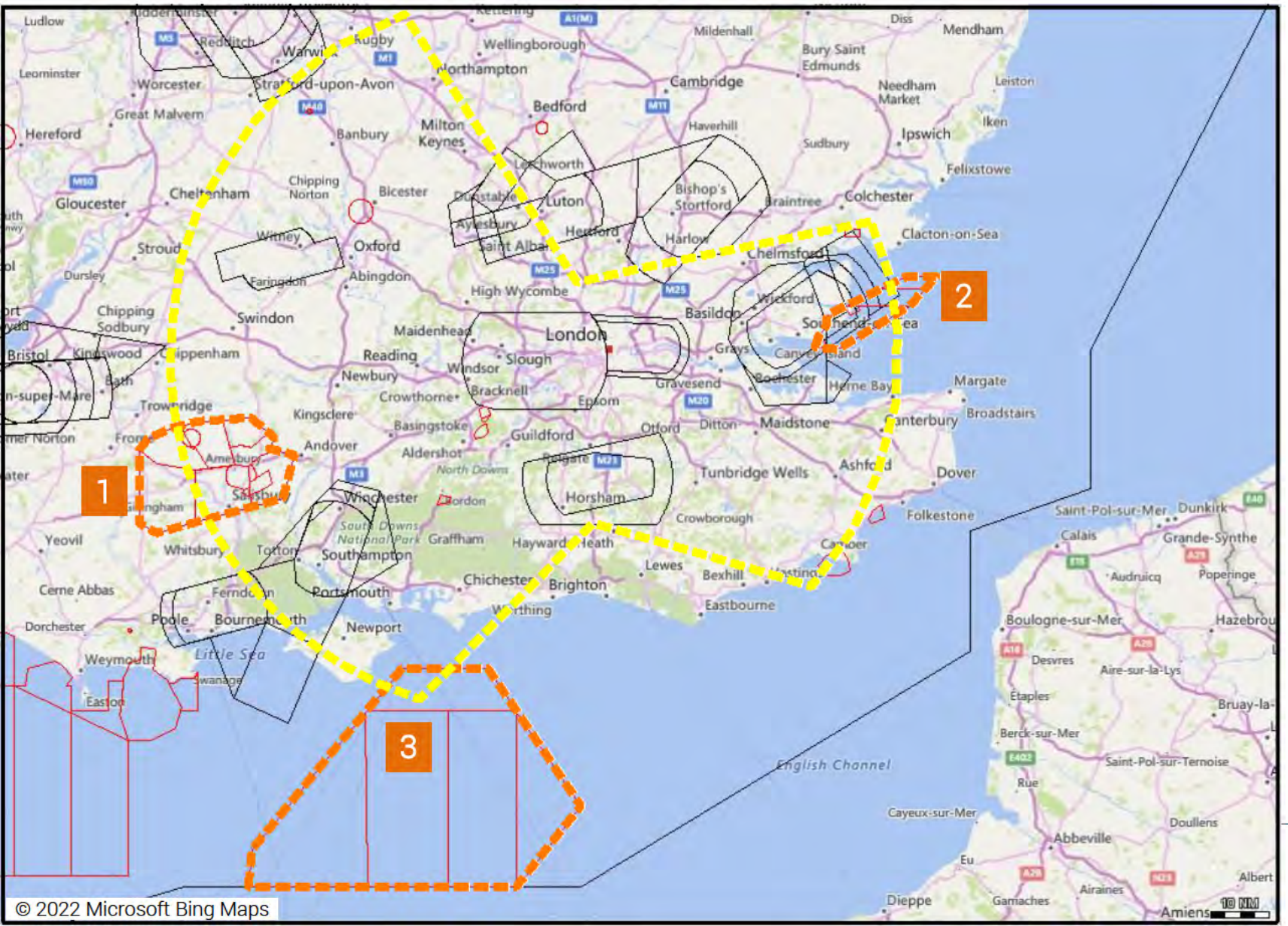
Traffic density is based on arrivals between FL245 – FL70 between 5th – 11th August 2019.

EGLL had around 239,000 arrivals in 2019.

Less than 1% of traffic is equipped to RNAV 5 or a lower standard, based on Q3 2019.

>40 per day
>20 up to 40 per day
>10 up to 20 per day
>3 up to 10 per day
>2 up to 3 per day
Up to 2 per day

Heathrow Arrival Design Envelope



Heathrow Arrival Design Envelope

1. Salisbury Plain Danger Areas
2. Shoeburyness Danger Areas
3. Portsmouth Danger Areas

Location	Viability Comments
North	Arrival structures to the north of the airfield are already in place within the current design. Design needs to be cognisant of EGSS / EGGW.
East	Arrival structures to the east of the airfield are already in place within the current design. Design needs to be cognisant of EGLC.
South	Arrival structures to the south of the airfield are already in place within the current design. Design needs to be cognisant of EGKK / EGHI / EGHH / EGLF.
West	Arrival structures to the west of the airfield are already in place within the current design.
Overhead	It would likely be possible to place an arrival structure overhead the airfield.

Structure	Viability Comments
Optimised (inner) hold(s)	Optimisation of current day structures. There is sufficient airspace for optimised hold(s), and this would likely meet the runway throughput demands.
Hold(s) further out	There is sufficient airspace, in some directions, for hold(s) further out, and this would likely meet the runway throughput demands.
Point merge	There is sufficient airspace for point merge, and this would likely meet the runway throughput demands.
Switch merge	There is sufficient airspace for switch merge, and this would likely meet the runway throughput demands.
Trombone	There is sufficient airspace for a trombone. A trombone to each runway would likely meet the throughput demands.

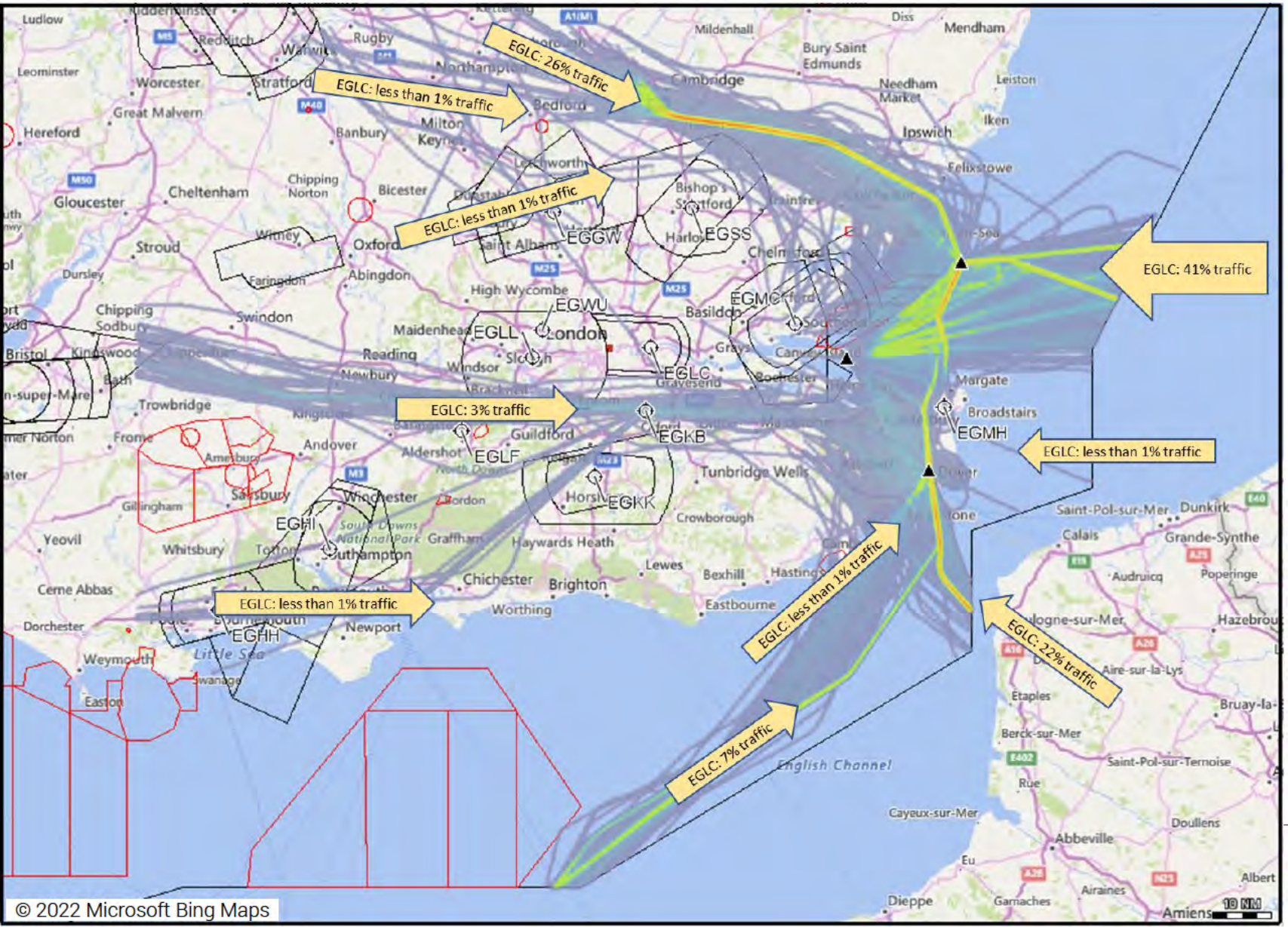
NATS

Arrival Structure Viability Assessment

Arrival Structure Type	Location								
	N	NE	E	SE	S	SW	W	NW	OH
Do nothing	✗	✗	✗	✗	✗	✗	✗	✗	✗
Optimised (inner) hold(s)	✓	✓	✓	✓	✓	✓	✓	✓	✗
Hold(s) further out	✗	✗	✓	✓	✗	✓	✓	✓	✗
Point merge	✓	✓	✓	✓	✓	✓	✓	✓	✓
Switch merge	✓	✓	✓	✓	✓	✓	✓	✓	✓
Trombone	✓	✗	✓	✗	✓	✗	✓	✗	✗

London City

Baseline: EGLC Arrivals



Baseline Description

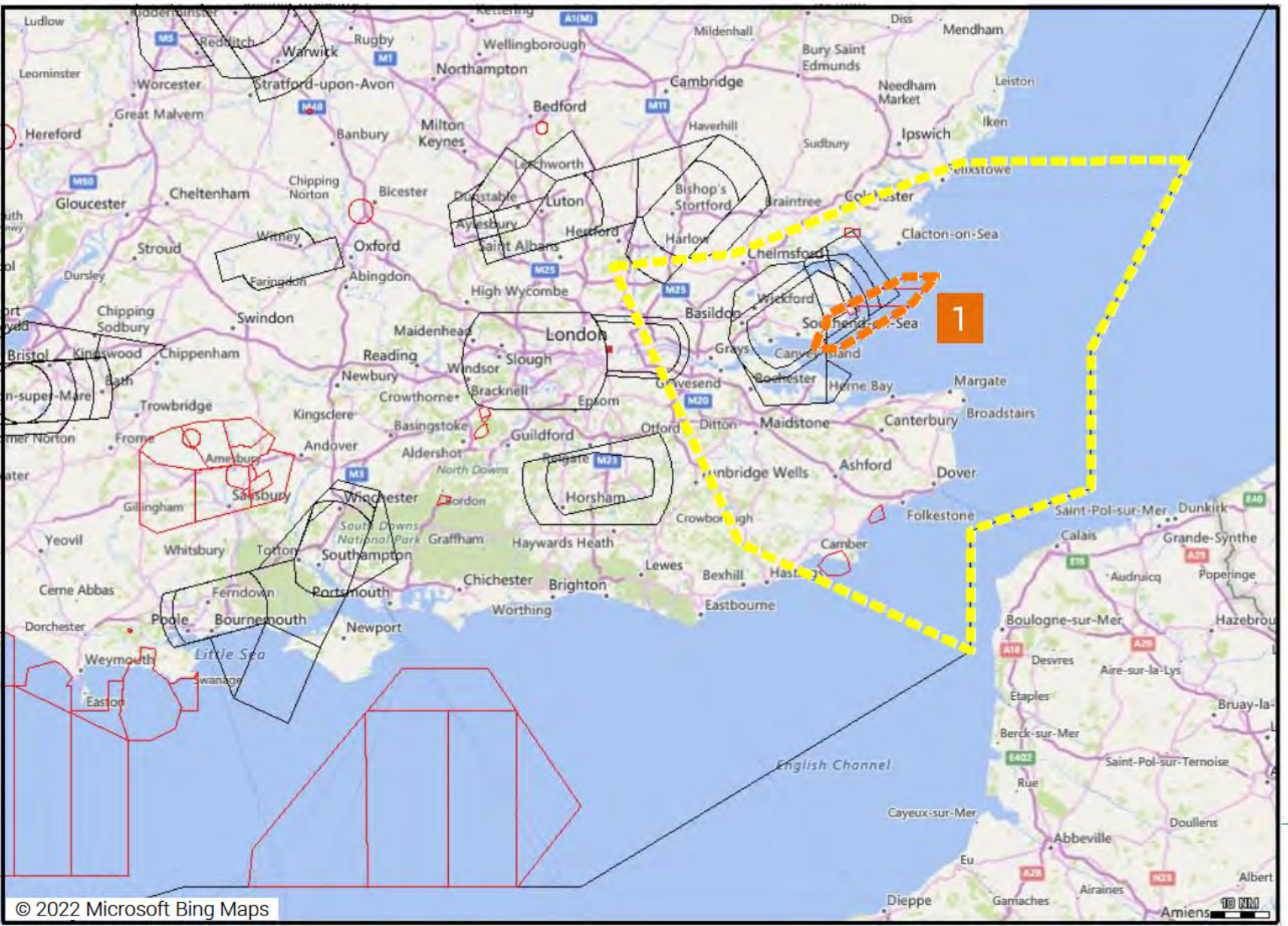
Traffic density is based on arrivals between FL245 – FL70 between 5th – 11th August 2019.

EGLC had around 42,300 arrivals in 2019.

Less than 1% of traffic is equipped to RNAV 5 or a lower standard, based on Q3 2019.

>40 per day
>20 up to 40 per day
>10 up to 20 per day
>3 up to 10 per day
>2 up to 3 per day
Up to 2 per day

London City Arrival Design Envelope



London City Arrival Design Envelope

1 Shoeburyness Danger Areas

Location	Viability Comments
North	It may be possible to place an arrival structure to the NE. It would likely not be possible to place it to the north and NW due to other LTMA traffic.
East	An arrival structure to the east of the airfield is already in place.
South	It may be possible to place an arrival structure to the SE. It would likely not be possible to place it to the south and SW due other LTMA traffic.
West	An arrival structure, and associated connectivity, to the west of the airfield would likely conflict with EGLL and LTMA traffic.
Overhead	An arrival structure, and associated connectivity, overhead the airfield would likely conflict with EGLL and LTMA traffic.

Structure	Viability Comments
Optimised (inner) hold(s)	There is sufficient airspace for optimised hold(s), and this would likely meet the runway throughput demands.
Hold(s) further out	There is sufficient airspace for hold(s) further out, and this would likely meet the runway throughput demands.
Point merge	Optimisation of current day structures. There is sufficient airspace to suitably place a poing merge. Based on traffic throughput, this may need to be a shared facility.
Switch merge	There is sufficient airspace to suitably place a switch merge, to the east. Based on traffic throughput, this may need to be a shared facility.
Trombone	There is sufficient airspace to suitably place a trombone. Based on traffic throughput, this may need to be a shared facility.

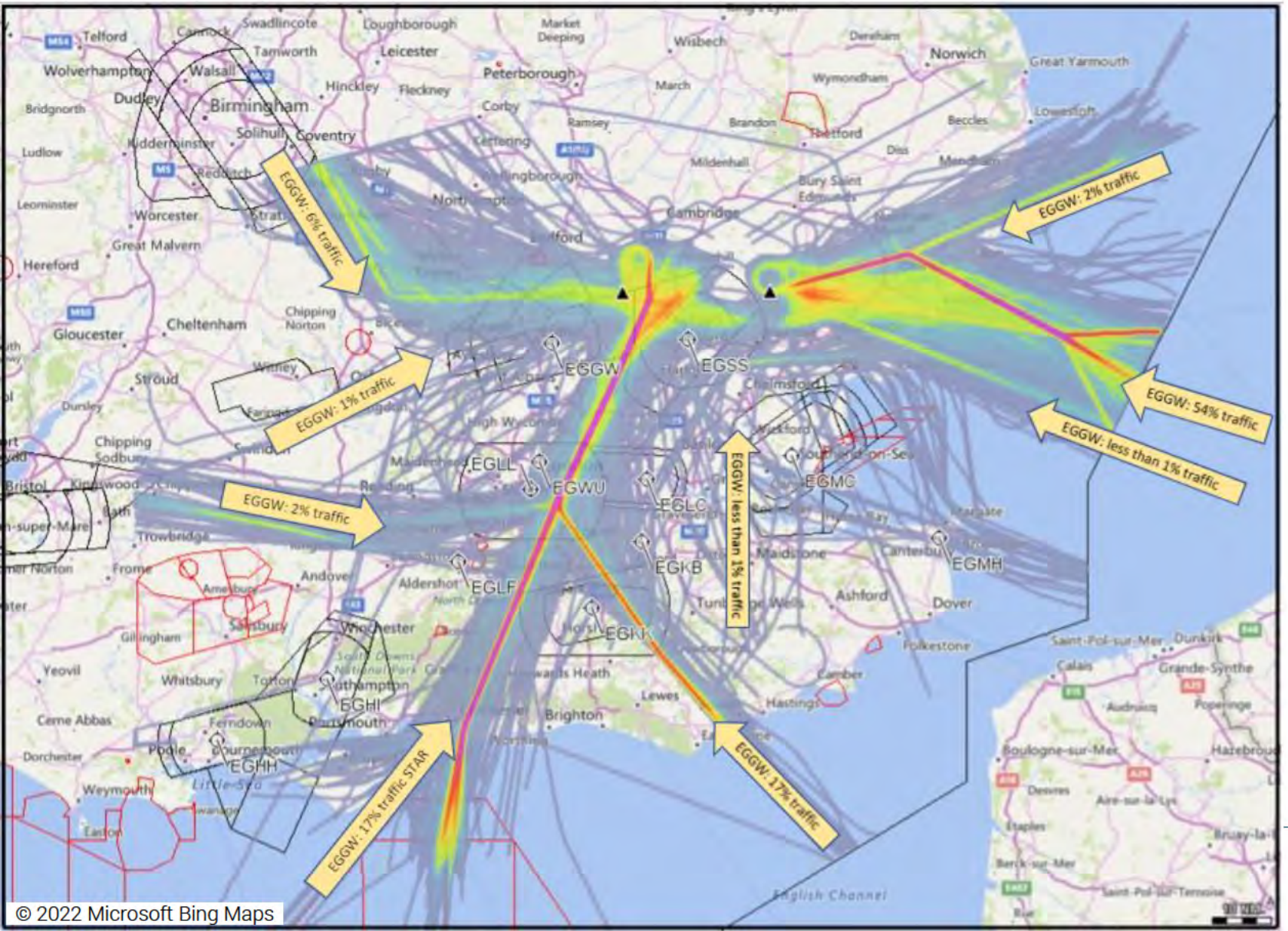
NATS

Arrival Structure Viability Assessment

Arrival Structure Type	Location								
	N	NE	E	SE	S	SW	W	NW	OH
Do nothing	✗	✗	✗	✗	✗	✗	✗	✗	✗
Optimised (inner) hold(s)	✗	✓	✓	✓	✗	✗	✗	✗	✗
Hold(s) further out	✗	✓	✓	✓	✗	✗	✗	✗	✗
Point merge	✗	✓	✓	✓	✗	✗	✗	✗	✗
Switch merge	✗	✗	✓	✗	✗	✗	✗	✗	✗
Trombone	✗	✓	✓	✓	✗	✗	✗	✗	✗

Luton

Baseline: EGGW Arrivals Pre-Luton Arrivals Change



Baseline Description

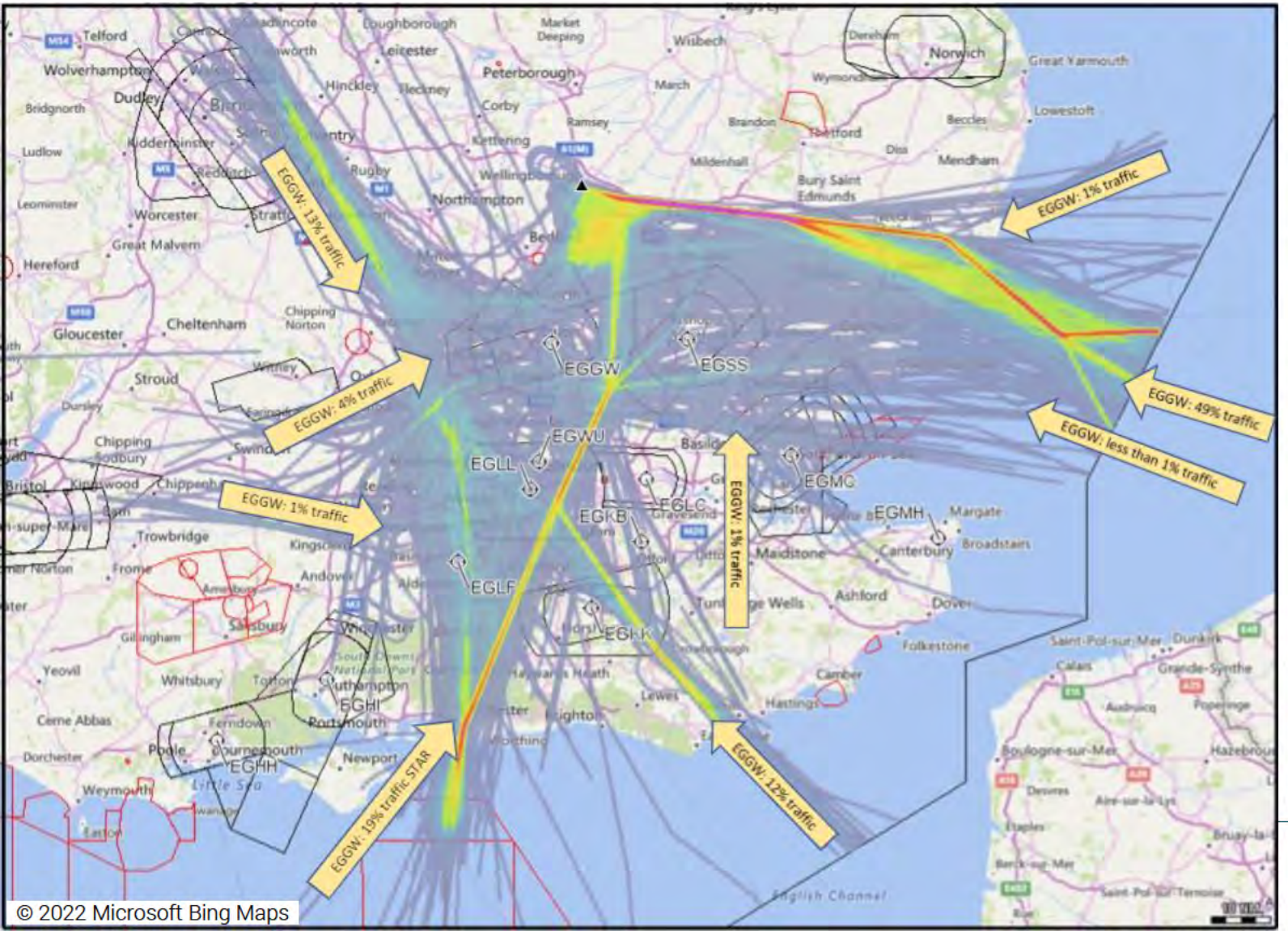
Traffic density is based on arrivals between FL245 – FL70 between 5th – 11th August **2019**.

EGGW had around 70,400 arrivals in 2019.

Less than 1% of traffic is equipped to RNAV 5 or a lower standard, based on Q3 2019.

>40 per day
>20 up to 40 per day
>10 up to 20 per day
>3 up to 10 per day
>2 up to 3 per day
Up to 2 per day

Baseline: EGGW Arrivals Post-Luton Arrival Change, Pre-PIR



Baseline Description

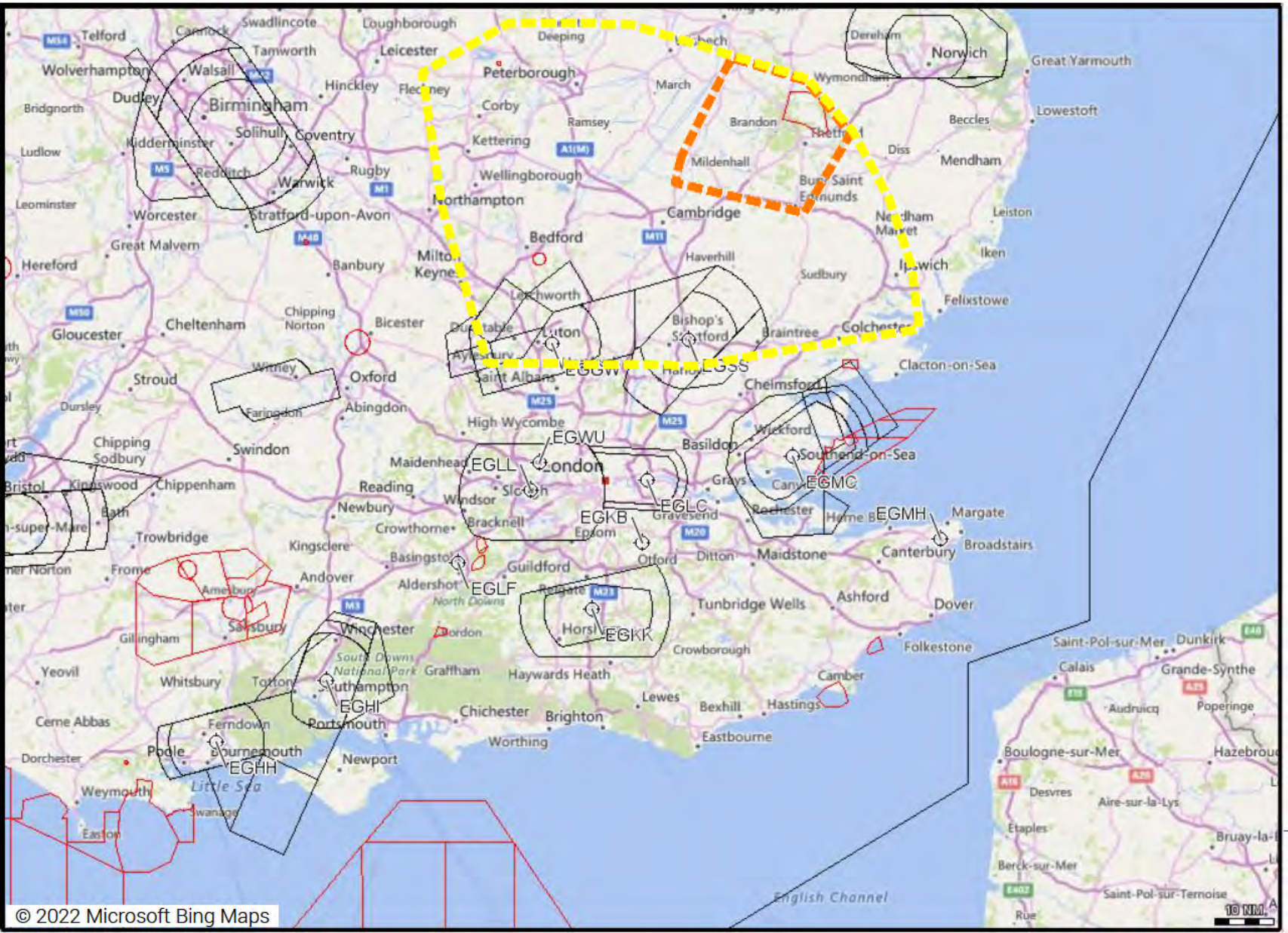
Traffic density is based on arrivals between FL245 – FL70 between 5th – 11th August **2022**.

For this slide, traffic proportions are taken from 24th February to 31st August 2022. EGGW had around 33,300 arrivals during this period.

Less than 1% of traffic is equipped to RNAV 5 or a lower standard, based on Q3 2019.

(NB this is post-ACP but pre-PIR and should considered as illustrative only, at this early stage. PIR traffic flows will be considered the baseline, once completed).

Luton Arrival Design Envelope



Location	Viability Comments
North	Arrival structures to the north are already in place within the current airspace. Designs will need to be cognisant of EGSS.
East	Arrival structures to the east may be possible subject to being cognisant of EGSS.
South	An arrival structure, and associated connectivity, to the south of the airfield would likely conflict with LTMA traffic.
West	An arrival structure, and associated connectivity, to the west of the airfield would likely conflict with LTMA traffic.
Overhead	An arrival structure, and associated connectivity, overhead the airfield would likely conflict with LTMA traffic.

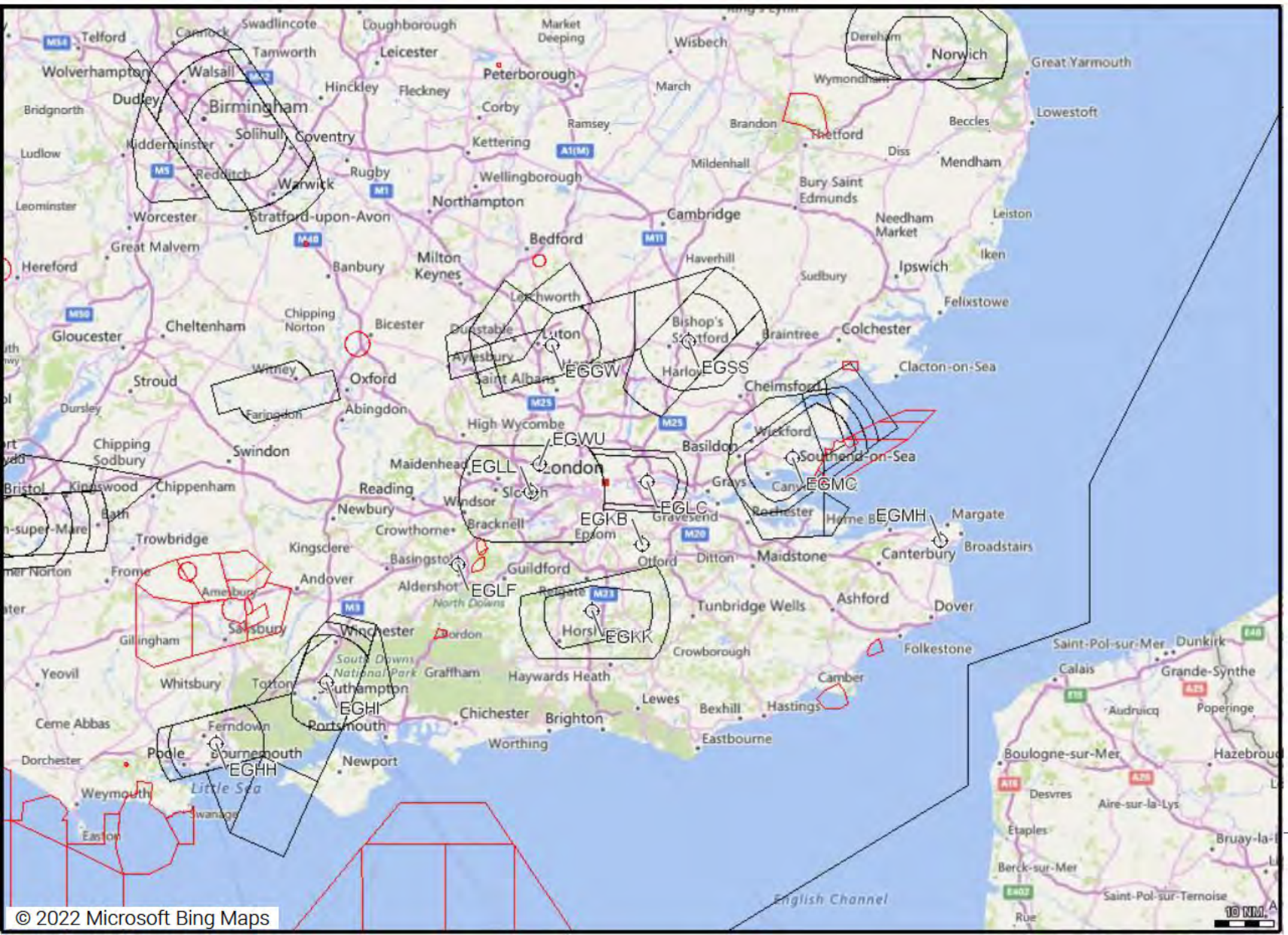
Structure	Viability Comments
Optimised (inner) hold(s)	Optimisation of current day structures. There is sufficient airspace for optimised hold(s), and this would likely meet the runway throughput demands.
Holds further out	There is sufficient airspace for hold(s) further out, and this would likely meet the runway throughput demands.
Point merge	There is sufficient airspace for a point merge, and this would likely meet the runway throughput demands.
Switch merge	There is insufficient airspace to suitably place a switch merge.
Trombone	There is sufficient airspace for a trombone, to the north / NE, and this would likely meet the runway throughput demands.

Arrival Structure Viability Assessment

Arrival Structure Type	Location								
	N	NE	E	SE	S	SW	W	NW	OH
Do nothing	✗	✗	✗	✗	✗	✗	✗	✗	✗
Optimised (inner) hold(s)	✓	✓	✓	✗	✗	✗	✗	✓	✗
Hold(s) further out	✓	✓	✓	✗	✗	✗	✗	✓	✗
Point merge	✓	✓	✓	✗	✗	✗	✗	✓	✗
Switch merge	✗	✗	✗	✗	✗	✗	✗	✗	✗
Trombone	✓	✓	✗	✗	✗	✗	✗	✗	✗

Manston

Baseline: EGMH Arrivals



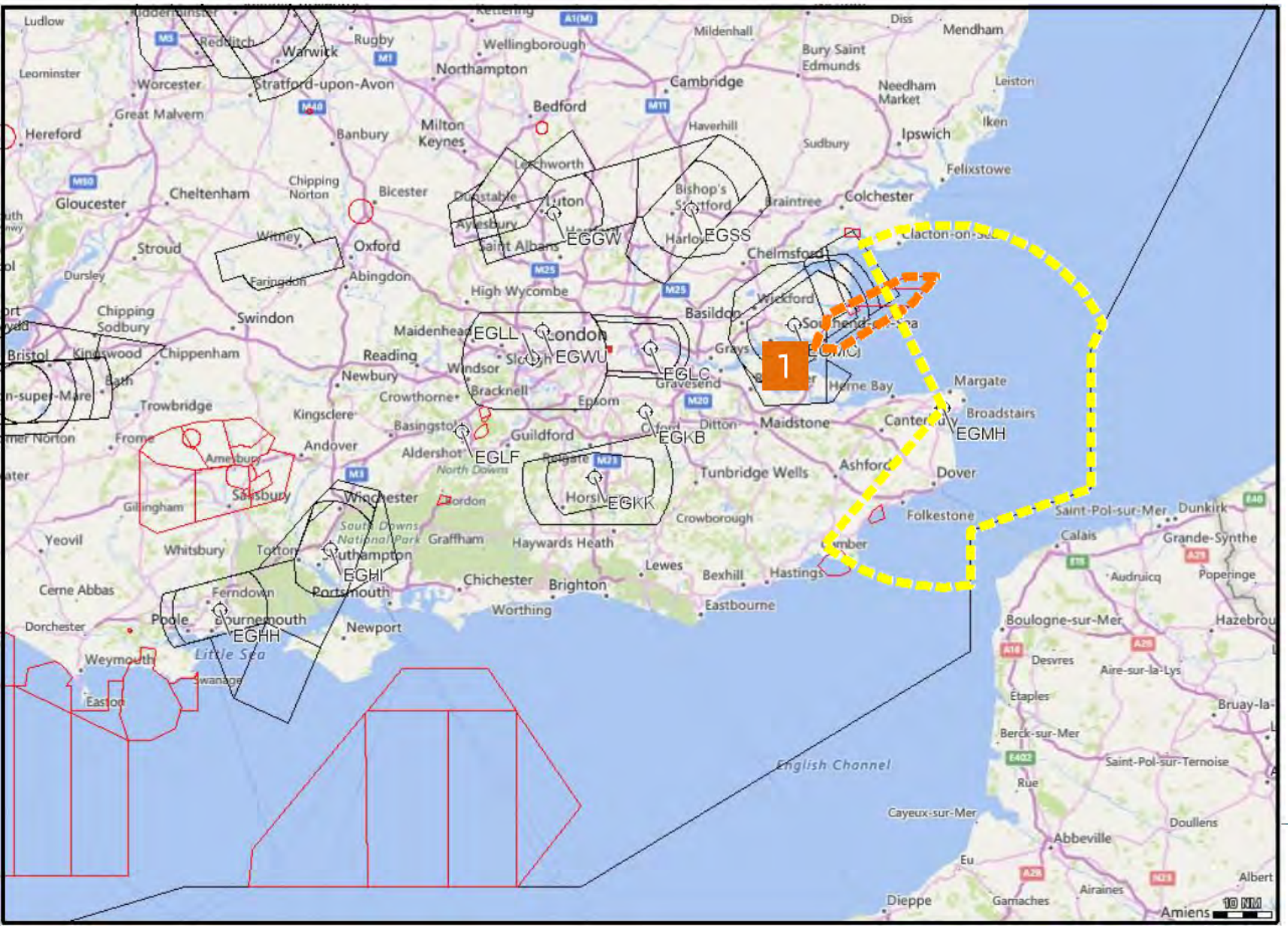
Baseline Description

There is no baseline for Manston because the site has not been used as an airport for several years.

Manston are progressing an ACP to become operational again. Once deployed into the existing network, this will become the FASI 'Do nothing' / baseline scenario.

For FASI, 'Do minimum' would be the minimum changes to integrate the airport operations within the future airspace structure.

Manston Arrival Design Envelope



Manston Arrival Design Envelope

1 Shoeburyness Danger Areas

Location	Viability Comments
North	Existing structures / airspace able to accommodate arrivals.
East	There is airspace to the east for an arrival structure, but any design must be cognisant of the FIR boundary.
South	Existing structures / sufficient airspace for an arrival facility south of the airfield.
West	An arrival structure, and associated connectivity, to the west of the airfield would likely conflict with LTMA traffic.
Overhead	There is sufficient airspace for an arrival facility in the overhead.

Structure	Viability Comments
Optimised (inner) hold(s)	There is sufficient airspace to suitably place optimised hold(s), other than to the west / NW. Based on traffic throughput, this may need to be a shared facility.
Hold(s) further out	There is insufficient airspace to suitably place hold(s) further out.
Point merge	A point merge would not be suitable for the runway throughput requirement as the airspace required for such a structure is disproportionate to the traffic volumes.
Switch merge	A switch merge would not be suitable for the runway throughput requirement as the airspace required for such a structure is disproportionate to the traffic volumes.
Trombone	It would not be suitable for the runway throughput requirement as the airspace required for such a structure is disproportionate to the traffic volumes.

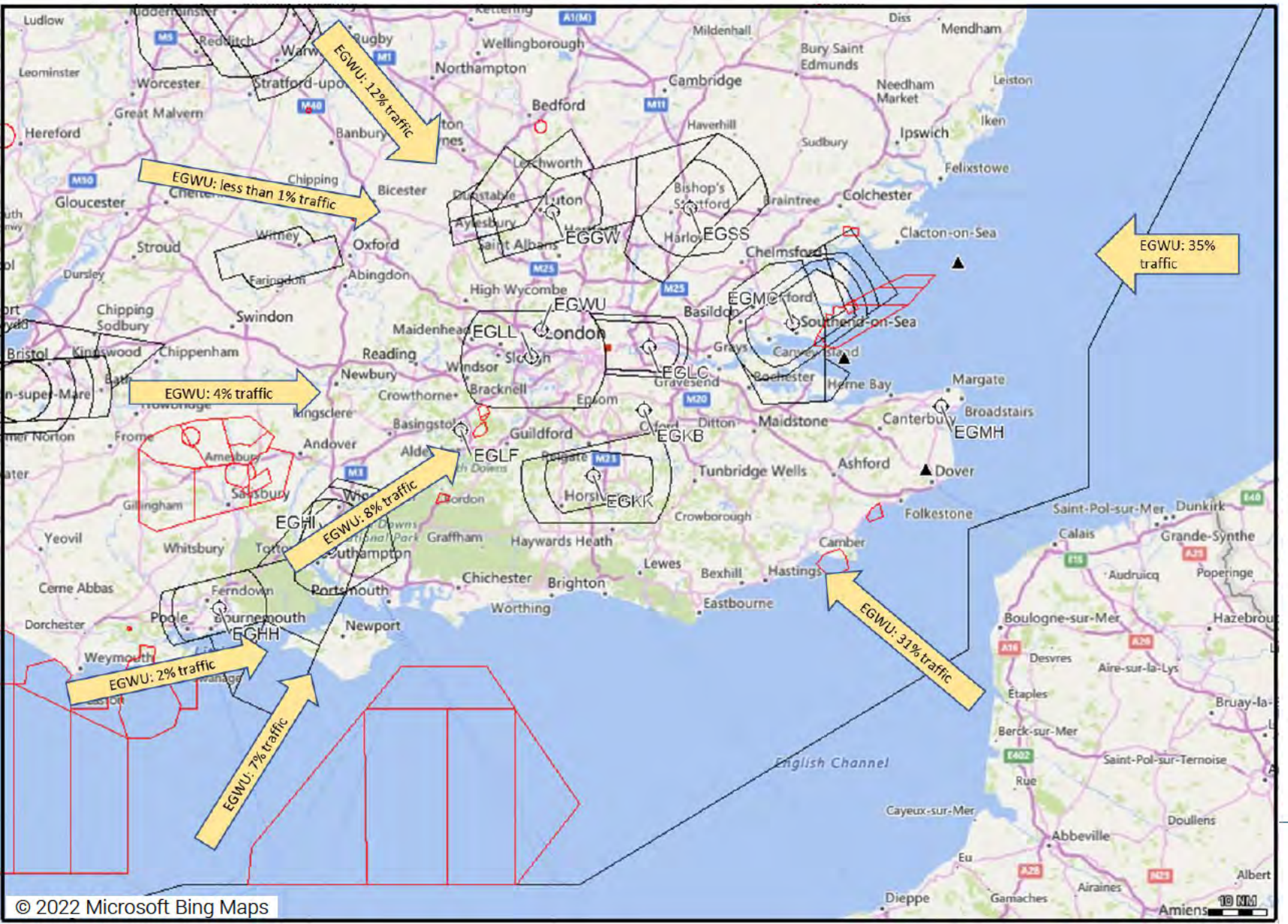
Arrival Structure Viability Assessment

Arrival Structure Type	Location								
	N	NE	E	SE	S	SW	W	NW	OH
Do nothing*	✓	✓	✓	✓	✓	✓	✓	✓	✓
Do minimum*	✓	✓	✓	✓	✓	✓	✓	✓	✓
Optimised (inner) hold(s)	✓	✓	✓	✓	✓	✓	✗	✗	✓
Hold(s) further out	✗	✗	✗	✗	✗	✗	✗	✗	✗
Point merge	✗	✗	✗	✗	✗	✗	✗	✗	✗
Switch merge	✗	✗	✗	✗	✗	✗	✗	✗	✗
Trombone	✗	✗	✗	✗	✗	✗	✗	✗	✗

* The integration of EGMH, into the network, will occur prior to FASI. This change will become the FASI "do nothing", "do minimum" would be aligning the pre-FASI change to the new airspace. The details of the pre-FASI change are unknown so displayed in all locations.

Northolt

Baseline: EGWU Arrivals 2019*



Baseline Description

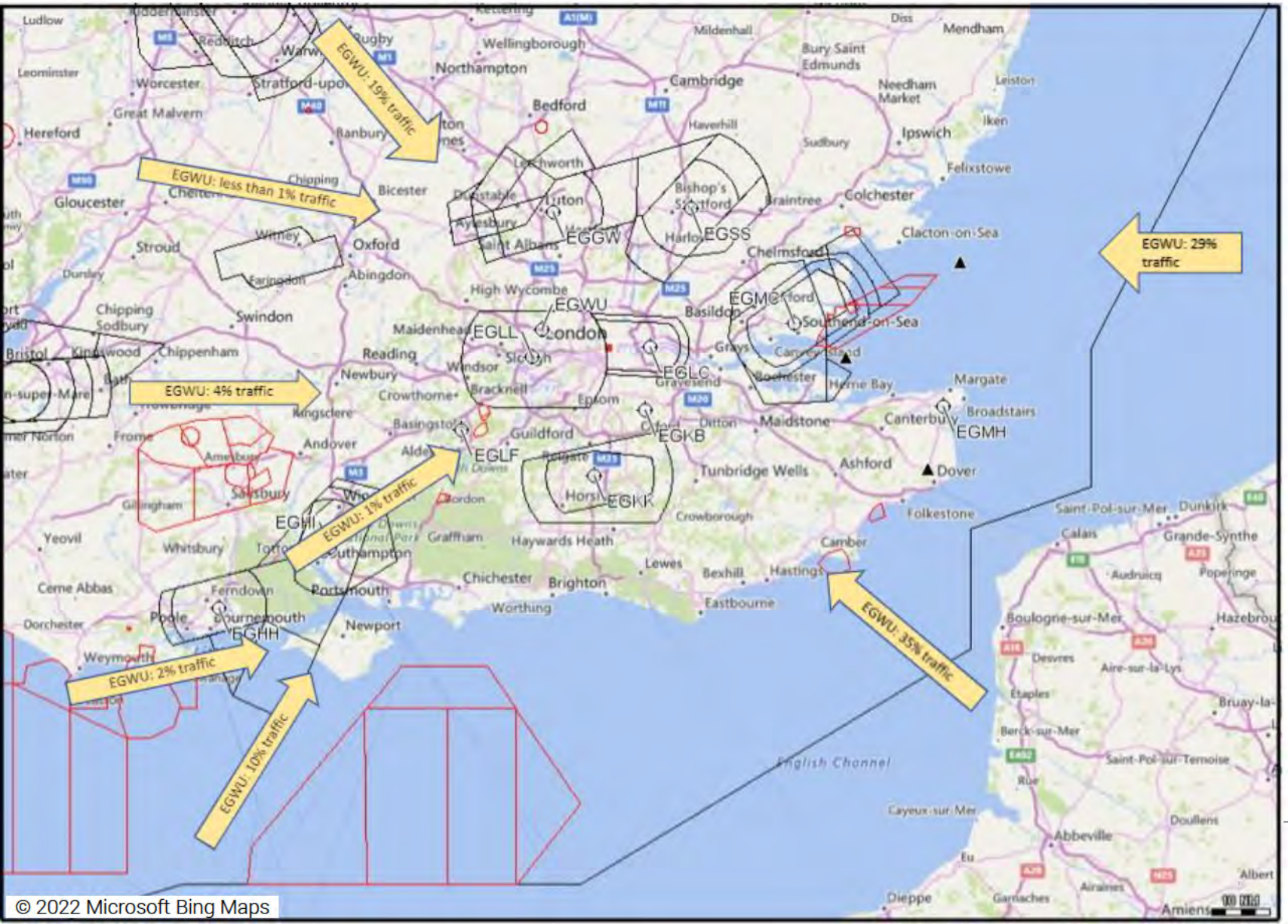
*Northolt's runway was closed for resurfacing from April-November 2019.

Radar data for Northolt traffic was not available for this period.

The flow arrows based on shared Heathrow arrivals and the proportions of traffic during 2019 not including the runway closure. EGWU had around 900 arrivals during this period.

The percentage of traffic, equipped to RNAV 5 or lower standard, inbound to Northolt is currently unknown.

Baseline: EGWU Arrivals 1st Jan – 31st Aug 2022



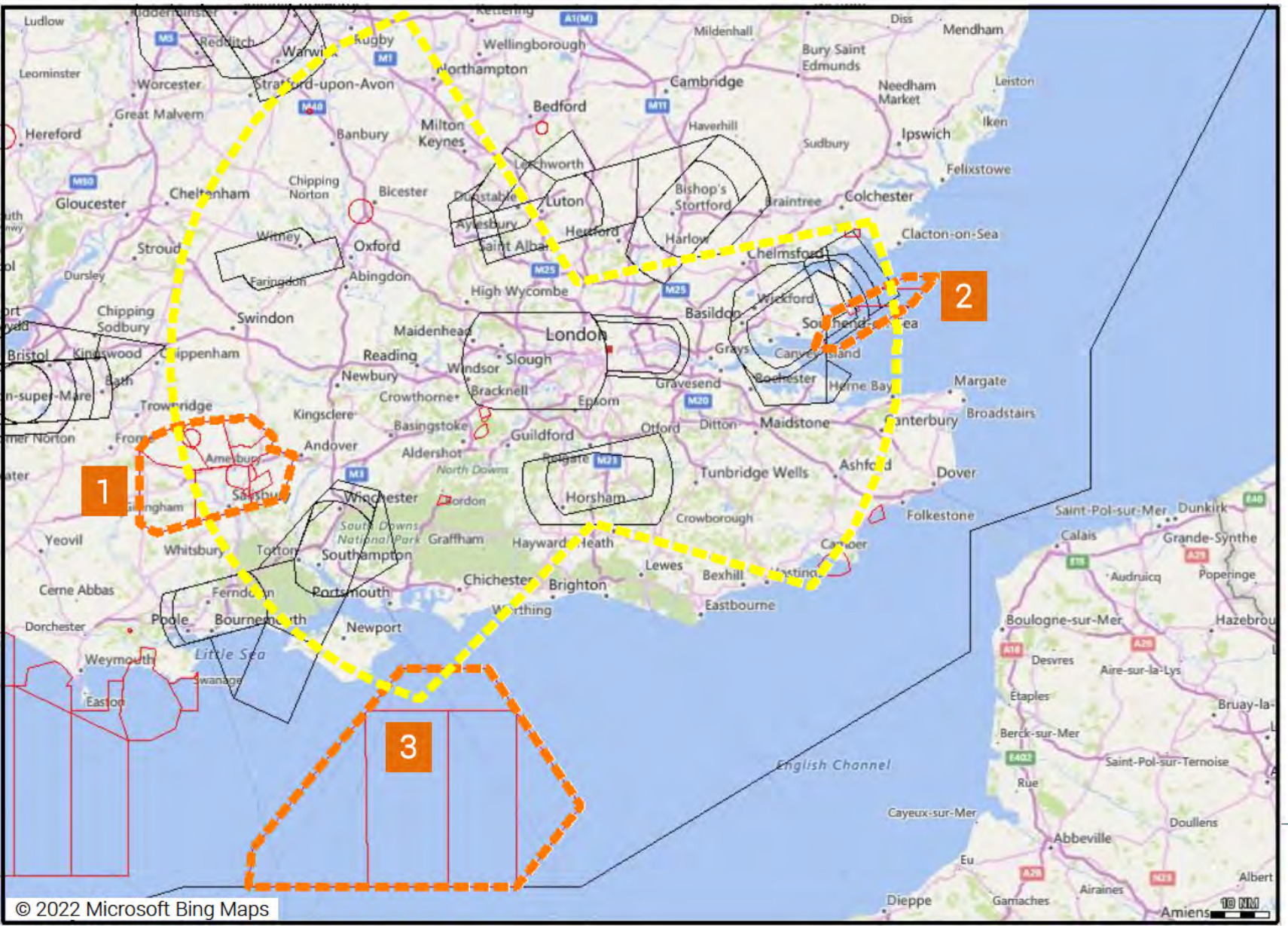
Baseline Description

Radar data for Northolt traffic was not available – flow arrows based on shared Heathrow arrivals.

For this slide, traffic proportions are taken from 1st January to 31st August 2022. EGWU had around 2,200 arrivals during this period.

The percentage of traffic, equipped to RNAV 5 or lower standard, inbound to Northolt is currently unknown.

Northolt Arrival Design Envelope



Northolt Arrival Design Envelope

1 Salisbury Plain Danger Areas

2 Shoeburyness Danger Areas

3 Portsmouth Danger Areas

Location	Viability Comments
North	Arrival structures (shared with EGLL) to the north of the airfield are already in place within the current design.
East	Arrival structures (shared with EGLL) to the east of the airfield are already in place within the current design.
South	Arrival structures (shared with EGLL) to the south of the airfield are already in place within the current design.
West	Arrival structures (shared with EGLL) to the west of the airfield are already in place within the current design.
Overhead	It would likely be possible to place an arrival structure overhead the airfield if shared with EGLL.

Structure	Viability Comments
Optimised (inner) hold(s)	Optimisation of current day structures. There is sufficient airspace to suitably place optimised hold(s). Based on traffic throughput, this may need to be a shared facility.
Hold(s) further out	There is sufficient airspace to suitably place hold(s) further out. Based on traffic throughput, this may need to be a shared facility.
Point merge	There is sufficient airspace to suitably place a point merge. Based on traffic throughput, this will need to be a shared facility.
Switch merge	There is sufficient airspace to suitably place a switch merge. Based on traffic throughput, this will need to be a shared facility.
Trombone	There is sufficient airspace to suitably place a trombone. Based on traffic throughput, this will need to be a shared facility.

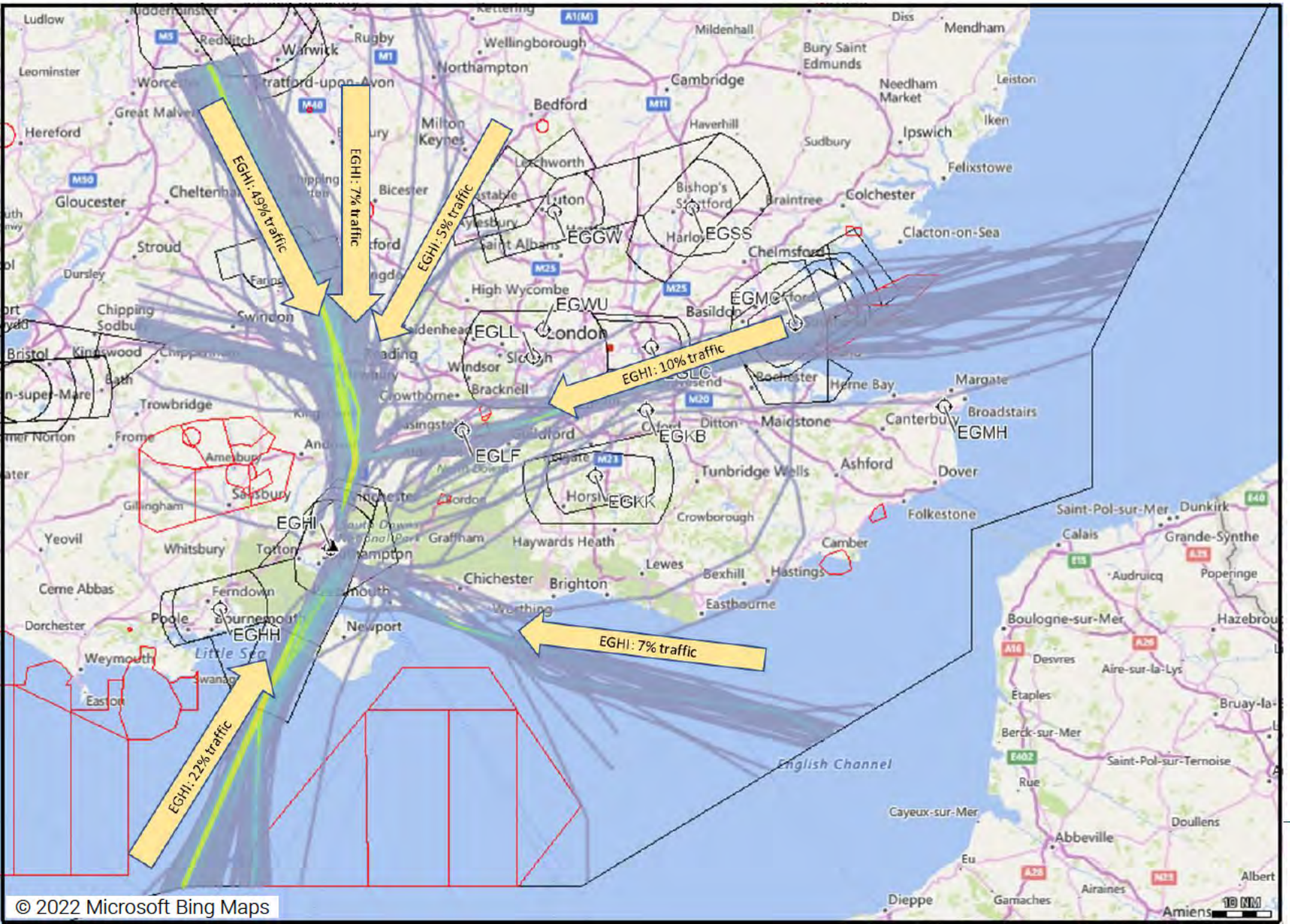
NATS

Arrival Structure Viability Assessment

Arrival Structure Type	Location								
	N	NE	E	SE	S	SW	W	NW	OH
Do nothing	✗	✗	✗	✗	✗	✗	✗	✗	✗
Optimised (inner) hold(s)	✓	✓	✓	✓	✓	✓	✓	✓	✓
Hold(s) further out	✗	✗	✓	✓	✗	✓	✓	✓	✗
Point merge	✓	✓	✓	✓	✓	✓	✓	✓	✗
Switch merge	✓	✓	✓	✓	✓	✓	✓	✓	✗
Trombone	✓	✗	✓	✗	✓	✗	✓	✗	✗

Southampton

Baseline: EGHI Arrivals



Baseline Description

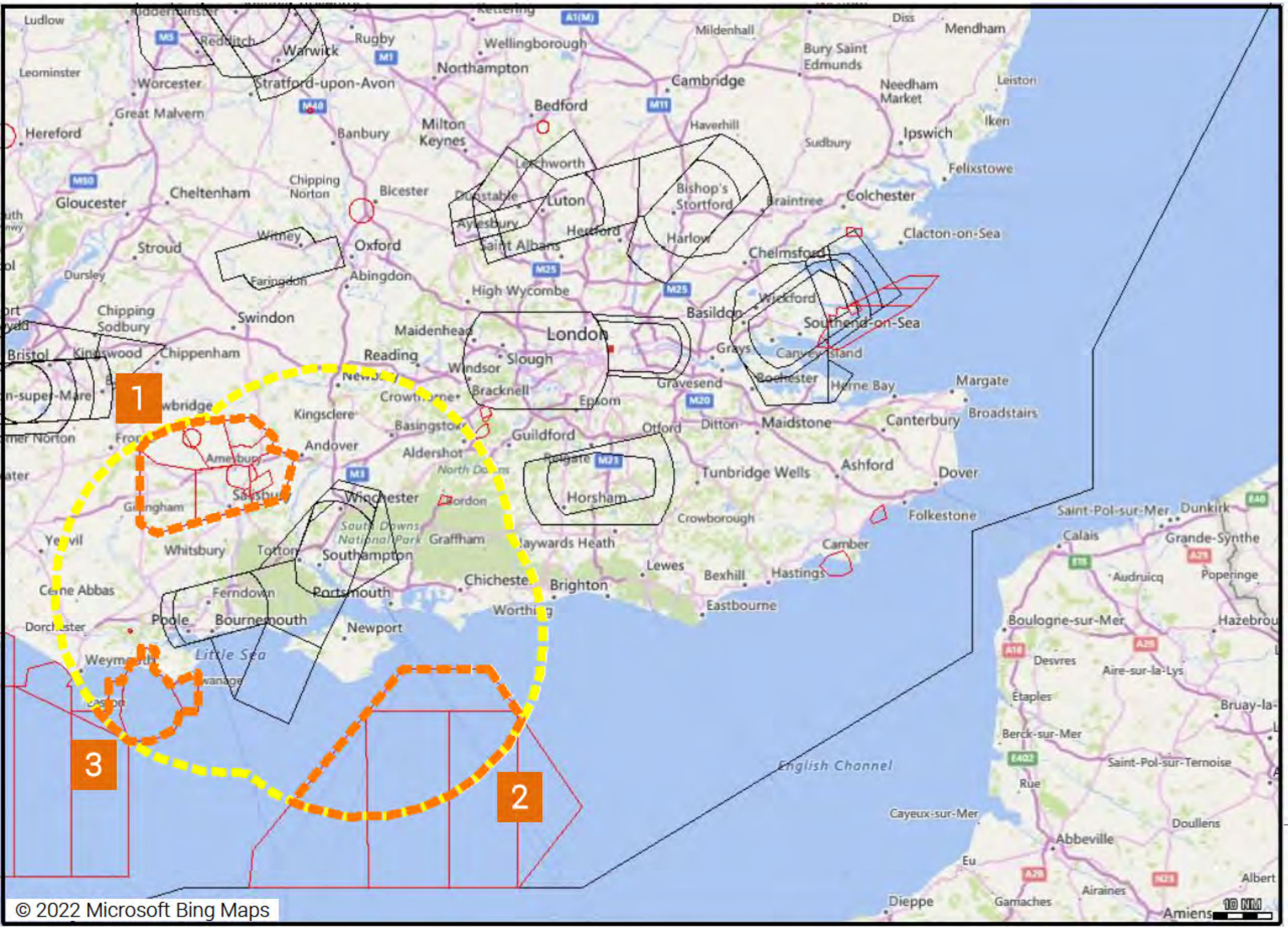
Traffic density is based on arrivals between FL245 – FL70 between 5th – 11th August 2019.

EGHI had around 17,800 arrivals in 2019.

3% of traffic is equipped to RNAV 5 or a lower standard, based on Q3 2019.

>40 per day
>20 up to 40 per day
>10 up to 20 per day
>3 up to 10 per day
>2 up to 3 per day
Up to 2 per day

Southampton Arrival Design Envelope



Southampton Arrival Design Envelope

1 Salisbury Plain Danger Areas

2 Portsmouth Danger Areas

3 Lulworth and Portland Danger Areas

Location	Viability Comments
North	CAS and existing EGHI arrival structures already exist in this area. Improvements would likely be made with cognisance of EGLF traffic.
East	CAS and existing EGHI arrival structures already exist in this area. Efficiency would likely be improved with further integration with EGLF.
South	Limited airspace with some restrictions due to SUAs other LTMA traffic, however potential for improved interface from the south.
West	Integration would likely be required with EGHH.
Overhead	An arrival structure, and associated connectivity, to the north of the airfield would likely be challenging unless it formed part of the approach facility for both EGHH and EGHI.

Structure	Viability Comments
Optimised (inner) hold(s)	Optimisation of current day structures. There is sufficient airspace for optimised hold(s), and this would likely meet the runway throughput demands.
Hold(s) further out	Hold(s) further out would likely interact with predominant traffic flows within the LTMA.
Point merge	There is sufficient airspace to suitably place a point merge, in some directions. Based on traffic throughput, this may need to be a shared facility.
Switch merge	There is insufficient airspace to suitably place a switch merge.
Trombone	There is insufficient airspace to suitably place a trombone. It would not be suitable for the runway throughput requirement as the airspace required for such a structure is disproportionate to the traffic volumes.

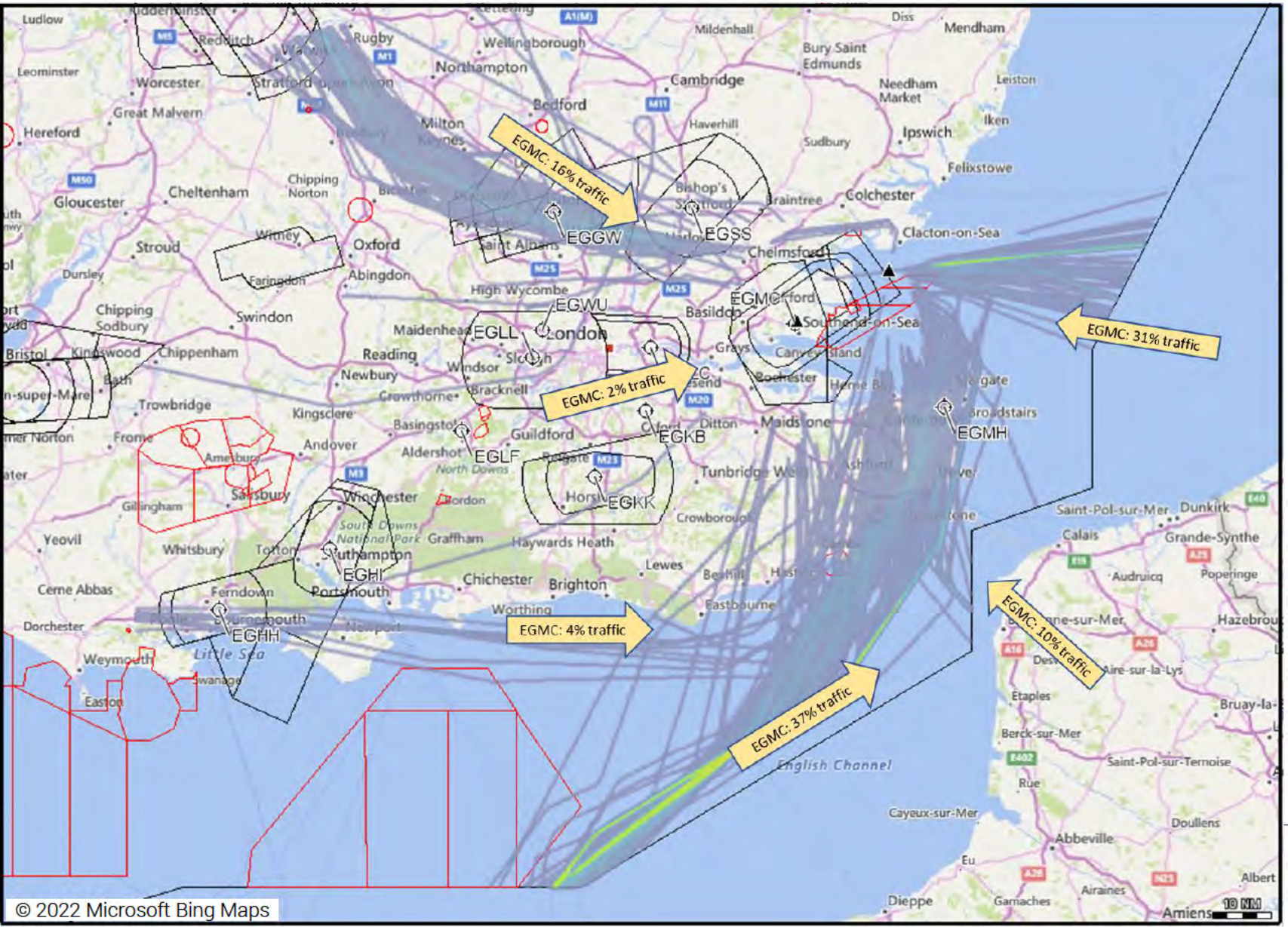
NATS

Arrival Structure Viability Assessment

Arrival Structure Type	Location								
	N	NE	E	SE	S	SW	W	NW	OH
Do nothing	✗	✗	✗	✗	✗	✗	✗	✗	✗
Optimised (inner) hold(s)	✓	✓	✓	✓	✓	✓	✓	✓	✓
Hold(s) further out	✗	✗	✗	✗	✗	✗	✗	✗	✗
Point merge	✗	✗	✗	✓	✓	✓	✓	✓	✓
Switch merge	✗	✗	✗	✗	✗	✗	✗	✗	✗
Trombone	✗	✗	✗	✗	✗	✗	✗	✗	✗

Southend

Baseline: EGMC Arrivals



Baseline Description

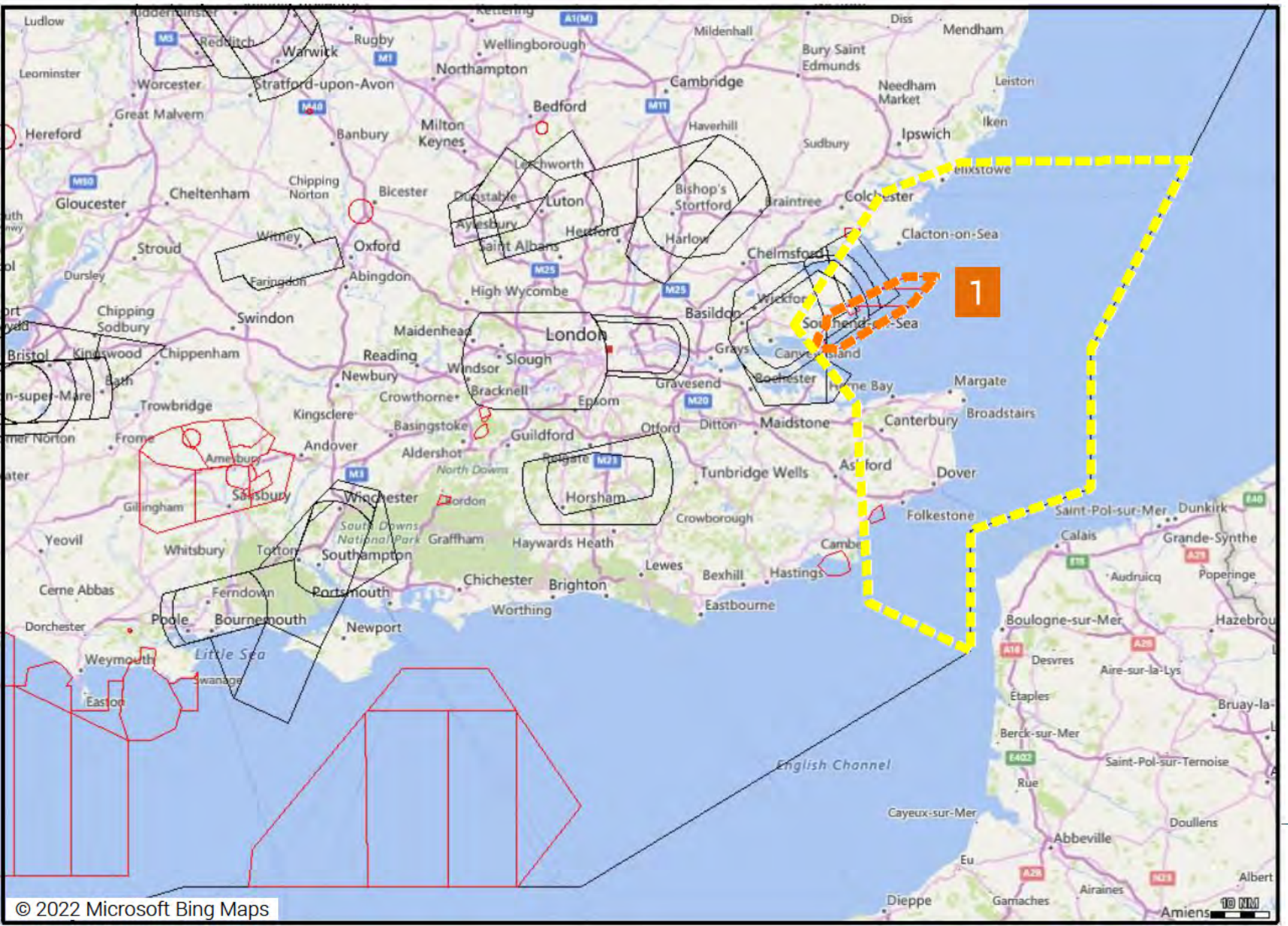
Traffic density is based on arrivals between FL245 – FL70 between 5th – 11th August 2019.

EGMC had around 11,500 arrivals in 2019.

3% of traffic is equipped to RNAV 5 or a lower standard, based on Q3 2019.

>40 per day
>20 up to 40 per day
>10 up to 20 per day
>3 up to 10 per day
>2 up to 3 per day
Up to 2 per day

Southend Arrival Design Envelope



Southend Arrival Design Envelope

1 Shoeburyness Danger Areas

Location	Viability Comments
North	An arrival structure, and associated connectivity, to the north of the airfield would likely conflict with LTMA traffic.
East	Arrival structures to the east of the airfield are already in place within the current design. Consideration will be given to Shoeburyness DA Complex.
South	An arrival structure, and associated connectivity, to the south of the airfield would likely conflict with LTMA traffic.
West	An arrival structure, and associated connectivity, to the west of the airfield would likely conflict with LTMA traffic.
Overhead	It would likely be possible to place an arrival structure overhead the airfield, however it would likely need to consider other LTMA traffic.

Structure	Viability Comments
Optimised (inner) hold(s)	Optimisation of the current day structures. There is sufficient airspace for optimised hold(s), and this would likely meet the runway throughput demands.
Hold(s) further out	There is sufficient airspace for hold(s) further out, and this would likely meet the runway throughput demands.
Point merge	There is sufficient airspace to suitably place a point merge. Based on traffic throughput, this may need to be a shared facility.
Switch merge	There is sufficient airspace to suitably place a switch merge, to the east. Based on traffic throughput, this may need to be a shared facility.
Trombone	There is sufficient airspace to suitably place a trombone. Based on traffic throughput, this may need to be a shared facility.

NATS

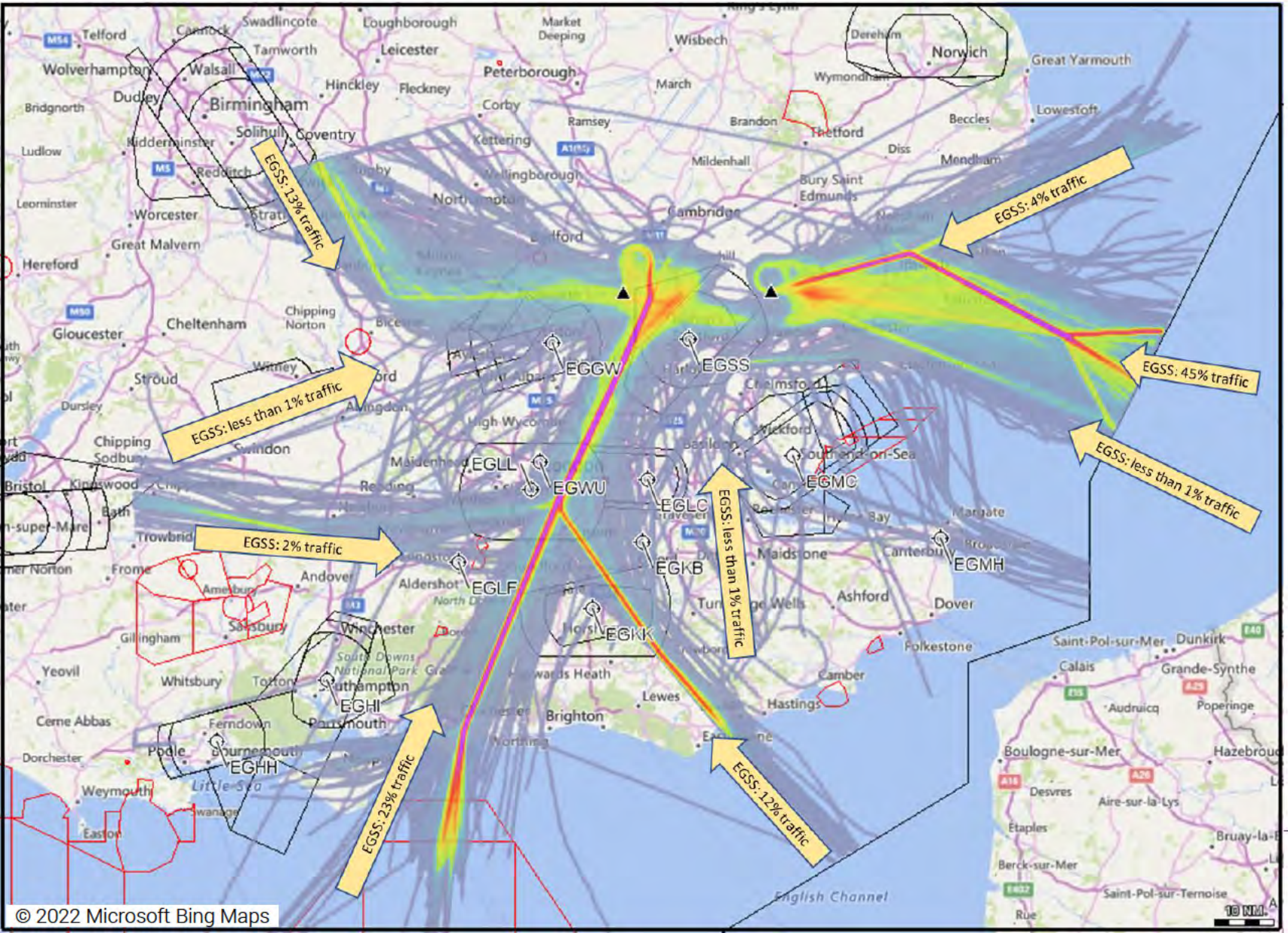
Arrival Structure Viability Assessment

Arrival Structure Type	Location								
	N	NE	E	SE	S	SW	W	NW	OH
Do nothing*	✓	✓	✓	✓	✓	✓	✓	✓	✓
Optimised (inner) hold(s)	✗	✓	✓	✓	✗	✗	✗	✗	✓
Hold(s) further out	✗	✓	✓	✓	✗	✗	✗	✗	✗
Point merge	✗	✓	✓	✓	✗	✗	✗	✗	✗
Switch merge	✗	✗	✓	✗	✗	✗	✗	✗	✗
Trombone	✗	✓	✓	✓	✗	✗	✗	✗	✗

* "Do nothing" is an option for EGMC, as their current hold(s) are below 7,000ft. If this remains the case there will be no change to NERL's arrival concept. As the structure would be in EGMC's ACP NERL's geographic constraints do not apply.

Stansted

Baseline: EGSS Arrivals



Baseline Description

Traffic density is based on arrivals between FL245 – FL70 between 5th – 11th August 2019.

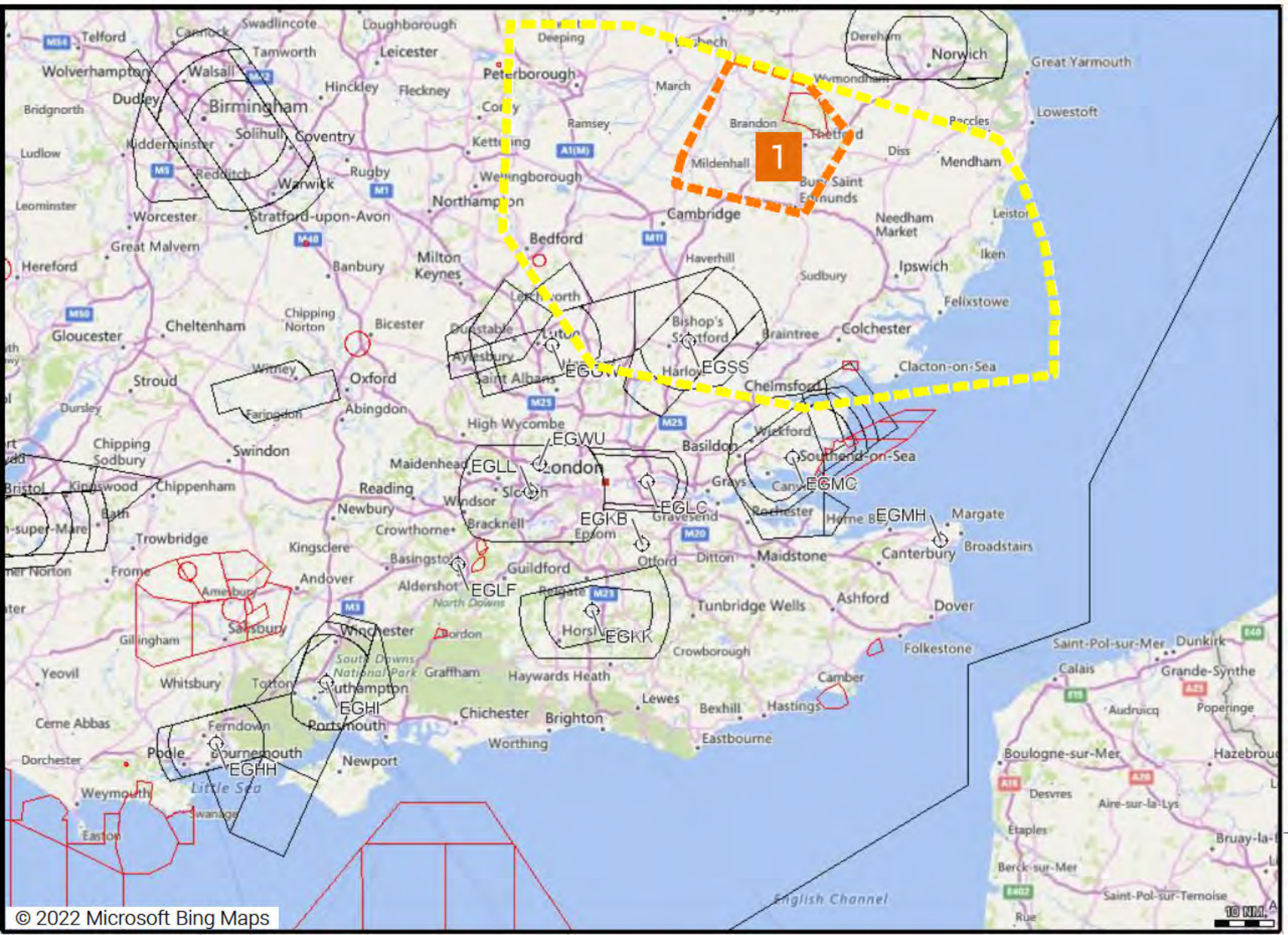
EGSS had around 99,200 arrivals in 2019.

(NB this is pre-Luton Arrival Change: Under the Luton Arrival Change there would be the same traffic flows, similar proportions but a reduction in holding)

Less than 1% of traffic is equipped to RNAV 5 or a lower standard, based on Q3 2019.

>40 per day
>20 up to 40 per day
>10 up to 20 per day
>3 up to 10 per day
>2 up to 3 per day
Up to 2 per day

Stansted Arrival Design Envelope



© 2022 Microsoft Bing Maps

Stansted Arrival Design Envelope

1 USAFE Lakenheath/Mildenhall complexity

Location	Viability Comments
North	Arrival structures to the north (including NE and NW) of the airfield are already in place within the current design. Designs will need to be cognisant of the EGGW traffic.
East	It would likely be possible to place an arrival structure to the NE (as per current day) of the airfield and there may be scope to position it east, however placement to the SE would conflict with the departure flows from the LTMA.
South	An arrival structure, and associated connectivity, to the south of the airfield would likely conflict with LTMA traffic.
West	It would likely be possible to place an arrival structure to the NW (as per current day). Designs need to be cognisant of the EGGW traffic.
Overhead	An arrival structure, and associated connectivity, overhead airfield would likely conflict with LTMA traffic.

Structure	Viability Comments
Optimised (inner) hold(s)	Optimisation of current day structures. There is sufficient airspace for optimised hold(s), and this would likely meet the runway throughput demands.
Hold(s) further out	There is sufficient airspace for hold(s) further out, to the north / NE / east, and this would likely meet the runway throughput demands.
Point merge	There is sufficient airspace for a point merge, to the north / NE / east, and this would likely meet the runway throughput demands.
Switch merge	There is sufficient airspace for a switch merge, to the north / NE / east, and this would likely meet the runway throughput demands.
Trombone	There is sufficient airspace for a trombone, to the north / NE / east, and this would likely meet the runway throughput demands.

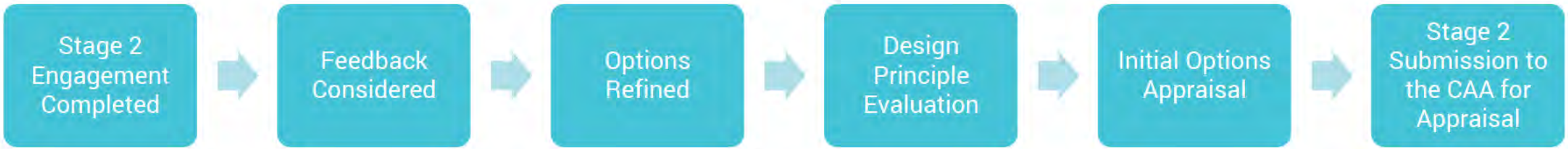
NATS

Arrival Structure Viability Assessment

Arrival Structure Type	Location								
	N	NE	E	SE	S	SW	W	NW	OH
Do nothing	✗	✗	✗	✗	✗	✗	✗	✗	✗
Optimised (inner) hold(s)	✓	✓	✓	✗	✗	✗	✓	✓	✗
Hold(s) further out	✓	✓	✓	✗	✗	✗	✗	✗	✗
Point merge	✓	✓	✓	✗	✗	✗	✗	✗	✗
Switch merge	✓	✓	✓	✗	✗	✗	✗	✗	✗
Trombone	✓	✓	✓	✗	✗	✗	✗	✗	✗

What Happens Next?

Next Steps



What happens in Stage 3?

- Further collaborative airspace design with the Airport sponsors (Lines on maps!)
- Continued stakeholder engagement
- Development simulations
- Full options appraisal
- Progression towards a formal consultation phase

How you can help…

The presentation slide pack, a recording of the briefing, FAQ's and a feedback survey will be circulated following the completion of our Stage 2 engagement programme.

Your feedback is important, so in our survey we will be asking you to consider:

- Whether the Network options align with our Design Principles
- Whether the Airport Arrival Structure options and design envelopes align with our Design Principles
- Whether the Network options align with the aspirations of your organisation
- Whether the Airport Arrival Structure options and design envelopes align with the aspirations of your organisation
- Changes we should consider to the options shown
- Any new options not shown here

The feedback deadline is 28th October 2022.

Thank You

Any Questions?

NATS

3) Email sent to all stakeholders requesting feedback

Airspace Engagement

From: Airspace Engagement [redacted]
Sent: 03 October 2022 14:22
To: [redacted]
Subject: Feedback: NERL Stage 2 London Airspace Modernisation Programme (LAMP), Airspace Change Proposals.
Attachments: NERL Stage 2 Engegement FAQ's.pdf; NERL Stage 2 formal stakeholder engagement presentation.pdf

Good Afternoon,

For those of you who were able to attend a briefing, NERL would like to thank you for participating in the NERL Stage 2 Engagement for our London Airspace Modernisation Programme (LAMP), Airspace Change Proposals.

Attached is the presentation that was delivered on the day and a copy of our FAQ's document.
For those stakeholders who were unable to attend, please familiarise yourselves with the presentation and here is a link to a recording of the briefing: [redacted]

Below is a link to our feedback survey. Your feedback will contribute to the next stage of our options development process.

[redacted]

The feedback form can also be accessed via this QR code:

[redacted]

- Please complete the survey by 4pm, Friday 28th October
- If you feel you cannot meet this date, please let me know when your response will follow so that we know to expect it.
- There is a risk that responses received after Friday 28th October will be too late for consideration.

Best Wishes,

[redacted]

NATS

[redacted]
Airspace Engagement Manager

4) Copy of feedback form sent to all stakeholders

NERL Stage 2 Engagement Feedback Questionnaire

*Required

About You

1. What is your name? * (Free text)
2. Did you attend a briefing? * (Yes/No)
3. Which organisation do you represent? * (free text box)

Network Options

In Stage 2 NERL have five Network Options.

Please leave your feedback on each design option. In your comments, please consider alignment with the NERL Design Principles and alignment with the aspirations of your organisation.

DP	Priority	Quick Ref	Description
0	A	Safety	Safety is always the highest priority
1	B	Operational	The airspace will enable increased operational resilience
2	C	Economic	Optimise network fuel performance
3	C	Environmental	Optimise CO_2 emissions per flight
4	C	Environmental	Minimising of noise impacts due to LAMP influence will take place in accordance with local needs
5	C	Technical	The volume of controlled airspace required for LAMP should be the minimum necessary to deliver an efficient airspace design, taking into account the needs of the UK airspace users
6	C	Technical	The impacts on GA and other civilian airspace users due to LAMP will be minimised
7	C	Technical	The impacts on MoD users due to LAMP will be minimised
8	B	Operational	Systemisation will deliver the optimal capacity and efficiency benefits
9	B	Technical	The main route network linking airport procedures with the En Route phase of flight will be spaced to yield maximum safety and efficiency benefits by using an appropriate standard of PBN
10	A	Policy	Must accord with the CAA's published Airspace Modernisation Strategy (CAP1711) and any current or future plans associated with it

4. Option 1: Highly Systemised* (free text box)
5. Option 2: Hybrid Systemisation* (free text box)
6. Option 3: Do Minimum* (free text box)
7. Option 4: Direct Route Airspace* (free text box)
8. Option 5: Free Route Airspace* (free text box)

9. Do you consider there to be any alternative network options? * (Yes/No)
10. If yes, please describe* (free text box)

Airport Arrival Structures and Design Envelopes

A list of participating airports will be shown to you in alphabetical order below. Please indicate whether you would you like to comment on the following airports' arrival structures and design envelopes? You may comment on as many or as few as you like.

In your comments, please consider alignment with the NERL Design Principles, alignment with the aspirations of your organisation and any other options we may not have captured.

11. Biggin Hill* (Yes/No)
12. (If yes) Please leave your comments relating to Biggin Hill here * (free text box)

13. Bournemouth* (Yes/No)
14. (If yes) Please leave your comments relating to Bournemouth here * (free text box)

15. Farnborough* (Yes/No)
16. (If yes) Please leave your comments relating to Farnborough here * (free text box)

17. Gatwick * (Yes/No)
18. (If yes) Please leave your comments relating to Gatwick here * (free text box)

19. Heathrow* (Yes/No)
20. (If yes) Please leave your comments relating to Heathrow here * (free text box)

21. London City * (Yes/No)
22. (If yes) Please leave your comments relating to London City here * (free text box)

23. Luton* (Yes/No)
24. (If yes) Please leave your comments relating to Luton here * (free text box)

25. Manston * (Yes/No)
26. (If yes) Please leave your comments relating to Manston here * (free text box)

27. Northolt* (Yes/No)
28. (If yes) Please leave your comments relating to Northolt here * (free text box)

29. Southampton * (Yes/No)
30. (If yes) Please leave your comments relating to Southampton here * (free text box)

31. Southend* (Yes/No)
32. (If yes) Please leave your comments relating to Southend here * (free text box)

33. Stansted* (Yes/No)
34. (If yes) Please leave your comments relating to Stansted here * (free text box)

Final Comments

35. Do you have any objection to DP2 (Economic, fuel burn) and DP3 (Environmental, CO2 emissions) increasing in priority from C to B? * (Yes/No)
36. (If yes) Please describe your objection * (free text box)

37. Is there any additional feedback you would like to give? * (Yes/No)

38. Please give any additional feedback here * (free text box)

5) Reminder email sent to all stakeholders requesting feedback

Airspace Engagement

From: Airspace Engagement [redacted]
Sent: 17 October 2022 10:25
To: [redacted]
Subject: Feedback reminder

Good morning,

This is a reminder about the NERL Stage 2 feedback phase.

We have reached the halfway point for obtaining stakeholder feedback.

- We would be grateful if you would complete the survey by 4pm, Friday 28th October
- If you feel you cannot meet this date, please let me know when your response will follow so that we know to expect it.
- There is a risk that responses received after Friday 28th October will be too late for consideration.

Here is a link to our feedback survey. Your feedback will contribute to the next stage of our options development process.

[redacted]

The feedback form can also be accessed via this QR code:

[redacted]

Best Wishes,

[redacted]

NATS

[redacted]
Airspace Engagement Manager

[redacted]

NATS Corporate & Technical Centre,
4000 Parkway,
Whiteley, Fareham,