

## FARNBOROUGH AIRPORT FASI-S AIRSPACE CHANGE PROPOSAL

## ACP-2022-038



Stage 2

# **Stage 2B Submission Document – Initial Options Appraisal**

VERSION 2.0

Version	Date	
1.0	July 2024	Original
2.0	November 2024	Updated following Stage 2 Gateway CAA feedback



# Change Record Following Stage 2 Gateway CAA Feedback

Reference	CAA Feedback	Sponsor Response	Update location
CAP1616 V4 Para E19	The change sponsor must clarify why they used N60 contours to discount Options 3A/B, 4A/B (component RWY 06 departure which turns over Aldershot) considering there are no night flights	Additional text added for clarification.	Paragraphs 5.1.14 - 5.1.16 and Paragraph 5.1.21
CAP2091 Para 4.10	The change sponsor as part of the planning application used a methodology that exceeds the Category D requirements. Therefore, the CAA expects the same methodology to apply in the noise modelling of this ACP (CAP2091 para 4.10). As a result, the change sponsor must amend the noise modelling category as per CAP 2091, from D to B; noise modelling must have the same level of detail the change sponsor used in their planning application.	Additional text for clarification	IOA Methodology, Page 26
CAP1616 V4 Para E12	The change sponsor must expand on the list included in para 5.2 - Information to collect as part of the Full Options Appraisal of their submission to include all Stage 3 requirements (CAP 1616v4 para E12). Besides the information mentioned in the submission the change sponsor must also consider providing information on the sources of data, methodology and metrics they will use for the Stage 3 environmental assessments (noise, local air quality, greenhouse gas emissions, tranquillity, biodiversity) and HRA screening with any further assessments if required.	Additional text added for clarification.	Paragraph 5.2



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Appendix A – Technical Appendix to support IOA



# 1. INTRODUCTION

## 1.1 The UK's Airspace Modernisation Strategy

- 1.1.1 In 2017 the Secretary of State tasked the Civil Aviation Authority (CAA) with preparing and maintaining a coordinated strategy and plan for the use of UK airspace up to 2040.
- 1.1.2 The first Airspace Modernisation Strategy (AMS) was published in 2018 and set out the 'ends, ways, and means', of modernising airspace through a series of 'delivery elements' that will modernise the design, technology, and operations of the airspace.
- 1.1.3 The AMS was updated in 2023 and is split into 3 parts, published separately. Part 1 (<u>Strategic objectives and enablers</u>) explains the strategy's objectives, a high-level overview of what will enable those objectives to be fulfilled, and governance for overseeing delivery. Part 2 (<u>Delivery elements</u>) and Part 3 (<u>Deployment</u>) describe the short-term ambition and explain how the strategy is being delivered.
- 1.1.4 The AMS vision is to deliver quicker, quieter, and cleaner journeys and more capacity for the benefit of those who use and are affected by UK airspace. The AMS does not propose specific airspace changes, but a key deliverable is a masterplan of airspace changes that will be necessary for modernisation.

## 1.2 Airspace Change Organising Group & the Masterplan

- 1.2.1 Following the publication of the AMS, the aviation industry is working together to deliver airspace modernisation through a coordinated programme. More than 20 UK airports and NATS are involved in the delivery of this national programme of airspace change, which is being coordinated by the <u>Airspace Change Organising Group</u> (ACOG).
- 1.2.2 Airports are responsible for designing the arrival and departure roues that support their operations from the ground to approximately 7000ft. They also take responsibility for the way the airspace is used and developed in this lower portion of airspace.
- 1.2.3 NATS is responsible for re-designing the airspace above 7000ft. They take responsibility for the route network, and for the way the airspace is used and developed above 7000ft.
- 1.2.4 ACOG are responsible for developing the Masterplan, a single coordinated implementation plan for airspace changes in the UK up to 2040. The Masterplan is being produced by ACOG in stages, with more detail added with each iteration. Across all iterations, the masterplan will:
  - Identify where and when airspace change proposals are needed, with proposed timelines for implementation,
  - Describe how these proposals relate to each other, and highlight potential conflicts between their designs,
  - Explain how trade-off decisions to resolve these conflicts have been made,
  - Demonstrate the anticipated cumulative impact of all the airspace change proposals.



- 1.2.5 Iteration 1 was published in 2020 and Iteration 2<sup>1</sup> was published in January 2022, with an Addendum in October 2022, which advised that Farnborough Airport had joined the programme and would be integrated into all future iterations of the Masterplan.
- 1.2.6 From Iteration 3 onwards the Masterplan is being developed separately for each region. This will allow designs brough forward by each cluster, once approved, to be deployed and the benefits realised, without witing for all the ACPs to complete the airspace change process.
- 1.2.7 Farnborough Airport is now part of the LTMA (London Terminal Manoeuvring Area) cluster which includes, Heathrow, Gatwick, Southampton, London City, Biggin Hill, Bournemouth, Luton, Stansted, RAF Northolt, Southend, and Manston.

### Farnborough Airport's Potential Interdependencies

- 1.2.8 Following the inclusion of Farnborough Airport into the Masterplan in October 2022, ACOG published an addendum, CAP2312A<sup>2</sup> identifying the potential interdependencies between Farnborough Airport and other airports in the LTMA cluster.
- 1.2.9 The analysis undertaken by ACOG in the LTMA airspace below 7000ft identifies potential interdependencies with 6 other airspace change proposals, Heathrow, Gatwick, London City, Southampton, RAF Northolt and Biggin Hill. In addition, Farnborough Airport will need to ensure ongoing co-ordination with the NATS NERL ACP regarding the airspace above 7000ft.
- 1.2.10 Since publication of Masterplan Iteration 2, Farnborough has had visibility of adjacent sponsors' options. Following our Design Principle Evaluation and this Initial Options Appraisal, we have identified that it is very unlikely that there will be any interdependencies between Farnborough and London City or RAF Northolt below 7000ft.

## 1.3 The Airspace Change Process

- 1.3.1 In December 2017, the CAA reformed the airspace change process and introduced <u>CAP1616</u>, guidance on the regulatory process for changing notified airspace design and planned and permanent redistribution of air traffic.
- 1.3.2 CAP1616 lays out the regulatory process for changing flight paths, including the community engagement requirements. Proposals for changes to flight paths are submitted to, assessed, and approved by the CAA following the guidance set out in CAP1616.
- 1.3.3 There are seven-stages which provide a framework for changing airspace and CAP1616 places significant importance on engaging a wide range of stakeholders, including potentially affected communities.
- 1.3.4 In early 2023 the CAA conducted a consultation on proposed changes to the CAP1616 process and in October 2023 published Edition 5 of the document. Following discussion with the CAA it was agreed that as Stage 2 work had already commenced, Farnborough Airport would continue Stage 2 in accordance with Edition 4 (March 2021) of CAP1616.

<sup>&</sup>lt;sup>1</sup> ACOG Masterplan <u>Iteration 2</u>

<sup>&</sup>lt;sup>2</sup> CAP2312A Addendum





Figure 1: CAP1616 (Edition 4) 7-Stages

## 1.4 Airspace Modernisation at Farnborough Airport

1.4.1 Table 1 summarises the CAP1616 stages already undertaken for this ACP, providing links to submission documents for those previous stages. All information submitted to the CAA for this ACP is available on the <u>CAA's Airspace Change Portal.</u>



Airspace Change Stage	Summary	Link to Documents
	In June 2022, Farnborough Airport submitted a Statement of Need (SoN) to the CAA.	Statement of Need
Stage 1 Step 1A	In November 2022, Farnborough Airport had an assessment meeting with the CAA, as part of Step 1A of the CAP1616 process. The purpose of the assessment meeting is for the change sponsor to present and discuss its SoN and to enable to the CAA to consider whether the proposal falls within the scope of the formal airspace change process.	Assessment Meeting Presentation Assessment Meeting <u>Minutes</u>
Stage 1 Step 1B	At Step 1B, Farnborough Airport carried out engagement with stakeholder representatives to develop a set of Design Principles for this airspace change. The aim of the Design Principles is to provide the objectives that the change sponsor seeks to achieve through the airspace change and help the airspace change designers to create and compare different flight paths and design options. The CAA carried out the regulatory assessment to ensure that the Stage 1 requirements were followed, and Farnborough Airport passed the Stage 1 Gateway in June 2023.	<u>Design Principle</u> Submission Document
Stage 2 Step 2A	<ul> <li>At Step 2A, Farnborough Airport developed options for the airspace change proposal, and evaluated how those options responded to the Design Principles created in Stage 1.</li> <li>These options were shared with the stakeholder representatives who were previously engaged with at Stage 1. Feedback from this engagement was then used to generate further information on existing options to aid engagement.</li> <li>The final part of Step 2A was to qualitatively, and where possible, quantitively assess the options against the Design Principles to produce a Design Principle Evaluation.</li> </ul>	<u>Step 2A Submission</u> Document
Step 2B	We are now at Stage 2B 'Options appraisal'. At Stage 2B an Airspace Change Sponsor is required to undertake an Initial Options Appraisal (IOA) which is the first of three phases of options appraisal as part of CAP1616. The following sections of the document initially describe the options under assessment and the baseline option, followed by explaining the	This document



methodology used to assess each option, and then the IOA outcome. At the end of the document we explain, based on the IOA, the options or parts of options which we intend to	
preferred option(s). Alongside this IOA document there is a	
Technical (Appendix A) which provides further details of the noise and CO2 appraisals, including poise contours, poise data, and track	
length assessments. This can be found on the CAA's Airspace Change Portal.	

Table 1: Summary of CAP1616 work to date



# 2. OVERVIEW OF OPTIONS UNDER ASSESSMENT

- 2.1.1 Our Stage 2A comprehensive list of options included 8 options and a 'do nothing' scenario. As part of Stage 2A, we undertook a Design Principle Evaluation where we evaluated each option against each Design Principle. The outcome of our Stage 2A Design Principle Evaluation was that all options were carried forward. Further details of this can be found in our Stage 2A submission document on the CAA's Airspace Change Portal.
- 2.1.2 The following section summarises the airspace change options we have taken through to this IOA. More information about how we have developed these options is available in our <u>Stage 2A submission document on the CAA's Airspace Change Portal</u>. The Initial Options Appraisal section of this document and the technical Appendix A (published on the CAA's Airspace Change Portal) also contains larger images and a more details of each option.

### **Options for the Initial Options Appraisal**

- 2.1.3 The options (Options 2 5) each build in the amount of change, compared to Do nothing (Option 1). i.e. Option 2 is quite similar to Option 1 whereas Option 5 is the most different from Option 1. This was done purposefully because the amount of change that Farnborough can deliver is wholly dependent on the changes to the wider airspace system surrounding it. Therefore, in the event that Heathrow and Gatwick's routes did not change enough to the extent to derive significant improvements to Farnborough's published route structure, there are still some more subtle options that could deliver benefit requiring less, but still some, change in the vicinity.
- 2.1.4 Importantly, Option 2 would still enable Farnborough to remove its reliance on RNAV Substitution<sup>3</sup> for the Initial Approach, even in the event that significant change in the surrounding LTMA was not realised.
- 2.1.5 Each option was split into 2 sub-options (A and B), to better articulate the subtleties being explored. There were still 4 core Do Something options, but each option could have a slightly different final approach joining point and/or earlier turn for the Runway 06 departures.

<sup>&</sup>lt;sup>3</sup> NATS En-Route Limited (NERL) are currently undertaking a rationalisation programme for ground-based DVOR infrastructure. As part of this, the Ockham (OCK) DVOR was withdrawn from service earlier this year. Farnborough's Initial Approach Procedures were dependent on this DVOR although those procedures are flown extremely rarely, only in cases of communication failure between pilots and ATC. These procedures are able to use RNAV Substitution<sup>3</sup> which is an interim measure due to planned decommissioning of a ground-based navigation aid which supports conventional procedures or segments, pending the introduction of new PBN procedures. This ACP is the mechanism for introducing PBN IAPs which connect the end of the STARs to the Instrument Approach Procedure (i.e. the ILS and/or RNP APCH).



Option	Image	Description
Option 1 Do Nothing	RWY 24 & OG Combined Siough Reading Bracknell Windsor Bracknell Windsor Camberley Woking Basingstoke Parnbarough Aldershos Farnbarough Caldershos Farnbarough Cuidfore Farnbaroug	This maintains a high level of tactical intervention with all arrivals being vectored to final approach. ATC intervention is required to deconflict arrivals and departures. The existing contingency hold at VEXUB (Guildford) is very rarely used owing to its non-optimal location from an operational perspective. The existing and forecast baseline scenario is described in more detail in the <u>Stage</u> <u>2A</u> submission document on the CAA's <u>Airspace Change Portal</u>
Option 2A	RWY 24 & 06 Combined Slough Virdsor rou Basingstoke Camberlay Basingstoke Earingerough Faringerough Camberlay Faringerough Camberlay Faringerough Catherlay Faringerough Faringerough Catherlay Faringerough Catherlay Faringerough Faringer	The lateral SID and STAR profiles remain similar to today but with enhancement to procedural and/or tactical vertical profiles, enabled by wider LTMA changes only <sup>4</sup> . A contingency hold to the South, West or Southwest added together with PBN transitions to final approach (ILS only). The latter will address the existing, interim scenario whereby Farnborough's IAPs are reliant on RNAV Substitution

<sup>&</sup>lt;sup>4</sup> Changes to profiles not assumed or illustrated in this option.



Option 2B	RWY 24 & OG Combined     Slaugh       Rading     Frainsterie       Rading     Frainsterie       Rading     Frainsterie       Basingstöke     Basingstöke       Basingstöke     Basingstöke       Basingstöke     Basingstöke       Basingstöke     Basingstöke       Basingstöke     Basingstöke       Basingstöke     Basingstöke       Basingstöke	The differences from Option 2A are that the PBN arrival routes connect to both ILS and RNP APCH requiring a slightly longer final approach, likely to require more CAS. The Runway 06 SID turns right earlier than today.
Option 3A	RWY 24 & OG Combined Slough Fridsor Poury Basingstoke Frids Basingstoke Farmserouth Aldersnos Basingstoke Basingstoke Guidford Britester Petersfield Comber Regis	A build on Option 2A with the addition of a low level departure/arrival route to/from the east for flights between Farnborough and Biggin Hill. We may shorten the CPT SID to route more direct, aligned to where they are tactically positioned today, subject to improvements to Heathrow's departure profiles. A RNP-AR arrival to Runway 06 to avoid RAF Odiham and a re-alignment of the RWY 06 SIDs to better separate from arrivals are also considered.
Option 3B	RWY 24 & 06 Combined       Sinuph Windser         Baing       Tota         Baing       Baing         Camberlay       Wolking         Baingstoke       Camberlay         Alderston       Camberlay         Baingstoke       Farnsbrouh         Baingstoke       Farnsbrouh         Baingstoke       Baingstoke	The differences from Option 3A are that the PBN arrival routes connect to both ILS and RNP APCH requiring a slightly longer final approach, likely to require more CAS.



Option 4A	RWY 24 & 06 Combined       Slough         Windor       Troi         Reading       Bräcknett         Reading       Bräcknett         Bräcknett       King         Bräcknett       Bräcknett         Bräcknett       Bräcknett         Bräck	A build on Option 3A with a more direct arrival route from the south enabled by improved profiles for Gatwick departures. As a result, the departure route to the south can be more direct. This option has an example of how SIDs from different runways could converge later to reduce the frequency of overflight for the same communities.
Option 4B	RWY 24 & OG Combined Slough Windsor Reading Bracknell Bracknell Camberley Working Basingstole Basingstole Peters field Chichester Bracknell Camberley Camber	The differences from Option 4A are that the PBN arrival routes connect to both ILS and RNP APCH requiring a slightly longer final approach, likely to require more CAS.
Option 5A	Reading       Slough         Windsor       Hou         Reading       Bracknell         Undsor       Hou         Basingstöke       Fanbardeh         Aldersford       Gandeford         Cester       Fertsford         Basingstöke       Fanbardeh         Aldersford       Gandeford         Ligged       Besingstöke         Basingstöke       Fanbardeh         Aldersford       Gandeford         King       Audel         Basingstöke       Besingstöke         King       Audel         Basingstöke       Basingstöke         King       Audel         Basingstöke       Basingstöke         Basi	This option sees all arrivals entering Farnborough airspace from the southwest. We assume that, owing to improvements in profiles from Heathrow and Gatwick, Farnborough's departures and arrivals can be deconflicted by design. This requires Farnborough to be guaranteed airspace up to at least 6000ft to the west of Farnborough.





The differences from Option 5A are that the PBN arrival routes connect to both ILS and RNP APCH requiring a slightly longer final approach, likely to require more CAS. The Runway 06 SID turns right earlier than today.

Table 2: Options for Initial Options Appraisal



# 3. INITIAL OPTIONS APPRAISAL METHODOLOGY

3.1.1 The Initial Options Appraisal (IOA) is the first stage in a three-phase appraisal of airspace change options. It involves the mainly qualitative appraisal of the airspace change options that have proceeded from Stage 2A. As options progress through the airspace change process, the two following appraisals, the Full Options Appraisal and Final Options Appraisal undertaken at Stage 3 and 4, will quantitively evaluate options in further detail. The following sections outline the methodology we have followed whilst appraising our airspace change options as part of this IOA.

### Defining the Baseline Scenario

3.1.2 As part of this IOA, CAP1616 requires airspace change sponsors to set a baseline which is used for environmental evaluation of the options. CAP1616 explains that this will be a 'do nothing' scenario and will largely reflect the current-day scenario, although taking due consideration of known or anticipated factors that might affect that baseline, for example a planned housing development close to an airport, forecast growth in air traffic, or expected changes in airlines' fleet mix.

### **Planned Housing Developments**

3.1.3 As part of our preparation of the baseline, we have identified planned developments in the area surrounding Farnborough Airport so that these can be considered as part of appraisal of the benefits and impacts of each option. The population number increases that could come with these developments has not yet been factored into population counts. Where appropriate, new developments will be factored into assessments at Stage 3.



Figure 2: Map of local planned developments



Local Council/ Authority	Type of Development	Size of Development	Location	Status	Additional Comments	Map Ref
Arun -					Planning	
Aldingbourne	Residential - Houses	80 dwellings	PO20 3RU	Undecided	Portal Page	1
				Approved	<u>Planning</u>	
Arun - Walberton	Residential - Bungalows	10 dwellings	BN18 0SD	Conditionally	Portal Page	2
Chichester -			Land North Of Highgrove Farm Main Road	Pending	<u>Planning</u>	
Bosham	Residential - Houses	300 dwellings	Bosham West Sussex	Consideration	Portal Page	3
<b>-</b>			Land North Of Barnfield Drive East Of			
Chichester -			Graylingwell Hospital Barnfield Drive Chichester	Pending	Planning	
Barnfield	Residential - Houses	200 dwellings	West Sussex	Consideration	Portal Page	4
Chichester -				Pending	Planning	_
Bosham	Residential - Houses	26 dwellings	PO18 8PN	Consideration	Portal Page	5
Chichester -			DO40 OFT	Pending	Planning Destal Desta	0
Натргоок	Residential - Houses	30 dwellings		Decision	Portal Page	6
Objeheeten			Land Within The Westhamphett / North East	Develiere	Discosion	
Chichester -	Desidential Houses		Chichester Strategic Development Location (north	Pending	Planning Dortal Dorta	7
vvestnampnett	Residential - Houses	165 dwellings	Of Madgwick Lane) Unichester	Consideration	Portal Page	1
Unichester -	Posidential Houses	26 dwollings	Helpeker	Consideration	Planning Dortol Dogo	0
Chichoster	Residential Apartment	26 dweilings	nainakei	Consideration	Ponal Page	0
Chichester -	Residential - Apartment	97 unito		Unknown	Planning Dortol Dogo	0
Chichoster	Building	67 units	FO20 ZEJ	Donding	<u>Planning</u>	9
Hermitage	Residential - Houses	81 dwellings		Decision	Portal Page	10
Chichester -	Residential - Houses	04 Gweinigs	I O IO ONE	Decision	Planning	10
Hambrook	Residential - Houses	118 dwellings	PO18 811A	Permit	Portal Page	11
Hambrook		i to avoinigo	1010001	Application	<u>I ontari ago</u>	
Chichester -			Land On The North Side Of Shopwhyke Road	Permitted with	Planning	
Shopwhyke	Residential - Houses	13 dwellings	Shopwhyke West Sussex	S106(PER106)	Portal Page	12
Chichester -				Pending	Planning	
Emsworth	Residential - Houses	40 dwellinas	PO10 8LQ	Decision	Portal Page	13
Chichester - West	Residential (Homes) &		Old Broyle Road / Land To The West Of	Pending	Planning	
of Chichester	School (Primary)	850 dwellings	Centurion Way. Chichester	Decision	Portal Page	14
South Downs -			Land to The West of The Causeway Petersfield	Application in	Planning	
Petersfield	Residential - Houses	54 dwellinas	Hampshire	Progress	Portal Page	15
South Downs -				Application in	Planning	
Tote Hill	Residential - Houses	10 dwellings	GU29 0QL	Progress	Portal Page	16



South Downs -	Residential - Apartment			Application in	Planning	
Petersfield	Building	21 units	GU32 3NG	Progress	Portal Page	17
South Downs -	Residential - Apartment				Planning	
Petersfield	Building	34 units	GU32 3EF	Approved	Portal Page	18
East Hampshire -	5		Land to the south east of. Woodlands Avenue.		Planning	
Rowlands Castle	Residential - Houses	35 dwellinas	Rowlands Castle	Registered	Portal Page	19
East Hampshire -		5	Former site of Springfield Nursery, Oakhanger	<u>J</u>	Planning	
Bordon	Residential - Houses	23 dwellings	Road, Oakhanger, Bordon	Registered	Portal Page	20
East Hampshire -		5	Land North East of Belford House, Lymington	5	Planning	
Four Marks	Residential - Houses	79 dwellings	Bottom, Four Marks, Alton	Registered	Portal Page	21
East Hampshire -			Land North of Dean Cottage, Bighton Hill, Ropley,	Awaiting	Planning	
Ropley	Residential - Houses	28 dwellings	Alresford	decision	Portal Page	22
East Hampshire -		, , , , , , , , , , , , , , , , , , ,			Planning	
Liphook	Residential - Houses	100 dwellings	GU30 7HY	Registered	Portal Page	23
East Hampshire -			Land to the west of, Longbourn Way, Medstead,		Planning	
Liphook	Residential - Houses	95 dwellings	Alton	Registered	Portal Page	24
East Hampshire -		, , , , , , , , , , , , , , , , , , ,	Development Land East of Horndean, Rowlands	Awaiting	Planning	
Horndean	Residential - Houses	82 dwellings	Castle Road, Horndean, Waterlooville	decision	Portal Page	25
East Hampshire -			Development Land East of Horndean, Rowlands		Planning	
Horndean	Residential - Houses	311 dwellings	Castle Road, Horndean, Waterlooville	Registered	Portal Page	26
East Hampshire -				Decided	Planning	
Bordon	Residential - Houses	147 dwellings	GU35 0ER	Permission	Portal Page	27
East Hampshire -				Decided	Planning	
Bordon	Residential - Houses	315 dwellings	GU35 0JE	Approval	Portal Page	28
East Hampshire -			Land west of Beechlands Road, South Medstead,		<u>Planning</u>	
South Medstead	Residential - Houses	70 dwellings	Alton	Registered	Portal Page	29
East Hampshire -					Planning	
Medstead	Residential - Houses	53 dwellings	GU34 5EP	Registered	Portal Page	30
East Hampshire -			Land to the rear of Brackenbury Gardens and,	Decided	<u>Planning</u>	
Medstead	Residential - Houses	45 dwellings	Boyneswood Close, Medstead, Alton	Approval	Portal Page	31
East Hampshire -			Land between Catherington Lane and, Five		<u>Planning</u>	
Horndean	Residential - Houses	117 dwellings	Heads Road, Horndean, Waterlooville	Registered	Portal Page	32
East Hampshire -			Land at 103 and to the rear of 97 to 105,		<u>Planning</u>	
Four Marks	Residential - Houses	35 dwellings	Blackberry Lane, Four Marks, Alton	Registered	Portal Page	33
				Appeal Allowed		
East Hampshire -				Permission	Planning	
Four Marks	Residential - Houses	60 dwellings	GU34 5AH	granted	Portal Page	34
East Hampshire -			Land Rear of, 191-211 Lovedean Lane,	Awaiting	<u>Planning</u>	
Horndean	Residential - Houses	30 dwellings	Horndean, Waterlooville	decision	Portal Page	35

Farnborough Airport ACP

Classification: Public

Last hampshire				Awaiting	<u>Planning</u>	
Chawton	Residential - Houses	24 dwellings	GU34 1RZ	decision	Portal Page	36
East Hampshire -		Increased 30 pupils			Planning	
Liphook	School extension	capacity	GU30 7QE	No objection	Portal Page	37
East Hampshire -		Increased 300 pupils			Planning	
Bordon	School extension	capacity	GU35 0JB	Registered	Portal Page	38
	Residential - Apartment				Planning	
Guildford - Ash	Building	13 units	GU12 6BQ	Registered	Portal Page	39
	5				Planning	4.0
Guildford - Send	Residential - Houses	10 dwellings	GU23 7H1	Registered	Portal Page	40
					Planning	
Guildford - Send	Residential - Houses	40 dwellings	Land to the north of, Heath Drive, Send	Registered	Portal Page	41
				Awaiting	Planning	40
Guilafora - Ash	Residential - Houses	24 dweilings	GU12 6DB	decision	Portal Page	42
Guilatora -	Desidential Havens			<b>A</b>	Planning Dertel Derte	40
Normandy	Residential - Houses	16 dweilings	GU3 ZJH	Approve	Portal Page	43
Guilatora -	Desidential Houses	12 dwallings		Degistered	Planning Dortol Dogo	4.4
Cuildford	Residential - Houses	12 dweilings	GUS ZJL	Registered	<u>Ponal Page</u>	44
Worplosdop	Posidontial Houses	12 dwollings	Land at School Lang, Warplasdan, CU2	Δροτοικο	Portal Page	45
worpiesdon	Residential - Houses	12 dweilings	Land at Carlicks Arch, Sond March/Burnt	Appiove	<u>Planning</u>	45
Guildford - Send	Residential - Houses	110 dwellings	Common Portsmouth Road Sand	Pegistered	Portal Page	46
Guildiola - Sella	Residential - Houses	119 dweinings	Common, i onsinodin Road, Send	Registered	Planning	40
Guildford - Ash	Residential - Houses	93 dwellings	GU12 6JH	Registered	Portal Page	47
Culturora Aon		oo awalingo	0012 0011	Awaiting	Planning	
Guildford - Milford	Residential - Houses	216 dwellings	GU8 5HU	decision	Portal Page	48
		e a		Awaiting	Planning	
Guildford - Riplev	Residential - Houses	25 dwellings	GU23 6EY	decision	Portal Page	49
					Planning	
Guildford - Ash	Residential - Houses	51 dwellings	GU12 6DE	Allowed	Portal Page	50
		5			Planning	
Guildford - Send	Residential - Houses	29 dwellings	GU23 7EP	Registered	Portal Page	51
Guildford -	Special Educational Needs	Ŭ		Ŭ	Planning	
Pirbright	School	NA	GU24 0DN	Registered	Portal Page	52
Guildford - Royal						
Surrey County					Planning	
Hospital	Hospital Extension	NA	GU2 7XX	Registered	Portal Page	53
					Planning	
Hart - Fleet	Residential - Houses	331 dwellings	Hartland Park Ively Road Fleet Hampshire	Registered	Portal Page	54

Hart - North Warnborough	Residential - Houses	13 dwellings	Land East Of Hook Road North Warnborough Hook Hampshire	Registered	<u>Planning</u> Portal Page	55
Hart - Crookham	Residential - Houses	300 dwellings	Land At Watery Lane Church Crookham Fleet Hampshire	Registered	Planning Portal Page	56
Hart Orookilain			Land On The West Sides Of Alton Road Odiham	rtogiotoroa	Planning	00
Hart - Odiham	Residential - Houses	30 dwellings	Hook Hampshire	Grant	Portal Page	57
					Planning	
Hart - Camberley	Residential - Houses	158 dwellings	GU17 9EF	Grant	Portal Page	58
Hart - Camberlev	School extension	NA	GU17 9HU	Grant	Planning Portal Page	59
Rushmoor -	Residential - Apartment			Crant	Planning	
Aldershot	Building	12 units	GU11 1JG	Registered	Portal Page	60
Rushmoor -	Residential - Apartment				Planning	
Farnborough	Building	10 units	GU14 6BS	Registered	Portal Page	61
Rushmoor - Aldershot	Residential - Apartment Building	74 dwellings	Zone C - Cambridge Military Hospital Aldershot Urban Extension Alisons Road Aldershot Hampshire	Registered	Planning Portal Page	62
Rushmoor -	Residential - Houses	3850 dwellings	Land At Zone H Stanhope Lines West And Zone I School End Aldershot Urban Extension Alisons Road Aldershot Hampshire	Registered	Planning Portal Page	63
Rushmoor -	Residential - Apartment	eeee areanige		Permission	Planning	
Farnborough	Building	18 units	GU14 7PQ	Granted	Portal Page	64
Rushmoor -	Residential - Apartment			Awaiting	Planning	
Aldershot	Building	15 units	3 - 5 Pickford Street Aldershot Hampshire	decision	Portal Page	65
Rushmoor -	Residential - Apartment			Permission	<u>Planning</u>	
Aldershot	Building	30 units	GU11 1LZ	Granted	Portal Page	66
Rushmoor -	Desidential Haveas	47 duellie ee		Permission	Planning Dertel Derte	07
Farnborougn	Residential - Houses	17 dweilings	GU14 6HF	Granted	Portal Page	67
Farnborough	Posidential - Houses	10 dwellings	CLI14 OXW	Granted	Planning Portal Page	68
Rushmoor -	Residential - Apartment	To awenings	0014 97/1	Permission	Planning	00
Farnborough	Building	12 units	GU14 7NR	Granted	Portal Page	69
Rushmoor -			Proposed Primary School On Land South Of		Planning	
Aldershot	School - New	420 pupil capacity	Alisons Road Aldershot Hampshire	Registered	Portal Page	70
Rushmoor -				Permission	Planning	
Farnborough	Pre-school - New	NA	GU14 6SF	Granted	Portal Page	71
Surrey Heath -	Residential - Apartment				<u>Planning</u>	
Camberley	Building	10 units	GU15 3EY	Registered	Portal Page	72
Surrey Heath -	Residential - Houses	1000 L			Planning	
Deepcut	(multiple phases)	1200 dwellings	GU16 6RN	Registered	Portal Page	73

Surrey Heath -					Planning	
Frimley	Residential - Houses	170 dwellings	GU16 8QD	Registered	Portal Page	74
Surrey Heath -			<b>.</b>		Planning	
Frimley Green	Residential - Houses	13 dwellings	GU16 6PB	Grant	Portal Page	75
Surrey Heath -	Residential - Houses &				Planning	
Camberley	Apartments	20 dwellings	GU15 4JY	Grant	Portal Page	76
Surrey Heath -					<u>Planning</u>	
Frimley	Hospital Extension	NA	GU16 7UJ	Grant	Portal Page	77
Waverley -	Residential - Apartment				<u>Planning</u>	
Godalming	Building	12 apartments	GU7 1DT	Pending	Portal Page	78
Waverley -					<u>Planning</u>	
Farnham	Residential - Houses	26 dwellings	70 WRECCLESHAM HILL	Pending	Portal Page	79
Waverley -	Residential - Apartment				<u>Planning</u>	
Godalming	Building	15 units	GU7 3BA	Pending	Portal Page	80
Waverley -	Residential - Houses &				<u>Planning</u>	
Wonersh	Apartments	50 dwellings	GU5 0QX	Pending	Portal Page	81
Waverley -					Planning	
Godalming	Residential - Houses	27 dwellings	SOUTH EAST OF BINSCOMBE GODALMING	Pending	Portal Page	82
Waverley -	Residential - Apartment		WOODSIDE PARK CATTESHALL LANE		<u>Planning</u>	
Godalming	Building	12 units	GODALMING	Granted	Portal Page	83
Waverley -					Planning	
Farnham	Hospice extension	NA	GU9 8BL	Granted	Portal Page	84
Woking -	Residential - Apartment			Pending	<u>Planning</u>	
Sheerwater	Building	19 units	Albert Drive Sheerwater Woking	Consideration	Portal Page	85
Woking -						
Brookhouse	Residential - Apartment			Awaiting	Planning	
Common	Building	72 units	GU21 5JE	decision	Portal Page	86
Woking -						
Brookhouse	Residential - Apartment			Pending	<u>Planning</u>	
Common	Building	59 units	GU21 5HA	Consideration	Portal Page	87
					<u>Planning</u>	
Woking - St Johns	Residential - Houses	11 dwellings	GU21 7SA	Permitted	Portal Page	88
Woking - Hoe				Pending	<u>Planning</u>	
Place	School extension	NA	GU22 8JE	Consideration	Portal Page	89
					Planning	
Woking - Mayford	Residential - Houses	86 dwellings	Egley Road Woking Surrey	Permitted	Portal Page	90
				Pending	Planning	
Woking - Mayford	School extension	NA	GU22 0AN	Consideration	Portal Page	91
					Planning	
Woking - Mayford	School extension	NA	GU22 0NH	No objection	Portal Page	92

Woking						
Community				Pending	<u>Planning</u>	
Hospital	Hospital Extension	NA	GU22 7HS	Consideration	Portal Page	93
Winchester -					<u>Planning</u>	
Denmead	Residential - Houses	11 dwellings	Tanners Lane Denmead Hampshire	Current	Portal Page	94
Winchester -					<u>Planning</u>	
Waterlooville	Residential - Houses	90 dwellings	Laxton Leaze Waterlooville Hampshire	Current	Portal Page	95
Winchester -					<u>Planning</u>	
Denmead	Residential - Houses	27 dwellings	Hambledon Road Denmead Hampshire	Current	Portal Page	96
Winchester -	Residential - Apartment			Awaiting	<u>Planning</u>	
Alresford	Building	14 units	1 - 3 The Dean Alresford Hampshire	decision	Portal Page	97
Winchester -					<u>Planning</u>	
Denmead	Residential - Houses	190 dwellings	Hambledon Road Denmead Hampshire	Permitted	Portal Page	98
Winchester -					<u>Planning</u>	
Denmead	School extension	NA	PO7 6PH	Permitted	Portal Page	99
West Birkshire -	Residential - Apartment			Awaiting	<u>Planning</u>	
Padworth	Building	32 units	RG7 5HT	decision	Portal Page	100
West Birkshire -						
Mortimer					Planning	
Common	Residential - Houses	110 dwellings	The Street Mortimer Common Reading	Approved	Portal Page	101
West Birkshire -						
Mortimer				Awaiting	Planning	400
Common	Residential - Houses	24 dwellings	RG7 3RL	decision	Portal Page	102
West Birkshire -	Residential - Apartment	10		Awaiting	Planning	400
Inatcham	Building	18 Units	RG198EA	decision	Portal Page	103
West Birkshire -	Desidential Havens		The Orean Theole Decision	Ammana	Planning Dertel Derte	101
	Residential - Houses	104 aweilings	The Green Theale Reading	Approved	Portal Page	104
vvest Birksnire -	Desidential Haveas		New Deed IVII Midehees Deedies	Awaiting	Planning Dertel Derte	405
West Dirkshine	Residential - Houses	to aweilings	New Road Hill Midgham Reading	decision	Ponal Page	105
vvest Birksnire -	Desidential Houses	22 dwallings	Little Cance Southand Cold Aph Thataham	Awaiting	Planning Dertel Dege	106
Moot Dirkohiro	Residential - Houses	23 dweinings	Lille Copse Southend Cold Ash Thatcham	uecision	Planning	100
Thotohom	School ovtension	NIA	PC10 4CC	Approved	Planning Dortol Dogo	107
Decingetake 9	Desidential Houses 8	INA	KG194GG	Approved	<u>Planning</u>	107
Doopo Bromlov	Residential - Houses &	250 dwallings	Cufoudo Lono Promlov Homoshiro	Crantad	Planning Dortol Dogo	100
Pooingotoko <sup>9</sup>	301001	350 Gweilings		Granieu	<u>Fonal Page</u>	108
	Residential - Apartment				Planning	
Basingstoke	Ruilding	370 upite	PC21 /PC	Pagistarad	Portal Page	100
Dasingstoke	Bullulity	STO UNITS	NG21 4NG	Registered	Fullar Fage	109

Basingstoke & Deane - Pamber					Planning	
Green	Residential - Houses	245 homes	Skates Lane Pamber Green Hampshire	Registered	Portal Page	110
Basingstoke &						
Deane - Marnel	Residential - Houses &				<u>Planning</u>	
Park	School	450 dwellings	Marnel Park, Basingstoke	Registered	Portal Page	111
Basingstoke & Deane -					Planning	
Kempshott Hill	Residential - Houses	494 dwellinas	RG23 7LL	Registered	Portal Page	112
Basingstoke &					Planning	
Deane - Bramley	Residential - Houses	140 dwellinas	Stocks Farm The Street Bramley Hampshire	Registered	Portal Page	113
Basingstoke &						
Deane - Church					Planning	
End	Residential - Houses	350 dwellinas	Church End Sherfield-on-Loddon	Reaistered	Portal Page	114
Basingstoke &		g-				
Deane -						
Sherborne St					Planning	
John	Residential - Houses	220 dwellinas	Aldermaston Road Sherborne St John Hampshire	Reaistered	Portal Page	115
Basingstoke &						
Deane -			Hounsome Fields Trenchard Lane Basingstoke		Planning	
Basingstoke	Residential - Houses	39 dwellings	Hampshire	Registered	Portal Page	116
Basingstoke &		5		5		
Deane -					Planning	
Whitchurch	Residential - Houses	115 dwellings	Bere Hill Whitchurch Hampshire	Registered	Portal Page	117
Basingstoke &				, , , , , , , , , , , , , , , , , , ,		
Deane -						
Sherborne St					Planning	
John	Residential - Houses	350 dwellings	RG24 9LS	Registered	Portal Page	118
Basingstoke &						
Deane -					<u>Planning</u>	
Whitchurch	Residential - Houses	183 dwellings	Shuttle Street Whitchurch Hampshire	Registered	Portal Page	119
Basingstoke &						
Deane -			Worting Park Worting Road Basingstoke		Planning	
Basingstoke	Residential - Houses	104 dwellings	Hampshire	Granted	Portal Page	120
Basingstoke &						
Deane -			Basingstoke Golf Club Winchester Road		Planning	
Kempshott Hill	Residential - Houses	229 dwellings	Kempshott Hill	Granted	Portal Page	121
Basingstoke &						
Deane -				Awaiting	Planning	
Basingstoke	Residential - Houses	203 dwellings	Winklebury Way Basingstoke Hampshire	decision	Portal Page	122

Basingstoke &						
Deane -					<u>Planning</u>	
Kingsclere	Residential - Houses	165 dwellings	Porch Farm Newbury Road Kingsclere Hampshire	Registered	Portal Page	123
Basingstoke &						
Deane -	Residential - Houses &			Enquiry	Planning	
Chineham	School	900 dwellings	Whitmarsh Lane Chineham Hampshire	Completed	Portal Page	124
Basingstoke &			Hounsome Fields Trenchard Lane Dummer		Planning	
Deane - Dummer	New School	420 pupil capacity	Hampshire	No Objection	Portal Page	125
Havant -					Planning	
Waterlooville	Residential - Houses	190 dwellings	Woodcroft Lane, Waterlooville	Registered	Portal Page	126
Havant -	Residential - Apartment				<u>Planning</u>	
Waterlooville	Building	22 units	PO7 7ET	Registered	Portal Page	127
Havant -					<u>Planning</u>	
Emsworth	Residential - Houses	15 dwellings	PO10 7HH	Unknown	Portal Page	128
					<u>Planning</u>	
Havant - Purbrook	Residential - Houses	628 dwellings	College Road, Purbrook, Waterlooville	Registered	Portal Page	129
Havant -					<u>Planning</u>	
Waterlooville	Residential - Houses	90 dwellings	Laxton Leaze, Waterlooville	Registered	Portal Page	130
Havant -	Residential - Apartment				Planning	
Bedhampton	Building	83 units	Palk Road, Bedhampton, Havant	Registered	Portal Page	131
Havant -					Planning	
Bedhampton	Residential - Houses	120 dwellings	Marples Way, Havant	Registered	Portal Page	132
Havant -	Residential - Apartment		202.251		Planning	100
Waterlooville	Building	13 units	PO7 /EL	Granted	Portal Page	133
Mole Valley -					Planning	101
Headley	Residential - Houses	10 dwellings	Church Lane, Headley, Surrey	Unknown	Portal Page	134
Mole Valley -			D'I ser la compartira DIMARE	11.1	Planning	405
Dorking	Residential - Houses	69 dwellings	Pixham Lane, Dorking, RH4 8BE	Unknown	Portal Page	135
Nole Valley -	Desidential Havens		Little Booknam Street, Little Booknam,	L la lue essue	Planning Dertel Derte	400
Little Booknam	Residential - Houses	200 dwellings	Leathernead, Surrey	Unknown	Portal Page	136
Nole Valley -	Residential - Apartment		Lincoln Dood, Darking, Currey	Under	Planning Dertel Derte	407
	Building	126 Units	Lincoln Road, Dorking, Surrey	consideration	Ponal Page	137
Iviole valley -	Residential - Apartment		DU4 404	Amman	Planning Dertel Derte	400
Dorking Mala Valley	Duilding	36 units	KH4 IQA	Approved	Ponal Page	130
Iviole valley -	Residential - Apartment			Crantad	Planning Dertel Dege	120
Ruppymode	Duilding Desidential Aportmost	19 Units		Granted	Portal Page	139
Addications	Residential - Apartment		KT15 2NI7	Linknown	Planning Dortol Dorce	140
Audiesione	Duiluiny Desidential	14 units		UTIKHOWH	Planning	140
Ottorshow	Aportmont Duilding	10 unito		Granted	Planning Portal Page	1.4.1
Ollersnaw	Apartment building	i 9 units	NTIO ULL	Granieu	Ponal Page	141



Runnymede -	Posidontial - Houses	184 dwollings		Approved	Planning Portal Page	1/2
Reigate &	Residential - Houses	104 dweinings	KTTO DEQ	Appioved	<u>r ontai r age</u>	142
Banstead	Residential - Apartment				Planning	
Kingswood	Building	14 units	KT20 6EP	Registered	Portal Page	143
	Ŭ			Ŭ	OcellaWeb	
Arun - Pagham	Residential - Houses	44 dwellings	PO21 3EG	Undecided	(arun.gov.uk)	144
					<u>OcellaWeb</u>	
Arun - Angmering	Residential - Houses	20 dwellings	BN16 4EN	Approved	<u>(arun.gov.uk)</u>	145
					<u>OcellaWeb</u>	
Arun - Arundel	Residential - Houses	90 dwellings	Ford Road Arundel	Approved	(arun.gov.uk)	146
	<b>B 11 2 1</b>				OcellaWeb	
Arun - Barnham	Residential - Houses	21 dwellings	PO20 3RP	Undecided	(arun.gov.uk)	147
	Decidential Llaurae		Choloroft Long Dereted	Ammanuad		4.40
Arun - Bersted	Residential - Houses	225 dweilings	Chalcrait Lane Bersted	Approved	(arun.gov.uk)	148
Arun - Borstod	Residential - Houses	1540 dwollings	Land West of Bersted	Undecided	(arup gov uk)	1/0
Arun - Bognor	Residential - Apartment	1540 dwellings		undecided		143
Regis	Building	43 units	PO21 10T	Approved	(arun dov uk)	150
rtogio	Dulialing			Apploved	OcellaWeb	100
Arun - Kinaston	Residential - Houses	47 dwellings	Kingston Lane, Kingston, Arun	Undecided	(arun.gov.uk)	151
Arun - Little					OcellaWeb	
Hampton	Residential - Houses	101 dwellings	Littlehampton Academy Littlehampton	Approved	(arun.gov.uk)	152
				Refused -	<u>OcellaWeb</u>	
Arun - Yapton	Residential - Houses	20 dwellings	Drove Lane, Yapton	Appealed	<u>(arun.gov.uk)</u>	153
Chichester -	Residential - Apartment			Pending	Planning	
Chichester	Building	23 units	PO19 7PP	Consideration	Portal Page	154
Chichester -				Pending	Planning	
Birdham	Residential - Houses	14 dwellings	PO20 7BY	Decision	Portal Page	155
Chichester -	5			Pending	Planning	
Birdham	Residential - Houses	150 dwellings	PO20 7HU	Consideration	Portal Page	156
Chichester -	Decidential Houses	0.4 dwallings	March Lana Dunatan Maat Support	Dermitted	Planning Dertel Derte	157
Foot Hompshire	Residential - Houses	94 dweilings	Development Land Fact of Herndeen, Rowlands	Permilieu	Ponal Page	157
East Hampshile -	Posidential - Houses	66 dwellings	Castle Road Horndean Waterlooville	Pegistered	Portal Page	158
nomuean	Residential - Houses &	oo uwennigs	Castle Road, Homuean, Watehooville	Registereu	Planning	130
Guildford - Ripley	Apartment Building	26 dwellings	GU23 6BB	Registered	Portal Page	159
Guildford - Fast	Residential - Apartment	20 40011190		Awaiting	Planning	100
Horslev	Building	10 units	KT24 6TB	decision	Portal Page	160
	<b>u</b>					



Guildford - Ockham	Residential - Houses	200 dwellings	GU23 6NU	Registered	<u>Planning</u> Portal Page	161
Guildford - East					Planning	
Horsley	Residential - Houses	110 dwellings	Ockham Road North, East Horsley	Approved	Portal Page	162
Guildford -					Planning	
Effingham	Residential - Houses	99 dwellings	KT24 5JR	Approved	Portal Page	163
Guildford -					Planning	
Guildford	Residential - Houses	10 dwellings	GU2 7TH	Registered	Portal Page	164
					<u>Planning</u>	
Guildford - Send	Residential - Houses	23 dwellings	GU23 7ER	Approved	Portal Page	165
Guildford -	Residential - Apartment				<u>Planning</u>	
Guildford	Building	10 units	GU1 4EQ	Registered	Portal Page	166
Guildford -					<u>Planning</u>	
Ockham	Residential - Houses	70 dwellings	GU23 6NT	Registered	Portal Page	167
Guildford -					<u>Planning</u>	
Normandy	Residential - Houses	28 dwellings	GU3 2DF	Registered	Portal Page	168
Guildford -					<u>Planning</u>	
Guildford	Residential - Houses	44 dwellings	GU1 4QT	Registered	Portal Page	169
Guildford - West					<u>Planning</u>	
Horsley	Residential - Houses	86 dwellings	Ockham Road, West Horsley, KT24	Registered	Portal Page	170
					<u>Planning</u>	
Hart - Hook	Residential - Houses	44 dwellings	RG27 9EF	Registered	Portal Page	171
South Downs -					<u>Planning</u>	
Fernhurst	Residential - Houses	210 dwellings	Fernhurst	Approved	Portal Page	172
South Downs -					<u>Planning</u>	
Petersfield	Residential - Houses	85 dwellings	Heathfield Road Petersfield	Approved	Portal Page	173
South Downs -					Planning	
Petersfield	Residential - Houses	10 dwellings	Reservoir Lane Petersfield	Approved	Portal Page	174
		i o anoningo		, .pp.0100	- ontain ago	

Table 3: Planned local developments



## Air Traffic Movements, Caps and ongoing Planning Application

- Existing planning permission for the Airport includes a condition imposing a movement cap of 50,000 movements per year, with 8900 of these being for non-weekdays (i.e. weekends & bank holidays). The airport has submitted a Planning Application to Rushmoor Borough Council to increase this movement cap to 70,000 movements per year, with 18,900 of these being for non-weekdays.
- 3.1.5 There are no dependencies between the Planning Application and this ACP or vice-versa. However, our baseline must take 'due consideration of known or anticipated factors that might affect them' and therefore our <u>Stage 2A submission document on the CAA's Airspace</u> <u>Change Portal</u> includes forecasts data and L<sub>Aeq</sub> noise contours for both the event of a successful and unsuccessful planning application.
- 3.1.6 Our baseline for Full Options Appraisal (FOA, Stage 3) should be generated for Year of implementation and 10 years hence. The year of implementation for this ACP is currently unknown however, the information generated for the planning application included forecasts for 2031 and 2040. We currently consider 2031 is a comparable timeframe for implementation of this ACP on the basis that Farnborough's implementation will need to be with, or after a Heathrow and Gatwick implementation.
- 3.1.7 As explained in the methodology section below, the forecast data provided in the baseline description in Stage 2 does not directly influence any quantitative analysis performed for this IOA. Noise modelling was performed at this stage only on a single sound event basis, as were overflight counts. Track mile impacts were calculated based on 2023 movements. We have however performed a qualitative assessment of whether each option could have an impact on the 2031 LOAELs for both with and without an increase to the movement cap.

## Initial Options Appraisal Assessment Criteria and Methodology

- 3.1.8 At Stage 2B CAP1616 requires sponsors to carry out an initial appraisal of the benefits and impacts of each option, tested against the 'do nothing' baseline scenario. The purpose of this initial appraisal is to highlight the change to sponsors, stakeholders and the CAA and the relative differences between the impacts, both positive and negative, of each option. The initial appraisal is based around a qualitative assessment although CAP1616 encourages sponsors to use as much analysis as reasonably possible at this stage.
- 3.1.9 Our assessment criteria shown in Table 4 below have been categorised based on the example in CAP1616 Appendix E, however we have added an additional category called 'Interdependencies, conflicts and trade-offs' to satisfy the requirements to outline potential interdependencies with other FASI-S ACPs, and 'Airspace Modernisation Strategy' to satisfy the 7 confirmed indicators that the CAA will use to assess whether this Stage 2 submission accords with the AMS including iteration 2 of the Masterplan. We will follow the structure of Table 4 across the appraisal of all our options.

Group	Impact	Level of Analysis						
Communities A partly quantitative, partly qualitative as	Noise impact on health and quality of life sessment of changes to noise impacts compared with the do-nothing ba assessment:	Quantitative seline. The following data has been generated to support this						
- The population counts within a 60dB a account of it being the mo - Population counts within ov	The population counts within a 60dB and 65dB LAMAX contour of a single event of a typical aircraft (the Global Express Business Jet (GLEX) was chosen for this analysis, on account of it being the most frequent aircraft type using the airport) operating on the illustrative centrelines generated to articulate each option - Population counts within overflight cones 0-7000ft (CAA definition 48.5°) for the average, typical profiles generated for Stage 2 engagement purposes.							
Data was generated for each route withi 24 departures for each option. This all impacts from each option. Whilst for the generated using a standard A	It a was generated for each route within the option and then the data was grouped and averaged into RWY 06 Arrivals, RWY 06 Departures, Runway 24 Arrivals and Runway 24 departures for each option. This allows us to present each option as a % increase or decrease compared to the baseline to use as likely indicators of the scale of noise pacts from each option. Whilst for the overflight counts we used average, typical profiles generated for Stage 2 engagement purposes, the 60dB and 65dB LAMAX data was generated using a standard AEDT (Aviation Environmental Design Tool) profile of an GLEX aircraft, assuming the same climb profile across all options.							
The overflight data considers the route future. The overflight and 60dB and 65d account frequency of overflight. This will	The overflight data considers the route centreline only and has not yet attempted to predict the scale and patterns of any ATC vectoring which will continue to exist in the future. The overflight and 60dB and 65dB LAMAX counts consider a single overflight along the procedure centreline, and therefore at this stage the data does not take into ccount frequency of overflight. This will be quantified at Stage 3 Full Options Appraisal, together with vectoring swathe assumptions. The counts are generated using Census 2021 data.							
Although not used to support decision r	naking purposes at this stage, data on the number of healthcare facilitie provided.	s, education facilities and places of worship have also been						
When considering the centreline data for exist in reality as there are no defined to a start of the second	or the arrivals baseline, it's important to note that a centreline for the exi racks that connect the end of the Standard Arrival Routes (STARs) to the were created based on historical radar data from a busy westerly day and	isting arrivals all the way to final approach does not actually Instrument Approach procedures. Therefore average tracks a busy easterly day.						
For each of the options, we present the d noise impacts will be on other routes	ata both including and excluding the presence of a potential route betwe and not on the Farnborough and Biggin Hill routes, owing to the low nun	en Farnborough and Biggin Hill. This is because the dominant nbers of movements expected on such a route (c.1-2 day).						
Each option has also been qualitatively a have potential to affect the shape of th	ssessed against the existing and forecast (2031, both with and without d the LOAEL and could therefore have an impact on the number of people ac Stage 2 to determine whether such a change would be positive	evelopment) LOAEL contours to describe whether the options dversely affected by noise. No modelling been performed in or negative.						
The LAMAX metrics have been develop requirements for noise modelling wit 'categories' of noise modelling based o and 45dB LAeq,8hr for night. Based on ba applied as part of the Flightpath 2040	ed using the Aviation Environmental Design Tool (AEDT) in accordance w h respect to the level of detail that shall be afforded to aircraft noise dat n likely population experiencing an average noise exposure above the day iseline conditions, Farnborough falls into CAP2091 Category D for daytim planning application exceeded this category in most cases (Appendix 8.1	ith CAP2091 requirements. CAP2091 sets out the minimum a and track information. Within CAP2091, the CAA defines trime and night-time LOAEL i.e. 51dB LAeq,16hr for daytime e and Category E for night time. However the noise modelling Para 3.1.2 of the planning application). The CAA therefore						
expects the	same level of noise modelling, or higher, to apply in the noise modelling	of this ACP (CAP2091 para 4.10).						
Communities	same level of noise modelling, or higher, to apply in the noise modelling	of this ACP (CAP2091 para 4.10). Qualitative						
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Wider Society	Biodiversity and Tranquillity	Qualitative						
The effects of airspace change on ecolog impact upon biodiversity because they legislation.". Though there is limited rese occur during take-off and landing where	gy or biodiversity are expected to be minimal. CAA guidance do not involve ground-based infrastructure. As such they are earch available on the effects of aircraft noise on wildlife, th e aircraft are below around 500m (~1640ft). [Drewitt, A. (199 Information Note].	states that "In general, airspace change proposals are unlikely to have an unlikely to have a direct impact that would engage the Birds or Habitats ere is some evidence that disturbance effects associated with aircraft can 19) Disturbance effects of aircraft on birds. English Nature Birds Network						
The biodiversity assessment will highli	The biodiversity assessment will highlight where changes to flight paths below 2000ft could change traffic patterns over Special Protection Areas (SPAs), Special Areas of Conservation (SACs), National Parks, RAMSAR and/or Sites of Special Scientific Interest (SSSI).							
CAP1616 outlines the consideration of in identified 'tranquil' areas that are id	CAP1616 outlines the consideration of impacts upon tranquillity is with specific reference to National Parks and Areas of Outstanding Natural Beauty (AONB), plus any locally identified 'tranquil' areas that are identified through community engagement and are subsequently reflected within an airspace change proposal's design principles.							
This IOA will quantiatively describe wh Beauty (AONB) as well as the South Dov will be based on revised boundaries if th	ether the option is likely to increase or decrease overflight of vns National Park. These assessments are based on the exisi ey have been granted by the SoS at that time. For each of th of a potential route between Farnborough	the North Wessex Downs and Surrey Hills Areas of Outstanding Natural ing boundaries. Subsequent assessments in the Full and Final appraisals, e options, we present the data both including and excluding the presence and Biggin Hill.						
General Aviation	Access	Qualitative						
A qualitative assessment of where cha	inges to controlled airspace boundaries could be required, be associated impact on GA as a result of th	th increases and decreases, together with a commentary on envisaged lose changes.						
General Aviation/ Commercial Airlines	Economic impact from increased effective capacity	Qualitative						
A qualitative assessment of chang	es to GA (EGLF business aviation traffic is classed as GA) or capacity compared with the do-nothin	any commercial airline economic impacts from increased effective g baseline.						
General Aviation/ Commercial Airlines	Fuel Burn	Part quantitative, part qualitative						
	in der Burn	rait qualitative, part qualitative						
differences in track miles between the b will continue to arrive and depart from/to route holding will continue to be ava calculated between each runway end option with a low-level route between	aseline and each route which forms part of the options. Follo aseline and each route which forms part of the options. Follo the West/Northwest (Compton (CPT) region) and Southwes llable in the PEPIS and RUDMO regions. For this reason and i and CPT, GWC or SAM, noting that the exact locations will be Farnborough and Biggin Hill. In this circumstance miles are	the second secon						
Whilst approximated changes to the ave estimate, either positive or negative, of a	Whilst approximated changes to the average typical vertical profiles were created to aid stakeholder engagement in Stage 2A, there is still too much uncertainty to include an estimate, either positive or negative, of any fuel burn at this stage. This is due to the dependencies on adjacent airports and the wider airspace design to realise any improved CCO/CDO for Farnborough's movements below 7000ft.							
Fuel burn changes in Kg as a result of the Fu	track mile changes have not been quantified, as the track mile options Appraisal (Stage 3A), track mileage and fuel burn	iles are still crude estimates owing to network uncertainty. As part of the will be appraised in further detail.						
Commercial airlines	Training costs	Qualitative						
Farnborough's movements are business	jet traffic and therefore classed as General Aviation howev associated training costs compared with the d	er this assessment contains a qualitative assessment of changes to their o-nothing baseline.						
Commercial airlines	Other costs	Qualitative						
Farnborough's movements are business	jet traffic and therefore classed as General Aviation howev other relevant costs compared with the do-	er this assessment contains a qualitative assessment of changes to their nothing baseline.						
Airport/ANSP	Infrastructure costs	Qualitative						
A qualitative assessme	nt of changes to Air Navigation Service Provider (ANSP) infra	structure costs compared with the do-nothing baseline.						
Airport/ANSP	Operational costs	Qualitative						
A qua	litative assessment of changes to ANSP operational costs co	mpared with the do-nothing baseline.						
Airport/ANSP	Deployment costs	Qualitative						
	A qualitative assessment of ANSP deployment costs compared	ed with the do-nothing baseline						
	A quantative assessment of ANSF acproviment costs compar	eu with the do hothing baseline.						
All	Safety	Qualitative						
A qualitative safety assessment of each o	pption which compares against the baseline, including where	additional safety assurances, over and above the norm, could be required						
All	Interdependencies conflicts and trade offs	Qualitative						
An airspace change proposal at a Sta ACOG's Airspace Change Masterplan. T Stage 2 submissions or work in progress. 3 i	ge 2 gateway in the CAP 1616 process should specify any intr his IOA will take the information available from adjacent spe This will give an indication of whether there is the potentia ncluding an indication of whether the option is likely to incre	erdependencies with other airspace changes identified in Iteration 2 of onsors (Heathrow, Gatwick, Southampton, Bournemouth and Biggin Hill) for trade-offs with other airspace change sponsors required during Stage ase/decrease chances of CCO/CDO.						
	Performance against the vision and parameters/strategic of	biectives of						
All	the AMS	Qualitative						
A qualitat	and fuel/CO2 and reduced CAS and increased aircrass into	onsidering the AMS objectives of improved						
capacity, hoise	, and ruling CO2 and reduced CAS and increased airspace inte	gration compared with the do-nothing baseline.						



# 4. INITIAL OPTIONS APPRAISAL

4.1.1 The following tables outline our Initial Options Appraisal (IOA) for each option and provide an assessment of the baseline scenario. We have also produced a technical appendix (Appendix A), which is published on the CAA's Airspace Change Portal and provides further supporting information which has informed this IOA.

OPTION 1 DO NOTHING					
Group	Impact	Level of Analysis			
Communities	Noise impact on health and quality of life	Quantitative			

The image to the left shows the 65dB (magenta) and 60dB (white) LAMAX contours for GLEX single event for each existing arrival and departure route. The numbers of people within each contour are shown in the tables below. Note that no published centreline exists between the end of the STARs and final approach.

Option	Route Name	1 Do nothing Baseline	Option	Route Name	1 Do nothing Baseline
	6	8177		6	12364
Population Count	24	11808	Population Count	24	41751
	6	36723	DEPARTURES	6	62613
GLEX 65 dB LAMAX Population Count	24	16707	Population Count	24	39958



The image to the left shows the average typical overflight cones to/from 7000ft for each existing arrival and departure route, assuming all traffic is on the route centreline. It is mapped against areas of population density with figures for total population

Option	RUNWAY	1 Do nothing Baseline
ARRIVALS Overflight (0-7000ft)	6	31018
Population Count	24	85365
Option	RUNWAY	1 Do nothing Baseline
Option DEPARTURES Overflight (0-7000ft)	RUNWAY 6	1 Do nothing Baseline 21336

The tables below show the number of education and healthcare facilities and places of worship overflown by average typical overflight cones to/from 7000ft for the do nothing scenario,

ARRIVALS Overflight (0-7000ft)	RUNWAY	1 Do nothing Baseline	DEPARTURES Overflight (0-7000ft)	RUNWAY	1 Do nothing Baseline
Heathcare Count	6	38	Heathcare Count	6	16
	24	110		24	9
Education Count	6	39	Education Count	6	25
	24	120		24	7
Places of Worship	6	32	Places of Worship	6	25
count	24	56	count	24	14

 
 Communities
 Air Quality
 Qualitative

 The purple shaded area in the figure below represents the area overflown up to 1000ft by traffic arriving and departing Farnborough. The nearest AQMAs are well to
 Communities the north and south of these areas.





General Aviat	ion/ com	mercia	airlines	Fuel Burn										Quantitat	ive		
The same rou	ute length	ıs woul	d be flown a	and the sau	ne typical pro	ofiles wo	ould remain	for	Farnbo	oroug	sh's tra	affic	and th	nerefore f	uel burn pe	r flight will	remain unchanged
in a do nothir	ng scenari	o. Ther	e would be	no change	in economic	impact f	or either Fa	rnbo	orough	n's ar	rivals	and	depar	tures or w	ider GA. Tl	ne tables bel	low show the track
miles for eac	h route a	gainst v	which each	option will	be compared	d, togeth	er with a %	spli	t of tr	affic	to/fro	om e	ach dii	rection, ba	sed on flig	ht plan infor	mation from 2023
			used to ar	rive at an	annual nm in	crease/d	lecrease for	eac	h opti	on co	mpare	ed to	o this [	Do Nothing	g baseline.		
RWY06	СРТ	CPT RN	PAR GWC	GWC RNPA	REGKB	KB-RNPAR	RWY06	CI	РТ	SAN	И	GW	с	EGKB			
1A Do Nothing	48.5	5	43	.2	167.2		1A Do Nothin	g	77	7.4	44.7	7	43.9	214.9			
RWY24	СРТ		GWC	RRIVALS	EGKB		RWY24	c	РТ	SAN	DEPA VI	GW	ES C	EGKB			
1A Do Nothing	45.8	3	40.	8	164.8		1A Do Nothin	g	67	7.2	34.4	4	33.6	204.6			
LE Dens via	CPT	25%	LE Arrs vi	a CPT	46%												
LE Dops vis	SAM	16%			52%												
LF Deps via	a GM/C	E0%	LF AITS VI		03%												
LF Deps via	ECKB	10/0	EGKB to E	GLF	1%												
LF deps to	EGKB	100%			100%												
		100%															
Continuo	ous Climb,	/Desce	nt from/to F	arnboroug	h is currently	heavily l	limited owi	ng t	o inter	ractio	ons wi	th ro	outes t	o/from ac	jacent airp	oorts. Standa	rd Instrument
Departures	have step	climbs	, some requ	uiring level	offs at 2000	and 3000	Oft. Arrivals	are	often	requ	ired to	o de	scend	much earl	ier than ide	eal in under t	to descend below
						Gatw	vick and Hea	athro	ow tra	iffic.							
Commorcial a	irlinos			Training	octo									Qualitativ	•		
commercial a	innes			Training C										Quantativ			
Flight procedu	ires chang	ge worl	dwide with	each AIRA	C cycle and o	perators	update the	ir pr	ocedu	ires a	ccordi	ingly	, train	ing if requ	ired. If this	baseline sy	stem was retained,
			ti	ne same fl	ght procedur	es would	d be used ar	nd tr	aining	g cost	ımpa	cts v	vould	not chang	2.		
Commercial a	irlines			Other cos	ts									Qualitativ	e		
	As this on	tion is	already in o	peration, t	here are no c	ther cost	ts bevond b	usin	ess as	ะแรมส	al mai	nter	ance a	anticipate	as there y	will be no ch	ange.
				p = : = : : ; ;													
Airport/ANSP				Infrastruc	ture costs					1				Qualitativ	e		
As this optio	n is airea	ay in op	peration, the	ere are no	Intrastructure	e costs ar	nticipated v	vitn	no ado	aition	iai cos	sts D	eyona	business a	is usual m	aintenance a	is there will be no
							chan	ge.									
Airport/ANSP				Operation	al costs									Qualitativ	٥		
Allporty Allor				operation	ai costs									Quantativ	C		
As this o	ption is al	ready i	n operation	, there are	no operation	al costs a	anticipated	wit	h no a	dditio	onal co	osts	beyon	d business	as usual a	is there will	be no change.
																	-
Airport/ANSP				Deployme	nt costs									Qualitativ	е		
			Ac this opti	on is alrea	huin onoratio	n thora	ara na dani	0.00	ont of	acto a	nticin	ator	l ac th	oro will be	no chang		
			As this opti	UITIS allea	ay in operatio	n, there	are no depi	Oym		JSLS d	mucip	alet	i as th		ino change	<i>s</i> .	
All							Safety							Qualitativ	е		
A PBN arriva	I route on	ito fina	l approach (	as propose	d in each of	our Optic	ons 2-5) wo	uldı	mitiga	te th	e poss	sibili	ty of C	AS excurs	ions of airo	raft being p	ositioned towards
RWY 06 final	approach,	, which	can occur w	hen the R	/T loading is	high and	time-critic	al A	TC inst	tructi	on to	turn	onto ł	base-leg a	nd/or final	approached	is slightly delayed.
As covered	above, Fa	arnboro	ough's move	ments are	generally ca	pped at 2	20/hr. The a	abilit	y to ir	ncreas	se this	s flo	w rate	is depend	ent on wic	ler changes t	to the LTMA and
Farnboroug	h. Farnbo	rough's	s complexity	has a dire	ct impact on	TC work	load and th	eref	ore fu	ture t	traffic	gro	wth in	the LTMA	SW quadr	ant may lead	d to traffic levels
		v	vithin the Lo	ndon TMA	being cappe	d, or incr	eased aircr	aft h	nolding	g on t	he gro	ound	l, in or	der to ma	ntain safe	ty.	
All		<u>.</u>		Inte	erdependenci	es, confli	icts, and tra	ide d	offs wi	ith ot	her A	CPs		Qualitativ	e		
Doing not	hing at Fa	rnboro	ugh could st	ill generat	e Interdepen	dencies,	conflicts, ai	nd tr	ade of	tts w	ith oth	her A	ACPs si	nould the	changes pr	oposed by ei	ther Heathrow,
			Gatwick	, Southam	pton, Biggin (	or NERL r	require chai	nges	to Fa	rnbor	rough	's tra	affic flo	ows below	7000ft.		
				Dorforma	aco against t	no vision	and param	otor	e letro	togic	obioc	tivo	r of				
A11				the AMS	ice against ti	le vision	anu param	eter	s/stid	legic	objec	live	5 01	Qualitativ	•		
All				the Alvis										Quantativ	e		
The Airspace	e Moderni	isation	Strategy vis	ion is to de	eliver quicker	, quieter	and cleane	r jou	irneys	and r	more o	сара	city fo	r the bene	fit of thos	e who use ar	nd are affected by
							UK airs	расе	₽.								
Our DPE conc	luded tha	t doing	nothing pa	rtly meets	the strategic	aims of	the AMS. F	arnb	oroug	h hav	/e rece	ently	mode	rnised the	ir airspace	by impleme	enting PBN arrivals
and departure	es togethe	er with	Controlled /	Airspace. S	ince then, in	order to	enable DVC	DR ra	ational	lisati	on (m	enti	oned ii	n Para 2.8	3 of CAP17	11), Farnbor	ough implemented
the use of RN	AV substi	tution	for their Init	ial Approa	ch Procedure	s (See AC	CP-2023-023	3). A	As set	out i	n the S	State	ement	of Need f	or that AC	P and as with	nin CAP1781, RNAV
substitutio	n is an int	terim n	neasure prio	or to a perr	nanent PBN s	solution.	Option 2A/	2B v	vithin	this /	ACP re	epres	sents t	he minim	um change	s necessary	to adhere to the
					t	emporar	y nature of	RNA	V sub	stitut	tion.						
It's not ent	irely plau	sible a	t this stage	to say that	Do Nothing	will not n	neet the ob	jecti	ives of	fthe	AMS,	that	deper	nds very m	uch on wh	at changes N	VERL, Heathrow,
Gatwick and S	outhamp	ton wa	nt to propos	se and whe	ther Doing N	othing at	t Farnborou	ıgh v	vould	hinde	er thos	se ch	nanges	. However	, in the eve	ent that char	nges to surrounding
airspace wou	uld enable	e impro	ved operati	onal and/o	r environmer	ntal perfo	ormance an	d/or	CAS r	educt	tions,	Farr	nborou	gh would	wish to im	plement tho	se changes, hence
						being	g part of the	e pro	ogram	me.							
On the la		the CA	A roguines 5	NA\/	itution to k -	of a +	norariati		mlu -	d c=	n hi - c	d'	+6+6-	strong 11		+ +bors	ha changes to
Un the b	asis that	une CA	A requires R	the wide	ACL process	or a tem	iporary natu	ire o	niny an	u cor		u WI	un ine	Strong IIk	ennood tha	con he se	ue changes to
rai incorough's	s u d i i i C fl	ows as	a result of	nie wider	-ASI program	nne, rari	nuorough de	eteri mov"	nnne t	nd L		uung AV e	; is 1101 ubc+i+:	tion at Fa	rnborough	can be carri	eu iorwaru. Option
L			zny o illust	are the m	un undfi	Pes nece		1076	LICIId	nce (		18.2	นมวเไไไ	ation at Fa	noorougn	<u>.</u>	

			OP	тю	N 2A										
Group	Impact						Level	of A	nalysis						
Communities	Noise impact on health and	quality of li	fe				Part qua	antita	tive part q	ualitative	1 Do				
			The image GLEX single number of below.	to the l event people	eft show for eacl within	vs the 65c n existing a each cont	dB (mager arrival an our comp	60 nta) a d dep pared pared GLE Po	dB LAMAX nd 60dB (wh ARRIVALS out So dB LAMAX FORMAT DEPARTURES X 60 dB LAMAX pulation Count	hite) LAMA 2. The % ch ine is show 6 24 AVERAG	100% 100% ECHANGE	rs for he <sup>96%</sup> abl <b>gs</b> % 100%			
	Dates Dates Titled Coldinity		GLEX 60dB LAM	AX	RUNWAY	1 Do nothing Baseline	2A	65	GLEX dB LAMAX	RUNWAY	1 Do nothing Baseline	2A			
	forst known	Cabant	ARRIVALS GLEX 60 dB LA Population Co	MAX	6 24	100%	96% 97%	GLE Po	ARRIVALS X 65 dB LAMAX pulation Count	6 24	100%	93% 100%	-		
	Algent Composed Represent		DEPARTUR GLEX 60 dB LA Population Co	ES MAX sunt	6 24 AVERAG	100% 100% E CHANGE	100% 100% -2%	GLE Po	DEPARTURES X 65 dB LAMAX pulation Count	6 24	100%	100%	-		
	times to an	ge to the left overflight con existing arriv ssuming all tr ne. It is mapp	shows the av es to/from 70 val and depar affic is on the ed against ar	erage 200ft ture eroute eas of	Th pla th 2.	e tables be aces of wo e do nothi erflight NS	elow show rship ove ng scenar	w the erflow rio, as	% change in n by average suming all tr	the numb typical or raffic is on	er of educ verflight c the route Overflig	cation and ones to/fr centrelin <b>1t NSRs</b>	d healthca rom 7000 ie.	tre facilitie ft compare	es and ed to
Tellay Cantorna Enception Enception	the num contour	ber of people compared to	er of people within each ompared to the baseline shown			Arrivals <sup>2</sup> Heathcare Count (0-7000ft)		6	Baseline	97%	Depar Heathcar (0-700	tures e Count D0ft)	6	Baseline	100%
	Guildteet Overfil Popula	ight RUNN	VAY nothing Baseline	2A	E	lucation Cou (0-7000ft)	nt	6	100%	105% 94%	Educatio	n Count D0ft)	24 6	100%	100%
	Horikim	ALS 6 6 Count 24	100%	99% 101%	Pi	aces of Wors Count (0-7000ft)	hip	6	100%	94%	Places of Cou	Worship Int DOft)	6	100%	100%
Pendid	Overflight (0 Population	6 -7000ft) Count 24 AVE	100% 100% ERAGE CHANGE	100% 100% 0%				24 AVERAG	100% E CHANGE	0%			24 AVERAGI	100% E CHANGE	100% 0%
national data and a second sec	Based o to have	n the extent o	of the existin 1 the size or s	g and fo hape of	orecast f the LC	(2031) LO AEL.	AEL, both	n with	and withou	t planning	consent,	this airspa	ace design	option is	expected
Communities	Air Quality	below 1000	)ft for Earph	oroug	h's arri	vals or de	Qualitat	tive	this option	is therefy	ore not e	reacted t	to have a	n offect o	n Local Air
	vertical tracks of hight paths	Delow 1000		Qualit	ty.		partares	5 ana		is therein	ore not es	.pecieu i	to nave a	in encer o	in Eocal All
Wider Society	Greenhouse Gas Impact						Quantita	ative		I	2022				
Uption 2A is estimated to result in an a	nnual increase of 2,174nm flo	wn by Farnd split a	nd the same	ement e direc	tional s	pared to t	affic.	iotnin —1	g scenario,	based on	2023 m	ovements	s, the 20	year aver	age modal
					NM	Differ	ence								
		1A Do	Nothin	g			0.0	D							
		2A					2174	4							
Wider Society	Capacity/Resilience						Qualitat	tive							
This option would be expected to reduc onto final approach. This would enable it would not be expected to fa	e the workload of Farnborough them to perhaps provide an in cilitate any reduction in the sta	ATC quite on ATC q	considerably vice to aircra rates applie	by ren aft in tl d by T	noving heir air C as th	the need space, fo e handlin	to desce r examp g to mov	end a le by veme	nd turn airc climbing de nts betwee	epartures n the 2 u	very time sooner o nits woul	ly manne wing to a d remain	er in the o a lower R n the sam	constraine /T workle e as toda	ed airspace oad though y.



	Performance against the vision and parameters/strategic objectives of									
the AMS Qualitative										
The Airspace Modernisation Strategy vision is to deliver quicker, quieter and cleaner journeys and more capacity for the benefit of those who use and are affected by UK airspace.										
This option would not directly deliver env	vironmental benefit although the reduction in R/T for Farnborough ATC co	uld be expected to result in an improved service to GA aircraft wishing to transit								

This option would not directly deliver environmental benefit although the reduction in R/T for Famborough ATC could be expected to result in an improved service to GA aircraft wishing to transit the airspace and provide more time to climb/descend Farnborough's movements in a more optimal manner. Only having PBN Initial Approach Procedures (IAP) to ILS (and not also RNP APCH) would reduce the requirement for extending the CTR to the west. A reduction in Farnborough ATC workload would enhance safety and potentially reduce ground/airborne delay through improved ATC capacity. This could be expected to offset the small increase in CO2 necessary to implement PBN IAPs.

				ΟΡΤΙ	ON 2	2B										
Group	Impact			Leve	el of A	nalysis	;									
Communities	Noise impact on health a	nd quality	of life				Part o	uantitat	ive, part	qualitativ	1 Bo (Ce nothing	2B				
			The ima GLEX sin number below.	ge to the longle event in of people	eft sho for eacl within	ws the 65df h existing ar each conto	3 (magent rival and ur compa	a) and 60 ARR degast br aredPbouth DEPAI GLEX 60 Populat	CANNAX IVALS IVALS RECEIVER: T RECEIVER: T RECEIVER: T dB LAMAX ion Count	e) LAMAX ( 'he % chan e is shown 6 24 Average	Baseline Contours I 100% in thetab 100% 100% CHANGE	for 96% e les 81% 87% 100%				
	and Canada	Line (2) Name	GLI 60dB L	EX AMAX	RUNWAY	1 Do nothing Baseline	2B	GI 65dB I	LEX LAMAX	RUNWAY	1 Do nothing Baseline	2B				
AND ASAM	and a start	Cuture	ARRIN GLEX 60 d	VALS IB LAMAX	6	100%	96%	ARR GLEX 65	IVALS dB LAMAX	6	100%	93%				
and the second sec		100	Populatio	on Count	24	100%	81%	Populat	ion Count	24	100%	100%				
artest to a transfer to a tran	Engineering Charactering	and the second	GLEX 60 dB LAMAX			100%	100%	GLEX 65	dB LAMAX	6 24	100%	90%				
and the second sec		Sec.		_	AVERA	GECHANGE	-9%			AVERAGE	100% CHANGE	-4%				
Lang Lang	The image to the left shows the average typical overflight cones to/from 7000ft for each existing arrival and departure route, assuming all traffic is on the route certain the do nothing scenario, assuming all traffic is on the route certain the do nothing scenario.										ucation ar cones to/ te centreli	nd healthc from 7000 ne.	are facilitie Ift compare	es and ed to		
Tailer Caistray	would the nu	centreline. It is mapped against areas of population density with the % change for the number of people within each					NSRs als	S RUNWAY 1 Do nothing Baseline		2B	Overflight NSRs Departures		RUNWAY	1 Do nothing Baseline	2B	
Exsingstoke Earnbarough	contor in the	ur compar tables belr	ed to the b ow.	aseline sho	own	Heathcare (0-7000	Count Oft)	24		98%	Heathcare Count (0-7000ft)		6	100%	119%	
- A starter	Over Popu	rflight Ilation	RUNWAY r B	1 Do nothing Baseline	2B	Education Count 6 (0-7000ft) 24		6	100%	93%	Educati (0-7	ion Count 000ft)	6	100%	100% 84%	
	Overflight Populat	erflight (0-7000ft) epulation Count	erflight (0-7000ft) opulation Count	6 24	100%	96%	Places of W	/orship	6	100%	100%	Places o	of Worship	6	100%	100%
Prestind	DEPAI Overflight	RTURES t (0-7000ft)	6	6 100% 92%		(0-700	Dft)	24	24 100%	115%	(0-3	Count (0-7000ft)	24	100%	100%	
	Populati	on Count	24 AVERAGE CH	100%	-3%			AVERAGE	CHANGE	2%	1		AVERAG	E CHANGE	0%	
n Kantasen Intelen Algen Chinger Portmein Kantasen	Arundel Worthing Owing with a would	; to the ear and withou I be positiv	rlier turn o ut planning ve or negati	n RWY 06 ( consent ) l ive.	departu .OAEL.	ures, this op No modelli	ition coul ng of the I	d have ar .OAEL has	n impact o s been per	on the size formed at	or shape o this stage	of the exis e to deterr	ting and fo	precast (20 her such a	31 both change	
Communities	Air Quality						Qualit	tative								
This option would not alter the lateral or	vertical tracks of flight pa	ths below	v 1000ft fo	or Farnbo Air O	rough's wality.	s arrivals o	r departı	ures and	this opti	on is ther	efore no	t expecte	d to have	an effect	on Local	
Wider Society	Greenhouse Gas Impact						Quan	titative								
Option 2B is estimated to result in an	result in an annual increase of 7,530nm flown by Farnborough movements compared to the Do Nothing scenario, based on 2023 movements, the 20 year average modal split and the same directional split of traffic.										verage					
		14.0			N	M Diffe	rence	•								
		2B		ning			753	0								
		20					/33									
Wider Society	Capacity/Resilience	rough AT	C quito	ncidorabl	(b) re	moving	Qualit	tative	d and tur	n aircraft	in a ver	timolum	annor in	the const	ninod	
airspace onto final approach. This workload though it would not be expected	uld enable them to perhaps to facilitate any reduction	s provide in the st	an improv andard flo	ved service w rates a	e to ai pplied	rcraft in th I by TC as t	eir airspa he handl	ace, for e ing to m	example ovement	by climbins betwee	ng depar n the 2 u	tures soo nits woul	ner owing Id remain	to a lowe the same	er R/T as today.	

Wider Society	Biodiversity and Tra	anquillity				Qualitative
and the second sec	Slough Southall, ndsor Richmor	Tranquillity The image to the against the North	e left show h Wessex [	s the avera Downs and	age typical I Surrey Hi	overflight cones to/from 7000ft for each existing arrival and departure route, mapped Is AONB and the South Downs National Park.
Newbury Brachell Tadley Cambridy	Kingston upon	Overflight AONB	RUNWAY	1 Do nothing Baseline	28	
North Wessex Downs Eutonom	Woking	ARRIVALS Overflight (0-7000ft)	6	100%	91%	
DOWIS Basingstoke Aldershot Farnham	Surrey Hills	AONB Area (km2)	24	100%	88%	
	1 mar	Overflight (0-7000ft) AONB Area (km2)	24	100%	100%	
~ 5°52	E Carlos		AVERAG	E CHANGE	-10%	
Winchester Petersfield	Horsham	Overflight	RUNWAY	1 Do nothing	28	
South Downs	2	ARRIVALS	6	100%	98%	
n Waterlooville	5 m	NP Area (km2)	24	100%	155%	
Fareham Havant Chichester	Atundel Worthing	Overflight (0-7000ft) NP Area (km2)	6 24	100%	132%	
Bognar Reg			AVERAG	E CHANGE	27%	
The image to the right shows the average th 2000ft for the Do Nothing option mapped a RAMSAR sites surrounding the airport. The overflown below 2000ft: 1. Thames Basin Heaths SPA, <u>Bourley</u> and Li 2. Thames Basin Heaths SPA, <u>Edimoor</u> Marsi 3. Thames Basin Heaths SPA, <u>Edimoor</u> Marsi 4. Thames Basin Heaths SPA, <u>Selmoor</u> Marsi 4. Thames Basin Heaths SPA, Colony Bog an Ash, Pirbright & Chobham SAC	pical overflight cones gaints SACs, SSSIs, SPA iollowing sites are curr yng Valley SSSI 1 SSSI, Basingstoke Car rood Heaths SSSI, Basir nam SAC d Bagshot Heath SSSI,	to/from and rently hal SSSI Igstoke Thursley,	7			
General Aviation	Access	( <del>-</del>				Qualitative
This option assumes only the introduction	n of PBN procedures	to the ILS and RN	NP APCH a	and a slig	htly earlie	r first turn on RWY06 departures with all other profiles remaining as they are today. By
the Design of Controlled Airspace Str centreline and the edge of CAS which w Odiham and Lasham is considered to vertical plane, could require some ameno. This option would be expected to red airspace onto final approach. This would	iccures says that their rould require a bespo be significant with G Jments to CTR2/CTA: uce the workload of I provide reduced R/T is n	re should be betw oke safety case to 6A outside CAS all 1 potentially affec Farnborough ATC workload, perhap ot expected to fac	veen 2 and o support. ready curr cting Fairo quite con os enablin cilitate the	d 3nm fro This is no rently ope oaks aswe siderably g the abil e release	om an RNA ot felt to b erating clo ell as the by remov ity to prov of any of	VVI arrival route and the edge of CAS. There would be only be c.0.5nm between this e achievable without extending the Farnborough CTR to the west. The impact on RAF se to the boundary. The RWY 24 arrival is wholly contained laterally although, in the LON CTR potentially requiring an adjustment to its dimension or managed through LoA. Ing the need to descend and turn aircraft in a very timely manner in the constrained <i>i</i> de an improved service to other GA aircraft wishing to transit the airspace. This option Farnborough's CAS to Class G.
General Aviation/ commercial airlines	Economic impact fr	om increased effe	ective cap	pacity	economic	Qualitative
the extension of the CTR to the west red	juired by this option	there could be a insi	negative e ide CAS co	effect on ould nega	Lasham/C tively affe	John operations. The requirement to contain a PBN arrival to RWY06 final approach ect Fairoaks.
General Aviation/ commercial airlines	See wider socie	ety Green House (	Gas Impac	ct as the i	methodol	Quantitative ogies employed at Stage 2 are the same.
Commercial airlines	Training costs					Qualitative
Flight procedures are updated or intro	duced worldwide as	part of an AIRAC	cycle. As	part of th	nis cycle, E	Business Jet operators update their procedures accordingly and undertake training if
required on	a business as usual b	basis. This option	is not ant	ticipated 1	to require	any additional training costs for Farnborough's customers
	N	o other costs for	Farnborou	ugh's cust	omers are	e foreseen with this option.
Airport/ANSP	Infrastructure costs					Qualitative
	This	design option is r	not expect	ted to cha	inge Farnl	porough's infrastructure costs.
Airport/ANSP	Operational costs				_	Qualitative
Aline ant /ANICD	Thi:	s design option is	not expe	cted to ch	nange Fari	aborough's operational costs.
Airport/ANSP	fic controller training	for the controlle	rs and ass	istants le	cated at I	Qualitative
requires further exploration as part of	:he Stage 3 Full Opti	ons Appraisal, wh interdep	nen apprai pendencie	ising the set with ac	shortlist o ljacent air	f options and once further information is known about the network above 7000ft and ports and NERL.
All The reduction in Farnborough ATC work	oad is expected to er	Saf nhance safety insi	ety ide CAS. /	Any impa	ct on Fairo	Qualitative baks as a result on any changes to CTR2/1 have not yet been assessed. Impacts on RAF
IFP design has shown that an RNP APCH BaroVNAV RNP APCH would not be de would also ne	Odiham and La to RWY 24 has an im signed to 3.5° to mat ed consideration of t	asham as a result apact on D132 and tch the ILS but wo the PAPI angle. IF	of an ext d an earlie ould need P flyabilit	ension of er turn for to have a y has not	the CTR t r RWY06 c lower pro yet been	o the west have not yet been assessed. Jepartures would continue to requirement ATC intervention during D132 activation. Any ofile to enhance availability in all temperatures, this could further impact CTR2/1 and performed which could change the impacts described so far.
All	Interdepende	encies, conflicts, a	and trade	offs with	other ACF	Ps Qualitative
The implementation of PBN to final appr of a new contingency hold is dependent of	oach is unlikely to re n Heathrow and/or (	quire trade-offs v Gatwick being abl were to be requi	with Heath le to be gu ired from	hrow, Gat uaranteed those airp	twick, Big d to climb ports in or	gin Hill or Southampton because the changes are very small and low level. The addition higher, sooner. This could result in trade-off analysis if a steeper than optimal gradient der to facilitate the hold.

	Performance against the vision and parameters/strategic objectives of	
All	the AMS	Qualitative
The Airspace Modernisation Strat	egy vision is to deliver quicker, quieter and cleaner journeys and more ca	pacity for the benefit of those who use and are affected by UK airspace.
This option would not directly deliver env	ironmental benefit although the reduction in R/T for Farnborough ATC co	uld be expected to result in an improved service to GA aircraft wishing to transit
the airspace and provide more time to cli	mb/descend Farnborough's movements in a more optimal manner. Havi	ng PBN Initial Approach Procedures (IAP) to both ILS and RNP APCH would create
a requirement to extend the CTR to the w	vest, potentially increasing Class G compression, GA pilot workload and C	diham ATC workload. The slightly shorter RWY 06 departure does not offset the
slightly longer final approach to each	n end. A reduction in Farnborough ATC workload would enhance safety a	nd potentially reduce ground/airborne delay through improved ATC capacity.

				OP	TION 3	A								
Group	Impact						Level of Ar	nalysis						
Communities	Noise impact on heal	Ith and quality	of life				Part quantitati	ve, part q	ualitative					
tra Escalar Derinit de Latera		Paul Indian	The	image to	the left sho	ows the	With Biggin H	ill routes	10-		Without Biggin	Hill rout	tes	
in any view		Line Contraction	LAN	MAX conto ent for eac	ours for GLE h existing a	X single rrival and	GLEX 60dB LAMAX	RUNWAY	1 Do nothing Baseline	3A	GLEX 60dB LAMAX	RUNWAY	nothing Baseline	3A 09%
Description (			dep	arture rou	ute. The % o	change e within	GLEX 60 dB LAMAX Population Count	24	100%	97%	GLEX 60 dB LAMAX Population Count	24	100%	97%
AND THE AND THE ADDRESS OF	Constant -	A STATE	eacl	h contour	r compared	to the	DEPARTURES	6	100%	126%	DEPARTURES	6	100%	133%
States And		Abory Dave	with	hout the l	own both v ow level ro	utes	Population Count	24 AVERAGE	100%	108%	Population Count	24 AVFRAG	100%	94%
	Lines Construction		betv	ween Farn	nborough a	nd Biggin								
		1. 1					GLEX 65dB LAMAX	RUNWAY	1 Do nothing Baseline	3A	GLEX 65dB LAMAX	RUNWAY	1 Do nothing Baseline	ЗA
and the second s	Harbore	torning the	1				ARRIVALS GLEX 65 dB LAMAX	6	100%	94%	ARRIVALS GLEX 65 dB LAMAX	6	100%	93%
particular and a second s	Creptered + ChisSingles	the second	A STATE				DEPARTURES	6	100%	96%	Population Count DEPARTURES	24 6	100%	100% 96%
Contraction of the second seco	antester		4				GLEX 65 dB LAMAX Population Count	24	100%	103%	GLEX 65 dB LAMAX Population Count	24	100%	81%
	Though Carden The Total Carden	ne image to the 000ft for each ex- on the route ce ensity. The % ch ompared to the l ow level routes b	eft show disting arr ntreline. ange for t paseline i etween f	ris the aver rival and d It is mapp the numb is shown t Farnborou	rage typical departure ro bed against a der of people below both ugh and Bigg	overflight o oute, assumi areas of pop e within eac with and wi gin Hill.	cones to/from ing all traffic pulation ch contour ithout the	AVERAGE	CHANGE	-2%		AVERAG	ECHANGE	-8%
Basingstoke Basingstoke	W	/ith Biggin Hill r	outes			Without I	Biggin Hill routes							
Addition	Cuidford	Overflight	RUNWAY	1 Do nothing	3A	Overfli	ght RUNWAY	1 Do nothing	ЗA					
	0	ARRIVALS	6	100%	138%	ARRIVA	LS 6	Baseline	134%					
Section 20	P	opulation Count	24	100%	89%	Population	Count 24	100%	101%					
Ninchester	Hersham	DEPARTURES rerflight (0-7000ft)	6	100%	211%	DEPARTU Overflight (0-	-7000ft) 6	100%	262%					
Petersfield			24 AVERAG	100% E CHANGE	193%	roputation	AVERAG	100% SE CHANGE	74%					
Bathouille Farthouille Personner Personner	Anundel Ba	ased on the exte o have no impac	nt of the t on the s	existing a size or sha	and forecast pe of the Li	: (2031) LOA DAEL.	AEL, both with ar	nd without	planning	consent	, this airspace des	ign optio	on is expe	cted:
The tables to the right show the % change	in the number of	/ith Biggin Hill re	outes		Without	Biggin Hill r	outes							
education and healthcare facilities and pl overflown by average typical overflight co	aces of worship	erflight NSRs Arrivals	AY nothing Baseline	ЗА	Overflight NS Arrivals	RUNWAY	1 Do nothing 3A Baseline							
compared to the do nothing scenario, ass	uming all traffic is	6 (0-7000ft)	100%	146% 91%	Heathcare Cou (0-7000ft)	nt 6 24	100% 136%							
routes between Farnborough and Biggin I	Hill are shown.	ducation Count 6 (0-7000ft)	100%	143%	Education Cou (0-7000ft)	nt 6	100% 118%							
	Pl	aces of Worship Count 6	100%	80%	Places of Worsh Count	24 lip 6	100% 94%							
		(0-7000ft) 24	100% RAGE CHANGE	94% 14%	(0-7000ft)	24 AVERAGE	100% 108% CHANGE 13%							
	Ov	erflight NSRs RUNW	AY nothing	ЗА	Overflight NS	RS RUNWAY	1 Do nothing 3A							
	H	eathcare Count 6 (0-7000ft)	100%	233%	Heathcare Cou (0-7000ft)	nt 6	100% 290%							
	Ed	ducation Count 6	100%	206%	Education Cou	24 nt 6	100% 93%							
	Pl	aces of Worship 6	100%	402%	Places of Worsh	24 iip 6	100% 95%							
		(0-7000ft) 24	100%	152%	Count (0-7000ft)	24	100% 191% 100% 84%							
Communities	Air Quality	,		1 10/		AVERAGE	Qualitative							
This option would not alter the lateral	or vertical tracks of fligh	it paths below	1000ft f	or Farnbo	orough's a Quality.	rrivals or d	epartures and t	his optior	is there	fore not	expected to ha	ve an ef	fect on L	.ocal Air
Option 3A is estimated to result in a	annual reduction of 16	i1,143nm flowr	1 by Farm	nborough	movemen	ts compare	ed to the Do No	othing sce	nario, ba	sed on 2	2023 movement	s, the 20	) year av	/erage
		moda	il split ai	nd the sa	ime directi	onal split o	of traffic.							
					NM D	ifferend	ce							
		1A Do	Noth	ning			0.0							
		3A				-1611	L43							
Wider Society	Capacity/Resilience						Qualitative							
This option would be expected to reduc	the workload of Farnb	oorough ATC qu	ite cons	iderably	by removir	ng the need	d to descend an	d turn air	craft in a	very tir	nely manner in	the cons	trained	airspace
reduce R/T. This would enable them to	perhaps provide an imp	to the north of proved service '	the exis to aircra	ting track ift in thei	к, wnere tr r airspace,	for examp	le by climbing	wnen con departure	s sooner	owing t	arrival from the to a lower R/T v	soutn, c vorkload	ouia furi I though	it would

reduce R/T. This would enable them to perhaps provide an improved service to aircraft in their airspace, for example by climbing departures sooner owing to a lower R/T workload though it would not be expected to facilitate any reduction in the standard flow rates applied by TC as the handling to movements between the 2 units would remain the same as today. However, the removal of Biggin Hill arrivals and departures from TC could be expected to help reduce complexity in TC sectors and eliminate and ground delay imposed by TC for those movements. The availability of an RNP AR arrival to runway 06 which avoids Odiham's MATZ will reduce ATC workload and co-ordination with RAF Odiham.

#### Qualitative Wider Socie ersity and Tranguillit Tranguillity rranquinity The image to the left shows the average typical overflight cones to/from 7000ft for each existing arrival and departure route, mapped against the North Wessex Downs and Surrey Hills AONB and the South Downs National Park. The tables below illustrate the typical changes in overflight of these areas compared to the baseline. With Biggin Hill routes Without Biggin Hill routes verflig AONB зА за AONB Wesse 6 100% 152% 6 100% 149% 100% 100% 24 78% 24 94% Surrey Hills 6 100% 6% 6 100% 8% 24 1009 24 1009 ANGE AVER NGE за за Nat Park South Downs 71% 6 6 100% 24 100% 119% 24 100% 1499 919 1009 1229 24 100% 78% 24 100% 104% ..... Biodiversity The image to the right shows the average typical overflight cones to/from 2000ft for the Do Nothing option mapped against SACs, SSSIs, SPA and RAMSAR sites surrounding the airport. The following sites are currently RAMSAR sites surrounding the airport. The following sites are currently overflown below 2000ft: 1. Thames Basin Heaths SPA, Bourley and Long Valley SSSI 2. Thames Basin Heaths SPA, Edimoor (Marsh SSSI, Basingstoke Canal SSSI 3. Thames Basin Heaths SPA, Ash to Brookwood Heaths SSSI, Basingstoke Canal SSSI, Thursdey, Ash, Pitbright & Chobham SAC 4. Thames Basin Heaths SPA, Colony Bog and Bagshot Heath SSSI, Thursdey, b. District & Chebker G. Ash, Pirbright & Chobham SAC General Aviation Access Qualitative This assumes the introduction of PBN procedures to the ILS, a change to the lateral track of the RWY 06 SIDs after the 2nd turn, a route between Farnborough and Biggin Hill and an RNP-AR arriva to RWY 06 and an improvement in profiles for departures to the NW/W. By moving the RWY 06 Final Approach Fix (FAF) closer to the Threshold (THR), the PBN approach transition can fit right in the centre of the existing arrival swathe. The CAA Policy for the Design of Controlled Airspace Structures says that there should be between 2 and 3mm from an RNAV1 arrival route and the edge of CAS. There would be between 1 and 2nm between this centreline and the edge of CAS which would require a bespoke safety case to support. This is felt to be achievable at this time. The RWY 24 arrival is wholly contained laterally although, in the vertical plane, could require some amendments to CTR2/CTA1 potentially affecting Fairoaks aswell as the LON CTR potentially requiring an adjustment to its dimension or managed through LoA. The change to the lateral profile of the RWY 06 SIDs is not expected to affect CAS. The RNP-AR arrival to RWY06 that avoids the RAF Odiham MATZ could require a very small adjustment to the NW corner of CTA4 and the SW corner of the CTR. The route between Farnborough and Biggin Hill is not expected to affect Farnborough's CAS dimensions. This option would be expected to reduce the workload of Farnborough ATC quite considerably by removing the need to descend and turn aircraft in a very timely manner in the constrained airspace onto final approach. This would provide reduced R/T workload, perhaps enabling the ability to provide an improved service to other GA aircraft wishing to transit the airspace. This option is not expected to facilitate the release of any of Farnborough's CAS to Class G. Qualitative General Aviation/ commercial airlines Economic impact from increased effective capacity We expect the increased capacity/resilience detailed in the section above will result in a positive economic impact on Famborough's customers compared with the Do Nothing scenario. The requirement to contain a PBN arrival to RWY06 final approach inside CAS could negatively affect Fairoaks. General Aviation/ commercial airlines Fuel Burn Quantitative See wider society Green House Gas Impact as the methodologies employed at Stage 2 are the same. Training costs Qualitative Commercial airlines Flight procedures are updated or introduced worldwide as part of an AIRAC cycle. As part of this cycle, Business Jet operators update their procedures accordingly and undertake training if required on a business as usual basis. Whilst this option contains an RNP-AR arrival, it would not be the only approach available and therefore Farnborough's customers would not be required to be RNP-AR approved. This option is not anticipated to require any additional training costs for Farnborough's customers ercial airlines Other costs Qualitative No other costs for Farnborough's customers are foreseen with this option Airport/ANSP Infrastructure costs Qualitative This design option is not expected to change Farnborough's infrastructure costs Airport/ANSP This design option is not expected to change Farnborough's operational costs. Airport/ANSI Qualitativ

This option is expected to require air traffic controller training for the controllers and assistants located at Famborough Airport, and London Terminal Control. The scale and nature of this training requires further exploration as part of the Stage 3 Full Options Appraisal, when appraising the shortlist of options and once further information is known about the network above 7000ft and interdependencies with adjacent airports and NRR.

Safety Qualitative

The reduction in Famborough ATC workload is expected to enhance safety. The ability to fit a PBN IAP to ILS within the existing CTA is subject to an acceptable case safety case allowing reduced distance between the PBN centreline and the edge of CAS. IFP design has shown that an RNP APCH to RWY 24 has an impact on D132. Any BaroVNAV RNP APCH would not be designed to 3.5' to match the ILS but would need to have a lower profile to enhance availability in all temperatures, this could further impact CTR2/1 and would also need consideration of the PAPI angle. IFP flyability has not yet been performed which could change the impacts described to far. Any impact on Fairoaks as a result on any changes to CTR2/1 have not yet been assessed. Removal of flights between Biggin Hill and Famborough from TC would reduce complexity in their sectors. There are not yet any RNP-AR arrival procedures promulgated in the UK which may require additional assurances.

#### Interdependencies, conflicts, and trade offs with other ACPs Qualitative

The implementation of PBN to final approach is unlikely to require trade-offs with Heathrow, Gatwick and Southampton because the changes are very small and low level. The addition of a new contingency hold is dependent on Heathrow and/or Gatwick being able to be guaranteed to climb higher, sooner. This could result in trade-off analysis if a steeper than optimal gradient were to be required from those airports in order to facilitate the hold. The addition of a low level route between Farnborough and Biggin Hill does have interdependencies with Heathrow, Gatwick and Biggin Hill sACPs. There are no RNP-AR arrivals promulgated in the UK at this time.

	Performance against the vision and parameters/strategic objectives of											
All	the AMS	Qualitative										
The Airspace Modernisation Stra	ategy vision is to deliver quicker, quieter and cleaner journeys and more ca	apacity for the benefit of those who use and are affected by UK airspace.										
This option would deliver environmental	his option would deliver environmental benefit, through the availability of an RNP-AR approach to a shorter final and the ability for a more direct flight planned route to CPT. The reduction in R/T											
for Farnborough ATC from PBN IAPs to	final approach, an RNP-AR arrival and a RWY06 SID that better deconflict	s from arrivals could be expected to result in an improved service to GA aircraft										
wishing to transit the airspace and provid	e more time to climb/descend Farnborough's movements in a more optir	nal manner. Only having PBN Initial Approach Procedures (IAP) to ILS (and not also										
RNP APCH) would reduce the requirement	t for extending the CTR to the west. A reduction in Farnborough ATC wor	kload would enhance safety and potentially reduce ground/airborne delay through										
	improved ATC capacity.											
L												

OPTION 3B												
Group Impact					Level of Ar	alysis						
Communities Noise impac	t on health and quality	of life			Part quantitati	ve, part qu	ualitative	1				
kej te te Denerit i den Denerit er seter		The image to 65dB (mage	o the left shi nta) and 600	owsthe IB (white)	With Biggin H	ill routes	1 Do		Without Biggin	n Hill rou	1 Do	
Heren Anne		LAMAX cont	ours for GL	X single	60dB LAMAX	RUNWAY	nothing Baseline	38	60dB LAMAX	RUNWAY	nothing Baseline	38
	The second second second	departure ro	oute. The %	change	ARRIVALS GLEX 60 dB LAMAX	6	100%	99%	ARRIVALS GLEX 60 dB LAMAX	6	100%	98%
Training Date Contraction Annual		for the num each contou	ber of peopl Ir compared	e within to the	DEPARTURES	6	100%	126%	DEPARTURES	6	100%	133%
	and the second second	baseline is s	hown both v	with and	GLEX 60 dB LAMAX Population Count	24	100%	108%	GLEX 60 dB LAMAX Population Count	24	100%	94%
	and the second second	between Far	nborough a	nd Biggin		AVERAGE C	CHANGE	4%		AVERAG	ECHANGE	2%
	East-rider				GLEX	RUNWAY	1 Do nothing	38	GLEX	RUNWAY	1 Do nothing	38
	tatur				65dB LAMAX	6	Baseline	94%	65dB LAMAX	6	Baseline	93%
	Dellas -	1			GLEX 65 dB LAMAX Population Count	24	100%	100%	GLEX 65 dB LAMAX Population Count	24	100%	100%
and Marks					DEPARTURES GLEX 65 dB LAMAX	6	100%	96%	DEPARTURES GLEX 65 dB LAMAX	6	100%	96%
	Constant of the second	Å			Population Count	24 AVERAGE C	100%	103% -2%	Population Count	24 AVFRAG	100%	81%
	The image to the 7000ft for each e is on the route of density. The % cf compared to the low level routes l	eleft shows the ave existing arrival and entreline. It is map hange for the num baseline is shown between Farnbord	erage typica departure r ped against ber of peopl below both pugh and Big	l overflight o oute, assum areas of pop e within ead with and wi gin Hill.	cones to/from ing all traffic pulation th contour ithout the							
Pasingsole Pariosotuth	With Biggin Hill r	routes		Without	Biggin Hill routes	6						
Aldestron, Geniefered	Overflight	1 Do RUNWAY nothing	3B	Overfli	ght RUNWAY	1 Do nothing	38					
	ARRIVALS	6 100V	139%	ARRIVA	LS 6	Baseline	135%					
State of the state	Population Count	24 100%	84%	Population	Count 24	100%	95%	t				
Machiner Control of Co	DEPARTURES Overflight (0-7000ft)	6 100%	211%	DEPARTU Overflight (0	JRES 6 -7000ft)	100%	262%	1				
President	Population Count	24 100%	193%	Population	Count 24	100%	74%	ļ				
	Based on the ext to have no impar	AVERAGE CHANGE         S7%         AVERAGE CHANGE         41%           Based on the extent of the existing and forecast         (2031) LOAEL, both with and without planning consent, this airspace design option is exit to have no impact on the size or shape of the LOAEL.         State of the LOAEL.										ected
Hognor Regis	With Biggin Hill	routes	Withou	t Biggin Hill	routes							
education and healthcare facilities and places of worship	Overflight NSRs Arrivals	AY nothing 38 Baseline	Overflight N Arrivals	SRs RUNWAY	1 Do nothing 38 Baseline							
overflown by average typical overflight cones to/from 700 compared to the do nothing scenario, assuming all traffic	Oft Heathcare Count 6 (0-7000ft)	100% 146%	Heathcare Co (0-7000ft	unt 6	100% 136%							
on the route centreline. Data with and without the low le	/el Education Count 6	100% 91% 100% 143%	Education Co	24 unt 6	100% 105%							
routes between Farnborough and Biggin Hill are shown.	Places of Worship	100% 82%	(0-7000th Places of Wor	24 ship	100% 97%							
	Count (0-7000R) 24	100% 131%	Count (0-7000ft	24	100% 117%							
	Ave	I Do	Question 1	AVERAGE	1 Do							
	Departures RUNW	/AY nothing 3B Baseline	Departur	SKS RUNWAY	nothing 38 Baseline							
	(0-7000ft) 24	100% 233%	Heathcare Co (0-7000ft	24	100% 290%							
	Education Count 6 (0-7000ft)	100% 189%	Education Co (0-7000ft	unt 6	100% 233%							
	Places of Worship Count 6	100% 402%	Places of Wor	ship 6	100% 95%							
	(0-7000ft) 24 Ave	100% 129% ERAGE CHANGE 119%	(0-7000ft	24 AVERAGE	100% 84% CHANGE 64%							
Communities Air Quality This option would not alter the lateral or vertical track	s of flight paths below	1000ft for Farnk	orough's a	rrivals or de	Qualitative epartures and t	his option	is theref	ore no	t expected to ha	ive an ef	fect on I	ocal Air
			Quality.									
Option 3B is estimated to result in an annual reduct	ion of 146,684nm flow	n by Farnborough	n movemer	its compare	ed to the Do No	thing scer	nario, bas	ed on 2	2023 movemen	ts, the 2	0 year av	/erage
	mod	al split and the s	ame direct	ional split o	of traffic.							
			NM	Differe	nce							
	1A D	o Nothing			0.0							
	3B			-14	6684							
Wider Society Capacity/Re	silience	des sessible of the	. h		Qualitative	al da care de la				46.4	the state of the	
I nis option would be expected to reduce the workload onto final approach. In addition the RWY 06 departure	or Farnborough ATC que routing to the north of	uite considerably f the existing trac	by removi k, where t	ng the need affic is typi	i to descend an ically vectored	a turn airc when conf	cratt in a v flicting wi	very tii ith an i	mely manner in arrival from the	the cons south, c	strained ould fur	airspace ther help
reduce R/T. This would enable them to perhaps provide	le an improved service	to aircraft in the	ir airspace	for examp	le by climbing o	departures	s sooner o	owing	to a lower R/T	workload	l though	it would
not be expected to facilitate any reduction in the star Biggin Hill arrivals and departures from TC could be ex	ndard flow rates applie pected to help reduce of	a by IC as the ha complexity in TC:	indling to n sectors and	ovements eliminate	petween the 2 and ground del	units wou ay impose	nd remain d by TC f	n the s or thos	ame as today. H se movements	iowever The avai	, the rem lability o	ioval of of an RNP-
AR arrival to r	unway 06 which avoids	Odiham's MATZ	will reduc	e ATC work	load and co-ord	lination w	ith RAF C	diham	1.			



Performance against the vision and parameters/strategic objectives of													
	All the AMS Qualitative												
	The Airspace Modernisation Stra	The Airspace Modernisation Strategy vision is to deliver quicker, quieter and cleaner journeys and more capacity for the benefit of those who use and are affected by UK airspace.											
	This option would deliver environmental b	This option would deliver environmental benefit, through the availability of an RNP-AR approach to a shorter final and the ability for a more direct flight planned route to CPT. The reduction in R/T											
	for Farnborough ATC from PBN IAPs to f	final approach, an RNP-AR arrival and a RWY06 SID that better deconflict	s from arrivals could be expected to result in an improved service to GA aircraft										
	wishing to transit the airspace and provide	e more time to climb/descend Farnborough's movements in a more optin	nal manner. However having PBN Initial Approach Procedures (IAP) to ILS and RNP										
	APCH would create a requirement to exten	d the CTR to the west, potentially increasing Class G compression, GA pi	lot workload and Odiham ATC workload. A reduction in Farnborough ATC workload										
	would enhance safety and potentially reduce ground/airborne delay through improved ATC capacity.												
		,											

OPTION 4A											
Group Impact				Level of An	alysis						
Communities Noise imp	oact on health and o	uality of life		Part quantitativ	ve, part qualitative	2					
ker de Bonerik Commer en de Service de Servi		The image to	the left shows the	With Biggin Hi	ill routes		Without Biggin	Hill rout	es		
Barry Actor		LAMAX conte	ours for GLEX single	GLEX 60dB LAMAX	RUNWAY nothing Baseline	4A	GLEX 60dB LAMAX	RUNWAY	1 Do nothing Barolino	4A	
		event for eac	h existing arrival and	ARRIVALS	6 100%	100%	ARRIVALS	6	100%	99%	
Mignered Dear		for the numb	per of people within	Population Count	24 100%	97%	GLEX 60 dB LAMAX Population Count	24	100%	97%	
	Constant of the	each contou baseline is sh	r compared to the lown both with and	DEPARTURES GLEX 60 dB LAMAX	6 100%	126%	DEPARTURES GLEX 60 dB LAMAX	6	100%	133%	
	Safed State	without the	low level routes	Population Count	24 100% AVERAGE CHANGE	108%	Population Count	24 AVFRAG	100%	93%	
	formers	between Far	nborough and Biggin						C C T M I M C	0.0	
A CALL AND A		Ewkang		GLEX 65dB LAMAX	RUNWAY nothing Baseline	4A	GLEX	RUNWAY	1 Do nothing	4A	
Court Court	Naminatar State	and the second		ARRIVALS	6 100%	95%	650B LAMAX	6	Baseline	94%	
gefuits	Durified			GLEX 65 dB LAMAX Population Count	24 100%	100%	GLEX 65 dB LAMAX Population Count	24	100%	100%	
Librar Balance		Cartana 1		DEPARTURES GLEX 65 dB LAMAX	6 100%	96%	DEPARTURES	6	100%	96%	
				Population Count	24 AVERAGE CHANGE	103% -2%	GLEX 65 dB LAMAX Population Count	24	100%	81%	
and the second sec	The image 7000ft for is on the r density. Th compared low level r	to the left shows the aver each existing arrival and oute centreline. It is mapp he % change for the numt to the baseline is shown routes between Farnboro	rage typical overflight departure route, assun ped against areas of po ber of people within ea below both with and w ugh and Biggin Hill.	cones to/from ning all traffic opulation ich contour vithout the				AVENAG	E L'HAINGE	1/70	
Basingstoke Aldershor Guildford	With Biggi	Without Big	gin Hill routes	Do							
Tarakam	Overflight Population RUNWAY AA Popu										
	ARRIVALS Overflight (0-70	6 100%	130% ARRIVALS Overflight (0-700	oft) <sup>6</sup> 10	123%						
Anicherser	Horsham DEPARTURI	24 100%	84% Population Cou	nt 24 10	94%						
PecesSigid	Overflight (0-70 Population Ce	000ft) 6 100%	217% DEPARTORES Overflight (0-700 217% Population Cou	oft) 6 10	270%						
and a three that the		AVERAGE CHANGE	62%	24 10 AVERAGE CHAN	106% 106%						
Territoria Anno anti- anti- anti- anti- anti- anti- anti- anti- anti-	Based on t to have no	the extent of the existing o impact on the size or sha	and forecast (2031) LC ape of the LOAEL.	AEL, both with an	d without planning	consent	, this airspace des	sign optic	on is expe	ted	
Sagnor Regis											
	Overflight NSR	s 100	Overflight NSRs	100 Ltes							
The tables to the right show the % change in the number education and healthcare facilities and places of worsh	er of Arrivals	RUNWAY nothing 4A Baseline 140%	Arrivals RUNWAY	nothing 4A Baseline							
overflown by average typical overflight cones to/from	000ft (0-7000ft)	24 100% 83%	(0-7000ft) 24	100% 129% 100% 95%							
on the route centreline. Data with and without the low	TC IS Education Count level (0-7000ft)	6 100% 139%	Education Count 6 (0-7000ft)	100% 113%							
routes between Farnborough and Biggin Hill are shown	Places of Worship Count	6 100% 137%	Places of Worship 6	100% 89%							
	(0-7000R)	24 23%. AVERAGE CHANGE 11%	(0-7000ft) 24	100% 106%							
	Overflight NSR	S BUNWAY nothing 44	Overflight NSRs	1 Do							
	Departures Heathcare Count	Baseline	Departures Heathcare Count 6	Baseline							
	(0-7000ft)	24 100% 253%	(0-7000ft) 24	100% 304%							
	Education Count (0-7000ft)	6 100% 193%	Education Count 6 (0-7000ft)	100% 238%							
	Places of Worship Count	6 100% 433%	Places of Worship 6	100% 136%							
	(0-7000ft)	24 100% 141%	(0-7000ft) 24	100% 100%							
			Artio	a coonta - 8/78							
Communities Air Qualit	y acks of flight paths	below 1000ft for Earph	orough's arrivals or o	Qualitative	his option is there	fore not	expected to ha	vo an off	oct on L	ocal Air	
This option would not after the lateral of vertical th	acks of flight paths	below 100011101 Parilo	Quality.	iepartures anu ti	his option is there	I UI E IIUL	expected to na	ve all ell		JLdI AII	
Mide Cosista	C lm+			Overstitetive							
Option 4A is estimated to result in an annual red	uction of 214,094nm	n flown by Farnborough	movements compar	ed to the Do No	thing scenario, ba	sed on 2	023 movement	s, the 20	year ave	erage	
		modal split and the sa	ame directional split	of traffic.							
			NM Differe	ence							
		1A Do Nothing	,	0.0							
		44	-21	4094							
		-10	2.								
Wider Society Capacity/ This option would be expected to reduce the worklo	Resilience ad of Farnborough	ATC quite considerably	by removing the nee	Qualitative	d turn aircraft in a	very tin	nelv manner in t	the cons	trained a	irspace	
onto final approach. In addition the RWY 06 departs	are routing to the no	orth of the existing trac	k, where traffic is typ	ically vectored v	when conflicting w	vith an a	rrival from the	south, co	ould furth	ner help	
reduce R/T. This would enable them to perhaps pro	vide an improved se	ervice to aircraft in thei	r airspace, for examp	ole by climbing d	lepartures sooner	owing to	o a lower R/T w	orkload	though it	t would	
Biggin Hill arrivals and departures from TC could b	e expected to help	reduce complexity in T	C sectors and elimina	te and ground d	elay imposed by T	C for the	ose movements	. The mo	vement	of the	
arrival stream of the south to the east is unlikely t	o generate capacity	; that change is to facili	itate track mile redu	ctions. The availa	ability of an RNP-	AR arriva	al to runway 06	which a	voids Odi	ham's	
	MATZ v	vill reduce ATC workloa	d and co-ordination	with RAF Odihar	n.						



**Biodiversity and Tranquillity** 

	With Biggi	n Hill route	is		Without	Biggin Hill	routes	
Ove A	erflight ONB	RUNWAY	1 Do nothing Baseline	4A	Overflight AONB	RUNWAY	1 Do nothing Baseline	4A
AR	RIVALS	6	100%	135%	ARRIVALS	6	100%	128%
AONB	Area (km2)	24	100%	70%	AONB Area (km2)	24	100%	85%
DEP	ARTURES	6	100%	6%	DEPARTURES	6	100%	8%
AONB	Area (km2)	24	100%	105%	AONB Area (km2)	24	100%	105%
		AVERAG	CHANGE	-21%		AVERAG	CHANGE	-19%
Ove Na	erflight t Park	RUNWAY	1 Do nothing Baseline	4A	Overflight Nat Park	RUNWAY	1 Do nothing Baseline	<b>4</b> A
AR	RIVALS	6	100%	88%	ARRIVALS	6	100%	110%

24

24

100%

100%

100%

NG

181%

112%

93%

145%

84%

70%

100%

100%

100%

Tranquility The image to the left shows the average typical overflight cones to/from 7000ft for each existing arrival and departure route, mapped against the North Wessex Downs and Surrey Hills AONB and the South Downs National Park.

Qualitative

#### Biodiversity

Wider Society

The image to the right shows the average typical overflight cones to/from 2000ft for the Do Nothing option mapped against SACs, SSSIs, SPA and RAMSAR sites surrounding the airport. The following sites are currently overflown below 2000ft:

Dvermown Delow 2000tt:
 Thames Basin Heaths SPA, Bourley and Long Valley SSSI
 Thames Basin Heaths SPA, Edmoor Marsh SSSI, Basingstoke Canal SSSI
 Thames Basin Heaths SPA, Ash to Brookwood Heaths SSSI, Basingstoke Canal SSSI, Turysley, Ash, Prioright & Chohoham SAC
 Thames Basin Heaths SPA, Colony Bog and Bagshot Heath SSSI, Thursley,

Access

Ash, Pirbright & Chobham SAC

and the	A CON	LEAL ST	
Contraction of the	4	والمسلح (	
	3		**** ****
1			194 - 194 -
	AND THE A		
		1	-
	8-2		

Qualitative

#### General Aviation

This option assumes the introduction of PBN procedures to the ILS, a change to the lateral track of the RWY 06 SIDs after the 2nd turn, a route between Farnborough and Biggin Hill, an RNP-AR arrival to RWY 06 and also a shift of the arrivals from the south to the east, the latter achieved by improved vertical profiles for Gatwick departures. By moving the RWY 06 Final Approach Fix (FAF) closer to the Threshold (THR), the PBN approach transition can fit right in the centre of the existing arrival swathe. The CAA Policy for the Design of Controlled Airspace Structures says that there should be between 2 and 3nm from an RNAV1 arrival route and the edge of CAS. There would be between 1 and 2nm between this centreline and the edge of CAS which would require a bespoke safety case to support. This is felt to be achievable at this time. The RWY 24 arrival is wholly contained laterally although, in the vertical plane, could require some amendments to CTR2/CTA1 potentially affecting Fairoaks aswell as the LON CTR potentially requiring an adjustment to its dimension or managed through LoA. The change to the lateral profile of the RWY 06 SIDs is not expected to affect CAS.

24

6

24

The RNP-AR arrival to RWY06 that avoids the RAF Odiham MATZ could require a very small adjustment to the NW corner of CTA4 and the SW corner of the CTR. The route between Farnborough and Biggin Hill is not expected to affect Farnborough's CAS dimensions. The shift of the arrival route from the south to the east could facilitate release of some of CTA9. There could be scope to release some parts of CTA7 as arrivals would be further east but it depends

on whether climb to 5000ft for departures could be guaranteed. This option would be expected to reduce the workload of Farnborough ATC quite considerably by removing the need to descend and turn aircraft in a very timely manner in the constrained airspace onto final approach. This would provide reduced R/T workload, perhaps enabling the ability to provide an improved service to other GA aircraft wishing to transit the airspace.

General Aviation/ commercial airlines	Economic impact from increased effective capacity	Qualitative
We expect the increased capacity/res	silience detailed in the section above will result in a positive economic im	pact on Farnborough's customers compared with the Do Nothing scenario. The
	requirement to contain a PBN arrival to RWY06 final approach inside	CAS could negatively affect Fairoaks.
General Aviation/ commercial airlines	Fuel Burn	Quantitative
	See wider society Green House Gas Impact as the methodologies	employed at Stage 2 are the same.
Commercial airlines	Training costs	Qualitative
Flight procedures are updated or introdu on a business as usual basis. Whilst this	ced worldwide as part of an AIRAC cycle. As part of this cycle, Business J option contains an RNP-AR arrival, it would not be the only approach ava approved. This option is not anticipated to require any additional train	et operators update their procedures accordingly and undertake training if required ilable and therefore Farnborough's customers would not be required to be RNP-AR ing costs for Farnborough's customers.
Commercial airlines	Other costs	Qualitative
	No other costs for Farnborough's customers are fore	seen with this option.
Airport/ANSP	Infrastructure costs	Qualitative
	This design option is not expected to change Farnborou	gh's infrastructure costs.
Airport/ANSP	Operational costs	Qualitative
	This design option is not expected to change Farnboro	ugh's operational costs.
Airport/ANSP	Deployment costs	Qualitative
This option is expected to require air tra requires further exploration as part o	iffic controller training for the controllers and assistants located at Farnb f the Stage 3 Full Options Appraisal, when appraising the shortlist of opti interdependencies with adjacent airports	orough Airport, and London Terminal Control. The scale and nature of this training ons and once further information is known about the network above 7000ft and and NERL.
All	Safety	Qualitative
The reduction in Farnborough ATC work distance between the PBN centreline at match the ILS but would need to have a l	doad is expected to enhance safety. The ability to fit a PBN IAP to ILS with and the edge of CAS. IFP design has shown that an RNP APCH to RWY 24 h lower profile to enhance availability in all temperatures, this could furthe bears the inserts described on the Amirimant on Estimate as a secul-	hin the existing CTA is subject to an acceptable case safety case allowing reduced as an impact on D132. Any BaroVNAV RNP APCH would not be designed to 3.5 <sup>°</sup> to r impact CTR2/1 and would also need consideration of the PAPI angle. IFP flyability as any character of CTR2/t when and with hene accessed by Remain of Fights hotwoors

so far. Any impact on Fairoa anges to CTR2/1 any cl ot yet I Biggin Hill and Farnborough from TC would reduce complexity in their sectors. There are not yet any RNP-AR arrival procedures promulgated in the UK which may require additional assurances. The close proximity of the arrival route from the south to Gatwick's easterly RMA may require closer attention

All	Interdependencies, conflicts, and trade offs with other ACPs	Qualitative								
The implementation of PBN to final approach is unlikely to require trade-offs with Heathrow, Gatwick and Southampton because the changes are very small and low level. The addition of a new contingency hold is dependent on Heathrow and/or Gatwick being able to be guaranteed to climb higher, sooner. The same applied to the move of Farnborough's arrival route to the east, closer to Gatwick. These both could result in trade-off analysis if a steeper than optimal gradient were to be required from those airports in order to facilitate the hold. The addition of a low level route between Farnborough and Biggin Hill does have interdependencies with Heathrow, Gatwick and Biggin Hill's ACPs.										
All	Performance against the vision and parameters/strategic objectives of the AMS	Qualitative								
The Airspace Modernisation Stra This option is likely to deliver the biggest CPT, more direct arrivals from the south expected to result in an improved service PBN Initial Approach Procedures (IAP) t	Cualitative     Qualitative     Qualitative     Qualitative     Qualitative     Qualitative     Cualitative     Coulitative     Cualitative     Cualitati									

			0	PTIO	N 4B										
Group	Impact					L	.evel o	of An	alysis						
Communities	Noise impact on health	n and quality of li	fe			P	Part quar	ntitativ	e, part o	qualitat	tive				
an and a surround of	Rates - Natur	head Buffeet	The image	to the le	ft shows the		With Bi	ggin Hil	I routes			Without Biggi	n Hill rou	utes	
Bandhal a Castan Hitting Maray			65dB (mag LAMAX co	genta) an ntours fo	d 60dB (whit or GLEX single	e)	GLE 60dB LA	K MAX	RUNWAY	1 Do nothing Baseline	48	GLEX 60dB LAMAX	RUNWAY	1 Do nothing Baseline	4B
HALL THE PARTY OF		130	event for e departure	each exist route. Th	ting arrival ar 1e % change	۱d	ARRIV/ GLEX 60 dB	LS LAMAX	6	100%	100%	ARRIVALS GLEX 60 dB LAMAX	6	100%	99%
Thereased asses		Tet Shorty	for the nu	mber of p	people within	וי	Population	Count	24	100%	82%	Population Count	24	100%	81%
and the second s	Cathing Contraction		baseline is	shown b	oth with and	i	GLEX 60 dB Population	LAMAX -	ь 24	100%	126%	GLEX 60 dB LAMAX Population Count	6 24	100%	94%
	Defec	Constant and	without the	e low lev	vel routes ugh and Biggi	in			AVERAGE	CHANGE	4%		AVERAG	E CHANGE	2%
	Education Control Cont	A Contractory	between		ugii unu bibbi		GLE	K	RUNWAY	1 Do nothing	4B	GLEX	RUNWAY	1 Do nothing	48
	and the second	Enhant					ARRIVA	uls	6	Baseline	95%	ARRIVALS	6	Baseline	94%
	and the formation that the second sec						Population	Count	24	100%	100%	GLEX 65 dB LAMAX Population Count	24	100%	100%
Juli Mali							DEPARTU GLEX 65 dB Population	JRES LAMAX Count	6 24	100%	96% 103%	DEPARTURES GLEX 65 dB LAMAX Population Count	6 24	100%	96% 81%
	The second se	image to the left	chows tho :	worago t	voical ovorfli	aht cr	anos to /fr	(am	AVERAGE	CHANGE	-2%		AVERAG	ECHANGE	-7%
	Slough Southall 700	00ft for each existin	ng arrival ar	nd depart	ture route, as	sumir	ng all traf	fic							
Reading	is o	n the route centre sity. The % change	line. It is m e for the nu	apped ag mber of r	ainst areas o people within	f pop n each	ulation 1 contou	,							
	con	npared to the base	line is show	n below	both with an	nd wit	hout the								
Tedley Camberley		/ level routes betw	een Farnbo	rough an	id Biggin Hill.										
Basingstoke Auders Hot	Wit	h Biggin Hill route:	s		Without B	iggin I	Hill route	is							
A subscription of the subs	Guildford O	opulation	1 Do 1 nothing Baseline	48	Overfligh AONB	t	RUNWAY	1 Do nothing	48						
	Over	ARRIVALS 6	100%	131%	ARRIVALS		6	100%	127%						
Section 18	Рор	EPARTURES	100%	81%	Overflight (0-70 AONB Area (ki	100ft) m2)	24	100%	87%						
Winchester	Hersham Overfit Popr	light (0-7000ft) 6 ulation Count 24	100%	217%	DEPARTURE Overflight (0-70	es 100ft)	6	100%	8%						
Peterstield		AVERA	IGE CHANGE	61%	AONB Area (ki	m2)	24 AVERAGE	100% CHANGE	-18%						
and the second second	A State of the				1					_					
n Uterioaule Exclusion Aquin Children Portesuñ	Anudel Worthing	ed on the extent o nave no impact on	of the existing the size or	ng and fo shape of	recast (2031) the LOAEL.	) LOAE	EL, both v	with and	d withou	ıt plann	ning conse	nt, this airspace d	esign opt	ion is ex	pected
	Wit	th Biggin Hill route	żs	Wi	thout Biggin	Hill ro	outes								
The tables to the right show the % chan	ge in the number of	flight NSRs RUNWAY	1 Do nothing 48	Overf	Right NSRs RUNA	NAY	1 Do othing 4	в							
education and healthcare facilities and p	places of worship	thcare Count 6	100% 140%	Heath	hcare Count 6		100% 12	9%							
compared to the do nothing scenario, as	sound all traffic is	24	100% 92%		2 <sup>4</sup>	1	100% 10	3%							
on the route centreline. Data with and w	vithout the low level	p-7000ft) 24	100% 139%	(0	1-7000ft)	1	100% 11	3%							
routes between Pariborougn and Biggin	Place	Count 6	100%	Placet	s of Worship Count		100% 12	5%							
		AVERAGE O	100% 104%		24 AV	I ERAGE CHI	100% 11 ANGE 1/	7% 4%							
	Over	flight NSRs RUNWAY	1 Do nothing 48	Overf	Right NSRs RUN		1 Do othing 4	в							
	Heat	thcare Count 6 0-7000ft)	100% 244%	Heath	hcare Count 6		100% 30	496							
	Edu	24 cation Count 6	100% 253%	Educa	24 ation Count 6	•	100% 15	6%							
	8	0-7000ft) 24	100% 193% 100% 433%	(0	1-7000ft)	1	100% 23	8% 6%							
	Place	Count 6 0-7000ft)	100% 150%	Places	count 6 6 6 7000ft) 26		100% 18	8%							
		AVERAGE O	100% 141% GANGE 136%		AV	ERAGE CH	100% 10 ANGE 8	0%							
Communities This option would not alter the latera	Air Quality	naths below 100	Oft for Far	nhoroug	h's arrivals (	or de	Qualitati	ve and th	is ontio	n is the	arefore n	ot expected to h	aveane	ffect on	Local Air
This option would not after the latera	for vertical tracks of hight	paths below 100		Qualit	ty.	or ac	purcures		iis optio					incer on	Local All
Wider Society	Greenhouse Gas Impac	.t				C	Quantita	tive							
Option 4B is estimated to result in a	an annual reduction of 206,	910nm flown by modal sr	Farnborou	gh move same di	ements com irectional sr	pared blit of	d to the traffic	Do Not	hing sce	enario,	based on	2023 movemer	its, the 2	20 year a	average
		inodal sp		Г			cranne.	1							
					NM Dif	tere	ence	4							
		1A Do N	lothin	g			0.0	)							
		4B				-20	06910								
Wider Society	Capacity/Resilience						Jualitati								
This option would be expected to redu	uce the workload of Farnbo	rough ATC quite (	considerat	ly by ren	noving the r	need	to desce	nd and	l turn ai	rcraft i	n a very t	imely manner ir	the cor	nstraine	d airspace
onto final approach. In addition the RV	NY 06 departure routing to	the north of the	existing tr	ack, whe	ere traffic is	typic	ally vect	ored w	hen cor	nflicting	g with an	arrival from the	south,	could fu	rther help
not be expected to facilitate any reduce R/1. This would enable them to not be expected to facilitate any reduced Biggin Hill arrivals and departures fr	to pernaps provide an impro uction in the standard flow from TC could be expected to	rates applied by o help reduce cor	rcraft in tr TC as the l nplexity in	ieir airsp nandling TC secto	to moveme to moveme ors and elim	imple ints b inate	e by clim etween e and gro	bing α the 2 ι ound de	eparture units wo elav imp	es soon ould rer osed b	ner owing main the Iv TC for t	to a lower R/T same as today. hose movement	workioa Howeve s. The n	a thougi r, the re noveme	moval of nt of the

arrival stream of the south to the east is unlikely to generate capacity; that change is to facilitate track mile reductions. The availability of an RNP-AR arrival to runway 06 which avoids Odiham's MATZ will reduce ATC workload and co-ordination with RAF Odiham.

Wider Society	Biodiversity and Tranquillity				Qualitat	tive					
Reading	Sinugh Southall Windsor Richmon	Tranquillity The image to the le route, mapped aga	eft shows th ainst the No	ne average t rth Wessex	typical overf Downs and	flight cone Surrey Hil	s to/from 7000ft fo Is AONB and the So	r each exist uth Downs	ing arrival a National Pa	and departu ark.	re
NewBury	Bracknell Kingston upon	With Biggir	n Hill routes	5			Without Biggin H	Hill routes			
North	Camberley	Overflight	RUNWAY	1 Do nothing	4B		Overflight	RUNWAY	1 Do nothing	4B	
Wessex	Woking Earnborough	ARRIVALS	6	Baseline 100%	135%		ARRIVALS	6	Baseline 100%	127%	
DOWIIS Gasingstoke	Aldershot	Overflight (0-7000ft) AONB Area (km2)	24	100%	72%	C	Overflight (0-7000ft) AONB Area (km2)	24	100%	87%	
and the second of the	Surrey Hills	DEPARTURES Overflight (0-7000ft)	6	100%	6%		DEPARTURES	6	100%	8%	
124 State Che		AONB Area (km2)	24	100%	105%		AONB Area (km2)	24	100%	105%	
Vinchester	Horsham		AVERAG	CHANGE	-21%			AVERAG	CHANGE	-18%	
Petersfield	La la	Overflight	RUNWAY	1 Do nothing	4B		Overflight	RUNWAY	1 Do nothing	4B	
South Downs		ARRIVALS	6	Baseline 100%	88%		Nat Park ARRIVALS	6	Baseline	111%	
. Somet	a change	Overflight (0-7000ft) NP Area (km2)	24	100%	151%	C	Overflight (0-7000ft) NP Area (km2)	24	100%	189%	
Fareham Havant	2 Arundel	DEPARTURES	6	100%	84%		DEPARTURES	6	100%	112%	
Portsmouth	Worthing	NP Area (km2)	24	100%	70%		NP Area (km2)	24	100%	93%	
Diadiuanity	Bognor Regis		AVERAG	E CHARGE	-276	1		AVERAG	ECHANGE	26%	]
The image to the right shows the 2000ft for the Do Nothing option RAMSAR sites surrounding the ai overflown below 2000ft: 1. Thames Basin Heaths SPA, <u>Bgy</u> 2. Thames Basin Heaths SPA, Ash Canal SSSI, <u>Thursley</u> , Ash, Pirbrigh 4. Thames Basin Heaths SPA, Coli Ash, Pirbright & Chobham SAC	average typical overflight conesto/from mapped against SACs, SSIs, SPA and prot. The following sites are currently rigg, and Long Valley SSSI moor Marsh SSSI, Basingstoke Canal SSSI to Brookwood Heaths SSSI, Basingstoke th & Chobham SAC ony Bog and Bagshot Heath SSSI, Thurstey,				2/		3				
General Aviation	Access				Qualitat	tive	e Ve				
This option assumes the introd	duction of PBN procedures to the ILS and RI	NP APCH, a change	to the late	ral track o	f the RWY	06 SIDs at vertical p	fter the 2nd turn, rofiles for Gatwic	a route be k denartur	tween Far	nborough a	and Biggin Hill, VY 06 Final
Approach Fix (FAF) closer to t Airspace Structures says that which would require a bespoke be significant with GA ou amendments to CTR2/CTA1 po The RNP-AR arrival to RWY06 The shift of the arrival route frc on whether climb to 5000ft for	the Threshold (THR), the PBN approach tran there should be between 2 and 3mm from : safety case to support. This is not felt to b trside CAS already currently operating close tentially affecting Fairoaks aswell as the L i that avoids the RAF Odiham MATZ could i and Biggin om the south to the east could facilitate rel departures could be guaranteed. This opti	sition can only be a an RNAV1 arrival rc e achievable witho to the boundary. T ON CTR potentially the RWY 06 SIDs i require a very small Hill is not expected ease of some of CT on would be expect	as far east bute and th out extendin The RWY 2- requiring is not expe I adjustme I to affect I TA9. There ted to redu	the left has ne edge of ng the Farr 4 arrival is an adjustm ected to aff nt to the N Farnboroug could be so	and side of CAS. There hborough C wholly con- nent to its of fect CAS. IW corner of gh's CAS dia cope to rela- rkload of Fa	the existi e would be TR to the ntained lat dimensior of CTA4 at mensions ease som arnboroug	ing arrival swathe e only be c.0.5nm west. The impact terally although, i n or managed thrc nd the SW corner e parts of CTA7 as th ATC quite consi	. The CAA between t : on RAF O n the verti ough LoA. of the CTF s arrivals v derably by	Policy for t his centrel diham and cal plane, o The chang t. The route would be fu	the Design ine and the I Lasham is could requi e to the lat e between urther east the need to	of Controlled edge of CAS considered to re some eral profile of Farnborough but it depends o descend and
turn aircraft in a very timely m	anner in the constrained airspace onto fina	I approach. This wo GA aircraft wish	ould provic hing to trai	de reduced	R/T worklo space.	oad, perha	aps enabling the a	ibility to p	rovide an ii	mproved se	ervice to other
General Aviation/ commercial	airlines Economic impact from increase	d effective capacity	y		Qualitat	ive					
We expect the increased capa the extension of the CTR to t	city/resilience detailed in the section above he west required by this option there could	e will result in a po I be a negative effe	sitive econ ect on Lash	iomic impa am/Odiha	act on Farni m operatio	borough's ons. The re	customers comp equirement to con	ared with tain a PBN	the Do Not I arrival to	RWY06 fin	rio. Owing to ial approach
General Aviation/ commercial a	airlines Fuel Burn	inside CAS could	l negativel	y affect Fa	airoaks. Quantita	ative					
	See wider society Green H	louse Gas Impact a	is the meth	nodologies	employed	at Stage	2 are the same.				
Commercial airlines	Training costs				Qualitat	tive					
Flight procedures are updated on a business as usual basis. W	or introduced worldwide as part of an AIR/ /hilst this option contains an RNP-AR arriva approved. This option is not a	AC cycle. As part of II, it would not be t nticipated to requir	this cycle, he only ap e any addi	Business J proach ava tional trair	et operato ilable and ning costs f	rs update therefore for Farnbo	their procedures Farnborough's cu rough's customer	accordingl stomers w s.	y and unde vould not b	ertake train Ne required	ing if required to be RNP-AR
Commercial airlines	Other costs				Qualitat	tive					
	No other cos	ts for Farnborough	's custome	ers are fore	eseen with	this optio	in.				
Airport/ANSP	Intrastructure costs	ion is not expected	to change	Famboro	uualitat	tructure o	osts.				
Airport/ANSP	Operational costs		- shonge		Qualitat	ive					
	This design op	tion is not expected	d to change	e Farnboro	ugh's opera	ational co	osts.				
Airport/ANSP	Deployment costs				Qualitat	tive					
This option is expected to require further exploration	uire air traffic controller training for the co as part of the Stage 3 Full Options Apprai ii	ntrollers and assist sal, when appraisin nterdependencies w	ants locate ng the shor vith adjace	ed at Farnb tlist of opt ent airports	oorough Air ions and or and NERL	rport, and nce furthe 	London Terminal r information is k	Control. Tł nown abou	ne scale an ut the netw	nd nature o vork above	f this training 7000ft and
The reduction in Farnborough	ATC workload is expected to enhance safe	sarety ety inside CAS. Any	impact on	Fairoaks a	Qualitat as a result (	on any ch	anges to CTR2/1 H	nave not ye	et been ass	sessed. Imp	pacts on RAF
IFP design has shown that a enhance availability in all ten impacts described so far. Remo the UK which	Odiham and Lasham as a n RNP APCH to RWY 24 has an impact on D nperatures, this could further impact CTR2, val of flights between Biggin Hill and Farn may require additional assurances. The cl	result of an extens 132. Any BaroVNA' /1 and would also r borough from TC w ose proximity of the	ion of the V RNP APC need consid rould reduc e arrival ro	CTR to the CH would n deration of ce complex oute from t	west have ot be desig the PAPI a ity in their he south to	e not yet b gned to 3.9 angle. IFP sectors. T o Gatwick	een assessed. 5° to match the IL flyability has not 'here are not yet a 's easterly RMA n	S but woul yet been p any RNP-A nay require	d need to erformed v R arrival pr e closer att	have a low which could rocedures p tention.	er profile to d change the promulgated ir

All	Interdependencies, conflicts, and trade offs with other ACPs	Qualitative							
The implementation of PBN to final approach is unlikely to require trade-offs with Heathrow, Gatwick and Southampton because the changes are very small and low level. The addition of a new contingency hold is dependent on Heathrow and/or Gatwick being able to be guaranteed to climb higher, sooner. The same applied to the move of Farnborough's arrival route to the east, closer to Gatwick. These both could result in trade-off analysis if a steeper than optimal gradient were to be required from those airports in order to facilitate the hold. The addition of a low level route between Farnborough and Biggin Hill does have interdependencies with Heathrow, Gatwick and Biggin Hill's ACPs.									
All	Performance against the vision and parameters/strategic objectives of the AMS	Qualitative							
II         Qualitative           The Airspace Modernisation Strategy vision is to deliver quicker, quieter and cleaner journeys and more capacity for the benefit of those who use and are affected by UK airspace.           This option is likely to deliver the a significant reduction in CO2 emission per flight owing to the availability of an RNP-AR approach to a shorter final, the ability for a more direct flight planned route to CPT and more direct arrivals from the south. The reduction in R/T for Famborough ATC from PBN IAPs to final approach, an RNP-AR arrival could be expected to result in an improved service to GA aircraft wishing to transit the airspace and provide more time to climb/descend Famborough's movements in a more optimal manner. However this option would create a requirement to extend the CTR to the west, potentially increasing Class G compression, GA pilot workload and Odiham ATC workload. A reduction in Famborough ATC workload would enhance safety and potentially reduce ground/airborne delay through improved ATC capacity.									

			OPT	ION 5A										
Group	Impact					Level of Analysis								
Communities	Noise impact on health	and quality of li	ife			Part quantitative, part qualitative								
an and a second and a second a		heat before	The image to th	e left shows th	e	With Biggin	Hill route	s		Without Bigg	n Hill rou	utes		
Darladi di Lados Humpy Viscos			65dB (magenta LAMAX contou	) and 60dB (wh rs for GLEX sing	ite) (le	GLEX 60dB LAMAX	RUNWA	1 Do nothing Baseline	5A	GLEX 60dB LAMAX	RUNWAY	1 Do nothing Baseline	5A	
nig the second s		departure route. The % change			and e	ARRIVALS GLEX 60 dB LAMAX	6	100%	100%	ARRIVALS GLEX 60 dB LAMAX	6	100%	99%	
Territories Distant	ALL PROPERTY OF	for the number of people within each contour compared to the			nin	Population Count	24	100%	97%	Population Count	24	100%	97%	
and a second second		Alian Date	baseline is show	vn both with a	nd	GLEX 60 dB LAMAX Population Count	24	100%	116%	GLEX 60 dB LAMAX Population Count	24	100%	105%	
and the second	Defined Bastry		without the low between Farnb	v level routes orough and Big	gin		AVERA	GE CHANGE	3%		AVERAG	CHANGE	0%	
The second se	Extend of the second se					GLEX	PLINAVA	1 Do	54	GLEX	DUBINA	1 Do		
A STA	I have been	Conunc				65dB LAMAX		Baseline		65dB LAMAX	RONWAT	Baseline	54	
red Dari	Handinian	13 62 3				GLEX 65 dB LAMAX Population Count	24	100%	100%	GLEX 65 dB LAMAX Population Count	24	100%	100%	
white a state of the state of t	Contraction Croppend	Reputs				DEPARTURES	6	100%	98%	DEPARTURES	6	100%	98%	
2/11 20 1 mm	S. S. S. S.					Population Count	24	100%	103%	Population Count	24	100%	81%	
	The	image to the left	shows the average	ze typical over	flight	onesto/from					AVEIAG	Change	-18	
Litera	Windson Richmon 700	Oft for each existi	ng arrival and de	parture route,	assum	ing all traffic								
Newbory	Kingston upon den.	sity. The % chang	e for the number	of people with	or pop nin ead	ch contour								
Toller	com low	pared to the base	eline is shown be	low both with h and Biggin Hi	and w	ithout the								
Camberley		level loules betw	reen Failiboloug	IT and Biggin Th										
Basingstoke	With	h Biggin Hill route	es 1 Do	<u> </u>	Vithou	ut Biggin Hill ro	utes							
Fanham	P	Overflight RL	JNWAY nothing Baseline	5A	Ove	rflight RUN	IWAY no	thing	5A					
S S S	Overf	ARRIVALS	6 100%	97%	ARR	IVALS	6	00%	69%					
	Pop	ulation Count	24 100%	58%	Populat	ion Count	24	00%	65%					
CALCONSA!	D	EPARTURES llight (0-7000ft)	6 100%	104% <b>G</b>	DEPA verfligh	RTURES t (0-7000ft)	6	00%	120%					
the share and	Pop	ulation Count	24 100%	231%	Populat	ion Count 2	24 1	00%	125%					
		· · · · ·	AVERAGE CHANGE	23%		A	VERAGE CHA	NGE	-5%					
Bareham Havan Chichester	Anundel Base to h	ave no impact or	of the existing an the size or shape	of the LOAEL.	1)LO4	AEL, DOTH WITH a	and with	out planni	ng conser	it, this airspace d	esign opt	ion is exp	pected	
	Regis	h Biggin Hill rout	es	Without Biggi	n Hill	routes	]							
The tables to the right show the % shop	Overf	light NSRs RUNWAY	1 Do nothing 5A	Overflight NSRs	RUNWAY	1 Do nothing SA								
education and healthcare facilities and p	places of worship	rrivals care Count 6	Baseline 103%	Heathcare Count	6	Baseline 65%								
overflown by average typical overflight compared to the do nothing scenario, as	cones to/from 7000ft suming all traffic is	24	100% 48%	Education Count	24	100% 55%								
on the route centreline. Data with and w	vithout the low level	-7000ft) 24	100% 54%	(0-7000ft)	24	100% 74%								
routes between Pariborough and Biggi	Place (0	Count 6 6 7000ft)	100%	Places of Worship Count (0-7000ft)	6	100% 63%								
		AVERAGE C	100% 05%	_	AVERAGE	100% 74% CHANGE -33%								
	Overf	light NSRs RUNWAY	1 Do nothing SA Baseline	Overflight NSRs Departures	RUNWAY	1 Do nothing 5A Baseline								
	Heath (0	-7000ft) 6	100% 153%	Heathcare Count (0-7000ft)	6	100% 183%								
	Educa	ation Count 6	100% 275%	Education Count	24 6	100% 185%								
	Place	24 sof Worship	100% 430%	(0-7000ft) Places of Worship	24	100% 132%								
	(0	Count -7000ft) 24	100% 92%	Count (0-7000ft)	6 24	100% 111%								
Communities	Air Quality	AVERAGE	HANGE 102%		AVERAGE	Oualitative								
This option would not alter the latera	l or vertical tracks of flight	paths below 100	00ft for Farnbord	ough's arrival	s or de	epartures and	this opti	on is the	refore no	ot expected to h	ave an e	ffect on	Local Air	
			Qı	uality.										
						0								
Option 5A is estimated to result in an	annual reduction of 73,949n	nm flown by Fari	nborough move	ments compa	red to	the Do Nothi	ng scena	rio, base	d on 202	3 movements,	the 20 ye	ear aver	age modal	
		split	and the same d	irectional spli	t of tr	affic.								
				NM D	iffer	ence								
		1A Do M	Nothing			0.0								
		EA	- Stilling			72040								
		эА				75949								
Wider Society The assumptions necessary for the	Capacity/Resilience	and Gatwick do	nartures to clim	h higher soo	ner th	Qualitative	release	s more a	irsnace	hove Famboro	wh for F	amborr	ugh's	
departures to also climb higher, so	oner. In turn this could verti	ically resolve the	e conflict with F	arnborough's	own	arrivals, dram	atically	educing	the amo	unt of tactical in	iterventi	on relie	d on by	
Farnborough ATC. The ability for Farr elements of other options such as f	borough to receive all their BN arrivals to final approact	airways arrivals h. an RNP-AR a	from the south	i, metered thi that avoids (	ough dihar	one region re n MAT7 and a	duced co i route h	nfliction etween F	points w	ithin the sector	. The opt Hill whic	ion also h would	contains	
contribute to a reduced ATC workloa	d and increased systemisati	ion. The option I	has scope for a	more standar	dised	transfer of co	ntrol bet	ween Fa	rnboroug	h and TC which	could er	nable cc	mplexity	

scope for a more standardise reductions in TC.

Wider Society	Biodiversity and Tranquillity			Qualita	tive					
Realing	Slough Southall, Windsar Richman	Tranquillity The image to the left s route, mapped against	hows the ave the North V	erage typica Vessex Dowr	l overflight cost of the second s	ones to/from 7000ft for Hills AONB and the Sou	each existir ith Downs N	ng arrival and ational Park	departure	
Newbury	iracknell Kingston upon	With Biggin	Hill routes			Without Biggir	Hill routes			
North Tadley	Tamberley	Overflight	RUNWAY	1 Do nothing	5A	Overflight	RUNWAY	1 Do nothing	5A	
Wessex Far	Woking	ARRIVALS	6	Baseline 100%	53%	ARRIVALS	6	Baseline 100%	0%	
DOWITS Basingstoke	Idershot Guildford	Overflight (0-7000ft) AONB Area (km2)	24	100%	46%	Overflight (0-7000ft) AONB Area (km2)	24	100%	63%	
Farmh	Surrey Hills	DEPARTURES	6	100%	126%	DEPARTURES	6	100%	169%	
		AONB Area (km2)	24	100%	105%	AONB Area (km2)	24	100%	105%	
6 m r	Horsham		AVERAG	E CHANGE	-17%		AVERAG	E CHANGE	-16%	
Pure Bald		Overflight	DUNIMAY	1 Do	EA	Overflight	DUBBLAY	1 Do	FA	
an South Downs	2	Nat Park	NORMAT	Baseline	56	Nat Park	KONINAI	Baseline	56	
2 Samol	En	ARRIVALS Overflight (0-7000ft)	6	100%	116%	ARRIVALS Overflight (0-7000ft)	6	100%	169%	
Waterlooville Fareham Havant		DEPARTURES	6	100%	40%	DEPARTURES	6	100%	53%	
Portsmouth	hester Worthing	Overflight (0-7000ft) NP Area (km2)	24	100%	30%	Overflight (0-7000ft) NP Area (km2)	24	100%	40%	
	Bagnar Regis		AVERAG	E CHANGE	-10%		AVERAG	E CHANGE	31%	
Biodiversity The image to the right shows the average t	typical overflight cones to/from		and the second	3	Chico and	Ale De	a contraction of the second se		- 1 ( A	
2000ft for the Do Nothing option mapped RAMSAR sites surrounding the airport. The	against SACs, SSSIs, SPA and following sites are currently		C Mart	The starts						
overflown below 2000ft: 1. Thames Basin Heaths SPA, Bourley and L	ong Valley SSSI	A LAND	J-A			4	1			
<ol> <li>Thames Basin Heaths SPA, Eelmoor Mars</li> <li>Thames Basin Heaths SPA, Ash to Brook</li> </ol>	sh SSSI, Basingstoke Canal SSSI wood Heaths SSSI, Basingstoke						1 1	19.10	-1	
4. Thames Basin Heaths SPA, Colony Bog an	nd Bagshot Heath SSSI, Thursley,				21					
5. Bentley Station Meadow SSSI		and the second s		1		A Contraction	and T	Mar Al	3.	
		5 2 W 3	-1	L.	An and		R.		Nº ER	
		Sec. 23 5		St.					2	
					100			12		
		ANA-			1	1	1.0	Start.	RAN	
			MA		1	4 30				
General Aviation	Access			Qualita	tive					
I his option assumes the introduction of Heathrow and Gatwick meaning Farr departures routing further east than too the existing arrival swathe. The CAA Po would be only be c.0.5nm between this CTR to the west. The impact on RAF contained laterally although, in the ver	I PBN procedures to the ILS, a route b borough departures to the NW and V day. By moving the RWY 06 Final App like for the Design of Controlled Airsy c centreline and the edge of CAS whic Odiham and Lasham is considered to tical plane, could require some amen	etween Famborough a V can climb to 6000ft, a roach Fix (FAF) closer t acce Structures says tha h would require a besp be significant with GA dments to CTR2/CTA1	nd Biggin H and also a s to the Thres at there sho oke safety outside CA potentially	hill, an RNP- hift of all a hold (THR), uld be betw case to supp S already c affecting Fa	AR arrival t rrivals from the PBN ap yeen 2 and 3 port. This is urrently ope airoaks as w	o RWY 06, an assume the north and south 1 proach transition can 8nm from an RNAV1 a not felt to be achieva rating close to the bo ell as the LON CTR po	d improver through the only be as arrival route ble without undary. The tentially re	ment to ver same poin far east the e and the e t extending e RWY 24 a equiring an	tical profiles t and southe e left hand si dge of CAS. 1 the Farnbon rrival is who adjustment f	rly ide of There ough Ily to its
The RNP-AR arrival to RWY06 that avoi	ids the RAF Odiham MATZ could requ	ire a very small adjustr	nent to the	NW corner	of CTA4 an	d the SW corner of th	e CTR. The	route betw	een Farnbor	ough
The availability of 6000ft for Farnborou	and Biggin Hill gh and the shift of arrivals from the n	is not expected to affe orth could potentially e	ct Farnboro nable the r	ugh's CAS c elease of C	limensions. AS around L	TMA11 although that	is not Farn	borough's a	irspace to a	mend
and would also be reliant on Heathrow possible, a 5000ft minimum holding lev	v operations. The option could enable rel could result in a requirement to low	reduction in the size of wer a part of LTMA13 s	f CTA9. A co outh of Bus	ontingency h ster Hill ma	nold would i st. This opti	deally have a lowest on would be expected	holding leve I to reduce	el of 6000ft the workloa	but if this is id of Farnbo	not rough
ATC quite considerably by removing the own arrivals and departures from each	e need to descend and turn aircraft in ch other. This should provide greatly r	a very timely manner i educed R/T workload.	n the const enabling th	rained airsp e abilitv to	ace onto fir provide an i	al approach and owir	ng to the de her GA airc	confliction raft wishin	of Farnboro g to transit t	ugh's the
	,	airspa	ce.	,						
General Aviation/ commercial airlines We expect the increased capacity/re	Economic impact from increased ef silience detailed in the section above	fective capacity will result in a positive	economic	Qualita impact on F	tive arnborough	's customers compar	ed with the	Do Nothing	g scenario. T	he
	requirement to contain a PBN ar	rival to RWY06 final ap	proach insi	de CAS cou	ld negativel	y affect Fairoaks.				
General Aviation/ commercial airlines	Fuel Burn See wider society Green Hous	e Gas Impact as the m	ethodologie	Quantit es employed	tative	are the same				
Communication interest	T			Qualita	****					
Flight procedures are updated or introdu	iced worldwide as part of an AIRAC cy	cle. As part of this cycl	le, Business	Jet operate	ors update t	heir procedures accor	dingly and	undertake t	raining if re	quired
on a business as usual basis. Whilst this	option contains an RNP-AR arrival, it approved. This option is not antici	would not be the only pated to require any ac	approach a ditional tra	vailable and ining costs	l therefore I for Farnbor	arnborough's custom ough's customers.	ers would	not be requ	ired to be RI	NP-AR
Commercial airlines	Other costs			Qualita	tive					
	No other costs fo	or Farnborough's custo	mers are fo	reseen with	n this optior	l.				
Airport/ANSP	Infrastructure costs			Qualita	tive					
Airport/ANSP	Operational costs	s not expected to chang	ge Famboro	Oualita	tive	515.				
	This design option	is not expected to chai	nge Farnbo	rough's ope	rational cos	ts.				
Airport/ANSP	Deployment costs			Qualita	tive					
This option is expected to require air tra requires further exploration as part o	affic controller training for the control of the Stage 3 Full Options Appraisal, intere	llers and assistants loca when appraising the sh dependencies with adja	ated at Fari ortlist of op acent airpor	nborough Ai otions and c ts and NER	rport, and L once further L.	ondon Terminal Contr information is known	ol. The sca about the	le and natu network ab	re of this tra ove 7000ft a	ining and
All	Sa	fety be ability to fit a PBNU		Qualita	tive	s subject to an accort	able case s	afety case	allowing red	uced
his resolution in Paintodough ALC Word distance between the PBN centreline a match the ILS but would need to have a has not yet been performed which could Biggin Hill and Famborough from TC w	Note in a expected to eminifie safety. I nd the edge of CAS. IFP design has sh lower profile to enhance availability i change the impacts described so far. vould reduce complexity in their secto	own that an RNP APCH n all temperatures, this Any impact on Fairoal rs. There are not yet ar	I to RWY 24 s could furth ks as a resu ny RNP-AR a	has an imp her impact It on any ch arrival proce	cTR2/1 and anges to CT edures pron	2. Any BaroVNAV RNF would also need cons R2/1 have not yet be nulgated in the UK wh	APCH wou sideration c en assessed lich may re	Id not be d of the PAPI a d. Removal quire additi	esigned to 3 angle. IFP fly of flights be onal assurar	.5° to ability tween nces.

All	Interdependencies, conflicts, and trade offs with other ACPs	Qualitative								
The implementation of PBN to final approach is unlikely to require tradeoffs with Heathrow, Gatwick and Southampton because the changes are very small and low level. The addition of a new contingency hold is dependent on Heathrow and/or Gatwick being able to be guaranteed to climb higher, sooner. The same applies to the ability for Farnborough's NW/W departures to climb to 6000ft. These both could result in trade-off analysis if a steeper than optimal gradient were to be required from those airports in order to facilitate the hold or potentially even a change to the lateral profile from another airport. The addition of a low level route between Farnborough and Biggin Hill does have interdependencies with Heathrow, Gatwick and Biggin Hill's ACPs. This option will have dependencies on Southampton's ACP.										
All	Performance against the vision and parameters/strategic objectives of the AMS	Qualitative								
The Airspace Modernisation Stra	ategy vision is to deliver quicker, quieter and cleaner journeys and more ca	apacity for the benefit of those who use and are affected by UK airspace.								
This option delivers CO2 reductions through overall reduced track mileage but the funnelling of arrivals from the north and south to the SW of Farnborough degrades some CO2 benefit in favour of enhanced systemisation and lower ATC workload which will enhance safety. The significant reduction in ATC workload could be expected to improve service delivery to both Farnborough's customers and GA wishing to transit the airspace.										

			OF	TION	5B									
Group	Imnact							nalvsis						
Communities	Noise impact on health an	d quality of l	ife			P	art quantitati	ive nart	nualitati	ve			_	
	Calibority Henry	inter a state of the	The large A	- 44 1 - 64			Mith Dissip I	Ill router	quantati		Mithout Diggin		has	
warment for cases	and the second sec	X	65dB (mage	nta) and 6	50dB (whit	te)	GLEX	Infrontes	1 Do		GLEX		1 Do	
Harty Money	Treasure	LAMAX contours for GLEX single				e	60dB LAMAX	RUNWAY	nothing Baseline	58	60dB LAMAX	RUNWAY	nothing Baseline	58
1	- Wegeriess		event for ea	ch existin oute. The	g arrival a % change	nd	ARRIVALS	6	100%	100%	ARRIVALS	6	100%	99%
Marshand Office	and the second of the	Fact Plander	for the num	ber of peo	ople within	n	Population Count	24	100%	82%	Population Count	24	100%	81%
and the second	and	each contour compared to the					DEPARTURES GLEX 60 dB LAMAX	6	100%	94%	DEPARTURES	6	100%	91%
and the second sec	R. Dated	without the low level routes between Farnborough and Biggin					Population Count	24	100%	116%	Population Count	24	100%	105%
	And the state of the							AVERAG	SE CHANGE	-2%		AVERAG	E CHANGE	-6%
	Print bashdar						GLEX		1 Do		CLEX		1 Do	
A A A		- Intern					65dB LAMAX	RUNWAY	Baseline	58	65dB LAMAX	RUNWAY	nothing Baseline	5B
and the second se	and the second s	carry and a					ARRIVALS GLEX 65 dB LAMAX	6	100%	95%	ARRIVALS	6	100%	94%
perfects	Institut + Cheringhan	1. 1 E					Population Count	24	100%	100%	GLEX 65 dB LAMAX Population Count	24	100%	100%
AT DE A VERY CO	Harmente	Regula 2					DEPARTURES GLEX 65 dB LAMAX	6	100%	89%	DEPARTURES	6	100%	86%
and the second second second							Population Count	24 AVERAG	100% SE CHANGE	-3%	Population Count	24	100%	81%
	The image	age to the left	shows the av	erage typ	ical overfli	ight co	onesto/from				[	AVERAG	E CHANGE	-10%
	windsor 7000ft	for each existi	ing arrival and	l departur	e route, as	sumir	ng all traffic							
Reference and the second	is on th	e route centr	eline. It is map	ped agair	nst areas o	f pop	ulation							
Newbory	density compa	. The % chang red to the bas	e for the num eline is showr	iber of per	ople withi oth with ar	n eacr nd wit	hout the							
Talley Camberley	low lev	el routes betw	veen Farnbor	ough and	Biggin Hill									
Earnbordugh														
Basingttoke	With Bi	ggin Hill rout	es 1.Do		Without	Biggir	n Hill routes	1.00						
Linham	Overt Popul	light RUN ation	WAY nothing	58	Overfl	ight ition	RUNWAY no	othing	58					
	ARRIV	ALS 6	Baseune	97%	ARRIV	ALS	6	seune	68%					
	Overflight Population	n Count 24	100%	60%	Overflight ( Population	n Count	24	100%	68%					
Winchester	Horsham		100%	91%	DEPART	URES	6	100%	103%					
Perestilid	Overflight Population	n Count 24	4 100%	231%	Overflight ( Population	n Count	24	100%	125%					
the second second second		AV	ERAGE CHANGE	20%			AVERAGE CHA	NGE	-9%					
	Owing	to the earlier	r turn on RWY	06 depar	tures, this	optio	n could have a	n impact (	on the siz	e or shape	e of the existing a	nd foreca	əst (2031	both
Waterlooville	with a	nd without pl	lanning conse	nt) LOAEL	. No mode	llingo	of the LOAEL ha	is been pe	rformed	at this sta	ge to determine v	whether s	such a ch	ange
Farcham Havant Chithester	Arundel	be positive o	r negative.											
	or Regis													
	With B	ggin Hill rout	es	With	out Biggin	Hill ro	outes							
The tables to the right show the 9/ she	Overflight	NSRs RUNWAY	1 Do nothing 58	Overflig	nt NSRs RUN		1 Do nothing 58							
education and healthcare facilities and	places of worship Heathcare	S 6	Baseline 100%	Heathcar	e Count	6	Saseline							
overflown by average typical overflight	t cones to/from 7000ft	24	100% 64%	(0-70)	poft)	24	100% 70%							
compared to the do nothing scenario, a on the route centreline. Data with and	assuming all traffic is without the low level (0-7000)	ount 6 t)	100% 121%	Educatio (0-70	n Count 20ft)	6	100% 66%							
routes between Farnborough and Bigg	in Hill are shown. Places of Wo	24 rship	100% 63%	Places of	Worship	24	100% 79%							
	Count (0-7000	t) 24	100% 80%	Cou (0-70	int 20ft)	24	100% 61%							
		AVERAGE	HANGE -12%		-	VERAGE CH	ID0% 54%							
	Overflight	NSRs RUNWAY	1 Do nothing 58	Overflig	nt NSRs RUN	(WAY	1 Do nothing 5B							
	Heathcare C	ount 6	100% 161%	Heathcar	e Count	6	100% 194%							
	(0-7000)	24	100% 275%	(0-70)	bon)	24	100% 185%							
	Education C (0-70001	ount 6 t)	100% 107%	Educatio (0-70	n Count DOft)	6	100% 122%							
	Places of Wo	eship 6	100% 430%	Places of	Worship	6	100% 132%							
	(0-7000	24	100% 87%	Cou (0-70)	int DOft)	24	100% 104%							
Communities	Air Quality	AVERAGE	HANGE 100%			VERAGE CH	ANGE 40%							
This option would not alter the later	al or vertical tracks of flight pat	ns below 100	00ft for Farn	borough's	arrivals	or dei	partures and	this optic	on is the	efore no	t expected to ha	ve an ef	fect on I	local Air
	0.1			Quality.										
Wider Society	Greenhouse Gas Impact					C	Quantitative							
Option 5B is estimated to result in an	annual reduction of 69,945nm	flown by Far	nborough me	ovements	s compare	ed to	the Do Nothir	ng scenar	rio, base	d on 202	3 movements, th	ne 20 yea	ar avera	ge modal
		split	and the sam	e directio	onal split	of tra	ffic.							
				-										
				N	IM Dif	fere	ence							
		1A Do	Nothing	g			0.0							
		58				-6	9945							
		50				-0	5545							
Wider Society	Capacity/Resilience					0	Qualitative							
The assumptions necessary for	this option require Heathrow an	d Gatwick de	partures to	climb hig	her, soon	er tha	in today. This	releases	more a	irspace a	bove Farnborou	gh for Fa	irnborou	gh's
departures to also climb higher, s	sooner. In turn this could vertical	ly resolve the	e conflict wit	th Farnbo	orough's c	wn a	rrivals, drama	atically re	educing t	he amou	int of tactical int	erventio	n relied	on by
elements of other ontions such as	PBN arrivals to final approach	ways arrivals an RNP-AR a	rrival to RW	outn, met Y06 that	erea thro avoids Or	ugh c diham	MATZ and a	route be	tween F	points wi	unin the sector. Igh and Riggin H	ine opti ill which	un also d would f	contains further
contribute to a reduced ATC worklo	ad and increased systemisation.	The option	has scope for	r a more	standardi	ised t	ransfer of cor	ntrol betv	veen Far	nboroug	h and TC which (	could en	able con	nplexity
			red	uctions in	n TC.	-				0				•

Wider Society	Biodiversity and Tranquillity			Qualita	tive				
		Tranquillity							
	Slough Southall	The image to the left s	shows the ave	erage typical	overflight co	nes to/from 7000ft for ea	ch existing a	rrival and de	parture route,
Reading	Windsor	The tables below illus	trate the typi	cal changes i	n overflight o	f these areas compared to	the baselin	e.	
strange and the second	Bracknell (Chingston upon	With Biggin I	Hill routes			Without Biggin Hil	l routes		
Newbury		Overflight		1 Do		Overflight		1 Do	
Tadley	Camberley	AONB	RUNWAY	nothing Baseline	5B	AONB	RUNWAY	nothing Baseline	5B
North	Woking	ARRIVALS	6	100%	53%	ARRIVALS	6	100%	0%
Downs Basingstoke	rnborough	Overflight (0-7000ft)				Overflight (0-7000ft)			
A REAL PROPERTY OF A REAL PROPER	Idershot Guildford	AONB Area (km2)	24	100%	47%	AONB Area (km2)	24	100%	65%
	Surrey Hills	DEPARTURES Overflight (0-7000ft)	6	100%	113%	DEPARTURES Overflight (0-7000ft)	6	100%	151%
		AONB Area (km2)	24	100%	105%	AONB Area (km2)	24	100%	105%
<u> </u>	5		AVERAGE	CHANGE	-20%		AVERAGE	CHANGE	-20%
A The R									
		Overflight		1 Do		Overflight		1 Do	
Petersfield		Nat Park	RUNWAY	nothing Baseline	5B	Nat Park	RUNWAY	nothing Baseline	5B
South Downs		ARRIVALS	6	100%	117%	ARRIVALS	6	100%	170%
Sand	2	Overflight (0-7000ft)				Overflight (0-7000ft)		1000/	26624
Waterlooville		NP Area (km2)	24	100%	178%	NP Area (km2)	24	100%	266%
Fareham Havant	Arundel Ar	DEPARTURES	6	100%	51%	DEPARTURES Overflight (0-7000ft)	6	100%	68%
Portsmouth	Worthing	NP Area (km2)	24	100%	30%	NP Area (km2)	24	100%	40%
	Bognor Regis		AVERAGE	CHANGE	-6%		AVERAGE	CHANGE	36%
Biodiversity		Children and	Section of the						2 2 C
The image to the right shows the average t	typical overflight cones to/from		and the second	3 . 6 .	MAG	C C C			
2000ft for the Do Nothing option mapped RAMSAR sites surrounding the airport. The	against SACs, SSSIs, SPA and following sites are currently			in the	-				Total Contraction
overflown below 2000ft:	,	1. 1. 2.			1	4			100
1. Thames Basin Heaths SPA, Bourley and L 2. Thames Basin Heaths SPA, Felmoor Mar	ong Valley SSSI sh SSSI Basingstoke Canal SSSI		A.	51-2	<b>9</b>				Contraction of the second
3. Thames Basin Heaths SPA, Ash to Brook	wood Heaths SSSI, Basingstoke	Phane Party			1.3		-	19.6	-1
Canal SSSI, Thursley, Ash, Pirbright & Chob 4. Thames Basin Heaths SPA. Colony Bog and	oham SAC nd Bagshot Heath SSSL Thursley	-S.F	A VIIS		21	3			
Ash, Pirbright & Chobham SAC				and the second	A Caller				1
5. Bentley Station Meadow SSSI			1-3-13	1		A Charles			1
		Bart Bress			L		1-1-1-1		
		B. GAL	A 1	-	A Total			1 ST	
		20. 1.	Cox II	States.	1. 19 m 24				
		1 6 100		at the /	1				
				Street 6		1 - Start		100	
		ALT ALT A			*	7 7	S- week		1 2 2 1
		and the second	nig .	1.	1	A COLO		11221	12.2 m
			- E la L						
General Aviation	Access	DCU I I I I	<b>F</b>	Qualita	tive			1.	
nis option assumes the introduction of profiles from Heatbrow and Gatwick p	PBN procedures to the ILS and RNP A neaning Earnborough departures to th	PCH, a route between we NW and W can clim	Farnboroug	n and Biggi an earlier f	n Hill, an KN irst turn fron	P-AR arrival to RWY U6 RWY 06 and also a sh	, an assume ift of all ar	ed improver rivals from t	the north and
south through the same point and south	nerly departures routing further east t	han today. By moving	the RWY 06	Final Appro	ach Fix (FAF	) closer to the Threshol	d (THR), th	e PBN appro	oach transition
can fit right in the centre of the existing	g arrival swathe. The CAA Policy for th	e Design of Controlled	Airspace St	ructures say	s that there	should be between 2 a	nd 3nm fro	m an RNAV	1 arrival route
and the edge of CAS. There would be to time. The RWY 24 arrival is wholly contain	petween 1 and 2nm between this cent ined laterally although in the vertical	treline and the edge of	CAS which	would requ	ire a bespoke	e safety case to support tentially affecting Fairs	. This is fel	t to be achi	evable at this CTR potentially
requiring an adju	istment to its dimension or managed	through LoA. The chan	ge to the lat	teral profile	of the RWY	06 SIDs is not expected	to affect C	AS.	ern potentiany
The RNP-AR arrival to RWY06 that avoi	ids the RAF Odiham MATZ could requ	ire a very small adjust	ment to the	NW corner	of CTA4 and	the SW corner of the C	TR. The rou	ite betweer	n Farnborough
The availability of 6000ft for Earphorous	and Biggin Hill	is not expected to affe	ct Farnboro	ugh's CAS d	imensions.	MA11 although that is	not Farabor	ough's airs	nace to amond
and would also be reliant on Heathrow	v operations. The option could enable	reduction in the size of	of CTA9. A co	ontingency h	nold would id	eally have a lowest hol	ding level o	ough s an s f 6000ft bu	t if this is not
possible, a 5000ft minimum holding lev	el could result in a requirement to lov	ver a part of LTMA13	south of Bus	ter Hill mas	st. This optio	n would be expected to	reduce the	workload o	f Farnborough
ATC quite considerably by removing the	e need to descend and turn aircraft in	a very timely manner	in the const	rained airsp	ace onto fina	al approach and owing	to the deco	nfliction of I	Farnborough's
own arrivals and departures from ea	ch other. This should provide greatly r	educed K/T Workload, airspa	enabling th ce.	e ability to j	provide an in	proved service to othe	r GA aircrat	t wishing to	o transit the
General Aviation/ commercial airlinos	Economic impact from increased of	fective canacity	-	Qualita	tive				
We expect the increased capacity/resili	ience detailed in the section above wi	Il result in a positive e	conomic im	pact on Farr	borough's ci	stomers compared wit	h the Do N	othing scen	ario. Owing to
the extension of the CTR to the west r	required by this option there could be	a negative effect on La	asham/Odih	am operati	ons. The requ	uirement to contain a P	BN arrival t	o RWY06 fi	nal approach
Conoral Aviation ( commercial siding	Eucl Rum	nside CAS could negati	vely affect F	airoaks.	ativo		_		
General Aviation/ commercial airlines	See wider society Green Hous	e Gas Impact as the m	ethodologie	employed	at Stage 2 a	ire the same.			
Commercial airlines	Training costs			Qualita	tive				
Flight procedures are updated or introdu	uced worldwide as part of an AIRAC of option contains an PNP AP arrivel it	cle. As part of this cyc	le, Business	Jet operato	ors update th	eir procedures accordir	igly and und	dertake traii	ning if required
on a pushess as usual pasis. Whiist this	approved. This option is not antici	pated to require any a	approach a' dditional tra	ining costs	for Farnboro	ugh's customers.	would not	ue required	LO DE KINP-AR
Commercial airlines	Other costs	. ,		Qualita	tive				
	No other costs fr	or Famborough's custo	mers are fo	reseen with	this option				
Aiment (ANCD			cis ale lu	Courter	tivo		_	_	
AILBOLT ANSK	minastructure costs			Qualita	uve				
	This design option i	s not expected to char	nge Farnboro	ough's infra	structure cos	ts.			
Airport/ANSP	Operational costs			Qualita	tive				
	This design option	is not expected to cha	nge Farnbo	rough's ope	rational cost	5.			
Airport/ANSP	Deployment costs			Qualita	tive				
This option is expected to require air tra	affic controller training for the control	llers and assistants loo	ated at Fari	nborough Ai	rport, and Lo	ndon Terminal Control.	The scale a	and nature of	of this training
requires further exploration as part of	of the Stage 3 Full Options Appraisal,	when appraising the sl	hortlist of op	otions and c	nce further i	nformation is known al	out the net	twork above	7000ft and
	intere	dependencies with adj	acent airpor	ts and NER	L.				

All	Safety	Qualitative								
The reduction in Farnborough ATC workload is expected to enhance safety inside CAS. Any impact on Fairoaks as a result on any changes to CTR2/1 have not yet been assessed. Impacts on RAF Odiham and Lasham as a result of an extension of the CTR to the west have not yet been assessed.										
IFP design has shown that an RNP APCH to RWY 24 has an impact on D132 and an earlier turn for RWY06 departures would continue to requirement ATC intervention during D132 activation. Any										
BaroVNAV RNP APCH would not be designed to 3.5* to match the ILS but would need to have a lower profile to enhance availability in all temperatures, this could further impact CTR2/1 and would										
also need consideration of the PAPI angle. IFP flyability has not yet been performed which could change the impacts described so far. Removal of flights between Biggin Hill and Famborough from										
TC would reduce comp	lexity in their sectors. There are not yet any RNP-AR arrival procedures	promulgated in the UK which may require additional assurances.								
All	Interdependencies, conflicts, and trade offs with other ACPs	Qualitative								
The implementation of PBN to final app contingency hold is dependent on Heath 6000ft. These both could result in trade lateral profile from another airport. The a	roach is unlikely to require trade-offs with Heathrow, Gatwick and Sout row and/or Gatwick being able to be guaranteed to climb higher, soone e-off analysis if a steeper than optimal gradient were to be required frou addition of a low level route between Farnborough and Biggin Hill does will have dependencies on Southampt	hampton because the changes are very small and low level. The addition of a new r. The same applies to the ability for Farnborough's NW/W departures to climb to m those airports in order to facilitate the hold or potentially even a change to the have interdependencies with Heathrow, Gatwick and Biggin Hill's ACPs. This option on's ACP.								
All	Performance against the vision and parameters/strategic objectives of the AMS	Qualitative								
The Airspace Modernisation Stra	ategy vision is to deliver guicker, guieter and cleaner journeys and more	capacity for the benefit of those who use and are affected by UK airspace.								
This option delivers CO2 reductions throu enhanced systemisation and lower A customers and GA wishing to transit th	igh overall reduced track mileage but the funnelling of arrivals from the TC workload which will enhance safety. The significant reduction in ATC he airspace. However the required extension of the CTR to the west coul workload. The slightly longer final approach to accommodate PBN to RM	north and south to the SW of Farnborough degrades some CO2 benefit in favour of workload could be expected to improve service delivery to both Farnborough's d potentially increasing Class G compression, GA pilot workload and Odiham ATC IP APCH reduces some of the CO2 benefit.								



# 5. IOA CONCLUSIONS

## 5.1 IOA outcomes

- 5.1.1 The options have been created and assessed as separate, complete system options. Each option, 2A through to 5B, increase the scale of change compared to Option 1 (Do Nothing). The "B" version of each option generally contains only a small variation from the "A" version; a slightly longer PBN IAP to final approach to cater for PBN to both ILS and RNP APCH and/or an earlier first turn on Runway 06 departures.
- 5.1.2 Our options were designed to explore multiple competing demands/principles i.e. improved operational performance, a reduction in population numbers affected by noise, a reduction in CO<sub>2</sub> emissions per flight, a reduction in the volume of CAS, minimise overflight of AONBs and National Parks and so on. In airspace design, it is highly unlikely that a single option can address all these demands to the maximum extent. Therefore, the airspace design process seeks to enable sponsors to investigate a series of different options that meet each principle/criteria to a greater or lesser extent. It is inevitable that where one option may deliver benefit in one IOA category, it may negatively impact another. A different option could do the opposite. Our goal is to arrive at a final proposal that best balances the series of competing demands and in order to do that, options need to be created at the outset that may be undesirable against a single objective. As we progressed through the Design Principle Evaluation and Initial Options Appraisal the pros and cons of different elements of each option have emerged. The outputs of the IOA have enabled Farnborough to arrive at the following conclusions:

### **Option 1 Do Nothing**

- 5.1.3 The Airspace Modernisation Strategy vision is to deliver quicker, quieter and cleaner journeys and more capacity for the benefit of those who use and are affected by UK airspace.
- 5.1.4 Our DPE concluded that doing nothing partly meets the strategic aims of the AMS. Farnborough have recently modernised their airspace by implementing PBN arrivals and departures together with Controlled Airspace. Since then, in order to enable DVOR rationalisation (mentioned in Para 2.83 of CAP1711), Farnborough implemented the use of RNAV substitution for their Initial Approach Procedures (See ACP-2023-023). As set out in the Statement of Need for that ACP and as within CAP1781, RNAV substitution is an interim measure prior to a permanent PBN solution. Option 2A/2B within this ACP represents the minimum changes necessary to adhere to the temporary nature of RNAV substitution.
- 5.1.5 It's not entirely plausible at this stage to say that Do Nothing will not meet the objectives of the AMS, that depends very much on what changes NERL, Heathrow, Gatwick and Southampton want to propose and whether Doing Nothing at Farnborough would hinder those changes. However, in the event that changes to surrounding airspace would enable improved operational and/or environmental performance and/or CAS reductions, Farnborough would wish to implement those changes, hence being part of the programme.
- 5.1.6 However, on the basis that the CAA requires RNAV substitution to be of a temporary nature only and combined with the strong likelihood that there will be changes to Farnborough's traffic flows as a result of the wider FASI programme, Farnborough determine that Do



Nothing is not a viable option that can be carried forward. Option 2A/B illustrate the minimum changes necessary to remove reliance on RNAV substitution at Farnborough,

## 'A' Options (PBN to ILS ) versus 'B' Options' (PBN to ILS and RNP APCH)

- 5.1.7 The continued absence of the ability to implement LPV approaches in the UK maintains a reliance on BaroVNAV. Regardless of PBN Initial Approach Procedures to final approach, the implementation of BaroVNAV RNP APCH at Farnborough will be challenging owing to the extant 3.5° ILS angle and there are also issues with a RWY 06 RNP APCH and D132. However, to enhance Farnborough's resilience and to address one of the wider aims of the AMS, Farnborough wish to pursue their adoption. It is possible that LPV will become available in the timeframe between the end of Stage 2 and a firm LTMA deployment which includes Farnborough. This would address some of the issues.
- 5.1.8 Considering the ability for a PBN IAP to both ILS and RNP APCH. IFP design criteria results in a slightly longer final approach to an RNP APCH at Farnborough than just to an ILS. As a result an extension to the CTA to the west would be required, negatively impacting Lasham and RAF Odiham. There is no noise benefit to a PBN to this longer final on RWY 06 whereas there is on RWY 24. On RWY 24, the impact to GA does not appear to be any different between the slightly different approaches. However, when vectoring to an RNP APCH, the distance between the Initial Fix (IF) and the Final Approach Fix (FAF) can be reduced meaning that, on RWY 06, ATC could vector to an RNP APCH whilst still having a PBN arrival to ILS. Considering that RNP APCHs would be for resilience only and ILS would always be the approach of choice, an argument for additional CAS to contain an arrival that could be relatively infrequently flown is challenging. In addition, the slightly longer final approach would add c.0.5nm to every arrival, ILS and RNP APCH. Keeping the PBN arrival in an optimal location for the ILS minimises overall CO<sub>2</sub> emissions.
- 5.1.9 Therefore, PBN Initial Approach Procedures to RNP APCH to Runway 06 is being discontinued to minimise impact to Lasham and RAF Odiham whilst maximising CO<sub>2</sub> and noise benefit. Vectors to RNP APCH would solve this issue. PBN IAPs to RNP APCH on RWY 24 is still being progressed. For avoidance of doubt PBN IAPs to ILS is being progressed on both runway ends as a necessity to remove Farnborough's dependency on RNAV substitution as well as providing significant workload reductions for ATC. Preferred Option(s).

### Early turns on RWY 06 departures

- 5.1.10 There is both noise and CO<sub>2</sub> benefits with a SID that turns right slightly earlier than today and this component is being progressed. An earlier turn could also be beneficial in avoiding overflight of communities by multiple routes including those to/from other airports although it depends on the ultimate positioning of Heathrow's southerly departures. We will also keep the option of the same first turn on the table.
- 5.1.11 Following the outcomes above, we then considered aspects of Options 2-5.

## Option 2A and Option 2B

5.1.12 Both these options are progressed with the exception of PBN IAPs to RNP APCH RWY 06.

### **Option 3A and Option 3B**

5.1.13 The low level route between Farnborough and Biggin (which is the same in Options 3A/B, 4A/B and 5A/B) is being progressed owing to the large reduction in track miles and reduced



complexity in TC. London Biggin Hill Airport are supportive of this option though it does have a dependency on the LBHA ACP.

- 5.1.14 The RWY 06 departure which turns over Aldershot (which is the same in Options 3A/B, 4A and 4B) does reduce overflight of Surrey Hills but, as a result, generates significant increases (30%+) in number of people within the 60dB L<sub>AMAX</sub> contour. It generates a small increase in track miles and would also not be possible in conjunction with an earlier first turn. DP4a is to 'enable a reduction in population numbers affected by noise, DP4b is to 'enable a reduction in CO2 emissions per flight from Farnborough aircraft' and DP6b is to 'minimise population numbers newly overflown'. ANG2017 3.3c says "in the airspace at or above 4,000 feet to below 7,000 feet, the environmental priority should continue to be minimising the impact of aviation noise in a manner consistent with the government's overall policy on aviation noise unless the CAA is satisfied that the evidence presented by the sponsor demonstrates this would disproportionately increase CO2 emissions;" and the Government's overarching aviation noise policy says "The impact of aviation noise must be mitigated as much as is practicable and realistic to do so.."
- 5.1.15 Whilst N60 is indeed a metric to measure nighttime noise, it is still an indicator of noise impacts, where our DP4a does not distinguish between adverse noise effects or any noise effects. The RWY06 departure which turns over Aldershot would not result minimise the number of people newly overflown newly when compared to do nothing (see Page 16 of technical appendix,) which typically avoids Aldershot, compared to the majority of RWY 06 departures today. Also, as also included in our rationale for discontinuation explanation of this component, the turn over Aldershot would also add a small increase in track miles.
- 5.1.16 We are therefore discontinuing this component as it would increase the number of people affected by noise (to some extent), would not minimise people newly overflown and would not enable a reduction in CO<sub>2</sub> emissions per flight. Whilst N60 is a nighttime noise metric, there were no other overarching operational or environmental benefits in progressing this component.
- 5.1.17 The RNP AR arrival to RWY 06 avoiding RAF Odiham (which is the same in Options 3A/B, 4A/B and 5A/B) is being progressed.
- 5.1.18 PBN IAPs to RNP APCH RWY 06 are not being progressed.
- 5.1.19 The only components in this option being progressed are also present in Options 4A/B and 5A/B. Therefore, Options 3A and 3B are discontinued.

#### **Option 4A and Option 4B**

- 5.1.20 The low-level route between Farnborough and Biggin (which is the same in Options 3A/B, 4A/B and 5A/B) is being progressed owing to the large reduction in track miles and reduced complexity in TC.
- 5.1.21 The RWY 06 departure which turns over Aldershot (which is the same in Options 3A/B, 4A and 4B) does reduce overflight of Surrey Hills but, as a result, generates significant increases (30%+) in number of people within the 60dB LAMAX contour. It generates a small increase in track miles and would also not be possible in conjunction with an earlier first turn. This component is being discontinued for the reasons covered in 5.1.14 5.1.16.
- 5.1.22 The RNP AR arrival to RWY 06 avoiding RAF Odiham (which is the same in Options 3A/B, 4A/B and 5A/B) is being progressed.



5.1.23 The move of the arrival route from the south to the east is being progressed owing to the significant CO<sub>2</sub> benefits. The ability to keep arrivals from the NW close to where they route today is also being progressed to keep track miles to a minimum and to also help reduce overflight of the South Down National Park (compared to Option 5).

### **Option 5A and Option 5B**

5.1.24 Both these options are progressed with the exception of PBN IAPs to RNP APCH RWY 06.

#### **Preferred Option**

- 5.1.25 Option 5 is our current preferred option at this stage owing to greatly increased systemisation, positive noise and CO<sub>2</sub> benefits and this option contains most potential to release elements of CAS to Class G. The option does increase overflight of South Downs National Park but reduces overflight of North Wessex Downs AONB.
- 5.1.26 Whilst this option is our preferred option at this time, it is likely that the final option(s) in Stage 3 will be made up of a combination of components from the "Components Progressed" list below. Further work is required on all components progressed. The final proposal may not contain all components taken forward.

Components Progressed		
Earlier first turn on RWY 06 SIDs		
Keeping the same first turn on RWY 06 SIDs		
RNP AR to RWY 06		
PBN to ILS RWY 06		
PBN to ILS RWY 24		
PBN to RNP APCH RWY 24		
Low level route between Farnborough and Biggin Hill		
Contingency hold, ideally min level 6000ft		
Arrival from the south moved to the east (taken from		
Options 4A/4B)		
Option 2A		
Option 2B excluding PBN to RNP APCH RWY 06		
Option 5A		
Option 5B excluding PBN to RNP APCH RWY 06		
Keeping arrivals from the NW as today		
Keeping arrivals from the south as today		
No change to RWY 24 first turns		
Table 4: Components progressed		

С	omponents Discontinued	
	Option 1 Do Nothing	
	PBN to RNP APCH RWY 06	
R	WY 06 SID turning over Aldershot	
	Option 3A and 3B	
Option 4	A and 4B excluding arrival from the south moved to the east	

Table 5: Components discontinued



## 5.2 Information to collect as part of the Full Options Appraisal

- 5.2.1 The IOA involves a mixture of qualitative and quantitative analysis of each option against the baseline. To fill any evidence gaps from the IOA, during the FOA, Farnborough Airport will further develop and assess the following by using primarily quantitative analysis where possible.
  - Generate a future forecast for year of implementation and year of implementation + 10 years including movement numbers and aircraft fleet.
  - Quantitatively appraise full airport system LAeq contours, including population data, noise sensitive buildings and contour area. This will include consented local developments where applicable.
  - Quantitatively appraise full airport system fuel burn and equivalent CO<sub>2</sub> emissions data taking into account the expected vertical profile of the routes.
  - Undertake noise and carbon webTAG assessments.
  - Undertake tranquillity impact assessments where applicable.
  - Undertake biodiversity impact assessments where applicable.
  - Undertake air quality impact assessments where applicable.
  - Quantitatively appraise overflight contours based on full airport system options, which include frequency of cumulative overflight and contours showing 100% runway usage.
  - Provide further information about interdependencies, conflicts and trade-offs with neighbouring airports and the airspace above 7000ft.
  - Include qualitative information and quantitative data about cumulative impacts with neighbouring airports.
  - Provide quantified costs for ATC deployment and training where applicable
  - Provide quantified costs for ANSP/Airport infrastructure and operational costs where applicable
  - Provide further assessments around capacity / operational resilience
  - Quantify the volume and designation of Controlled Airspace (CAS) required and articulate the benefits and impacts of this for General Aviation.
  - Undertake further safety assessments.
  - Where applicable, undertake a Habitats Regulations Assessment (HRA)
- 5.2.2 As Stage 3 of this ACP will be undertaken in accordance with <u>CAP1616 Edition 5</u>, Farnborough Airport will use the metrics outlined in <u>CAP1616F</u> and <u>CAP1616i</u> to carry out these assessments.



## 5.3 Impacted Audiences

- 5.3.1 At the 'Develop and assess' gateway, the IOA must set out impacted audiences, as this information will be a key feature in developing the consultation strategy required during Step 3A and at the 'Consult' gateway.
- 5.3.2 The following figure shows our remaining components on one map image. We will use this mapping as a starting point to identify our impacted audiences and ensure that this is considered when developing our consultation strategy at Stage 3. We're aware that other factors also need to be taken into account when identifying the audience such as other noise metrics, changes to controlled airspace etc and we will ensure these are also factored in.



Figure 3: Impacted audiences



## 5.4 Next steps

5.4.1 A date for the Stage 3 Gateway Assessment has not yet been set as this will be as a result of an agreed deployment plan within an accepted version of the Masterplan.