DVOR Rationalisation
Removal of Enroute Dependencies
Brookmans Park (BPK) Deployment

DVOR BPK Holds and STARs
CAP1616 Stage 2 Gateway

V1.0

NATS Unclassified

Action	Position	Date
Produced	**Airspace Change Specialist** NATS Airspace & Future Operations	July 2020
Approved	**ATC Lead – Airspace** NATS Swanwick ATM Development	July 2020
Approved	**Project Manager L5382 DVOR** Operations and Airspace Programme Delivery	July 2020

Publication history

Issue	Month/Year	Change Requests in this issue
1.0	July 2020	Submitted to the CAA

Contents

1. Introduction

This document continues the CAP1616 process started with the Statement of Need (DAP1916) submitted in April 2020 (Ref 3). The intent of this document is to summarise and satisfy the requirements of CAP1616 Stage 2. The CAA reference is ACP-2020-005, the link to the CAA progress page is here.

This proposal is limited to removing the dependency of enroute instrument flight procedures in the UK AIP from the Brookmans Park (BPK) DVOR. Hence this proposal is focused on Standard Terminal Arrival Routes (STARs) and Holding procedures which refer to BPK as a conventional navaid in the enroute environment, where NATS is the primary Air Navigation Service Provider (ANSP). There are no changes to ATS routes as part of this proposal.

This proposal contains the relevant changes to remove the dependency on BPK from these STARs and Holds. Design Principles have been developed (Ref 4) which are focused on best removing the enroute DVOR dependencies whilst ensuring the changes are safe and do not result in changes to flight behaviour. This document will identify:

- option concepts for replacing current connectivity relevant to BPK with RNAV procedures;
- an evaluation of those option concepts against the Design Principles;
- a full list of the specific changes.

2. Stage 2 Develop and Assess

Step 2A Options Development

2.1 CAA's PBN STAR Replication Policy (V2) was published in Mar 2018 and was used as the basis for this proposal. It defines PBN STAR Replication as a PBN redesign of an existing conventional STAR from the commencement of the STAR in the ATS enroute network to the termination point with the intention of retaining the existing route and track over the ground (para 5.4). Para 5.5 of the same policy makes assumptions that replication ensures procedures follow the same path over the ground as the existing conventional procedure, as closely as possible. This means that there would be no change to pilot or controller behaviour (apart from technical designation changes), and no change to lateral traffic position.

2.2 Airspace change design options

The design options considered to remove the enroute dependencies from the BPK DVOR, were limited to the following:

Option 0 – Do nothing. Retain all the STARs and Holds unchanged from today's AIP definition.
Option 1 – Using the CAA policies, replicate all relevant STARs and Holds using RNAV, exactly as defined in the AIP without considering any practicalities.
Option 2 – Examine the use of existing STARS and Holds from a practical point of view, re-evaluate how they are used and how the network may be improved by rationalising/truncating/replicating them in a considered manner.
Option 3 – Remove all existing STARs and Holds that refer to or use the BPK DVOR.

On-going engagement throughout the DVOR project - with relevant airfields and ATC procedure teams at the London Area Control Centre at Swanwick - has determined that NATS would replicate conventional STARs and Holds as closely as possible using PBN design criteria (using the RNAV5 specification). As these procedures are replications of current conventional procedures and there is no requirement for ensuring separation from other ATS Routes/STARs, RNAV5 is the preferred specification in order to ensure greatest accessibility to routes, rather than limiting to those aircraft with RNAV1 equipage.

In support of the eventual removal of the BPK DVOR, this proposal will replicate 1 Hold (serving Luton/ Stansted) and 1 STAR (serving Stansted). A STAR (serving Luton/ Stansted) will be re-designated based on its starting waypoint; and converted to RNAV5 as it is currently a B-RNAV STAR. These replications will conform as closely as possible to the current conventional procedures, using RNAV5 design criteria.

This proposal will remove 3 STARs (2 serving Luton/ Stansted and 1 just Stansted) which are conventional procedures for when specific DVORs are out of service; and hence will no longer be required. 1 Luton/ Stansted Hold will also be removed which is currently used when the BPK DVOR is out of service.

A STAR serving Luton/ Stansted will be RNAV replicated but also extended back along existing ATS routes to three waypoints – RINIS, TOSVA and XAMAN – allowing important existing Descent Planning Levels to be incorporated in the new STARs. Alongside RNAV5 replication, the STARs will also be re-designated based on their starting waypoints, with the Identifier 'A' used to denote the Hold and Clearance Limit at ABBOT.

All of the above proposed changes are detailed fully in Annexes C-D.

Luton and Stansted Airports have been engaged with regarding this proposal and the changes to the relevant Hold and STARs (evidence of engagement with the airports is detailed in Annex E). The proposed changes are supported by the airports.

2.3 Stakeholder Engagement

As part of Stage 2, CAP1616 requires change sponsors to develop a comprehensive list of Design Options, which are tested with the same group of stakeholders who were engaged with during Stage 1. However, as covered in the Stage 1B Design Principles document (Ref 4), the Design Principles for this submission were constructed around how best to remove the enroute dependencies from the BPK DVOR, alongside ensuring the changes are safe and do not result in any changes to flight behaviour. NATS had previously took part in a (CAA-led) consultation with the National Air Traffic Management Advisory Committee (NATMAC) on DVOR rationalisation; prior to the introduction of CAP1616 and the requirement to seek feedback on Design Principles.

Alongside the Design Principles, the Design Options have been developed to provide different methods in which the en-route dependencies can be removed from a DVOR, whilst ensuring no changes to flight behaviours. The Design Options have been used consistently across the numerous DVOR submissions as they achieve the same outcome; although they are always reviewed to ensure relevance. We therefore conclude that there is no need to re-consult with the NATMAC members, nor any additional stakeholders, as there will not be any impact upon them.

However, as part of this Airspace Change Proposal and as per previous submissions, NATS has been in contact with relevant airfields which use the STARs and associated Holds we plan to RNAV, specifically Luton and Stansted Airports. The aerodrome sections of the AIP for the affected airfields will need to be updated which this engagement has allowed us to inform them of. The proposed changes have been designed to be invisible from an airport's perspective so there are no other impacts anticipated. Annex E provides a summary of the engagement activity for these procedures.

Previous DVOR removal proposals have proposed three Design Options: in summary, to do nothing; to replicate all procedures; and lastly, to examine all procedures and improve where appropriate (rationalise/ truncate/ replicate). These Design Options were accepted by the CAA. NATS was later requested to add an additional option to all future submissions, whereby all procedures with a dependency are removed; thus, removing the DVOR dependency. The CAA acknowledged that this Design Option would not meet the Design Principles however; it is included for completeness.

The Design Options have therefore been developed so they can be applied to each of the individual DVOR submissions and have evolved following guidance from the CAA. As mentioned above, appropriate engagement has previously been completed with NATMAC members and the relevant airports; and airports will be fully briefed when their AIP pages are required to be updated.

3. Step 2A Options Development: Design Principle Evaluation

This section evaluates the performance of all 4 Design Options with respect to each of the seven Design Principles. The Design Principles developed during Stage 1B (Ref 4) are included in Annex A for reference.

The below assessment criteria have been used to determine whether each Design Option has met; partially met; or not meet each of the seven Design Principles.

Design Principle	Description	Assessment Criteria		
		Does not meet	Partially meets	Met
DP0 Safety	Airspace change must maintain or enhance the current level of safety	Unlikely to pass a safety case due to major safety issues from proposed changes	Issues identified that would require a robust safety case e.g. workload, IFP (flyability), new hazards	No significant safety issues identified
DP1 Flight behaviour	None of the proposed technical changes to definitions of STARs/ Holds would result in a change to actual flight behaviours – laterally, vertically or in dispersal	Proposed change(s) would result in a change to flight behaviour	N/A – either met or not met	None of the proposed changes would result in a change to flight behaviour
DP2 Admin	Remove unnecessary references to the BPK DVOR which are not material to the procedure	Procedures are not individually evaluated for potential application of this DP; therefore, no admin changes are made	Procedures are individually evaluated for potential application of this DP, but no appropriate admin changes are made	Procedures are individually evaluated for potential application of this DP and appropriate admin changes are made
DP3 Withdraw	Some STARs are rarely used, some do the same job, some have segments in common with other STARs	Procedures are not individually evaluated for potential application of this DP; therefore, none are withdrawn	Procedures are individually evaluated for potential application of this DP, but no appropriate withdrawals are made	Procedures are individually evaluated for potential application of this DP and appropriate withdrawals are made, with justification provided
DP4 Replicate	PBN Replication – replace conventional STARs/ Holds with RNAV STARs/ Holds	Conventional procedures are not replicated with RNAV versions	N/A – either met or not met	Conventional procedures are replaced with RNAV versions
DP5 Truncate	Assess the impact of truncating specific STARs, by applying the CAA STAR truncation policy	Procedures are not individually evaluated for potential application of this DP; therefore, none are truncated	Procedures are individually evaluated for potential application of this DP, but no appropriate truncations are made	Procedures are individually evaluated for potential application of this DP, and appropriate truncations are made, with justification provided
DP6 Technical Amendment	Minor changes to a STAR which currently cannot be flown as it is formally defined, for legacy reasons – these changes always reflect what would actually happen in practical terms	Procedures are not individually evaluated for potential application of this DP; therefore, no technical changes are made	Procedures are individually evaluated for potential application of this DP, but no appropriate technical changes are made	Procedures are individually evaluated for potential application of this DP, and minor changes are made, with justification provided

3.1 Option 0 – Do nothing. Retain all the STARs and Holds unchanged from today's AIP definition.

See the submitted Stage 1 Assessment Meeting slide pack (Ref 1) for the detail on the procedures which reference the BPK DVOR on their charts and which would remain as is for this option. The table below presents an evaluation of this option against the seven Design Principles:

Option 0			REJECT
Description of option			
This is the current scenario. No change to existing AIP definitions of STARs or Holds.			
Design Principle 0: Maintain or enhance the current level of safety			MET
Summary of qualitative assessment No change from today; the level of safety is maintained.			
Design Principle 1: No change to flight behaviours			MET
Summary of qualitative assessment No change to lateral/vertical track patterns.			
Design Principle 2: Administrative change	NOT MET		
Summary of qualitative assessment Procedures are not individually evaluated for potential application of this DP; therefore, no administrative changes would take place under this Design Option. Does not remove any enroute flight dependency from the BPK DVOR.			
Design Principle 3: Withdraw unnecessary STARs	NOT MET		
Summary of qualitative assessment Procedures are not individually evaluated for potential application of this DP; therefore, no withdrawals would take place under this Design Option. Does not remove any enroute flight dependency from the BPK DVOR.			
Design Principle 4: Replicate using RNAV Replication policies	NOT MET		
Summary of qualitative assessment No RNAV replication would take place under this Design Option. Does not remove any enroute flight dependency from the BPK DVOR.			
Design Principle 5: Truncation of STAR(s)	NOT MET		
STARs are not individually evaluated for potential application of this DP; therefore, no STAR truncations would take place under this Design Option. Does not remove any enroute flight dependencies from the BPK DVOR.			
Design Principle 6: Technical amendment	NOT MET		
Summary of qualitative assessment Procedures are not individually evaluated for potential application of this DP; therefore, no technical amendments would take place under this Design Option. Does not remove any enroute flight dependencies from the BPK DVOR.			

3.2 Option 1 - Using the CAA policies, replicate STARs/ Holds using RNAV, exactly as defined in the AIP without considering any practicalities.

This option would replace all dependant procedures identified in the Assessment Meeting slide pack (Ref 1) as RNAV procedures. This table evaluates this option against the seven Design Principles:

Option 1			REJECT
Description of option			
All IFPs would be replicated exactly as defined in the current AIP. No account would be taken of actual usage, route segment duplication, or other factors.			
Design Principle 0: Maintain or enhance the current level of safety			MET
Summary of qualitative assessment IFPs replicated as RNAV5 procedures. The level of safety is maintained or slightly improved due to increased precision. No potential safety issues identified.			
Design Principle 1: No change to flight behaviours			MET
Summary of qualitative assessment No practical change to connectivity therefore, no change to lateral/vertical track patterns.			
Design Principle 2: Administrative change	NOT MET		
Summary of qualitative assessment Procedures are not individually evaluated for potential application of this DP; therefore, no administrative changes would take place under this Design Option; including changes which would logically improve the ATS route network.			
Design Principle 3: Withdraw unnecessary STARs			MET
Summary of qualitative assessment This Design Option would remove the need for contingency conventional-navigation STARs/ Holds based on other navaids; therefore, such IFPs could be withdrawn.			
Design Principle 4: Replicate using RNAV replication policies			MET
Summary of qualitative assessment This Design Option would purely replicate procedures like for like, including route segment duplications etc. Therefore, this Design Principle would be satisfied.			
Design Principle 5: Truncation of STAR(s)	NOT MET		
STARs are not individually evaluated for potential application of this DP; therefore, no STAR truncations would take place under this Design Option.			
Design Principle 6: Technical amendment	NOT MET		
Summary of qualitative assessment Procedures are not individually evaluated for potential application of this DP; therefore, no technical amendments would take place under this Design Option.			

3.3 Option 2 - Examine the use of existing STARS and Holds from a practical point of view, re-evaluate how they are used and how the network may be improved by rationalising/truncating/replicating them in a considered manner.

This option evaluates the usage of each procedure individually and creates opportunity bespoke to specific procedures. See Annexes C – D below for the detailed proposed change for each of the procedures under this option. This table evaluates this option against the seven Design Principles:

Option 2		ACCEPT and PROGRESS	
Description of option			
Examine the use of existing IFPs from a practical point of view, re-evaluate how they are used and how the network may be improved by rationalising/truncating/replicating them in a considered manner.			
Design Principle 0: Maintain or enhance the current level of safety			MET
Summary of qualitative assessment IFPs replicated as RNAV5 procedures. The level of safety is maintained or slightly improved due to increased precision. Procedures can be simplified depending on actual usage today. No potential safety issues identified.			
Design Principle 1: No change to flight behaviours			MET
Summary of qualitative assessment No practical change to connectivity, no change to lateral/vertical track patterns.			
Design Principle 2: Administrative change			MET
Summary of qualitative assessment Evaluate current IFPs and ATS routes and identify where this Design Principle applies. Rename STAR designations in line with the current ICAO policy. For example, this option will re-designate the Stansted ABBOT 1F STAR as BPK 1X; based on the starting waypoint BPK and the 'X' designator used to demonstrate an extraordinary STAR.			
Design Principle 3: Withdraw unnecessary STARs			MET
Summary of qualitative assessment Evaluate current IFPs and identify where this Design Principle applies. For example, the Luton/ Stansted ASKEY Hold - used when the BPK DVOR is out of service - can be withdrawn as the equivalent LOREL Hold has previously been RNAV replicated.			
Design Principle 4: Replicate using RNAV Replication policies			MET
Summary of qualitative assessment Evaluate current IFPs and identify where this Design Principle applies. For example, this allows the Luton/ Stansted BARMI 1A STAR to be RNAV5 replicated.			
Design Principle 5: Truncation of STAR(s)		PARTIAL	
Evaluate current STARs and identify where this Design Principle applies. The evaluation of relevant procedures concluded that there are no instances where a STAR truncation is appropriate therefore, this Design Principle is partially met.			
Design Principle 6: Technical amendment			MET
Summary of qualitative assessment Evaluate current IFPs and ATS routes and identify where this Design Principle applies. For example, this proposal amends the Luton/ Stansted IDESI 1A STAR to be extended back along existing ATS routes into three new STARs; thus, allowing important Descent Planning levels to be retained at existing waypoints.			

3.4 Option 3 – Remove all existing STARs and holds that refer to or use the BPK DVOR.

This option removes each STAR and Hold with a BPK dependency and replaces *BPK DVOR/DME* with *BPK DME*. This table evaluates this option against the seven Design Principles:

Option 3				REJECT
Description of option				
Remove all existing IFPs for which the BPK DVOR is materially important.				
Design Principle 0: Maintain or enhance the current level of safety	NOT MET			
Summary of qualitative assessment The removal of these procedures would create a gap in the network. This would require all aircraft currently using the existing IFPs to be channelled into other, potentially busy flows/ sectors, which could greatly increase controller workload in those areas. This could create significant safety issues from such substantial changes.				
Design Principle 1: No change to flight behaviours	NOT MET			
Summary of qualitative assessment Aircraft would not be able to use the current procedures, causing a significant change in flight behaviours to work around this.				
Design Principle 2: Administrative change	NOT MET			
Summary of qualitative assessment Procedures are not individually evaluated for potential application of this DP; therefore, no administrative changes would take place under this Design Option; including changes which would logically improve the ATS route network.				
Design Principle 3: Withdraw unnecessary STARs		PARTIAL		
Summary of qualitative assessment This Design Option would remove all STARs; both necessary and unnecessary.				
Design Principle 4: Replicate using RNAV Replication policies	NOT MET			
Summary of qualitative assessment Procedures are not individually evaluated for potential application of this DP; therefore, no replication would take place under this Design Option.				
Design Principle 5: Truncation of STAR(s)	NOT MET			
Procedures are not individually evaluated for potential application of this DP; therefore, no STAR truncations would take place under this Design Option.				
Design Principle 6: Technical amendment	NOT MET			
Summary of qualitative assessment Procedures are not individually evaluated for potential application of this DP; therefore, no technical amendments would take place under this Design Option.				

3.5 Summary – Options Development

Using the seven Design Principles, we have evaluated the four concept Design Options, as summarised above.

3.6 *Option 0: Do Nothing – Retain all the STARs and Holds unchanged from today's AIP definition.* This does not achieve the removal of dependencies from the BPK DVOR. **Rejected.**

3.7 *Option 1: Using the CAA policies, replicate STARs/ Holds using RNAV, exactly as defined in the AIP without considering any practicalities* – this achieves the removal of dependencies from the BPK DVOR. However, it does not improve network connectivity; it leaves route segment duplication in place and it does not account for current usage levels. **Rejected.**

3.8 *Option 2: Examine the use of existing STARS and Holds from a practical point of view, re-evaluate how they are used and how the network may be improved by rationalising/truncating/replicating them in a considered manner.* This achieves the removal of dependencies from the BPK DVOR; alongside improving the description of network procedures and reducing duplication. **Accepted and progressed.**

3.9 *Option 3: Remove all existing STAR and Holds that refer to or use the BPK DVOR.* This would technically remove the dependencies from the BPK DVOR; however, it removes STARs and Holds that are used and needed by aircraft today and going forward. **Rejected**

Conclusion: Design Option 2 concept best meets all of the Design Principles. The shortlist comprises the Option 2 concept only. The other three option concepts are therefore not progressed.

End of Step 2A

4. Step 2B Options Appraisal

4.1 The baseline (do nothing) option does not achieve the removal of dependencies from the BPK DVOR. The ratings for the baseline option against each of the Design Principles shows that whilst it maintains safety levels and creates no change to flight behaviours, it does not meet the remaining 5 Design Principles.

4.2 Following the Design Principle evaluation, we conclude that the following Design Option 2 could be used to remove the dependencies from the BPK DVOR in accordance with the Design Principles:

Examine the use of existing STARS and Holds from a practical point of view, re-evaluate how they are used and how the network may be improved by rationalising/truncating/replicating them in a considered manner.

2.15 There would be no change in fuel/ CO_2/ greenhouse gas emissions due to this proposal because there would be no change to lateral or vertical tracks. Fuel uplift changes are unlikely to occur. There are no costs or benefits which could be reasonably monetised due to this enroute proposal.

4.16 Safety Assessment: The Option 2 concept would take full account of existing usage and connectivity needs. It would ensure all IFPs are designed by an APD, as regulated by CAA SARG. There would be a qualitative improvement in safety because each remaining IFP would use improved navigation specifications and be defined in an official manner. Today's conventional IFPs are known to be flown using FMS overlays, which are not state regulated in the same way.

5. BPK Option 2 Cost/ Benefit Analysis

The CAP1616 Appendix E cost/ benefit analysis is given below.

Group	Impact	Level of Analysis	Evidence
Communities	Noise impact on health and quality of life	N/A	As there are no proposed changes to lateral or vertical tracks there will be no impact on noise or quality of life.
Communities	Air quality	N/A	No changes below 1,000ft
Wider society	Greenhouse gas impact	Monetise and quantify	No proposed changes to lateral or vertical tracks so no impact
Wider society	Capacity/ resilience	Qualitative	No changes
General Aviation	Access	N/A	No changes
General Aviation/ commercial airlines	Economic impact from increased effective capacity	Quantify	No changes
General Aviation/ commercial airlines	Fuel burn	Monetise	No proposed changes to lateral or vertical tracks so no impact.
Commercial airlines	Training cost	N/A	N/A – there is not expected to be any airline training or associated cost.
Commercial airlines	Other costs	N/A	Updates to FMS and flight planning systems will be completed via the routine AIRAC updates. There are no other known costs which would be imposed on commercial aviation.
Airport/ Air navigation service provider	Infrastructure costs/benefit	Qualitative and quantitative	The cost of implementation of the change, adaptation of systems is estimated to be £65,000. Removal of the en-route dependency enables decommissioning of the DVOR (once airfields have removed their dependencies i.e. SIDs). This will yield an annual cost saving of circa £10,000 per DVOR (BPK).
Airport/ Air navigation service provider	Operational costs	N/A	N/A – this proposal would not lead to changes in operational costs.
Airport/ Air navigation service provider	Deployment costs	Qualitative and quantitative	N/A – this change would be introduced via briefings and bulletins for staff, with no additional training or simulation training/costs required.

5.1 Conclusion: There would be a positive impact on safety whilst also improving the overall network connectivity.

End of Step 2B

6. Summary

6.1 This document details the STARs and Hold where the BPK DVOR is material to the instrument flight procedure. It describes the current connectivity; the method used to progress the change; and the proposed connectivity.

6.2 This proposal will RNAV replicate a number of procedures which will confirm as closely as possible to the current conventional procedures, using RNAV5 design criteria.

6.3 Some minor administrative changes to STARs and a Hold are included, in order to improve the consistency of charts within the AIP and to follow CAA/ ICAO guidance on the naming of STARs.

6.4 This submission also includes a technical amendment which will extend a STAR back along existing ATS routes to three waypoints – RINIS, TOSVA and XAMAN – allowing important Descent Planning level restrictions to be incorporated.

6.5 The proposed connectivity remains entirely unchanged due to RNAV5 replication, with or without ATS route extensions:

- routes are unchanged
- connectivity is unchanged
- hence flight behaviours and traffic patterns over the ground are unchanged.

6.6 Annexes C-D below detail the IFP changes we are proposing to make in support of removing the BPK DVOR enroute dependencies and rationalisation of the network, as summarised in Table 1 below:

Ref	Airport	Type	Procedure	BPK DVOR	Proposed Changes
1	Luton/ Stansted	Hold	ASKEY	Dependent on BPK	Withdrawn
2	Luton/ Stansted	STAR	BARMI 1A	Not dependent	RNAV5 replication and re-designated as BARMI 2A
3	Luton/ Stansted	STAR	IDESI 1A	Not dependent	RNAV5 replication; extension back to three waypoints creating three RNAV STARs; and retain important Descent Planning levels at the starting waypoints.
4	Luton/ Stansted	Hold	LAPRA	Dependent on BPK	RNAV5 replication
5	Luton/ Stansted	STAR	BARMI 1Q	Dependent on BPK	Withdrawn
6	Luton/ Stansted	STAR	IDESI 1Q	Dependent on BPK	Withdrawn
7	Stansted	STAR	ABBOT 1F	Dependent on BPK	RNAV5 replication and re-designated as BPK 1X
8	Stansted	STAR	CASEY 1F	Dependent on BPK	Withdrawn

Table 1: Summary of proposed changes

7. Conclusion

7.1 We have assessed that there are no foreseen adverse impacts of making the proposed changes described in the tables below (Annexes B - C) and conclude that making these technical changes to the procedures would not alter traffic patterns.

8. Annex A: Design Principles

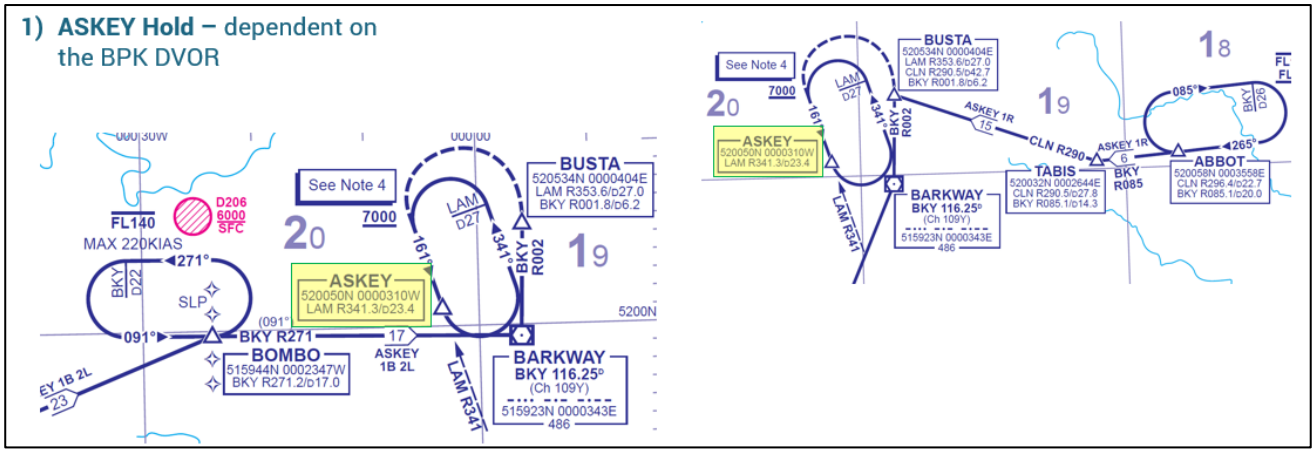
Design Principle	Description
DP0 Safety	Airspace change must maintain or enhance the current level of safety
DP1 No change to flight behaviour	None of the proposed technical changes to definitions of STARs/ Holds would result in a change to actual flight behaviours – laterally, vertically or in dispersal
DP2 Admin	Remove unnecessary references to the BPK DVOR which are not material to the procedure
DP3 Withdraw	Some STARs are rarely used, some do the same job, some have segments in common with other STARs
DP4 Replicate	PBN Replication – replace conventional STARs/Holds with RNAV STARs/Holds
DP5 Truncate	Assess the impact of truncating specific STARs. Several STARs have common "heads" and/ or route segments in common with ATS routes – unnecessary duplication.
DP6 Technical amendment	Minor changes to a STAR which currently cannot be flown as it is formally defined, for legacy reasons – these changes always reflect what would actually happen in practical terms.

9. Annex B: Design Option 2: Procedure Detail

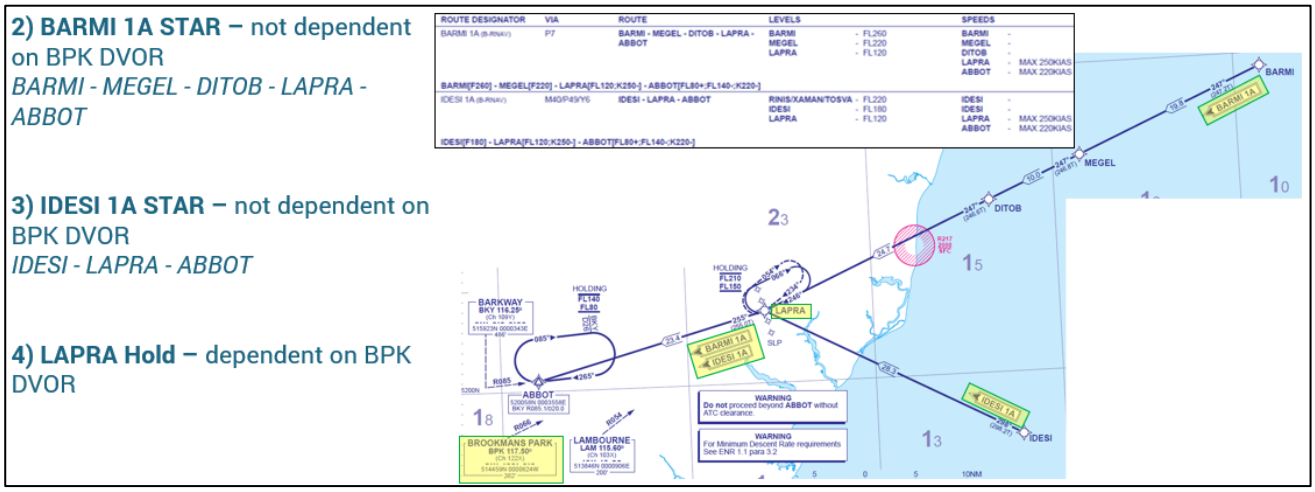
This section demonstrates the proposed changes for Design Option 2. The below screenshots show the current procedures and have been taken from the Assessment Meeting Slides [Ref 1].

Option 2: *Examine the use of existing STARS and holds from a practical point of view, re-evaluate how they are used and how the network may be improved by rationalising/truncating/replicating them in a considered manner.*

Luton/ Stansted ASKEY Hold



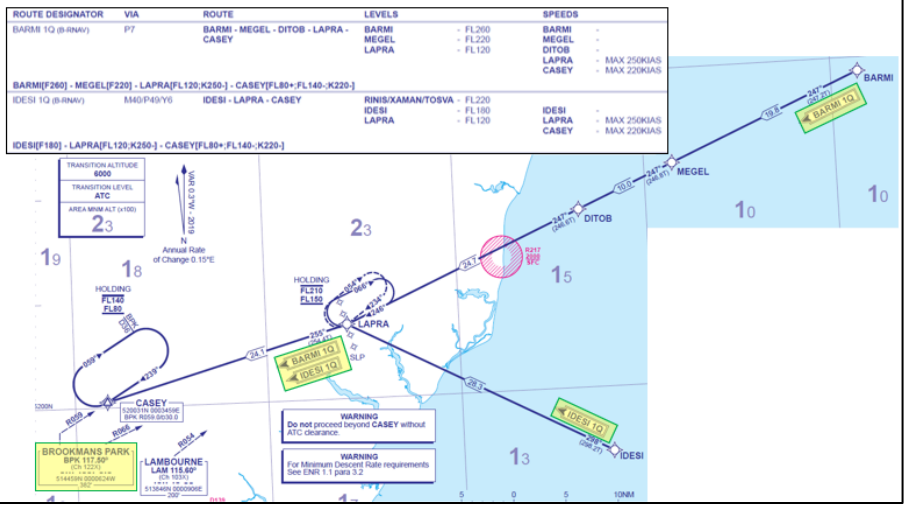
Luton/ Stansted BARMI 1A/ IDESI 1A STARs and LAPRA Hold



Luton/ Stansted BARMI 1Q/ IDESI 1Q STARs

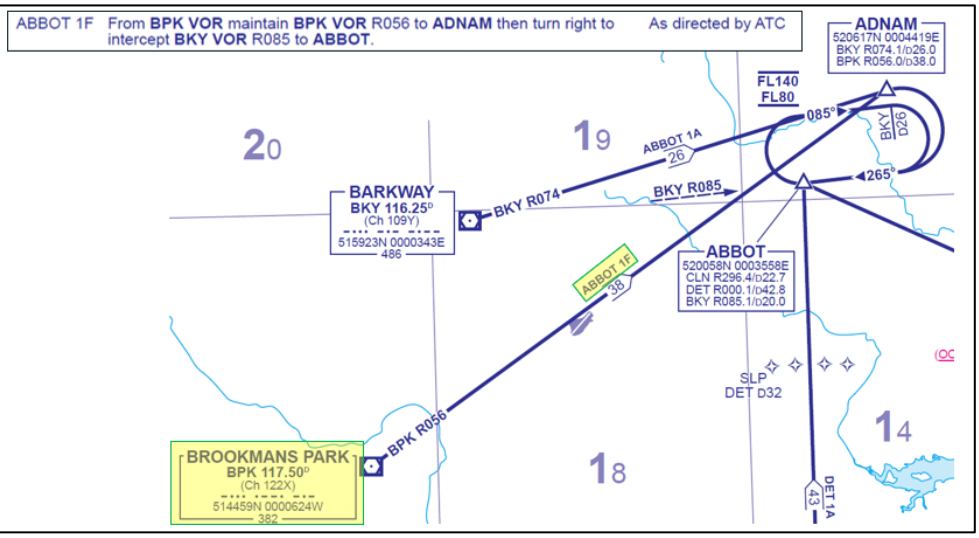
5) BARMI 1Q STAR – dependent on BPK
BARMI - MEGEL - DITOB - LAPRA - CASEY

6) IDESI 1Q STAR - dependent non BPK
IDESI - LAPRA - CASEY



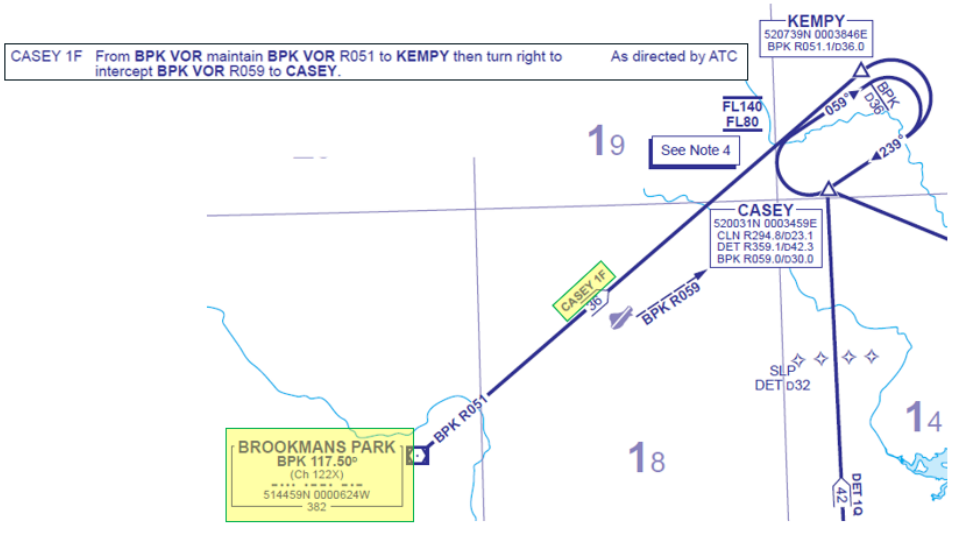
Stansted – ABBOT 1F STAR

7) ABBOT 1F STAR – dependent on BPK DVOR
BPK - ADNAM - ABBOT



Stansted – CASEY 1F STAR

8) CASEY 1F STAR – dependent on BPK DVOR
BPK - KEMPY - CASEY



10. Annex C: Impact Assessment – Luton/ Stansted STARs

For charts and technical notes, see the Assessment Meeting slide pack [(Ref 1)] for the current IFPs.

Current IFP	Current route connectivity/ STAR	Design Principle	How	Proposed route Connectivity/ STAR	Impact of proposed change on connectivity and flight behaviour
ASKEY Hold	N/A	3 Withdraw	Not required	Not required	The ASKEY Hold is used when the BPK DVOR is out of service and the LOREL Hold cannot be used; however, the LOREL Hold has previously been RNAV replicated and therefore this is not required. The LOREL STARs are being replicated or removed under the separate BKY DVOR ACP (link to the portal page).
BARMI 1A STAR	*BARMI - MEGEL - DITOB - LAPRA - ABBOT*	2 Admin 4 Replicate	Re-designation	*BARMI - MEGEL - DITOB - LAPRA - ABBOT* Re-designated as **BARMI 2A**	This is an existing B-RNAV which will be RNAV5 replicated; created using RNAV design criteria to align as closely as possible with the current STAR (waypoints are unchanged). STAR to be designated based on its starting waypoint BARMI; and up issued to "2A" ('A' designator used to denote the ABBOT Hold).
IDESI 1A STAR	*IDESI - LAPRA - ABBOT*	2 Admin 4 Replicate 6 Technical amendment	RNAV5 replication and re-designation	M40: *RINIS - IDESI - LAPRA - ABBOT* Re-designated as **RINIS 1A** Y6: *TOSVA - IDESI - LAPRA - ABBOT* Re-designated as **TOSVA 1A**	IDESI 1A is an existing B-RNAV STAR. It contains 3 important Descent Planning levels, dependent on the arrival route used. The existing STAR will be extended back along existing ATS routes to RINIS, TOSVA and XAMAN. This will provide flight plannable options and retain the important FL220 Descent Planning levels at these waypoints.

Current IFP	Current route connectivity/ STAR	Design Principle	How	Proposed route Connectivity/ STAR	Impact of proposed change on connectivity and flight behaviour
				P49: *XAMAN - IDESI - LAPRA - ABBOT* Re-designated as **XAMAN 1A**	The STARs will be created using RNAV design criteria to align as closely as possible with the existing B-RNAV STAR. The routeing of the three STARs are unchanged from the existing B-RNAV procedure with the exception of extending the first legs back to RINIS, TOSVA and XAMAN. The STARs will be re-designated based on their starting waypoints; and the 'A' designator used to denote the ABBOT Hold. The associated Hold (ABBOT) is being RNAV5 replicated as part of the separate MAY DVOR ACP (link to the portal page).
LAPRA Hold	N/A	4 Replicate	RNAV5 replication	Not required	This Hold will be RNAV replicated, to match as closely as possible with the currently published conventional Hold.
BARMI 1Q STAR	*BARMI - MEGEL - DITOB - LAPRA - CASEY*	3 Withdraw	Not required	Not required	This STAR is currently used when the Barkway (BKY) DVOR is out of service and is dependent on the BPK DVOR. The enroute dependencies are being removed from the BKY DVOR under a separate DVOR ACP (link to the portal page).
IDESI 1Q STAR	*IDESI - LAPRA - CASEY*	3 Withdraw	Not required	Not required	This STAR is currently used when the Barkway (BKY) DVOR is out of service and is dependent on the BPK DVOR. The enroute dependencies are being removed from the BKY DVOR under a separate DVOR ACP (link to the portal page).

11. Annex D: Impact Assessment – Stansted STARs

For charts and technical notes, see the Assessment Meeting slide pack (Ref 1) for the current IFPs.

Current IFP	Current route connectivity/STAR	Design Principle	How	Proposed route Connectivity/ STAR	Impact of proposed change on connectivity and flight behaviour
ABBOT 1F STAR	*BPK - ADNAM - ABBOT*	2 Admin 4 Replicate	RNAV5 replication and re-designation	*BPK - ADNAM - ABBOT* Re-designate as **BPK 1X**	STAR to be RNAV5 replicated and created using RNAV design criteria to align as closely as possible with the existing conventional STAR (waypoints are unchanged). It will be re-designated based on its starting waypoint BPK; and the 'X' designator used to demonstrate an extraordinary STAR (alongside 'Q, Y, Z') i.e. stack-swap or contingency STARs.
CASEY 1F STAR	*BPK - KEMPY - CASEY*	3 Withdraw	Not required	Not required	This STAR is currently used when the Barkway (BKY) DVOR is out of service and is dependent on the BPK DVOR. The enroute dependencies are being removed from the BKY DVOR under a separate DVOR ACP (link to the portal page). The other STARs which feature on this chart – DET 1Q and LOGAN 1Q – are being withdrawn as part of the DET/ LAM ACP (link to the portal page).

11. Annex E: List of references

Reference	Name	Hyperlink
1	*BPK DVOR CAP1616 Stage 1 Assessment Meeting Slide pack*	Link
2	*BPK DVOR Assessment Meeting minutes (redacted)*	Link
3	*BPK DVOR Statement of Need*	Link
4	*BPK DVOR Stage 1B Design Principles*	Link
5	*BPK DVOR Removal Engagement Evidence (redacted)*	Link

12. Annex F: Engagement Evidence

This section summarises the engagement activities in support of this ACP.

Stakeholder	Type of engagement	Date	Notes
Luton Airport	Email	07/07/2020	Email outlining proposed changes to STARs as part of the DVOR Rationalisation programme; seeking approval
Stansted Airport	Email	07/07/2020	Email outlining proposed changes to STARs as part of the DVOR Rationalisation programme; seeking approval

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