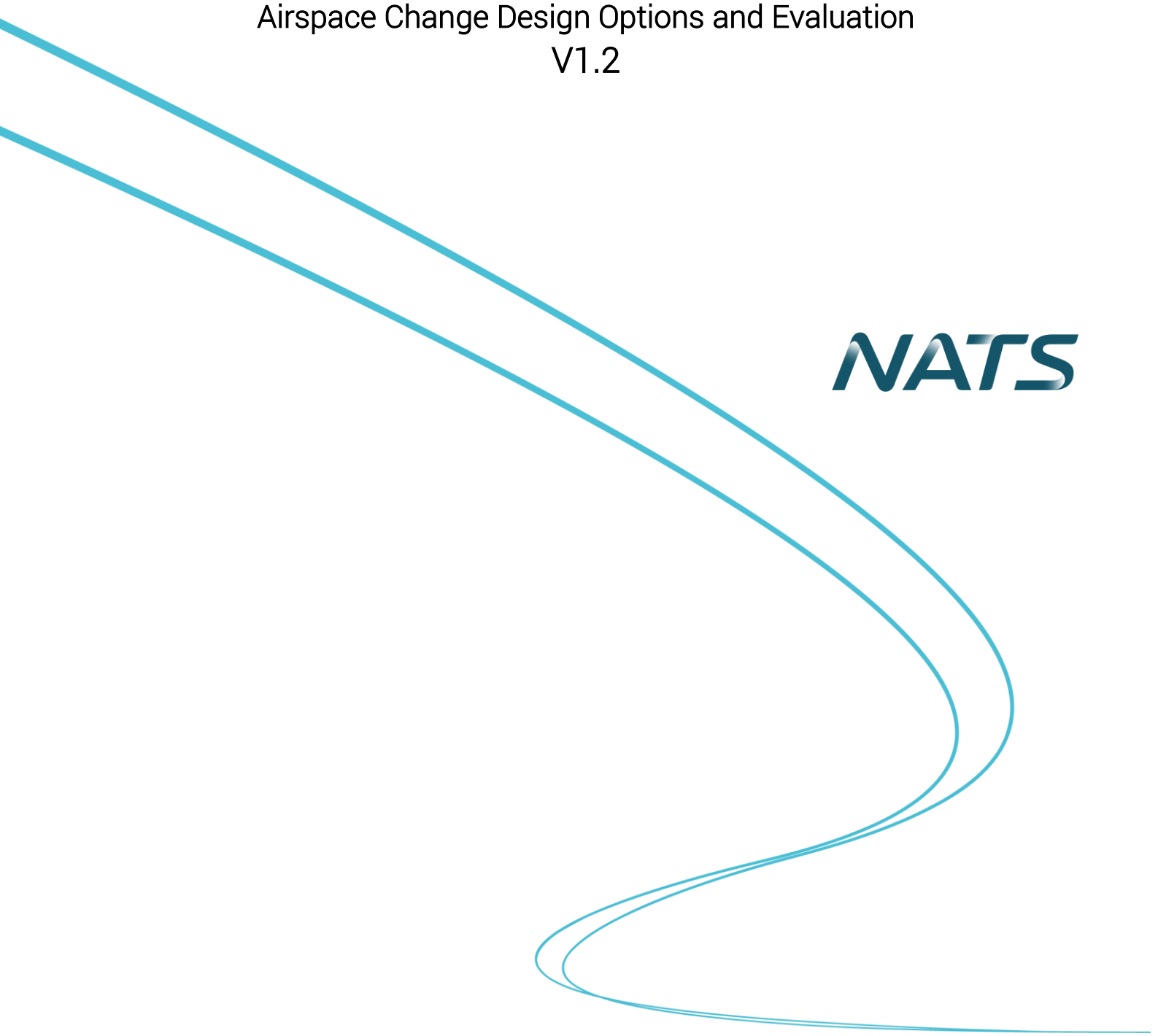
Realignment of Q36 and Q37 to accommodate Dublin Runway 2

Gateway documentation:
Stage 2 Develop and Assess

Step 2A document (i) (ii)
Airspace Change Design Options and Evaluation
V1.2



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Roles

Action	Role	Date
Produced	Airspace Change Specialist NATS Airspace and Future Operations	06/12/2019
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Drafting and Publication History

Issue	Month/Year	Changes this issue
1.0	December 2019	Published to the CAA online portal
1.1	December 2019	Included evidence of stakeholder engagement that has taken place with regards to design options Reference to the scaling level of the ACP has been refined Updates to the baseline (do nothing) Design Principle evaluation
1.2	December 2019	Updates made to Table 1 meeting attendee's

Contents

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1. Introduction

1.1 This document forms part of the document set required in accordance with the requirements of the CAP1616 airspace change process.

1.2 This document aims to provide adequate evidence to satisfy
Stage 2 Develop and Assess Gateway, Step 2A(i) Design Options and Step 2A(ii) Design Principles Evaluation. The CAA reference is ACP 2018-49.

2. Options development – brief history

2.1 In order to meet with the interface requirements for new SIDs proposed by the IAA from the new Dublin Runway 2 (EIDW 28R/10L) routes Q36 & Q37 will need to be realigned to new points on the FIR boundary (instead of LIFFY).

Introduced in November 2017 as part of the Prestwick Lower Airspace Systemisation (PLAS) Isle of Man ACP, the Irish Aviation Authority (IAA) requested that the existing Co-ordination Point (COP) LIFFY should be utilised prior to Dublin Runway 2 coming into operation in October 2021. Otherwise changes would have been required to existing Dublin SIDs and Dublin MOPs.

This document evaluates the design options considered against the design principles and presents the basis upon which decisions to proceed or reject options has been made. The design principles evaluation can be found in Section 7 below.

The design principles used to evaluate these options are as described in detail in the Design Principles document (Stage 1 Gateway Assessment).

3. Stakeholder Engagement

3.1 Engagement has been primarily with the following key stakeholders:

- NATS
- IAA
- Airlines (informed)
- MoD (no further stakeholder engagement, MoD concurs no operational impact as a result of this proposal)

As the development of the design options has progressed, further engagement has taken place with relevant stakeholders. Table 1 below gives a summary of the design option engagement that has been undertaken.

Date	Meeting	Attended by
04/12/2018	Dublin Airspace Meeting	NATS, MoD (DAATM), QinetiQ
03/10/2019	Telecon – IAA / NATS Regular Meeting	IAA, NATS
08/11/2019	Telecon – IAA / NATS Regular Meeting	IAA, NATS
13/11/2019	AFEP (Airline and Flight Efficiency Partnership) Meeting at Heathrow Hyatt Hotel	NATS, British Airways, BA City Flyer, Delta, Flybe, Jeppesen, Jet2, KLM, Lufthansa, Ryanair, SAS, United, UPS, Virgin
03/12/2019	Lead Operator Panel Meeting	NATS, Aer Lingus, British Airways, BA City Flyer, EasyJet, Flybe, Gama Aviation, Jet2, United, Virgin Atlantic
06/12/2019	Telecon – IAA / NATS Regular Meeting	IAA, NATS

Table 2: Summary of Stakeholder Engagement Activity

3.2 During the AFEP meeting on 13th November, NATS presented the Q36/Q37 ACP progress alongside other active ACP's to all airlines in attendance. There were no comments made regarding the design options for this proposal in question.

3.3 Regular correspondence has also taken place between NATS and the IAA (who are leading this proposal) regarding the proposed airspace changes to accommodate Dublin's second parallel runway. During this engagement, no further comments have been received or raised by either ANSP in regard to the proposed design options.

3.4 These design options have been presented to relevant stakeholders and no issues have been raised. This proposal occurs over the high seas, with minimal operational impact to stakeholders. The related changes being introduced by the IAA in the Irish FIR have been engaged by the IAA, with airlines and other stakeholders. As such in accordance with the proportionality of impacts the engagement with stakeholders has been scaled and limited to the meeting listed in Table 1 above.

4. Baseline (do nothing) description

The following pages describe the baseline (do nothing) scenarios

It should be noted that "Doing nothing" is useful as a balance for comparison, but due to the PCP mandate it is not considered as a viable option.

4.1 Current airspace diagram

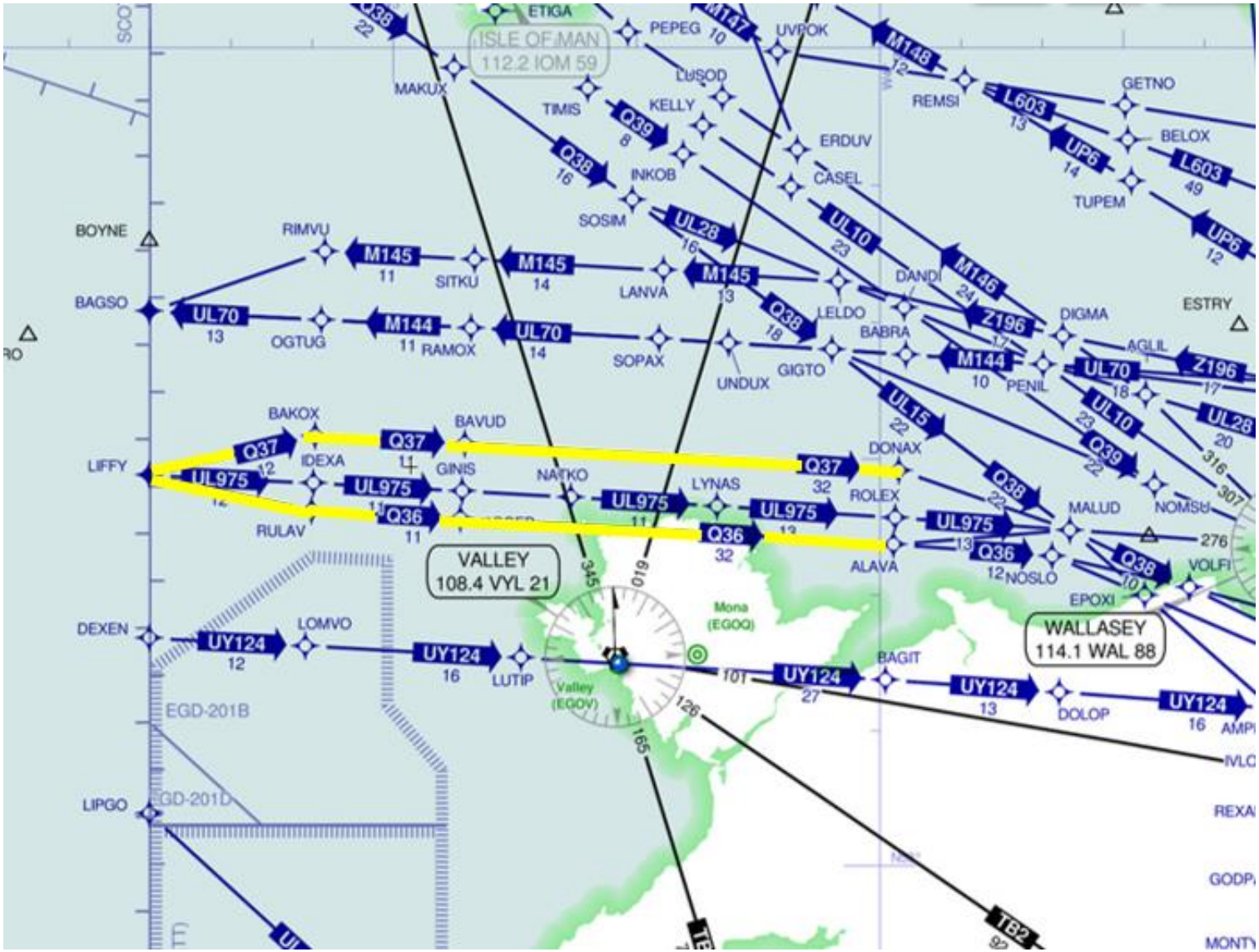

Figure 1: Current Q36 & Q37 Route structure

Figure 1 shows the current ATS routes Q36 and Q37, which are contained in UK airspace and end at Co-ordination Point (COP) LIFFY. Currently, departing aircraft from Dublin which are vectored toward COP LIFFY are then routed into UK airspace on ATS routes Q36, Q37 or UL975.

5. Concept Overview

Besides the baseline (do nothing) option, this document also discusses a single concept option (Option 1). A single design option has only been considered due to the minor changes that are being conducted within this proposal. As the changes to ATS routes are occurring over the high seas, the impact to stakeholders is also perceived to be very low.

It is expected that this proposal will be categorised as a Level 2C change, however this will be assigned by the CAA at the Stage 2 Gateway Assessment, as defined in CAP1616.

6. Option 1 Concept description – Realignment of ATS Routes Q36 and Q37

6.1 Option 1 design see's the addition of two new COPs BOFUM and FEXSI, (5LNC requested by IAA via ICARD) located to the north and south of LIFFY at the FIR boundary. The introduction of these COPs straightens Q36 & Q37 to the FIR boundary. The predicted benefits to this design option include:

- A seamless interface between ATS routes Q36, Q37 and new SIDs from Dublin
- A reduction in flight planned fuel uplift
- An increased predictability of SID allocation for Dublin
- Extension of the existing systemisation within IOM sector.

Figure 2 and Figure 3 illustrate Option 1 departure track routing from Dublin's extant and new runway.

6.2 As this change proposal has progressed, the two new COP points have since been defined to finalised 5LNCs (Five Letter Name Codes) of BOFUM and FEXSI. The new COP functions will replace LIFFY-BAKOX (Q37) with BOFUM-BAKOX and LIFFY-RULAV (Q36) with FEXSI-RULAV. These COP points were previously designated as ABBEY and GATEY as working names by IAA.

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6.3 Concept Option 1

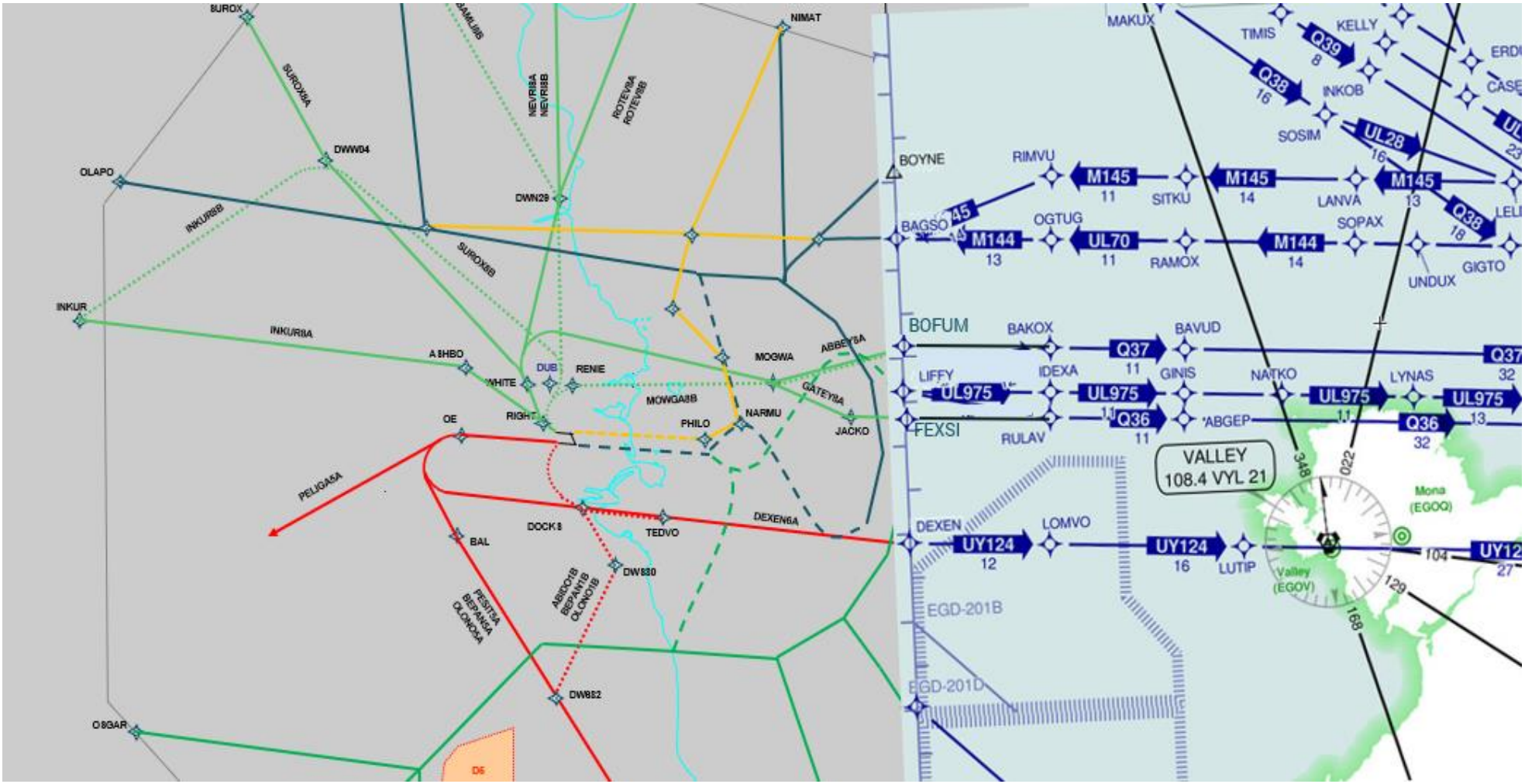

Figure 4: Airspace Design Concept Option 1 – Dublin simultaneous departures Runway 28R and Runway 28L.

Concept Option 1

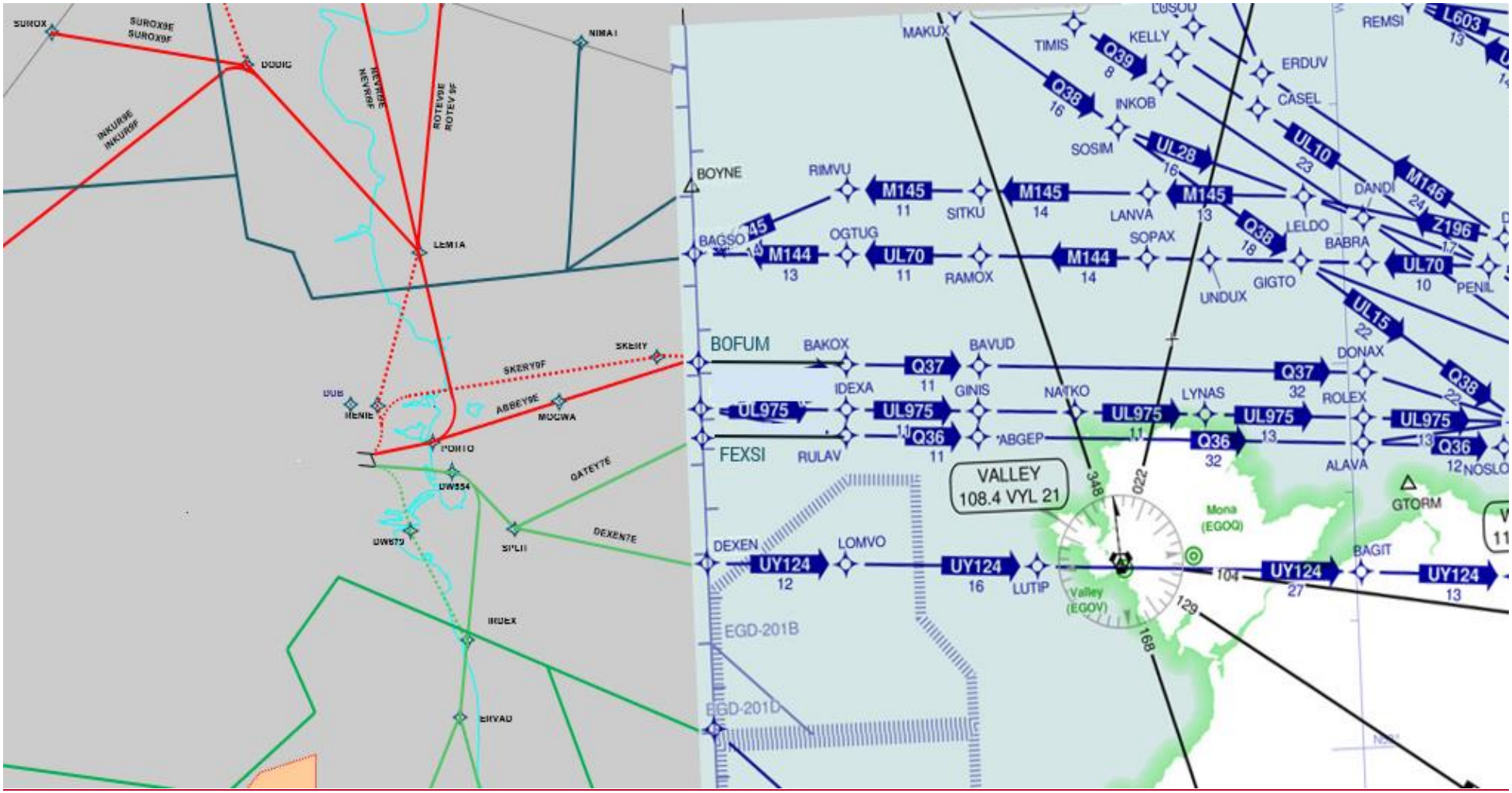

Figure 5: Airspace Design Concept Option 1 – Dublin simultaneous departures Runway 10R and Runway 10L.

7. Options Assessment: Design Principle Evaluation

This section evaluates each component against the Design Principles (DPs)

Table 1 below summarises the impacts/benefits of the design options evaluated. This table is based on the pro-forms CAP1616 Appendix E, page 166. The degree to which the design principle has been met is indicated by the following colour coding.

A green box means	'this design principle has been met by the specified option'
An orange box means	'this design principle has been partially met by the specified option', or 'there would be no significant change'
A red box means	'this design principle has not been met by the specified option'

7.1 Baseline (Do Nothing) – Option 0 Design Principle Evaluation

Option Name: Baseline (do nothing)	REJECT		
Description of option: Maintain the current route structure of ATS route Q36 and Q37. No change to existing airspace, routes or traffic flows.			
DP 0 Safety (Safety is always the number one priority) (A) Maintain or enhance current levels of safety			MET
Safety maintained but not enhanced. DP is MET, but there is no improvement from today's operation			
DP 1 Operational (Resilience) (B) The proposed airspace design will maintain or enhance operational resilience of the ATC network			MET
Resilience maintained but not enhanced. DP is MET but there is no improvement from today's operation			
DP 2 Operational (Capacity) (B) The proposed airspace will enhance benefits from additional systemisation	NOT MET		
No enhancement to airspace			
DP 3 Operational (Support of Dublin Runway 2) (B) The proposed amendments to the route structure will provide a compatible interface with Dublin second parallel runway project	NOT MET		
No amendments to route structure resulting in no compatibility with second parallel runway			
DP 4 Environmental (CO_2 emissions) (B) The proposed route amendments will facilitate the reduction of CO_2 emissions per flight	NOT MET		
No change from today's operation, therefore no reduction in CO_2 emissions per flight			
DP 5 Environmental (Impact to stakeholders on the ground) (C) Minimise environmental impacts to stakeholders on the ground			MET
No change from today's operation. DP is MET as this ACP is over the high seas			
DP 6 Technical (MoD Requirements) (B) The proposed route amendments will have minimal MoD operational impact			MET

No change from today's operation, MoD impact remains low			
DP 7 Technical (Minimise CAS) (B) The proposed changes are contained within the extant airspace (no additional airspace required)			MET
No change from today's operation			
DP 8 Technical (Use of PBN) (B) The airspace will enhance the use of PBN. The use of modern navigation standards will reduce controller and pilot workload		PARTIAL	
DP is PARITAL MET as routes are currently utilising PBN, but are not enhancing			
DP 9: Operational (Training) (B) The design minimises operational impact to airspace users (ATC/Airlines)			MET
No change from today's operation, therefore no operational impact to ATC/Airlines			

7.1.1 Option 0 Baseline (do nothing) Conclusion

While the baseline (do nothing) option does meet certain design principle conditions within the evaluation, there are however design principles where conditions are not met. Firstly, DP 2 Operational (Capacity) condition is not met as the proposed airspace would not benefit from enhanced systemisation if no amendments were made to the airspace. Secondly, DP 3 (Support of Dublin Runway 2) condition is not met as by doing nothing will restrict compatibility with Dublin's second parallel runway and will additionally hinder future operations with increased traffic. Finally, DP 4 Environmental (CO_2 emissions) condition is not met as with current operations, there will be no reduction in CO_2 emissions per flight.

On this basis, this option is rejected and is seen to be not to a viable option that supports the introduction of Dublin's second parallel runway.

7.2 Realignment of ATS Routes Q36 and Q37 – Option 1 Design Principle Evaluation

Option Name: Realignment of ATS Routes Q36 and Q37 (preferred)	ACCEPT		
***Description of option:* ATS Routes Q36 and Q37 will *be realigned at the FIR boundary*.**			
DP 0 Safety (Safety is always the number one priority) (A) Maintain or enhance current levels of safety			MET
Safety maintained			
DP 1 Operational (Resilience) (B) The proposed airspace design will maintain or enhance operational resilience of the ATC network			MET
Resilience maintained			
DP 2 Operational (Capacity) (B) The proposed airspace will enhance benefits from additional systemisation			MET
Amendments to route structure allows for greater capacity			
DP 3 Operational (Support of Dublin Runway 2) (B) The proposed amendments to the route structure will provide a compatible interface with Dublin second parallel runway project			MET
Realignment of route structure supports second parallel runway project			
DP 4 Environmental (CO_2 emissions) (B) The proposed route amendments will facilitate the reduction of CO_2 emissions per flight			MET
A reduction in CO_2 emissions per flight will be facilitated			
DP 5 Environmental (Impact to stakeholders on the ground) (C) Minimise environmental impacts to stakeholders on the ground			MET
This option affects traffic at or above 7,000ft. Minimal environmental impact to stakeholders on the ground. This ACP affects airspace over the Irish Sea.			
DP 6 Technical (MoD Requirements) (B) The proposed route amendments will have minimal MoD operational impact			MET
This option does not have any operational impact to the MoD			
DP 7 Technical (Minimise CAS) (B) The proposed changes are contained within the extant airspace (no additional airspace required)			MET
This option requires no additional airspace			
DP 8 Technical (Use of PBN) (B) The airspace will enhance the use of PBN. The use of modern navigation standards will reduce controller and pilot workload			MET
This routing will accommodate RNAV1 traffic as well as RNAV 5 traffic			
DP 9: Operational (Training) (B) The design minimises operational impact to airspace users (ATC/Airlines)			MET
New COP's relieve routing constraints and allow for an increased flow of departing Dublin traffic			

7.2.1 Option 1 Realignment of ATS Routes Q36 and Q37 Conclusion

With Option 1 design, departure routes shall be realigned at the FIR boundary to two new COPs named BOFUM to the north of LIFFY, and FEXSI to the south. These COPs shall replace LIFFY and will allow for additional RNAV1 traffic. This is the only design option proposed besides the baseline and is the preferred option to progress as following evaluation, all conditions against the design principles have been met.

8. Conclusion

8.1 NATS have comprehensively engaged with the IAA and MoD stakeholders regarding the realignment of ATS route Q36 and Q37 which has concluded in what is believed to be the appropriate number of design options proposed that best meets the design principles and their relative priorities. The reasoning behind only one design concept option being put forward (besides the baseline) is due to the minor changes associated to this ACP in addition to the low impact imposed to relevant stakeholders.

8.2 The IAA has taken the lead with this proposal and has engaged extensively with other aviation stakeholders with regard to the changes to the Dublin SIDs.

8.3 The shortlist therefore comprises of Option 0, the baseline (do nothing) option and Option 1, the realignment of both Q36 and Q37 ATS routes at the FIR boundary.

8.4 This document describes and evaluates the design options proposed following engagement with stakeholders, and we conclude that Option 1 is preferred. All of the relevant design principles have been evaluated as green, therefore fulfilling requirements and ultimately supporting the implementation of Dublin's second parallel runway.

8.5 These options will be formally appraised under Stage 2 Step 2B Options Appraisal, which includes a Safety Assessment.

End of document

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