Cotswold Airport (Kemble) Airspace Change Proposal for a Defined Approach Procedure

Consultation Document

CAP 1616 Stage 3, Step 3a Consultation

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Author	Cotswold Airport	
Reviewer	Merlin Aerospace Consulting Ltd	

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INTRODUCTION

General

1. This document forms part of the document set created in accordance with the requirements of the CAP1616 Airspace Change Process. This document is prepared according to the regulatory requirements of the UK Civil Aviation Authority for changing airspace design (Civil Aviation Publication (CAP) 1616) and represents the consultation document under Stage 3 of the Airspace Change Process. Whilst CAP 1616 suggests industry best practice for consultations, it is accepted by the CAA that there is no requirement to follow best practice, since this has yet to be issued. The aim of this consultation document is to provide all stakeholders[1] with consistent information relating to the effects of the proposed airspace change. This is not the creation of new airspace, nor a change of classification, but a formalisation of activity that already exists. This document has been written in plain English, assuming the reader has no technical aviation knowledge, to ensure the information is accessible to all. As a result of reading this document, we are hoping for feedback and comments on our proposed airspace change. Cotswold Airport have successfully completed Stages 1 and 2 of the Airspace Change Process and are currently in Stage 3, the CONSULT stage.

Consultation Scope

2. The scope of this consultation is limited to the proposed implementation of new instrument approach procedures which would replicate the current approaches where the pilot choses where to fly, before lining up with the runway to land. This is for certain types of arriving aircraft, such as business jets and airliners for maintenance or recycling. These in-scope arrivals are 1 pay day on an annual average. Operational data suggests this can vary from no in-scope arrivals per day to a maximum of two.

3. This document includes some background information to aid stakeholder understanding, an assessment of the effects and benefits and references to our Initial and Full Options Appraisal; These more comprehensive appraisal assessments, along with all other material, can be located within the Civil Aviation Authority's Airspace Change Portal.

4. This consultation concerns the proposed implementation of Performance Based Navigation (PBN) Instrument Approach Procedures within the airspace surrounding Cotswold Airport and cover the Global Positioning System (GPS) navigational guidance available to certain types of aircraft during the final stages of their arrival to Cotswold Airport. The word aircraft is used throughout as a collective term for all types of aeroplanes and helicopters,

5. The aircraft in-scope (in order of movements/anticipated usage) are:

   a. Corporate/private business jets ranging in size from a Pilatus PC12 or Eclipse Jet sized aircraft to Gulfstream 650 sized aircraft.

   b. Commercial private/business helicopter operators, such as the Queens Helicopter Flight.

   c. Airliner aircraft (such as an Airbus A320 and up to an Airbus A340 or Boeing 747) currently arriving at Cotswold Airport on a ferry flight for Maintenance and Repair Organisation (MRO) work.

6. It is worth highlighting that this proposal will not change the routes flown by our General Aviation (GA) Light Aircraft. Equally, although aware of RAF Brize Norton's airspace change proposal, it is still in the process of being developed and therefore we welcome any response from RAF Brize Norton in relation to our proposals.

[1] A person with an interest or concern in something, especially in business.

Background

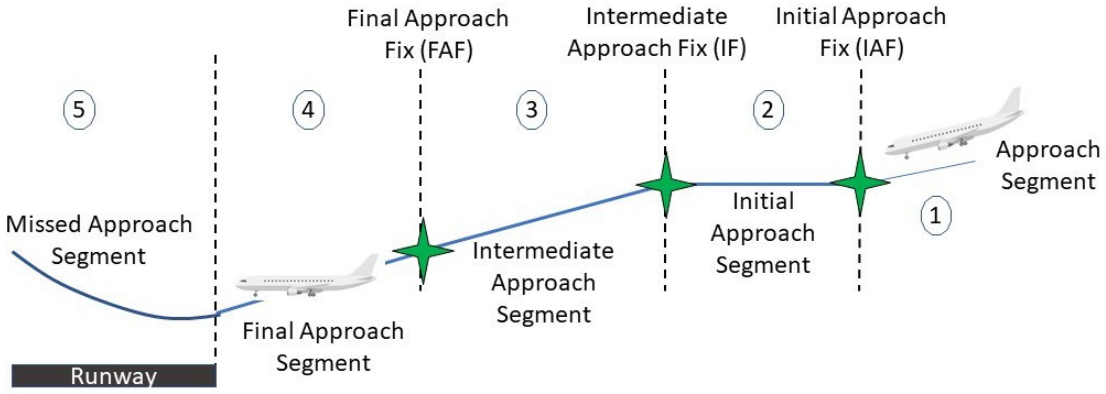
7. The aim of this proposal is to develop and publish a suitable PBN approach (see below at paragraph 9) to support existing arrivals and enable some aircraft that may not have been able to land due to poor weather or operational capability, to do so. Although these aircraft only comprise 0.7%[2] of Cotswold Airport's annual movements (see paragraph 19), these aircraft have a disproportionate positive economic effect on the airport and surrounding area of Gloucestershire and Wiltshire, generating around one third of Cotswold Airport's revenue, based on 2019 financial data (not included); Jet A1 fuel sales alone account for 27%[3]. They are essential to the continued economic viability of the Airport and MRO businesses.

8. These aircraft already arrive at Cotswold Airport by determining their own pilot defined approach route visually, with no instrument procedure or GPS positioning onto a straight in visual approach to land at the airport. It is anticipated that for those aircraft either arriving in bad weather or unable to approach the Airport due to their own operational limitations not allowing a non-defined approach, this proposed PBN approach will marginally increase the Airports annual movements by implementing this proposal, which will then enable them to land at the Airport.

What is a PBN Approach?

9. A PBN approach uses accurate GPS position information, derived from navigational satellites, to allow an aircraft to fly a pre-determined Instrument Approach Procedure that is defined by a series of waypoints, in much the same way as a car Satnav or mobile phone navigation app works.

10. PBN approaches are relatively new operations that have been implemented in the UK over the last few years, although they have proliferated across types of airport in the USA and Europe. All PBN Instrument Approaches are designed to globally agreed criteria developed by the International Civilian Aviation Organisation (ICAO) and aircraft equipment standardised to ensure all aircraft navigate to common levels of performance. The PBN approach is constructed from straight line segments that are defined by a series of geographic latitude and longitude coordinates that are known as waypoints, as shown in a generic PBN approach below:



The Local Context

11. **Overview**. Cotswold Airport is a General Aviation (GA) and business aviation airport 4.5 miles south west from Cirencester. It is the largest privately owned GA airport in the UK and on

[2] Based on 2019 data of 28,598 movements of which 396 were in-scope movements: 1.384%. Movements are recorded as take offs, circuits and landings. Since this proposal is only concerned with landings, the figure is 0.7% (198 in-scope movements per year)
[3] The bulk of which is in-scope aircraft.

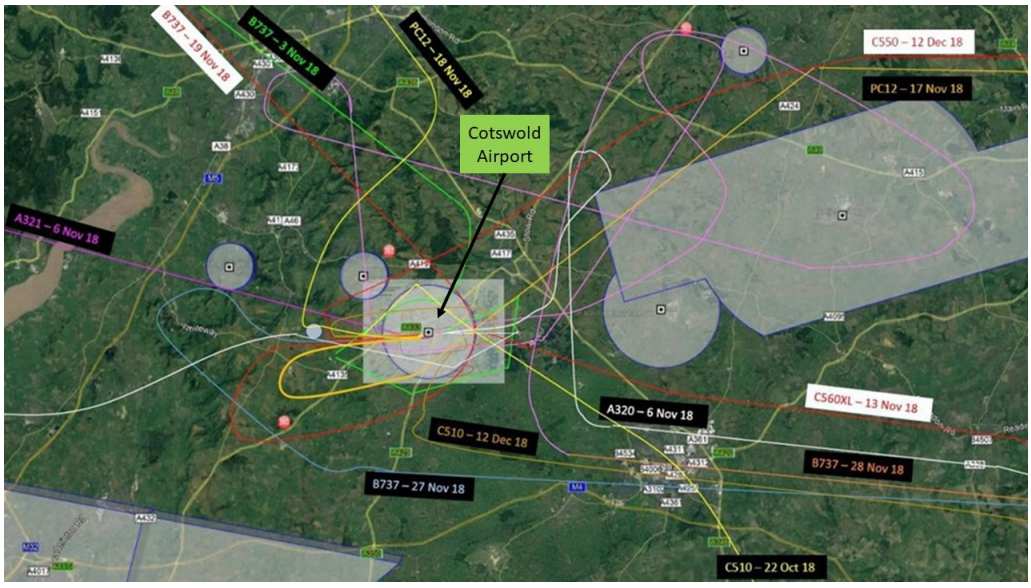
average has between 30 – 34,000 aircraft movements per year. The 546-acre site has a multitude of aviation and non-aviation tenants and is one of the biggest employment sites in the rural Cotswolds area. Of the aviation tenants, we have 6 flying schools, along with an aviation engineering training college, test and research organisations, private based aircraft and an MRO.

12. For a GA airport, Cotswold Airport is well equipped and able to accommodate most aircraft from single engine light aircraft used for initial pilot training, up to large air transport aircraft such as Boeing 737 and Airbus A320. The bulk of our operations are for single engine light aircraft and small corporate/business jets. The larger airliners account for less than 0.1% of our annual movements, about 30 per year.

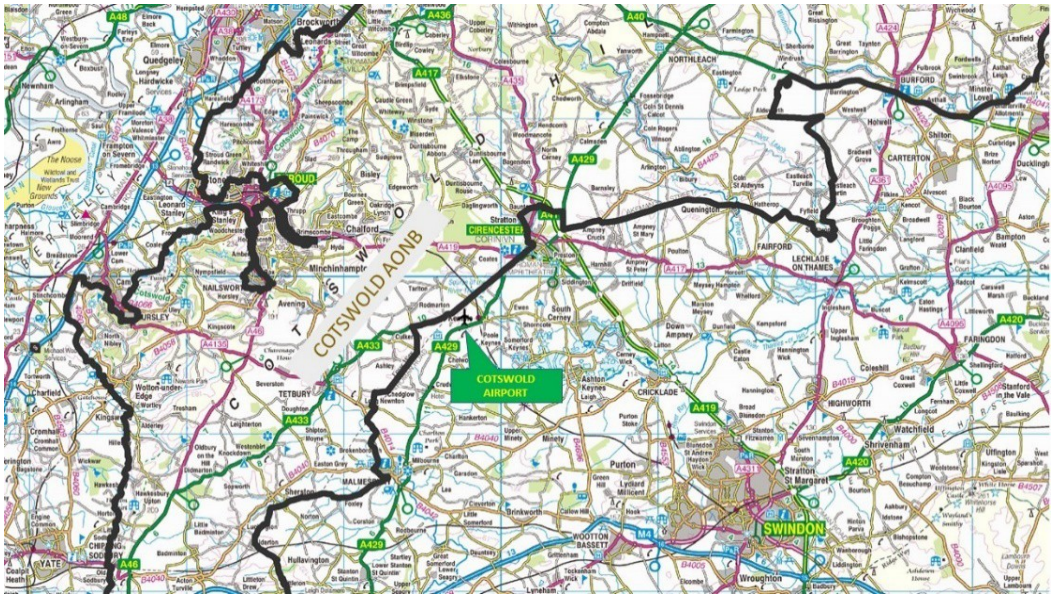
13. In addition to those aircraft described above, Cotswold Airport is an important destination for many privately based aircraft operators and pilots, ranging from its geographically proximity to Royal houses for Royal Flight access to air tourism, a cross county qualifying airfield for student pilots and as an alternative or diversionary airfield, due to its location and runway length.

14. **Community**. Over our 82 years history of flying, the airfield has enjoyed a strong bond with the local community, particularly with Kemble village. The villages of Kemble, Ashley, Culkerton and Rodmarton are within the Aerodrome Traffic Zone (ATZ) of 2 miles and Ewen 3 miles away. The airport has a strong relationship, through an Airport Liaison Committee and airport liaison officer, with the local parish councils. There is a growing link between Swindon's future development strategy and Cotswold Airport and between the Airport and the Gloucestershire Local Enterprise Partnership (LEP) development team. Further away from the Airport and within uncontrolled airspace used by many more aircraft than those operating in and out of Cotswold Airport, but under the flight path of the current arrivals are a small number of small hamlets and farms.

15. Although this proposal cannot change the flight paths of all the other aircraft flying in the vicinity of Cotswold Airport , nor that of the in-scope aircraft's routes further out, this proposal will avoid the scatter caused by each pilot choosing where to fly, before lining up with the runway to land, in an area of around 10 miles radius from the Airport. An example of this scatter is shown in the diagram on the next page, which is taken from individual aircraft routes from a commercial radar tracking application that the airport uses as an aid to better situational awareness. It has been taken from data used in Stage 2 of this proposal and although the data is a year old, it is an accurate example of a 2 month snapshot of analysis of the different routes taken by pilots to attempt to visually identify the Airport, lose altitude and establish their aircraft onto a descent path to approach and land at the Airport. It is worth noting that the last few miles of the route into the airport has little variance and is concentrated onto an extended line aligned with the runway when the pilot establishes the aircraft onto its final approach. This last portion will not change with a defined instrument approach and thus those villages in the last 4 miles of the approach to the airport, both east and west are unlikely to notice any change from the current operations for in-scope aircraft.



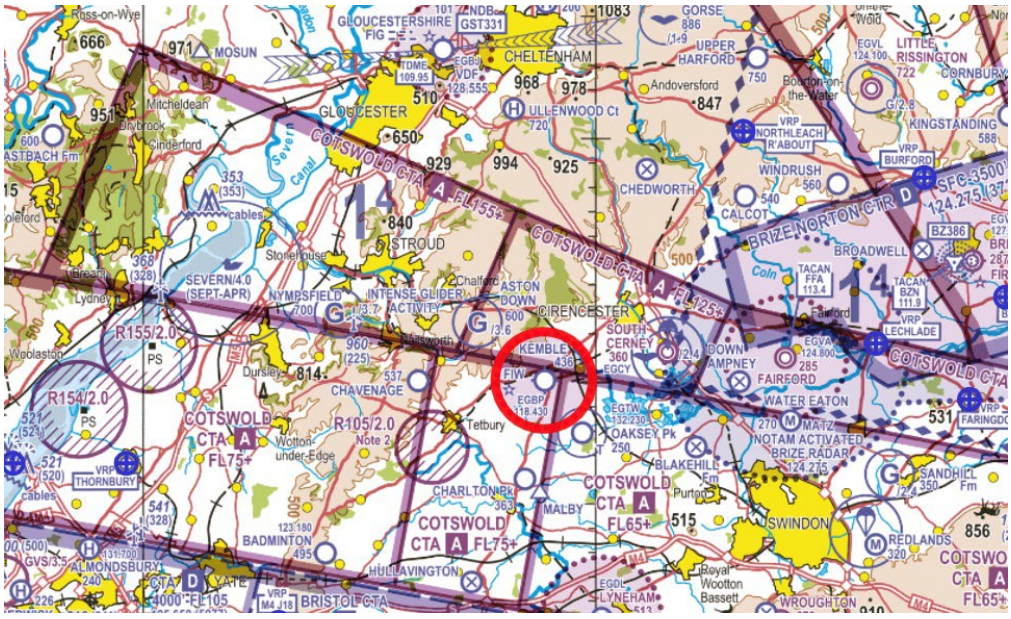
16. **Nearby Environmentally Sensitive Areas**. The Cotswold Area of Outstanding Natural Beauty (AONB) is situated to the west of the Airport. The map below shows the boundary of the Cotswold AONB. It is the only known environmentally sensitive area lying under proposed routings.



17. **Current Local Airspace**. Within our local airspace, the bulk is uncontrolled airspace from ground level up to the national airways system at around 7000ft locally – the international motorways in the sky where airliners fly. A copy of the current air chart is shown on the next page, with Cotswold Airport (Kemble), shown centred on the chart by the red circle around our ATZ. Other airfields are annotated as a white circle bordered in blue. To our west is two glider airfields at Aston Down and Nympsfield which both hold local and national gliding competitions and are active gliding clubs. Oaksey Park (a GA grass unlicensed airfield) is 3 miles south east of Cotswold Airport. Due to the proximity of both Aston Down and Oaksey Park, both have light aircraft routinely operating at low level around the same local area as Cotswold Airport. There are number of small grass unlicensed strips within a 10 miles radius from Cotswold Airport, most with less than a handful of based aircraft. Most of our based GA initial pilot training aircraft route south from the Airport to a training area south of the M4, near Lyneham.

18. Areas of controlled airspace (shown on the chart as purple areas, with hard purple borders) exists around RAF Brize Norton (17 miles to our east) and Bristol Airport (30 miles to our south west). RAF (US Air Force) Fairford is 10 miles to our east, although only has an ATZ

like Cotswold Airport, which is within uncontrolled airspace, less the portion intersecting with RAF Brize Norton's controlled airspace.



Current Operations

19. Using our latest airport statistics, extracted from system-generated reports, the Airport recorded 28,442 movements in the period 1 Jan to 16 Dec 2019, which is an unusually low year due to bad weather from mid-October onwards. 2018 recorded 31,562 movements over the same period. In 2017, the airport logged 32,698 movements and over the past 10 years, movements have been consistently between 30,000 and 35,000 movements per annum. It is worth noting that these annual movement statistics have, within 20% variance, been consistent in RAF, USAF and now civilian use over the airfield's 82 years of operation. The bulk of these annual movements are General Aviation (GA) light aircraft, which in accordance with the Statement of Need which launched this proposal, are **out of scope** of this airspace change proposal. The table below shows these movements, detailing the in-scope movements in green:

Aircraft Classification	2018		2019	
	Recorded Movements	%	Recorded Movements	%
Total Movements	31562	100	28442	100
GA (light Aircraft) - Out of Scope	31180	98.8	28046	98.6
Corporate/Business Jets In-Scope	360	1.1	376	1.3
MRO Airliners In-Scope	22	0.1	20	0.1
Total In-Scope Movements	**382**	**1.2**	**396**	**1.4**

20. Since both a take-off, circuit and landings are logged as a movement, this change proposal is only for arrivals (landings). Analysis, using an annual average, suggest half of all movements for In-Scope aircraft are arrivals. **Therefore, the anticipated changes delivered by this proposal affect only 0.7% of our annual movements (198 Movements) and only for our in-scope aircraft.**

21. Of these aircraft, some will arrive from the east and some from the west, depending upon the runway in use, which changes dependent upon the wind direction. Cotswold Airport's runways are aligned east-west to account for the prevailing winds. When the wind blows from the west, runway 26 (named due to its compass alignment of 260 degrees

magnetic) is in use, so that aircraft land and take off into wind. In the same way, when the wind blows from the east, runway 08 is used.

WHY COTSWOLD AIRPORT NEEDS THIS CHANGE

Drivers for Change

22. The previous section has allowed the reader the understand some of the factors driving change which will be addressed by this Airspace Change Proposal, namely replacement of the current ad hoc, pilot defined approach routes taken by crews aligning their aircraft to land at the Airport with a defined one. This will be delivered through embracing modern GPS technology (a bit like having a Satnav in your car), enabling Cotswold Airport to better serve its business aviation customers, remain economically viable and provide a better business aviation hub for Gloucestershire and Wiltshire. The main aim of this proposal is:

a. To increase the Airport's operational capacity by allowing in-scope aircraft to land at the airport in bad weather and/or when their own operational procedures would otherwise preclude a landing at an airport without a defined approach. This is an economic benefit to both the airport and the local councils' [4]own economic development plans.

23. The associated effect of these changes is to:

a. Increase operational safety by reducing the potential risk of a mid-air collision by placing arriving in-scope aircraft onto a defined (and thus published) arrival route, which other aircraft will be aware of (through air chart markings) and thus should avoid the area, when active.

b. Provide an obstacle cleared approach to the runway, which can be flown by suitably equipped in-scope aircraft.

c. Reduce the scatter effect, and thereby the distribution of any environmental impacts, of in-scope aircraft arrivals to those areas overflown by the aircraft on this procedure.

Development of Solutions

24. These drivers for change detailed were detailed in the formal 'Statement of Need' submitted to the CAA in 2017 to initiate this Airspace Change Proposal for a GPS technology instrument Approach. From this, the Design Principles (DPs) were developed and tested through engagement with identified local and aviation stakeholders during Stage 1 of the CAP 1616 process, notably the local parish councils, RAF Brize Norton and the local gliding community, the latter proved the most willing to engage and the Design Principles and options were shaped as a result of their input. For those wishing to explore further and gain a deeper understand all our development work by stages to date, including minutes of meetings held with stakeholders, all our work is publicly available and can be accessed directly through the CAA's Airspace Change Portal at:

https://airspacechange.caa.co.uk/PublicProposalArea?pID=19

25. At the early stages, a 'Do Nothing' option was discounted as it would not satisfy the Statement of Need. Option 3, which was an option to have a T-Bar[5] join to both runways was discounted through engagement and mutual design work in Stages 1 and 2 for safety, not

[4] Cotswold District, Wiltshire, Swindon Borough and Gloucestershire.

[5] A term used for GPS/PBN approaches which has joins from more than one direction.

adversely affect other airspace users and not to fly over a large proportion of built up areas and the Cotswold AONB was also discounted.

26. From the outset, this proposal has been centred on embracing the technology of GPS based navigation, known as Performance Based Navigation (PBN). This requires no ground infrastructure like older radio navigation aids, such as an Instrument Landing Systems (ILS).

PROPOSED OPTIONS CONSIDERED

Overview

27. The viable options have been developed from those developed through engagement in Stage 1 and refined in Stage 2. Both remaining options, which meet the Statement of Need and Design Principles have been developed with a CAA Approved Procedure Design Organisation (APDO), who specialise in PBN approaches. All option designs will be fully compliant with the ICAO standards and norms for both safety and aircraft performance. They will be rigorously flight checked before introduction.

28. Each option is intended for aircraft making an approach to Cotswold Airport from the national airway system or direct at low level (below 7000ft above the ground) from another airport. Both options follow a standard 8-mile approach, apart from Option 2 approaches from the east of Cotswold Airport, which include additional 5-mile legs from north and south to keep joining aircraft away from other airspace. Both options use the standard PBN design shown in the diagram above of an Initial, Intermediate and Final Approach Fix way-points to allow the pilots to establish the aircraft laterally and vertically on a 3-degree glide slope 4.8 miles from Cotswold Airport at a height of between 1800 and 2000ft above the runway. This 3-degree glide slope is, again, ICAO compliant for the types of in-scope aircraft that would use this approach. This is shown on the included maps as a solid blue line. The dotted line is the route an aircraft would follow in the event that the aircraft cannot land[6] and will fly what is known as a 'missed approach' to restart the approach procedure, back at the Initial Approach Fix.

29. Each option is described in the following pages, noting that both Options have the same design solution for an approach from the west onto Runway 08, which is a result of engagement with stakeholders so far and a limitation due to busy Bristol Airport controlled airspace to the south and an area of intense glider activity to the north. For all options, the matter of a hold[7] has been considered for the instrument procedures at Cotswold Airport and had been evaluated at the very early stages of the design process and was assessed to be unnecessary and potentially unhelpful following safety-based assessment.

Option 1 – Symmetrical Straight-In PBN Approach to both Runways

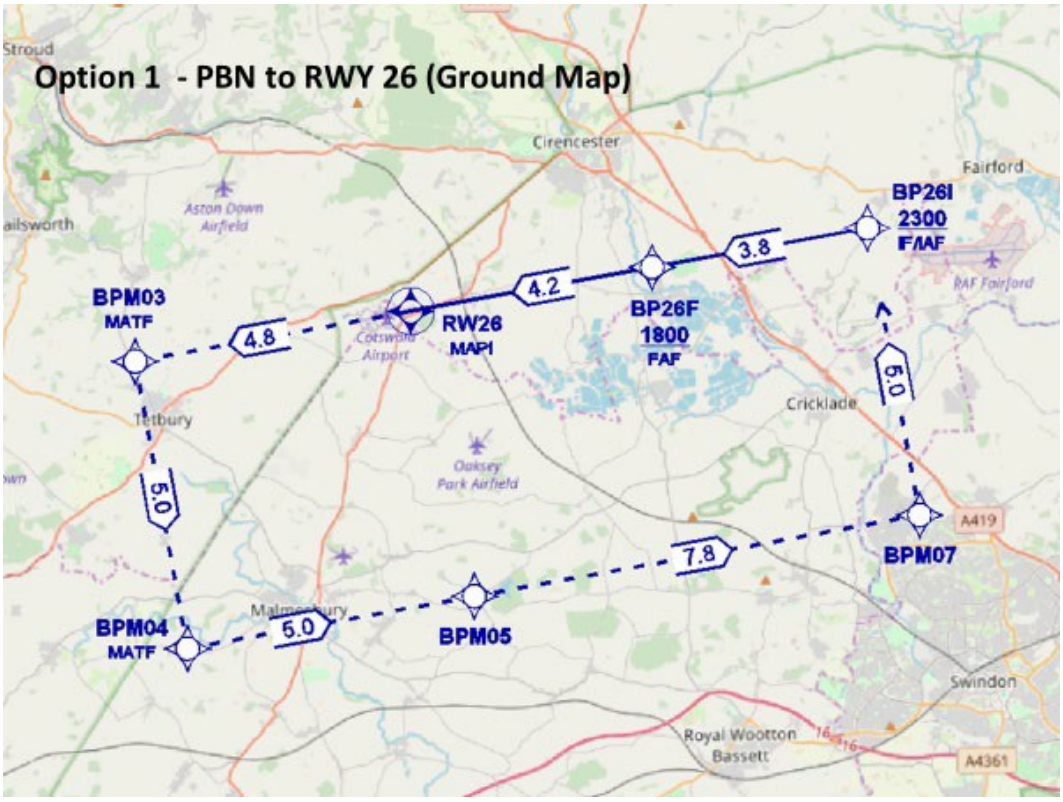
30. **Description**. Following refinement through the initial appraisal and continued engagement with stakeholders, this option proposes a symmetrical straight in approach design, comprising Initial, Intermediate and Final approach fixes. This allows aircraft to follow a defined approach route from 8.6 miles out from the airport onto either Runway 08 approaching from the west, or Runway 26 approaching from the east, depending upon the runway in use. The diagrams for both approach directions are shown below. Air Charts are at Annex B1.

31. The aircraft would follow an ICAO standard 3-degrees glide slope, using minimum power settings to arrive onto final approach and touchdown. By design, this means the aircraft

[6] If the runway is block by another aircraft or incident or that the pilot's safety criteria cannot be met to safely land.

[7] A Hold or Holding procedure. A predetermined manoeuvre which keeps an aircraft within a specified airspace while awaiting further clearance. ICAO Doc 8168 Pans Ops Vol 1.

would be flown under own navigation, or under a radar service[8] to the Initial Approach Fix, 8.6 miles away from the airport at an altitude of 2300 feet and follow a straight in approach. The Final Approach Fix (FAF) 4.8 miles away from the airport would confirm the aircraft is on the right track and at either 2000ft (Rwy 08) or 1800ft (Rwy 26) above the runway height. Depending upon the headwind, an in-scope aircraft would take anywhere between 3 ½ and 7 minutes to fly the entire approach[9].

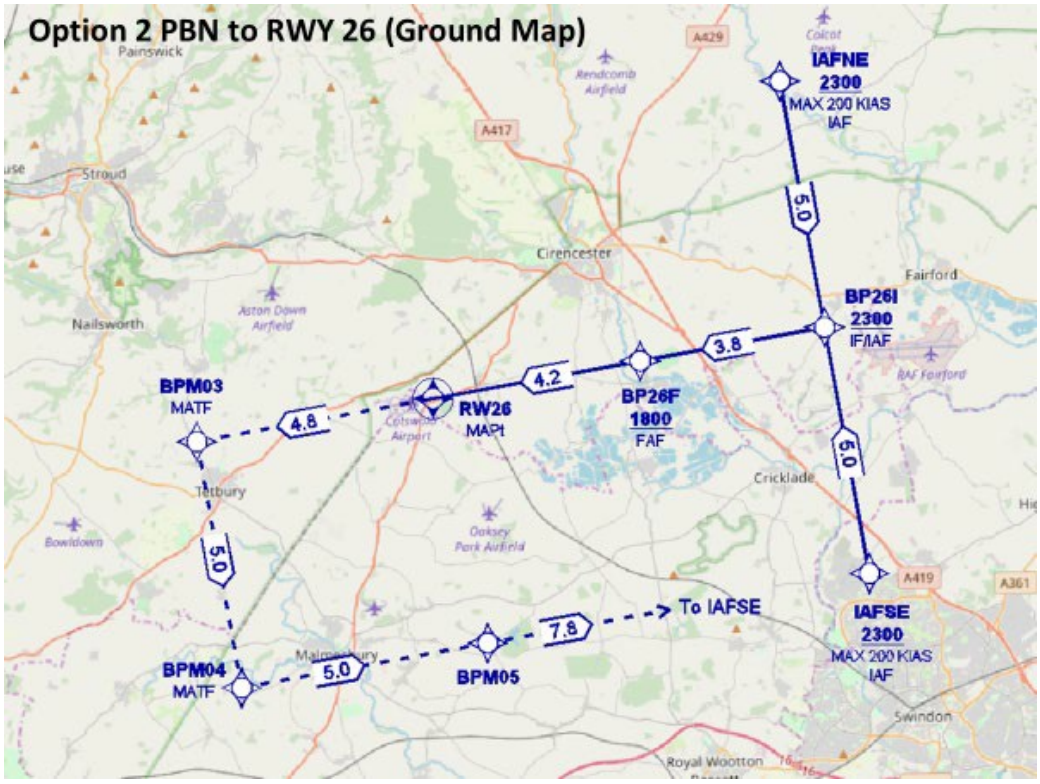


[8] Currently an LOA agreement exists with RAF Brize Norton to provide this for the airports current in-scope arrivals.
[9] Assuming a ground speed of between 100 and 160 kts, depending upon the speed of the headwind and adding a 2-minute margin.

Option 2 – Non-Symmetrical PBN Straight-in approach to Runway 08 and a T-Bar approach to Runway 26

32. **Description**. Following refinement through the initial appraisal and continued engagement with stakeholders, this option proposes a non-symmetrical approach design, which is a result of engagement and design development in Stage 2. Local airspace usage has driven this design development into a non-symmetrical approach; a product of successfully following the clear guidance in CAP 1616. This allows aircraft to follow a defined approach route from 8.6 miles out from the west of airport onto runway 08 (**the same as Option 1 for an approach to runway 08 and shown on the first diagram on the previous page**). Aircraft arriving from the east onto runway 26 will join the approach from a northern or southern link to then line up on the runway 26 centreline. The diagram for this Options Runway 26 approach is below. The Air Chart is at Annex B2.

33. The aircraft would follow an ICAO standard 3-degrees glide slope, using minimum power settings to arrive onto final approach and touchdown. By design, this means the aircraft would be flown under own navigation, or under a service[10] to start the approach at an initial GPS fix, 8.6 miles away from the airport at an altitude of 2300 feet above runway height on the north or south leg to fly from the Initial Approach Fix (IAF) to the Intermediate Fix (IF) and then stabilise to the Final Approach Fix (FAF) to fly a straight in approach. The FAF 4.8 miles away from the airport would confirm the aircraft is on the right track and at 1800ft (Rwy 26) or 2000ft (Rwy 08). Depending upon the headwind, an in-scope aircraft would take between 3 ½ and 7 minutes to fly the entire approach[11].



EFFECT OF PROPOSED OPTIONS

34. The anticipated number of aircraft flying this approach, once implemented is estimated to increase by 53 in-scope aircraft per year; from the current 198 to 251, in the first two years (see paragraph 52). The airport is open 358 days per year, meaning the annual average is less

[10] Most likely a LARS service, subject to capacity. Currently, an LOA agreement exists with RAF Brize Norton to provide this for the airports current in-scope arrivals.

[11] Assuming a ground speed of between 100 and 160 kts, depending upon the speed of the headwind and adding a 2-minute margin.

than 1 aircraft per day. Based on previous operational history, it is more likely that there will be many days where the PBN approach is not used, with occasional days of up to 3 in-scope aircraft flying the approach. Based on historical runway usage data, throughout the year, 55% of the days the PBN will be to Runway 26, with the remaining 45% to Runway 08. Even at full capacity, forecast from 2025, the airport's current safety arguments has led us to operationally limit PBN availability to five approach 'slots' per day; this will be further refined and developed into the safety case. All of this is within operational hours, currently 0900 to 1700hrs, with very few out of hours extensions.

35. As the reader may appreciate, the size of the proposed change is very small, meaning any statistically viable measurement to assess against the current baseline is hard to gather, particularly when regarding the very small numbers of -In-scope aircraft (0.7%) measured against the total movements at the airport, let alone all local movements within the local airspace. Therefore, airport believes[12] that it is neither proportionate nor appropriate to use the environmental guidance contained within CAP 1616.

36. Based on this, it is the opinion of Cotswold Airport that there will be a negligible effect on ground stakeholders; the main effect, however small, will be to other airspace users. The Airport has carefully assessed the proposed change and does not believe that there will be any significant positive or negative effect as a result on this proposal on any stakeholder. However negligible, the effects and benefits of this proposal are articulated on the following pages.

37. As shown in the option diagrams, the difference between the options is the additional 5-mile north and south T-Bar joins between the Initial Approach Fix and Intermediate Approach Fix on the PBN approach to Runway 26, approaching from the east of Cotswold Airport.

38. For both options, the route flown by the aircraft between the Final Approach Fix and landing (the last 4.2 miles in the east of the airport and last 4.8 miles to the west of the airport), there is no difference between the options. Equally, in the last segment, there is no tangible change to the current routes flown by in-scope aircraft.

Effect on Local Communities

39. For noise effects, Government guidance is contained within CAA publications, the Air Navigation Order 2017 and the Department for Transport's quantitative analysis tools and estimate tools, such as Web Tag A3. These tools generate complex noise contours and detailed analysis of CO2 emissions and air quality over a 16hr day, for the significant volume of daily aircraft movements they receive. Cotswold Airport is not an airport required to conduct noise assessment and profiles; central government mandates this for Heathrow, Gatwick and Stansted and other major commercial airports, operating continuous commercial aircraft within their own controlled airspace to do the same. As a General Aviation airport, no noise data exists to provide a numerical baseline for in-scope aircraft arrivals. It is suggested that to attempt to measure the noise baseline of the 0.7% (198 in-scope arrivals) annually of current in scope aircraft arrivals, against the significant levels of background noise of light aircraft, both the Airport's other 99.3% (c30,000) of its movements and other local GA and commercial aircraft , operating continually in uncontrolled airspace on any self-defined routing would present significant challenges and it would be neither proportionate or provide any statistically meaningful data.

40. Within this context, particularly below 4000ft, it is suggested (with a high degree of confidence) that any noise readings, measuring dBA over a duration of 16hrs when the airport is closed for half of that period, will not change and any measurement would not deliver any

[12] Within its Full Appraisal work, available through the CAA's Airspace Change Website.

statistically viable data that can then be used in analysis. Furthermore, the cost benefit of contracting an external company to do this would far outweigh any benefit of doing so.

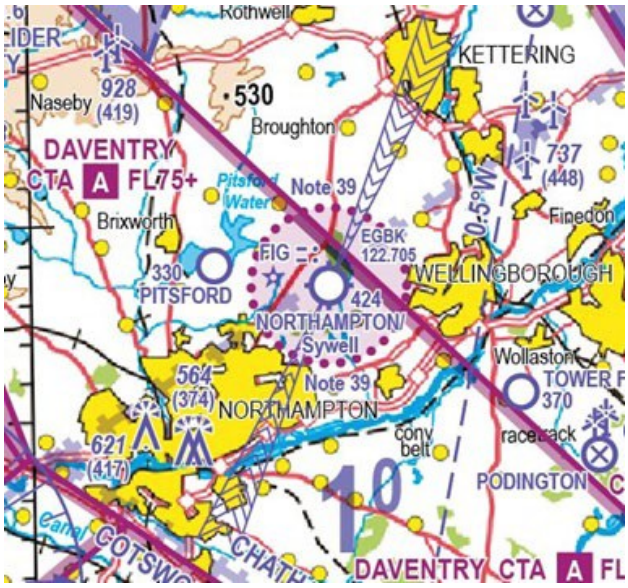
41. In terms of overflight, there is no assessed effect on the local communities. The local area of the Cotswold area underneath this proposed Instrument Approach is sparsely populated; the bulk of the overflight between 4000 ft and down to 1000ft is over open countryside or sparsely populated hamlets/single dwellings. Under the aircraft tracks this proposal's IAP routing would create, there are no significant populations larger than a hamlet until after the final approach fix. The local villages (Kemble and Ewen to the east of Runway 26 and Ashley and Culkerton to the west of Runway 08) are within the final approach segment and within 2 miles from the end runway threshold. In both instances, there is assessed to be negligible changes to the vertical and horizontal final approach segment from the Final Approach Fix 4.8 miles from the Airport. This is further supported by the low numbers of in-scope aircraft on final approach (as described in paragraph 19) in comparison to the remainder of the Airport's movements and wider transiting traffic within the surrounding airspace.

Effect on Aviation Stakeholders

42. The effect on General Aviation access from this proposal is negligible, based on the numbers described in paragraph 33. The Airport identified several activities at the start of this process and engaged with key stakeholders. In terms of GA, these have included the Gliding Communities, in particular BGGC at Nympsfield and Cotswold Gliding Club at Aston Down. In addition to Oaksey Park, a GA grass unlicensed airfield to the SE of Kemble, there are small number of grass airfield strips within a 10-mile radius from the Airport, most with less than a handful of based aircraft. Most of our based GA aircraft route south from Cotswold Airport to a training area south of the M4, near Lyneham. GA use of this airspace is dependent on weather conditions and seasonality but can be assumed to exist generally throughout the year, although less so in poor weather (IMC). This proposal is expected to cause a relatively low effect on GA users and on the remaining 99.3% of the airport's annual GA movements.

43. This proposal is within uncontrolled (Class G) airspace; none of the options change access to this airspace, nor seek to establish new areas of controlled airspace. The implementation of the proposed procedures would require careful Air Navigation Service Provider (ANSP) management and signed agreements between Kemble, RAF Brize Norton[13] and RAF Fairford to mitigate against any effect and associated risk. Following approval, the publication of the IAP will add symbols known as feathered arrows on the air chart. Feathered arrows provide information to pilots about what activity might take place; normally the pilot would either avoid the area or contact the Airport for information about the current levels of activity. There would be no new airspace design to avoid, just application of good airmanship to avoid this becoming a risk. An example of the feather arrows in shown below in a similar IAP proposal which has just been accepted for Sywell Aerodrome, Northamptonshire.

[13] An LoA already exists with RAF Brize Norton, which supports this ACP Proposal.



44. The effect of local gliding activities will be low in our opinion because both local gliding club have been engaged early in the process. All options have been developed with strong input from both local gliding clubs and with input from the British Gliding Association. New Letters of Agreement (LoA), ensures minimal effect to the west of Cotswold Airport and routes our in-scope approaching aircraft through an area of low utilisation by gliders. Additionally, as a result of engagement for this proposal, an LoA has been signed to allow gliders to operate within a north quadrant of our ATZ, which both assists the gliding clubs for competitions and places gliders operating in and out of Aston Down into a known area away from the extended centreline of our runways and thus the proposed Runway 08 approach.

45. The only major commercial airport in this area is Bristol Airport. Initial discussions with them during Stage 2 suggested there would be no impact with their airspace or standard arrival and departure routes; both options are the same for a 08 approach from the west and remain separated from their controlled airspace and arrival and departure routes.

46. Both RAF Fairford and RAF Brize Norton operate in the same airspace, albeit with low numbers of aircraft movements in comparison to a similarly sized airports with similar sized controlled airspace. The proposed approach to Runway 26 for Option 1 starts overhead RAF Fairford's ATZ; this conversely applies to their aircraft approaching Fairford's runway 09 overhead our ATZ. Aircraft arriving at the Initial Approach Fix (IAF) for our runway 26 may require a zone transit through RAF Brize Norton's controlled airspace. This is entirely dependent upon the route flown by the aircraft en-route to the IAF. This is no different from the current baseline, except that it will focus aircraft onto a defined area/point. It will require a revised LoA with RAF Brize Norton (which is in course of preparation) and a new LoA with RAF Fairford, as they increase their operations; previously, this was included in the RAF Brize Norton LoA. For Option 2, in the east, arrivals to runway 26 following the proposed design has standard T shaped joins north and south, allowing aircraft to transition on the IAF with minimal disruption and scatter in the area of RAF Brize Norton and Fairford, compared with the baseline. This transition is no different from the baseline, except further away from Cotswold Airport and at a higher altitude, until onto the IAF, aircraft would arrive VFR or IFR either direct or by utilising a radar service[14], if available, from RAF Brize Norton ATC.

[14] Lower Airspace Radar Service (LARS), available between 0900 and 1700 and capacity limited.

47. The IF is overhead RAF Fairford's airspace; a modified LoA with RAF Brize Norton[15], would need to be supplemented with a LoA with RAF Fairford[16] to allow tactical level procedural agreements and communications. Helpfully, Cotswold Airport, RAF Brize Norton and RAF Fairford all have runways aligned east/west, so there should be no counter direction aircraft flying approaches to runways at either airfield. Although this sounds problematic, it has worked without incident for 10+ years for aircraft arriving to Brize Norton and Fairford's ILS and aircraft self-defining approaches to Cotswold Airport. This proposal, agnostic of option, will improve this by placing all aircraft onto known, published descent and approach routes.

48. Neither option causes interference with Gloucestershire Airport's ATZ or approaches and does not affect (measured against the current baseline) GA access to local unlicensed airfields, grass or farm strips.

Environmental Effect

49. The Cotswold Area of Outstanding Natural Beauty (AONB) is to the west of Cotswold Airport. The AONB authority were engaged during Step 1b and Stage 2, which highlighted two concerns within their Management Plan, namely Tranquillity and Dark Skies.

50. Both options took the AONB Management Plan into consideration during Stage 2. We are not planning to routinely operate at night, thus mitigating the Dark Skies consideration. Both options, following a straight in approach to runway 08, take the shortest route across the AONB at between 2000 and 2500ft. In contrast to the current baseline, with pilots of in-scope aircraft flying their self-determined visual approach, this is an improvement. Furthermore, the lower airspace (below 7000ft) above the Cotswold AONB is uncontrolled airspace. A significantly higher number, by at least a factor of 100, of other aircraft will fly over the AONB, with perhaps as many as 2500 per month, based on the Airport's light aircraft movements. When accounting for all the smaller airfield and grass strips in the area and the two glider sites within the AONB, the number is significantly higher. All these movements contribute to overall aviation noise, overflight (visual intrusion) and air quality. It is estimated that there will be no change in the levels of tranquillity and no quantitative assessment is made.

51. For CO2 and emissions effects, The Government's transport analysis tools could not provide any useful data for so few aircraft that this proposal aims to address. Using the latest 2019 movement data, it is assessed that greenhouse gas metrics are not possible to measure given this scenario and there would be no discernible change in impact.

52. However, although unquantifiable, this concept would likely yield a positive Net Present Value which reflects a benefit i.e. a CO2 emissions reduction against the current baseline. Observation of aircraft have shown many approaching aircraft fly a stepped down visual approach at varying airspeeds and, in many instances, have flown lower than they would if an ICAO compliant GPS approach was followed. The environmental benefits of a defined approach using a Constant Descent Approach (CDA) and low power settings have long been accepted to reduce Co2 and are standard procedures in CAA and EASA operational manuals.

Economic Benefits

53. The cost benefit appraisal is agnostic to proposed option; the benefit of delivering either defined approach articulated in this appraisal will create a net financial benefit to the Airport. There will also be some marginal benefit to the local community as an economic ripple felt through increased hotel use, taxi use and potentially an increase in employment opportunities within the airport or MRO. Within the baseline, shown in the table below, following significant

[15] Signed prior to the Stage 3 Gateway.

[16] Now being developed, following a meeting with RAF Fairford ATM Manger 12 Jun 19.

[17] http://publicapps.caa.co.uk/docs/33/ERCD78006.pdf

business development effort, the revenue has plateaued at £0.283M. The source data is taken from our recorded 2018 and 2019 movements data[18] for in-scope arrivals; the implementation figures account for the additional aircraft arrivals that were cancelled due to bad weather or operational limitations. This proposal will allow those aircraft to land.

Description	Baseline		Implementation			Initial Growth			Growth with Hangar availability			
	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Estimated Number of in-scope IAP Landings	191	198	251	251	251	396	396	396	487	487	487	487
Discount Factor	1	1	1	1	1	1	1	1	1	1	1	1
Net Community Benefit (£M)	0	0	0	0.1	0.1	0.2	0.2	0.2	0.3	0.3	0.3	0.3
Net Airspace Users Benefit (£M)	0	0	0	0	0	0	0	0	0	0	0	0
Net Sponsor Benefit (£M)	0.283	0.283	0.348	0.348	0.348	0.567	0.567	0.567	0.635	0.635	0.635	0.635
Value (£M)	0.283	0.283	0.348	0.448	0.448	0.767	0.767	0.767	0.935	0.935	0.935	0.935

54. Based on the current 0.7% of our traffic mentioned earlier, this proposal may see an initial increase from 198 to 251 movements per year for in-scope aircraft movements into the Airport, which accounts for the current levels of cancellations and missed approaches due to weather or operational limitations by not having a defined approach. It is difficult to predict the scale of increase beyond 2025, the limiting factor will be a lack of hangar availability at the Airport, meaning any in-scope aircraft will only transit through, rather than be based at the Airport. This would require significant capital investment (currently under consideration) to deliver the financial projection from 2026, otherwise growth will plateau at the 2023-2025 figures, without the financial revenue of based in-scope aircraft, such as fuels sales.

55. Engagement with Swindon Borough Council and Gloucestershire Council has suggested a strong opportunity link can be made between this proposal and their local economic development plans (LEP) to attract and develop national and international business through Cotswold Airport developing as a business aviation transport hub. This provides cooperative benefits to Gloucestershire, Wiltshire and Swindon Borough Councils.

Reversion Capability

56. On successful completion of the CAP 1616 process, several external factors, such as the CAA Post implementation Review, an incident or safety critical issue (such as an issue with the GPS signals), could mean the airport has the revert to its current method of pilot defined ad hoc approaches to the Airport. This would most likely be delivered through a temporary ban on the procedure being used or a permanent withdrawal, depending on the severity of the risk of concern.

CONSULTATION PROCESS

Consultation Duration

57. Taking account of the level of engagement and cooperation already undertaken by the Airport, this consultation period will last 8 weeks, commencing on Monday 10th February 2020 and finishing on Monday 6th of April 2020, prior to Easter.

What is being asked

58. This consultation is being conducted by Cotswold Airport. The purpose of this consultation is to provide another opportunity for all stakeholders, to express their opinion and comment on the Airspace Change Proposal. It is also an opportunity for Cotswold Airport to take stakeholder's view in the formulation of the final proposal to be submitted to the CAA for determination.

[18] From the Airport's Red Atlas system which records, analyses and invoices all aircraft movements.

How to respond?

59. The CAA will oversee the consultation to ensure it adheres to CAP 1616 and Department for Transport guidelines. In accordance with CAP 1616, this consultation is undertaken through Electronic Communication and it is requested that all responses be entered through Citizen Space to provide visibility to all stakeholders and all responses.

https://airspacechange.caa.co.uk/PublicProposalArea?pID=19

60. The consultation closes at midnight on 6th April 2020.

61. You are invited to respond using the online Citizen Space response form, available at the above website link.

62. If you do not have access to the internet or have any difficulty in responding electronically, you may send your responses by letter to the following address, using the form at Annex A and return to:

Airspace Change Consultation Department
The Control Tower
Cotswold Airport
Kemble
Gloucestershire
GL7 6BA

63. To ensure that a transparent consultation process is maintained, all responses submitted by post will be uploaded to the CAA portal.

What Happens Next?

64. Throughout the consultation, your responses will be monitored, collated and assessed. After the consultation period closes, Cotswold Airport will collect, carefully analyse and categorise all responses that have been received during the consultation and the CAA will approve the categorisation of responses. A consultation report will be published to set out clearly what the approach to categorisation has been, where any issues raised have been tackled and how they have been resolved. It will also confirm, based on consultation feedback the option to be submitted to the CAA or where changes have been made as a result of feedback, to the final design.

65. Cotswold Airport will prepare:

a. A consultation report document setting out transparently the approach to categorisation, the preferred option to be taken forward and any design changes resulting from consultation responses.

66. When the documents are completed and the CAA confirms that there is no requirement for further consultation, the documents will be uploaded to the online portal.

[18] From the Airport's Red Atlas system which records, analyses and invoices all aircraft movements.

Annex A1. (No Internet Access) Consultation Feedback Form (Page 1 of 3)

Introduction

1 Who are you representing?

Organisation (Required)

(Required)

Please select only one item

◯ I am responding as an individual.

◯ I am responding on behalf of an organisation.

2 What is your name or organisiation?

Name (Required)

3 What is your email address?

If you enter your email address then you will automatically receive an acknowledgement email when you submit your response.

Email (Required)

4 What is your Postcode

Please add your Postcode to help us understand your geographical relationship with the Proposal (Required)

5 In accordance with the UK Civil Aviation Authority's CAP 1616 Airspace Change Process, consultation responses will be published on Citizen Space via the Airspace Change Portal. Responses will be subject to moderation by the Civil Aviation Authority. If you wish your response to be published anonymously your personal details (Name, Address and Position) will be redacted for public documents an only seen by the Airport's Change Sponsor and the Civil Aviation Authority.

(Required)

Please select only one item

◯ Yes. I want my response to be published with my details

◯ No. I want my response to be published anonymously

6 Considering all the information provided in the consultation, do you support the proposal to implement a GPS based Performance Based Navigation approach to allow the in-scope aircraft to follow to land at Cotswold Airport?

(Required)

Please select only one item

◯ Yes ◯ No ◯ No opinion/don't know

Please explain your reasoning for this choice in the following field: (Required)

Annex A3. (No Internet Access) Consultation Feedback Form (Page 3 of 3)

7 Considering all the information provided in the consultation document, do you have a preference for either option 1 or option 2?

(Required)

Please select only one item

◯ Option 1 - Straight in approach to both runways

◯ Option 2 - Straight in approach to Runway 08 and a T Bar approach to Runway 26

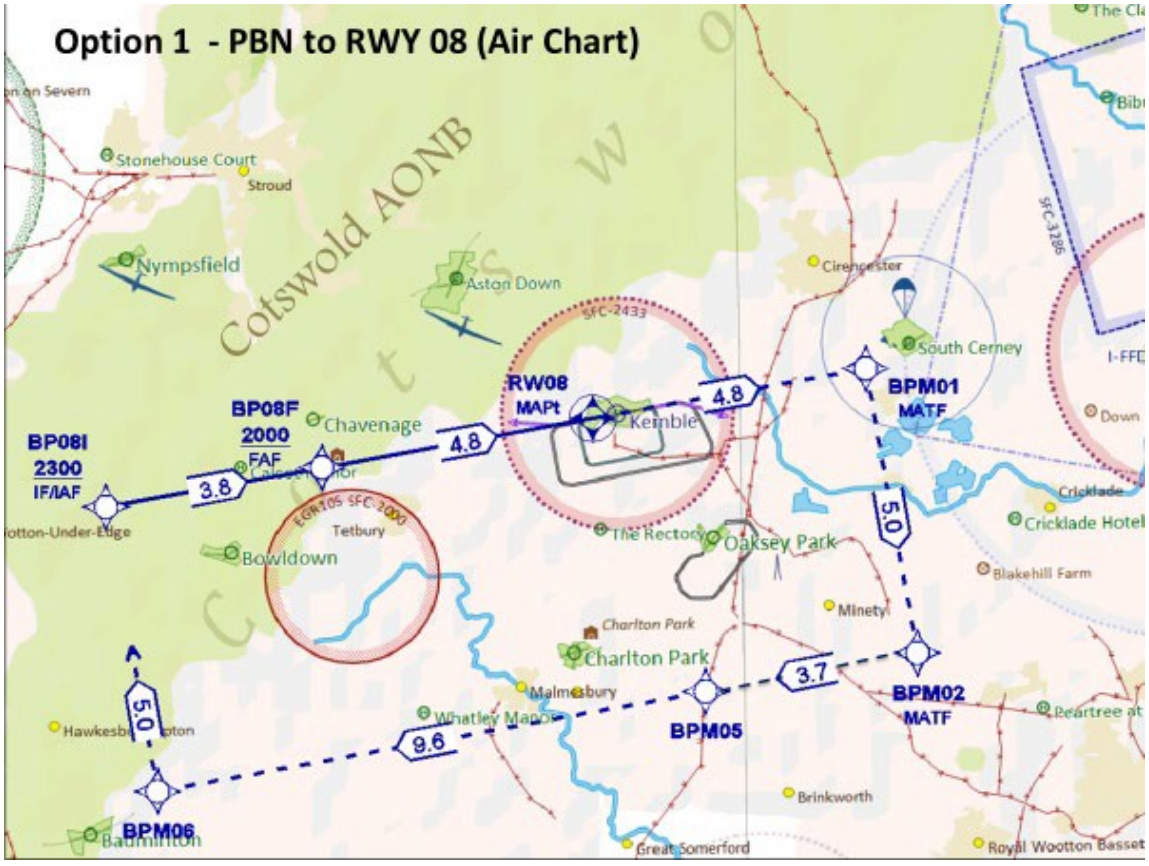
◯ No preference, I support either option ◯ Neither option/not supported

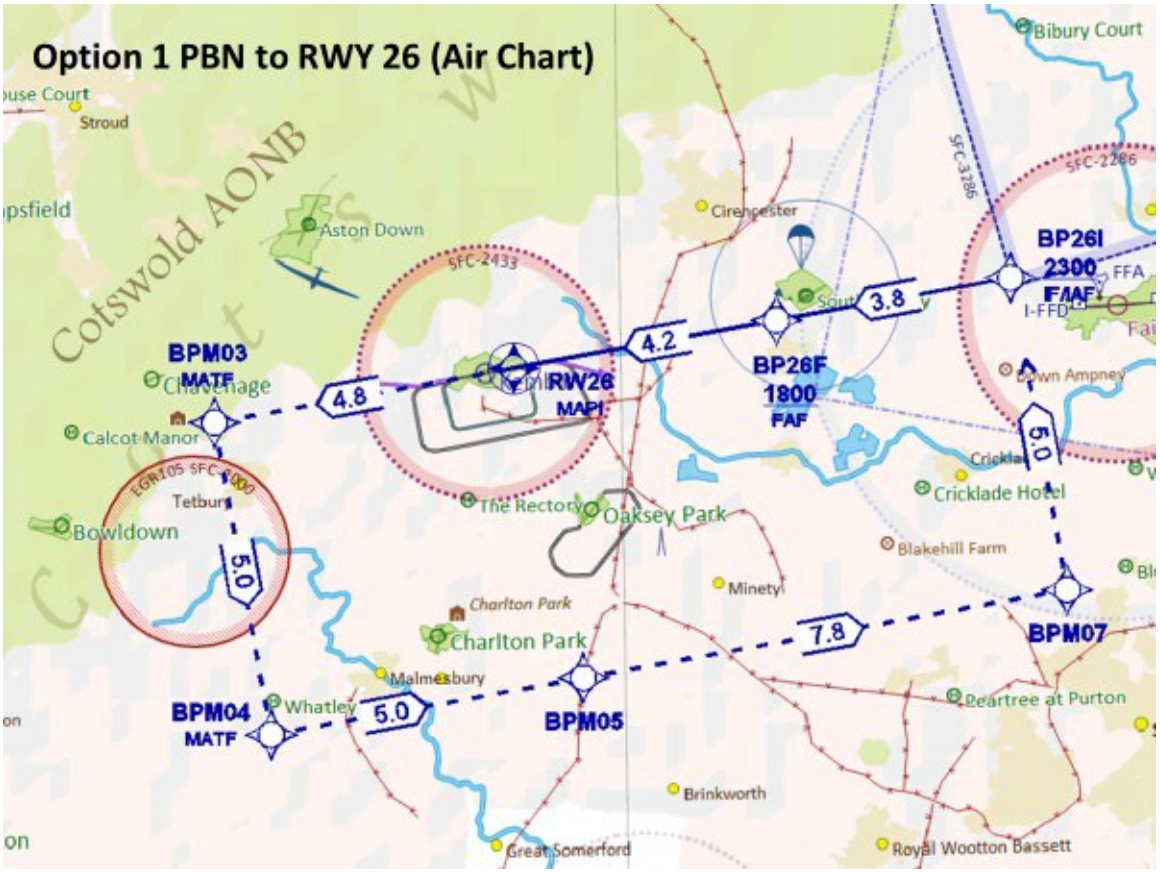
Please explain your reasoning for this choice in the following field: (Required)

8 Please provide additional comments, if you wish to do so

Additional comments

Annex B1 – Air Charts Option 1





Annex B2 – Air Charts Option 2