YOUR LONDON AIRPORT Gatwick

Gatwick Route 4 Redesign of RNAV SIDs

Design Principles Review Response

Document Details

Reference	Description
Document Title	Gatwick Route 4 Redesign of RNAV SIDs
	Design Principles Review Response
Document Ref	71248_031
Issue	Issue 1 Final
Date	7th June 2019
Classification	

1 Responses

As one of our key stakeholders, London Gatwick Airport appreciates the time and effort you have invested in helping us to develop Design Principles to support the Route 4 airspace redesign project. We would now welcome any futher comments you may have to help us further develop the shortlist of Design Principles. These principles will serve as the framework against which detailed design work may commence. An opportunity for further involvement will be provided during the design work, and again during the formal consultation, which will include a much wider group of aviation and non-aviation stakeholders.

Please mark your response to each of the questions below add provide any additional comments you wish us to consider.

Send your completed document to lgwairspace.rte4@gatwickairport.com by 1700 hours on 28th June 2019.

Thank you for your continued support.

Question 1
Do you agree that London Gatwick Airport has developed its Route 4 Design Principles in full accord with the process detailed in CAP 1616, Step 1B?
Response ☐ ☐No
Additional Comments: Some technical proposals have been added without explaining what they are and how they might affect design (short list 13). Also some proposals are inadequately worded so that their real meaning is unclear (short list 2, 12 and 15). Two proposal (3 and 4) have been disguarded because of a misunderstanding between ICAO CCO and the unrestricted climb at normal climb rate that the CNGs were requesting A further round of consultation is required following proper explanations of what these mean and their likely impact and also a review of the unrestricted climb suggestions. In addition more data is required to enable a proper evaluation of the unrestricted climb proposal.

Question 2
Do you agree that the comprehensive list of Design Principles captures the specific areas of concern you have articulated in either a questionnaire or during participation in one of the focus groups?
Response ☐No
Additional Comments: (Numbering refers to the numbering in your Table 1 (Long List)) **2.** We do not understand the logic in selecting 2012 as a "historic date" even though you say before 2012 which could presumably include any date back to the 1960s. We strongly believe a historic date should be selected when the aircraft on this route followed the original SID design such as the 1996 route 4 flight path illustrated on GAL website (Aircraft noise & airspace-Airspace-Route 4-Route 4 historical information) when the majority of aircraft

tracked along the centre line of the NPR.

The PRNAV routing should replicate the flight paths within the NPR experienced in the 1990s

The aim should be that 100% of flights (other than aircraft experiencing emergencies) remain within the NPR and close to the centre line.

Many communities north of Gatwick are impacted significantly by route 3 north of route 4. Any movement north of the present route 4 would mean some communities would be even more impacted by the concentration of the two routes. This is unacceptable and would give them no respite from aviation noise from Gatwick Airport.

The Route 4 NPR should be retained in its present position. The NPR has been in place since the 1960s and local people have made significant investment decisions based on the fixed locations of NPRs and the historical flight paths along the centre line of the NPR. Any change to this principle would be unacceptable.

3. and 4. These reference Continuous Climb Operations. In our questionnaire response we were, as I suspect were other respondents, not referring to the ICAO defined CCO, but requesting a procedure whereby the current enhanced air traffic control technology could facilitate a continuous and unrestricted climb for departures, at normal climb rates, to 7,000ft or above.

The ICAO CCO procedures are not appropriate in the case of noise sensitive routings such as Route 4. You seem to have rejected this principle due to misunderstanding what was being suggested.

Your Question 4 in the Questionnaire (*Do you believe aircraft conducting continuous climb to higher altitude after taking off (where this is safe to do so) may improve (lessen) exposure to noise in your local area?*) was not explicit and did not reference the ICAO CCO procedures.

In addition, as we suggested in our response, it is essential that you provide comparative data on the noise level of aircraft at 4,000 flying level at say 250Kts and aircraft at various higher levels with climb power set, in order that we can make an informed decision and validate our intuitive opinion. We also have concerns that 4 engine aircraft, with their lower climb rates, may create more noise within the NPR with an unrestricted climb than two engine aircraft. We need data on this aspect and it may well be that some aircraft types need to be excluded from unrestricted climb departures.

9 and 21.

9 should read **-** ARINC 424 coding must ensure aircraft follow the desired lateral and vertical paths, routing aircraft along the centre line of the NPR.

21 should read - Route 4 designs should place the majority of aircraft on the centre line and ensure that all aircraft remain within the existing NPR

Route 4 designs should follow the centre line of the NPR and contain all aircraft within the existing NPR

In our response we said *The aim should be that 100% of flights, other than aircraft avoiding weather or experiencing emergencies, remain within the NPR. The NPR is 3 km in width and 100% compliance for PRNAV operation is a very realistic target.* We backed this up with a quote from a letter written by Tim May, Head of Airspace and Noise Policy, Aviation Directorate, D of T, in which he said with reference to NPRs "*With the implementation of PBN, we are expecting that track keeping compliance can increase to something closer to 100%, but there will always be occasions when aircraft fail to comply, including for legitimate reasons relating to safety."* We believe your design principle 9, although contributory to this aim, in itself is insufficient.

We also commented in our response on the effect of aircraft speed in the turn. This has not been addressed. I have copied our response below for reference.

The PRNAV procedure should be revised to place the majority of aircraft on the centre line of the NPR and not on the northern edge, as is currently the case. We believe that operating at 220Kts the majority of aircraft will be in the northern third of the NPR. In fact, we calculate that even an accurately flown continuous 25 degree bank angle turn at 220Kts in zero wind would place the aircraft approximately 550m north of the centre line. We

believe that further consideration should be given to restricting operating speed until the turn is complete. Completing the turn at 190Kts would ensure that virtually all aircraft, under all wind conditions, would remain easily within the NPR. The track distance covered during the turn would be approximately 34% less compared with a turn at 220Kts. If track distance is representative of numbers of houses overflown, then 34% fewer residents are affected by noise directly overhead during the turn at 190Kts vs. 220Kts. We would appreciate seeing accurately calculated data showing the end of turn position relative to the NPR centre line for a range of speeds and bank angles.

In the past the 190Kts turn option has been dismissed by the airlines on the basis of fuel efficiency and noise. We would appreciate seeing data from Airbus and Boeing detailing the differences between a 190kt climbing turn vs. a 220 Kt climbing turn on representative aircraft.

14 and 15. Design should reduce concentration as far as possible and should at least maintain the current dispersal around the turn.

17. This principle should only apply to locations outside of the NPR.

"Designs should seek to minimize overflight of previously unaffected locations **outside of the NPR."**

Question 3

Do you broadly support our reasons for not including certain Design Principles in the short list? If not, please provide further comment.

Response ☐No

Additional Comments: (numbering refers to long list)

3. See our comments in Q2 above. A key principle which would be a "win / win" for airlines and the environment is to have the vast majority of departing aircraft making an unrestricted climb at normal climb rates to 7000ft or above. You assertion that this would *'. keep aircraft at lower altitudes for longer.."* is based on the misunderstanding that what is being suggested is ICAO defined CCOs, and is therefore not a valid reason for not including a principle based on unrestricted climbs. We want to know if you intend to pursue discussions with Heathrow to raise the height of their flights so that unrestricted climbs can operate on Route 4. Failure to do this would be a significant missed opportunity. See also the answer to question 6

4. As in 3 above your assertion that this would result in a greater noise impact, is based on ICAO CCOs and not unrestricted climbs.

18. Whilst we accept that the Wizad SID is not within the scope of the Route 4 redesign and also cannot be flight planned due to arrival conflicts, we feel very strongly that with the increased traffic using Route 4, tactical use of the Routes 7, 8,and 9 should be used whenever possible to relieve the noise burden on residents under Route 4. Given the present navigation and surveillance technology available use of these routes should be possible on a much higher percentage of occasions than in the past.

21. This principle should not be removed and it should replace shortlist principle 17. Your rather convoluted logic that argues that 21 is covered by 17 does not stand up to analysis. It's true that 17 allows for the possibility that the route could be within the NPR but this is weak and meaningless compared with the wording of 21 which is more explicit and in line with community thinking. Inclusion of principle 21 is also contradictory to your reason for rejecting long list principle 27.

27. We commented in our questionnaire response *A key factor in all discussions, whether government or community, on the effects of aircraft noise is that of respite. Located under the flight paths of both Routes 3 and 4, residents represented by our organisation are affected by departure noise regardless of runway direction in use. The only communities that cannot be provided with respite are those on the extended centre line of single runway airports. That is not the case for residents north of Gatwick who suffer noise from both Routes 3 and 4, and increasingly from Heathrow departures.*

Betchworth suffers noise from Route 4 aircraft at 4000ft, Route 3 aircraft at 4000ft, Heathrow departures at 5000ft and above and Heathrow arrivals at 9000 – 11000 ft. Although the Heathrow aircraft are at higher altitudes, when layered at high frequency above routes 3 and 4 this creates an unacceptable situation.

The fact that some communities suffer noise from more than one route, and this is not restricted to Routes 3 and 4, and from more than one airport is generally historic as this route structure was designed against a background of conventional procedural navigation, communications and surveillance. Given the current technical standards this should be readdressed to provide respite to all residents, other than those on the centre line, by restricting noise impact to one route and / or airport.

Route 4 is the busiest Gatwick departure route and thus has a disproportionately large environmental impact. Gatwick should investigate if it is possible to reduce reliance on routes 3 and 4 and consider alternative routings to the south using modern technology to deconflict with arrival routes.

Question 4

Do you believe any of the items seleted for the shortlist of Design Principles are inappropriate selections? If so, please explain why.

Response ☐Yes

Additional Comments: (numbering refers to short list)

Principles 4 and 9 Including both Final Principles 4 and 9 and rejecting Long list 27 gives too great a benefitial bias towards currently unaffected areas leaving currently affected areas to suffer the full consequences of expansion.

Principle 8 from the short list appears to imply considering turning the aircraft further west than currently. This is a very bad idea and should be rejected both because it takes planes outside the NPR and because it would take them over the Surrey Hills AONB.

Principle 11 of the short list is bizarre and has never to our knowledge been suggested as a possibility in all the years we have been campaigning. So it's very strange to find it suddenly introduced with no previous discussion. The A24 goes through the Holmwoods, Dorking and Leatherhead before it reaches the M25. It makes no sense at all to inflict more noise on all these densely populated areas.

Principle 13. Whilst we understand that defining the turn using an RF leg should provide more accurate tracking and capture of the NPR centre line, we need to be given data to demonstrate the effects this will have applied to Route 4 and in particular the effect of dispertion arould the turn.

Principle 15 – we do not understand this principle. Although there is a 181 degree track change required for Route 4 departures, there will very often be a requirement to turn through more than 180 degrees in order to regain the Easterly departure route track with Southerly winds and inaccurately flown turns. As drafted this principle should be dropped, as it appears that aircraft would be required to flying along the northern edge of the NPR monitoring zone or even outside it. The consequence of this would be to take aircraft closer to more populated areas such as Reigate and Redhill.

Principle 17 of the short list undermines the concept of the NPR and should also be dropped. This has been the basis on which people have been able to determine, in advance of deciding to live in a particular location, the extent to which they are likely to be affected by departing aircraft. It is totally unreasonable for the industry to propose trampling all over this by attempting to remove this constraint.

Question 5

Do you agree with the prioritisation that we have applied to the shortlist of Design Principles? If not, please add any comments and use Table 1 on page 9 to provide us with your preferred prioritisation.

Response ☐No

Additional Comments:

So much change is required to the shortlist that it is hardly meaningful to rank it in its current state. This should form part of a further consultation with a more coherent list. We have therefore not attempted to prioritise the current list.

Question 6

Are there other Design Principles not included in the long list list that you feel should be considered as candidates for the final shortlist? If so, please provide your comments.

Response ☐Yes

Additional Comments:

1. All departures should make an unrestricted climb to 7000 feet or above. Exceptions could be made based on specific aircraft type performance where this would create a negative effect on noise.
2. No single location should suffer noise from Route 4 in addition to any other Gatwick route or Heathrow route. This could also be considered as a proposed amendment to short list proposal 7. As currently drafted it seems to be solely concerned with the safety aspects of routes being close to each other. This is fine to include but consideration is also required as to the overall noise an area is expected to suffer. Where in the process is this managed? Who is responsible for deciding what's reasonable when more than one airport wants to fly over the same space? Clearly such issues need to be considered together rather than separately determining each airport's application

Question 7

Do you have any other comments on how the CAP 1616, Step 1B process has been conducted to date?

Response ☐Yes ☐

Additional Comments:

See response to Question 6 about lack of overview of overall impacts on an area

Table 1 on the next page lists the Design Principles initially prioritised according to the volume of responses (greatest volume at the top of the list) returned in questionnaires and from comment during discussions at the recent focus groups.

If you agree that the Design Principles have been prioritised correctly, then please indicate this by marking the table with a comment.

If however, you believe an item should have a higher priority, then please use the right hand column to indicate this.

Prioritised No (a)	Design Principle (b)	Your priority (c)
1	Route 4 options will be designed safely with full regulatory compliance	
2	Designs should be built to manage dispersion below 7,000 ft	
3	New Route 4 designs should give due regard to the historic routings in use before 2012 (1996)	
4	Designs should seek to minimize overflight of previously unaffected locations	
5	Designs will seek to avoid overflight of notified noise sensitive areas	
6	Route 4 designs should seek to minimise the impact of adverse noise on the Surrey Hills AONB	
7	Route 4 designs should consider neighbouring airports procedures to ensure adequate deconfliction	
8	Routes should include an extended westerly climb profile before a later easterly turn	
9	Designs should not include respite options that place routes over newly overflown populations	
10	Overflight protections already contained in the UK AIP must be maintained	
11	Route 4 procedures should follow M25 and A24 corridors where background noise already high	
12	Designs should be built to concentrate dispersion below 7,000ft	
13	Procedures should include RF legs	
14	ARINC 424 coding must ensure aircraft follow the desired lateral and vertical paths	
15	Routes should be designed to limit the wrap around turn to no more than 180°	
16	Route 4 designs must consider FASI-S objectives and ensure alignment	
17	Route 4 designs should not be constrained by the lateral dimensions of the existing NPR to 4,000ft	

Tab e 1 - Stakeho der Pr or t sed Short st of Des gn Pr nc p es

Thank you for completing this table.

YOUR LONDON AIRPORT Gatwick

Gatwick Route 4 Redesign of RNAV SIDs

Design Principles Review Response

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1 Responses

As one of our key stakeholders, London Gatwick Airport appreciates the time and effort you have invested in helping us to develop Design Principles to support the Route 4 airspace redesign project. We would now welcome any futher comments you may have to help us further develop the shortlist of Design Principles. These principles will serve as the framework against which detailed design work may commence. An opportunity for further involvement will be provided during the design work, and again during the formal consultation, which will include a much wider group of aviation and non-aviation stakeholders.

Please mark your response to each of the questions below add provide any additional comments you wish us to consider.

Send your completed document to lgwairspace.rte4@gatwickairport.com by 1700 hours on 28th June 2019.

Thank you for your continued support.

Question 1

Do you agree that London Gatwick Airport has developed its Route 4 Design Principles in full accord with the process detailed in CAP 1616, Step 1B?

Response ☐Yes ☐No

Additional Comments: Gatwick has not engaged with residents outside of the route or impacted by other routes in the west. As such this departure route so not giving consideration to the impact some of the design principles now have on other communities already impacted by departure, and in part, arrivals with no respite, has only to those currently impacted the engagement. This design principle stage has not given consideration to the totality of aircraft noise all communities suffer, it has only considered that of route 4 and 3, as such it is flawed.

Question 2

Do you agree that the comprehensive list of Design Principles captures the specific areas of concern you have articulated in either a questionnaire or during participation in one of the focus groups?

Response ☐Yes ☐No

Additional Comments: Point 11 We can no support flying in line with M25 and A24 as people also live here and you could be flying over new people. This route should be inside the NPR flying over areas historically flown over.

Point 21 we strongly oppose

Point 23 night flights should be distributed in a fair and balanced fashion taking into account the totality of aircraft noise over other westerly routes caused by Gatwick Airport 24/7 operations as other areas to the west have no respite from Gatwick's noise.

Point 24 all areas are noise sensitive/ ANOB and so it is difficult to understand how this is a fair and equitable distribution of aircraft noise – surely all should share

An additional point is that Government policy is noise up to 7,000ft. We therefore do not accept Gatwick dismissing this as noise should be the number one consideration over distance and fuel burn in line with government policy.

Route 4 already has respite when Gatwick is in easterly operations

Question 3

Do you broadly support our reasons for not including certain Design Principles in the short list? If not, please provide further comment.

Response ☐Yes ☐No

Additional Comments: Point 16 proposes to fly over areas that already impacted by route 1. These communities do not have respite from Gatwick's operations as it receives arrivals and departures. This does not give any consideration to the totality of noise that others suffer whereby this route already offers respite. This would also fly over new communities as it turns east.

Question 4
Do you believe any of the items seleted for the shortlist of Design Principles are inappropriate selections? If so, please explain why.
Response ☐Yes ☐No
Additional Comments: We strongly oppose points 5, 6, 8, 11, 16 and 17 – NPR have been in place for over 60 years and you have not consulted these residents you are now proposing to fly over. This is fundamentally wrong! In line with FASIS – we oppose impacting communities, especially new communities for resilience/ to avoid airspace delay as this currently means flying ADNID – over new communities.

Question 5
Do you agree with the prioritisation that we have applied to the shortlist of Design Principles? If not, please add any comments and use Table 1 on page 8 to provide us with your preferred prioritisation.
Response ☐Yes ☐No
Additional Comments: We oppose points 8, 11, 16 and 17 – table completed to the best of our ability as technical details are not provided on some points to allow for an informed comment. The suggestion of using WIZAD illustrateds how the engagement has been conducted only with those that are impacted by routes 4 and 3. WIZAD is not used even for safety reasons. If it were it would stop Gatwick flying over new communites with ADNID routes as is regularly operated by Gatwick due to resilience and weather. If WIZAD was used along with route 1, 7, and 8 it would sandwich those communites that already have the full totality of Gatwick's departure procedures, approx. 80% according to your document although it fails to mention that

these areas, in part, also receive arrivals so misleading residents engaged with who are concerned only with routes 4 and 3. For this reason this engagement is flawed and no consideration by Gatwick has been given to the totality of noise suffered by some communites that others seek to move noise over.

Question 6

Are there other Design Principles not included in the long list list that you feel should be considered as candidates for the final shortlist? If so, please provide your comments.

Response ☐Yes ☐No

Additional Comments: Dispersal needs to be kept inside NPRs.

A newly designed route must stay within the NPR

CCO must not be used to fly over new areas as planes reach 4,000ft quicker closer to the runway, and noise of CCO needs to be considered as this impacts those closest to the runway eg Rusper, Capel, etc.

Sensitive areas and ANOBs must share the burden of noise if they have historically been lfown over before.

This route already has respite

Night flights should be banned at Gatwick Airport

Noise must be the number one consideration over fuel burn.

Question 7

Do you have any other comments on how the CAP 1616, Step 1B process has been conducted to date?

Response ☐Yes ☐No

Additional Comments:

This process is flawed as Gatwick has only engaged with those that already impacted by this departure route/ route 3. This allowing for design principles to go unchallenged in proposals to move noise from one community over another, eg route 1/ WIZAD, with no consideration to the totality of noise already suffered by other communites. Gatwick has strategically not allowed these communities to have a voice in the process by not engageing them. These deisgn principles are not set out to be fair or equitable to all communities as it takes a departure route in isolation.

Below is an example of the biase format of this Design Principles ' Table 1 on the next page lists the Design Principles initially prioritised according to the volume of responses (greatest volume at the top of the list) returned in questionnaires and from comment during discussions at the recent focus groups.'

As communities to be impacted have not been engaged by Gatwick Airport they have not been given an opportunity to provide counter suggestions such as making all departures to the west fair and equitable in the number of planes flown on each route, for example in 2018 52,414 flew on routes 1, 7 and 8 (these communites also receive arrivals) and 34,946 flew route 4 that does not receive arrivals. If the routes were fair in departure routing then each route would have 21,840 flights a year, but if we take into account totality of flights then those under route 1, and in part 7 and 8, also receive on average 84,000 arrivals as well.

Table 1 on the next page lists the Design Principles initially prioritised according to the volume of responses (greatest volume at the top of the list) returned in questionnaires and from comment during discussions at the recent focus groups.

If you agree that the Design Principles have been prioritised correctly, then please indicate this by marking the table with a comment.

If however, you believe an item should have a higher priority, then please use the right hand column to indicate this.

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1	Route 4 options will be designed safely with full regulatory compliance	1
2	Designs should be built to manage dispersion below 7,000 ft	3
3	New Route 4 designs should give due regard to the historic routings in use before 2012	5
4	Designs should seek to minimize overflight of previously unaffected locations	2
5	Designs will seek to avoid overflight of notified noise sensitive areas	
6	Route 4 designs should seek to minimise the impact of adverse noise on the Surrey Hills AONB	
7	Route 4 designs should consider neighbouring airports procedures to ensure adequate deconfliction	6
8	Routes should include an extended westerly climb profile before a later easterly turn	oppose
9	Designs should not include respite options that place routes over newly overflown populations	4
10	Overflight protections already contained in the UK AIP must be maintained	
11	Route 4 procedures should follow M25 and A24 corridors where background noise already high	oppose
12	Designs should be built to concentrate dispersion below 7,000ft	7
13	Procedures should include RF legs	
14	ARINC 424 coding must ensure aircraft follow the desired lateral and vertical paths	
15	Routes should be designed to limit the wrap around turn to no more than 180°	
16	Route 4 designs must consider FASI-S objectives and ensure alignment	oppose
17	Route 4 designs should not be constrained by the lateral dimensions of the existing NPR to 4,000ft	oppose

Table 1 - Stakeholder Prioritised Shortlist of Design Principles

Thank you for completing this table.

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Thank you for your continued support.

Question 1
Do you agree that London Gatwick Airport has developed its Route 4 Design Principles in full accord with the process detailed in CAP 1616, Step 1B?
Response ☒Yes ☐No
Additional Comments:

Question 2
Do you agree that the comprehensive list of Design Principles captures the specific areas of concern you have articulated in either a questionnaire or during participation in one of the focus groups?
Response ☒Yes ☐No
Additional Comments:

Question 3
Do you broadly support our reasons for not including certain Design Principles in the short list? If not, please provide further comment.
Response ☒Yes ☐No
Additional Comments:

Question 4
Do you believe any of the items seleted for the shortlist of Design Principles are inappropriate selections? If so, please explain why.
Response ☐Yes ☒No
Additional Comments:

Question 5
Do you agree with the prioritisation that we have applied to the shortlist of Design Principles? If not, please add any comments and use Table 1 on page 6 to provide us with your preferred prioritisation.
Response ☐Yes ☒No
Additional Comments: **See table 1**

Question 6
Are there other Design Principles not included in the long list list that you feel should be considered as candidates for the final shortlist? If so, please provide your comments.
Response ☐Yes ☒No
Additional Comments:

Question 7
Do you have any other comments on how the CAP 1616, Step 1B process has been conducted to date?
Response ☒Yes ☐No
Additional Comments: **The change to the original SID in 2013 caused a great deal of anxiety to our residents and should have been reversed immediately as had been promised if it was not acceptable, not years later following a judicial review. This new SID we hope will follow the original flight paths and reduce residents concerns.**

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16	Route 4 designs must consider FASI-S objectives and ensure alignment	16
17	Route 4 designs should not be constrained by the lateral dimensions of the existing NPR to 4,000ft	17

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Question 1
Do you agree that London Gatwick Airport has developed its Route 4 Design Principles in full accord with the process detailed in CAP 1616, Step 1B?
Response ☒Yes ☐No
Additional Comments: Whilst having met the design principles, the compliance of delivery is not achieved nor is the optimal balance of noise versus emissions achieved. We recommend a review of the radius of turn defined by the NPR to facilitate aircraft to be able to accelerate to a clean wing and to design a lead-in radial type construction.

Question 2
Do you agree that the comprehensive list of Design Principles captures the specific areas of concern you have articulated in either a questionnaire or during participation in one of the focus groups?
Response ☒Yes ☐No
Additional Comments:

Question 3

Do you broadly support our reasons for not including certain Design Principles in the short list? If not, please provide further comment.

Response ☒Yes ☐No

Additional Comments:

1. "Route 4 designs should not be constrained by the lateral dimensions of the existing NPR to 4,000ft" – agree, identifying routes which facilitate the optimal efficiency of modern aircraft design should be governing principles.
2. "Routes should include an extended westerly climb profile before a later easterly turn" – the optimal use of airspace should be the governing criteria not an arbitrary westerly heading.
3. "Procedures should include RF legs" – agree
4. "Routes should be designed to limit the wrap around turn to no more than 180°" – there is no need to stipulate this as a design criteria. If optimal airspace design required a greater trun than 180 deg, it is better to facilitate this than prevent it being used. Conversely, a climbing turn in itself creates a prolonged noise over a concentrated area so is unlikely to be sought as an option. New SIDs departing AGP are a classic in this regard where the climbing turn takes place over the sea.

Question 4

Do you believe any of the items seleted for the shortlist of Design Principles are inappropriate selections? If so, please explain why.

Response ☒Yes ☐No

Additional Comments:

1. "New Route 4 designs should give due regard to the historic routings in use before 2012" – holding onto this principle may not allow the optimal efficiency in the operation of the aircraft, therefore in itself creating more noise and emisisons.
2. "Designs should be built to concentrate dispersion below 7,000ft" – we would recommend designs should be built to facilitate dispersion below 7000'aal"

Question 5
Do you agree with the prioritisation that we have applied to the shortlist of Design Principles? If not, please add any comments and use Table 1 on page 7 to provide us with your preferred prioritisation.
Response ☒Yes ☐No
Additional Comments:

Question 6
Are there other Design Principles not included in the long list list that you feel should be considered as candidates for the final shortlist? If so, please provide your comments.
Response ☒Yes ☐No
Additional Comments: We would like to see an emphasis placed on modern aircraft design that reflects the importance of efficient operations which therefore optimises noise and emissions in the design. Furthermore, recognition needs to be incorporated into these designs which will reflect new aircraft designs currently on the drawing boards to maintain optimal aircraft operations in these new designs.

Question 7

Do you have any other comments on how the CAP 1616, Step 1B process has been conducted to date?	
	Response ☐Yes ☒No
Additional Comments: Submitted by easyJet.	

Table 1 on the next page lists the Design Principles initially prioritised according to the volume of responses (greatest volume at the top of the list) returned in questionnaires and from comment during discussions at the recent focus groups.

If you agree that the Design Principles have been prioritised correctly, then please indicate this by marking the table with a comment.

If however, you believe an item should have a higher priority, then please use the right hand column to indicate this.

Prioritised No (a)	Design Principle (b)	Your priority (c)
1	Route 4 options will be designed safely with full regulatory compliance	
2	Designs should be built to manage dispersion below 7,000 ft	
3	New Route 4 designs should give due regard to the historic routings in use before 2012	
4	Designs should seek to minimize overflight of previously unaffected locations	
5	Designs will seek to avoid overflight of notified noise sensitive areas	
6	Route 4 designs should seek to minimise the impact of adverse noise on the Surrey Hills AONB	
7	Route 4 designs should consider neighbouring airports procedures to ensure adequate deconfliction	
8	Routes should include an extended westerly climb profile before a later easterly turn	
9	Designs should not include respite options that place routes over newly overflown populations	
10	Overflight protections already contained in the UK AIP must be maintained	
11	Route 4 procedures should follow M25 and A24 corridors where background noise already high	
12	Designs should be built to concentrate dispersion below 7,000ft	
13	Procedures should include RF legs	
14	ARINC 424 coding must ensure aircraft follow the desired lateral and vertical paths	
15	Routes should be designed to limit the wrap around turn to no more than 180°	
16	Route 4 designs must consider FASI-S objectives and ensure alignment	
17	Route 4 designs should not be constrained by the lateral dimensions of the existing NPR to 4,000ft	

Table 1 - Stakeholder Prioritised Shortlist of Design Principles

Thank you for completing this table.

YOUR LONDON AIRPORT Gatwick

Gatwick Route 4 Redesign of RNAV SIDs

Design Principles Review Response

Document Details

Reference	Description
Document Title	Gatwick Route 4 Redesign of RNAV SIDs
	Design Principles Review Response
Document Ref	71248 031
Issue	Issue 1 Final
Date	7th June 2019
Classification	

1 Responses

As one of our key stakeholders, London Gatwick Airport appreciates the time and effort you have invested in helping us to develop Design Principles to support the Route 4 airspace redesign project. We would now welcome any futher comments you may have to help us further develop the shortlist of Design Principles. These principles will serve as the framework against which detailed design work may commence. An opportunity for further involvement will be provided during the design work, and again during the formal consultation, which will include a much wider group of aviation and non-aviation stakeholders.

Please mark your response to each of the questions below add provide any additional comments you wish us to consider.

Send your completed document to lgwairspace.rte4@gatwickairport.com by 1700 hours on 28th June 2019.

Thank you for your continued support.

Question 1
Do you agree that London Gatwick Airport has developed its Route 4 Design Principles in full accord with the process detailed in CAP 1616, Step 1B?
Response ☐XYes ☐No
Additional Comments:

Question 2
Do you agree that the comprehensive list of Design Principles captures the specific areas of concern you have articulated in either a questionnaire or during participation in one of the focus groups?
Response ☐Yes X☐No
Additional Comments: The priority list does not appear to include a continuous climb element within the 3km swathe and then to keep within the virtual swathe up to 7,000 ft before vectoring so as to avoid overflying areas not previously overflown.

Question 3
Do you broadly support our reasons for not including certain Design Principles in the short list? If not, please provide further comment.
Response X☐Yes ☐No
Additional Comments:

Question 4 In order
Do you believe any of the items seleted for the shortlist of Design Principles are inappropriate selections? If so, please explain why.
Response X☐Yes ☐No
Additional Comments: Priority 8 – Does not help to reduce emissions if departures continue further west, with more fuel burn, before turning. Best turning for a clean wing configuration is surely the best? Priority 9 – In order to achieve noticeable respite it may be necessary to affect those residents not previously affected; but continuous climb will help to alleviate this problem.

Question 5
Do you agree with the prioritisation that we have applied to the shortlist of Design Principles? If not, please add any comments and use Table 1 on page 6 to provide us with your preferred prioritisation.
Response XYes ☐No
Additional Comments: With the provisos already stated above, the listing order is not unreasonable as they tend to be dependent on one another anyway.

Question 6
Are there other Design Principles not included in the long list list that you feel should be considered as candidates for the final shortlist? If so, please provide your comments.
Response X☐Yes ☐No
Additional Comments: It may be hidden within the terminology of the final shortlist but aircraft continuous climb within the NPR swathe up to 7,000 ft, where possible before vectoring, will prevent overflying residents not previously overflown. It will also give some noise respite to those under the NPR.

Question 7
Do you have any other comments on how the CAP 1616, Step 1B process has been conducted to date?
Response X☐Yes ☐No
Additional Comments: I thought the focus groups were useful as, although small in number, did address the issues at this stage of CAP 1616.

Table 1 on the next page lists the Design Principles initially prioritised according to the volume of responses (greatest volume at the top of the list) returned in questionnaires and from comment during discussions at the recent focus groups.

If you agree that the Design Principles have been prioritised correctly, then please indicate this by marking the table with a comment.

If however, you believe an item should have a higher priority, then please use the right hand column to indicate this.

Prioritised No (a)	Design Principle (b)	Your priority (c)
1	Route 4 options will be designed safely with full regulatory compliance	
2	Designs should be built to manage dispersion below 7,000 ft	
3	New Route 4 designs should give due regard to the historic routings in use before 2012	
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12	Designs should be built to concentrate dispersion below 7,000ft	
13	Procedures should include RF legs	
14	ARINC 424 coding must ensure aircraft follow the desired lateral and vertical paths	
15	Routes should be designed to limit the wrap around turn to no more than 180°	
16	Route 4 designs must consider FASI-S objectives and ensure alignment	
17	Route 4 designs should not be constrained by the lateral dimensions of the existing NPR to 4,000ft	

Table 1 - Stakeholder Prioritised Shortlist of Design Principles

Thank you for completing this table.

YOUR LONDON AIRPORT Gatwick

Gatwick Route 4 Redesign of RNAV SIDs

Design Principles Review Response

Document Details

Reference	Description
Document Title	Gatwick Route 4 Redesign of RNAV SIDs
	Design Principles Review Response
Document Ref	71248_031
Issue	Issue 1 Final
Date	7th June 2019
Classification	

1 Responses

As one of our key stakeholders, London Gatwick Airport appreciates the time and effort you have invested in helping us to develop Design Principles to support the Route 4 airspace redesign project. We would now welcome any futher comments you may have to help us further develop the shortlist of Design Principles. These principles will serve as the framework against which detailed design work may commence. An opportunity for further involvement will be provided during the design work, and again during the formal consultation, which will include a much wider group of aviation and non-aviation stakeholders.

Please mark your response to each of the questions below add provide any additional comments you wish us to consider.

Send your completed document to lgwairspace.rte4@gatwickairport.com by 1700 hours on 28th June 2019.

Thank you for your continued support.

Question 1
Do you agree that London Gatwick Airport has developed its Route 4 Design Principles in full accord with the process detailed in CAP 1616, Step 1B?
Response ☐Yes ☐No
Additional Comments: N/A

Question 2
Do you agree that the comprehensive list of Design Principles captures the specific areas of concern you have articulated in either a questionnaire or during participation in one of the focus groups?
Response ☐Yes ☐No
Additional Comments: N/A (No comment on previous papers)

Question 3
Do you broadly support our reasons for not including certain Design Principles in the short list? If not, please provide further comment.
Response ☒Yes ☐No
Additional Comments:

Question 4
Do you believe any of the items seleted for the shortlist of Design Principles are inappropriate selections? If so, please explain why.
Response ☐Yes ☒No
Additional Comments: We note from Gatwick's steeper approach trial responses that not all operators carry equipment with RF capability so would expect an alternate procedure to be made available for them.

Question 5
Do you agree with the prioritisation that we have applied to the shortlist of Design Principles? If not, please add any comments and use Table 1 on page 6 to provide us with your preferred prioritisation.
Response ☐Yes ☒No
Additional Comments: Se comment above. That aside, we do not object to the shortlisted principles.

Question 6
Are there other Design Principles not included in the long list list that you feel should be considered as candidates for the final shortlist? If so, please provide your comments.
Response ☐Yes ☒No
Additional Comments:

Question 7
Do you have any other comments on how the CAP 1616, Step 1B process has been conducted to date?
Response ☐Yes ☒No
Additional Comments:

Table 1 on the next page lists the Design Principles initially prioritised according to the volume of responses (greatest volume at the top of the list) returned in questionnaires and from comment during discussions at the recent focus groups.

If you agree that the Design Principles have been prioritised correctly, then please indicate this by marking the table with a comment.

If however, you believe an item should have a higher priority, then please use the right hand column to indicate this.

Prioritised No (a)	Design Principle (b)	Your priority (c)
1	Route 4 options will be designed safely with full regulatory compliance	Y
2	Designs should be built to manage dispersion below 7,000 ft	
3	New Route 4 designs should give due regard to the historic routings in use before 2012	
4	Designs should seek to minimize overflight of previously unaffected locations	
5	Designs will seek to avoid overflight of notified noise sensitive areas	
6	Route 4 designs should seek to minimise the impact of adverse noise on the Surrey Hills AONB	
7	Route 4 designs should consider neighbouring airports procedures to ensure adequate deconfliction	
8	Routes should include an extended westerly climb profile before a later easterly turn	
9	Designs should not include respite options that place routes over newly overflown populations	
10	Overflight protections already contained in the UK AIP must be maintained	
11	Route 4 procedures should follow M25 and A24 corridors where background noise already high	
12	Designs should be built to concentrate dispersion below 7,000ft	
13	Procedures should include RF legs	Only if alternatives exist for non-capable operators
14	ARINC 424 coding must ensure aircraft follow the desired lateral and vertical paths	
15	Routes should be designed to limit the wrap around turn to no more than 180°	
16	Route 4 designs must consider FASI-S objectives and ensure alignment	
17	Route 4 designs should not be constrained by the lateral dimensions of the existing NPR to 4,000ft	

Tab e 1 - Stakeho der Pr or t sed Short st of Des gn Pr nc p es

Thank you for completing this table.

Gatwick Route 4 Redesign of RNAV SIDs

Design Principles Review Response

Document Details

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Please mark your response to each of the questions below add provide any additional comments you wish us to consider.

Send your completed document to lgwairspace.rte4@gatwickairport.com by 1700 hours on 28th June 2019.

Thank you for your continued support.

Question 1
Do you agree that London Gatwick Airport has developed its Route 4 Design Principles in full accord with the process detailed in CAP 1616, Step 1B?
Response ☐Yes ☐No
Additional Comments: **Heathrow welcomes the opportunity to engage with Gatwick on the development of its emerging design principles for its Route 4 departures.** **We already work closely with Gatwick and other airports as well as NATS as we all progress towards developing and delivering a plan for modernised airspace. It is vital that our combined airspace change activity operates to the benefit of the whole network. This incorporates both the nearer term airspace changes, as well as those longer term changes required to meet the UK's modernisation agenda.** **Engagement not only helps shape the development of a change sponsor's individual design principles, but, more broadly, enables change sponsors to share their experience in progressing through, what is a relatively new airspace change process.** **While we welcome the degree of engagement that we have had with Gatwick on this airspace change proposal, we recognise that it is the CAA's responsibility for determining whether a change sponsor is in compliance with the CAP1616 process.**

Question 2
Do you agree that the comprehensive list of Design Principles captures the specific areas of concern you have articulated in either a questionnaire or during participation in one of the focus groups?
Response ☒Yes ☐No
Additional Comments:

The design principles capture the key areas of interest to Heathrow, in terms of safety and potential operational impacts.

Question 3
Do you broadly support our reasons for not including certain Design Principles in the short list? If not, please provide further comment.
Response ☒Yes ☐No
Additional Comments: **Heathrow believes that Gatwick has provided a useful explanation of the reasoning behind the exclusion of certain proposed design principles.**

Question 4
Do you believe any of the items seleted for the shortlist of Design Principles are inappropriate selections? If so, please explain why.
Response ☐Yes ☒No
Additional Comments: **Heathrow believes that Gatwick's proposed Design Principles capture the key elements to be taken into account when developing new route options. We have a few points where we feel it would be useful for Gatwick to clarify its intention on some of the Design Principles, however this is not to say that we believe these are inappropriate as proposed Design Principles:** **DP 1) This principle states that Route 4 options will be designed safely with full regulatory compliance. Heathrow agrees that safety should be the top priority and that ensuring regulatory compliance is key. It would be useful to understand whether the term "full regulatory compliance" also captures compliance with the Government's noise objective. This plays a significant role in the airspace design process and it would be helpful to ensure this is reflected in Gatwick's core Design Principles.** **DP 2) Heathrow fully supports the use of dispersion as a means of managing noise and enabling respite opportunities for affected communities. It would be useful if Gatwick could provide further detail as to how the principle of "managing dispersion" might be applied in practice, and how it would be aligned with the priority in DP12 to "concentrate dispersion".** **DP 8) Heathrow supports the inclusion of local circumstances when proposing Design Principles such as that defined in DP8. Design principles enable the specific management of the impact of noise on those local communities in the vicinity of an airport at the start of the design process. As the aim is to use this principle to mitigate the impacts on the ground, it would be helpful to strengthen that as a desired outcome within DP8.**

Question 5
Do you agree with the prioritisation that we have applied to the shortlist of Design Principles? If not, please add any comments and use Table 1 on page 6 to provide us with your preferred prioritisation.
Response ☐Yes ☐No
Additional Comments: **Heathrow agrees that safety should be the top Design Principle.** **Heathrow agrees that DP 7) "consider neighbouring airport procedures" is an important Design Principle. This would help to ensure that Gatwick's operations do not negatively impact on other airports' procedures or on the network performance more broadly. It also helps to ensure that routes avoid overflying communities with flights from multiple airports wherever feasible.**

Question 6
Are there other Design Principles not included in the long list list that you feel should be considered as candidates for the final shortlist? If so, please provide your comments.
Response ☐Yes ☒No
Additional Comments: **No comment**

Question 7
Do you have any other comments on how the CAP 1616, Step 1B process has been conducted to date?
Response ☐Yes ☒No
Additional Comments: **No comment**

Table 1 on the next page lists the Design Principles initially prioritised according to the volume of responses (greatest volume at the top of the list) returned in questionnaires and from comment during discussions at the recent focus groups.

If you agree that the Design Principles have been prioritised correctly, then please indicate this by marking the table with a comment.

If however, you believe an item should have a higher priority, then please use the right hand column to indicate this.

Prioritised No (a)	Design Principle (b)	Your priority (c)
1	Route 4 options will be designed safely with full regulatory compliance	High priority
2	Designs should be built to manage dispersion below 7,000 ft	
3	New Route 4 designs should give due regard to the historic routings in use before 2012	
4	Designs should seek to minimize overflight of previously unaffected locations	
5	Designs will seek to avoid overflight of notified noise sensitive areas	
6	Route 4 designs should seek to minimise the impact of adverse noise on the Surrey Hills AONB	
7	Route 4 designs should consider neighbouring airports procedures to ensure adequate deconfliction	High priority
8	Routes should include an extended westerly climb profile before a later easterly turn	
9	Designs should not include respite options that place routes over newly overflown populations	
10	Overflight protections already contained in the UK AIP must be maintained	
11	Route 4 procedures should follow M25 and A24 corridors where background noise already high	
12	Designs should be built to concentrate dispersion below 7,000ft	
13	Procedures should include RF legs	
14	ARINC 424 coding must ensure aircraft follow the desired lateral and vertical paths	
15	Routes should be designed to limit the wrap around turn to no more than 180°	
16	Route 4 designs must consider FASI-S objectives and ensure alignment	High priority
17	Route 4 designs should not be constrained by the lateral dimensions of the existing NPR to 4,000ft	

Table 1 - Stakeholder Prioritised Shortlist of Design Principles

Thank you for completing this table.

YOUR LONDON AIRPORT Gatwick

Gatwick Route 4 Design Principles

Response from Horley Town Council

GATWICK AIRPORT LIMITED, DESTINATIONS PLACE, GATWICK AIRPORT, WEST SUSSEX, RH6 0NP
Registered in England 1991018. Registered Office Destinations Place, Gatwick Airport, West Sussex, RH6 0NP
www.gatwickairport.com

INVESTORS IN PEOPLE

Document Details

Reference	Description
Document Title	Gatwick Route 4 Redesign of RNAV SIDs
	Design Principles Review Response
Document Ref	71248 031
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Date	7th June 2019
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1 Responses

As one of our key stakeholders, London Gatwick Airport appreciates the time and effort you have invested in helping us to develop Design Principles to support the Route 4 airspace redesign project. We would now welcome any futher comments you may have to help us further develop the shortlist of Design Principles. These principles will serve as the framework against which detailed design work may commence. An opportunity for further involvement will be provided during the design work, and again during the formal consultation, which will include a much wider group of aviation and non-aviation stakeholders.

Please mark your response to each of the questions below add provide any additional comments you wish us to consider.

Send your completed document to lgwairspace.rte4@gatwickairport.com by 1700 hours on 28th June 2019.

Thank you for your continued support.

Question 1
Do you agree that London Gatwick Airport has developed its Route 4 Design Principles in full accord with the process detailed in CAP 1616, Step 1B?
Response ☒Yes ☐No
Additional Comments:

Question 2
Do you agree that the comprehensive list of Design Principles captures the specific areas of concern you have articulated in either a questionnaire or during participation in one of the focus groups?
Response ☒Yes ☐No
Additional Comments:

Question 3
Do you broadly support our reasons for not including certain Design Principles in the short list? If not, please provide further comment.
Response ☐Yes ☒No
Additional Comments: Your decision to exclude no.21 & the reasons for doing so are contradictory to other options.

Question 4
Do you believe any of the items seleted for the shortlist of Design Principles are inappropriate selections? If so, please explain why.
Response ☒Yes ☐No
Additional Comments: Nos. 1 & 7 which are based on safety should not be options but a given in any route design.

Question 5
Do you agree with the prioritisation that we have applied to the shortlist of Design Principles? If not, please add any comments and use Table 1 on page 6 to provide us with your preferred prioritisation.
Response ☐Yes ☒No
Additional Comments: As safety is a given we have ignored principles 1 & 7 in listing our priorities against other principles. Principles Nos 2 & 12 are in conflict in that dispersion is different from respite. The former is tactical whilst the latter is designed into a route. Can dispersion be the default position with the change to PBN? Re your principle No10 it will be no surprise that we consider the current AIP overflight rules for Horley must be maintained and therefore give this a much higher priority []our no.2]. That said we do accept that the new developments being built under R4 do not get the same protection.

Question 6
Are there other Design Principles not included in the long list list that you feel should be considered as candidates for the final shortlist? If so, please provide your comments.
Response ☐Yes ☒No
Additional Comments:

Question 7
Do you have any other comments on how the CAP 1616, Step 1B process has been conducted to date?
Response ☐Yes ☒No
Additional Comments:

Table 1 on the next page lists the Design Principles initially prioritised according to the volume of responses (greatest volume at the top of the list) returned in questionnaires and from comment during discussions at the recent focus groups.

If you agree that the Design Principles have been prioritised correctly, then please indicate this by marking the table with a comment.

If however, you believe an item should have a higher priority, then please use the right hand column to indicate this.

Prioritised No (a)	Design Principle (b)	Your priority (c)
1	Route 4 options will be designed safely with full regulatory compliance	17
2	Designs should be built to manage dispersion below 7,000 ft	4
3	New Route 4 designs should give due regard to the historic routings in use before 2012	1
4	Designs should seek to minimize overflight of previously unaffected locations	6
5	Designs will seek to avoid overflight of notified noise sensitive areas	11
6	Route 4 designs should seek to minimise the impact of adverse noise on the Surrey Hills AONB	12
7	Route 4 designs should consider neighbouring airports procedures to ensure adequate deconfliction	16
8	Routes should include an extended westerly climb profile before a later easterly turn	5
9	Designs should not include respite options that place routes over newly overflown populations	7
10	Overflight protections already contained in the UK AIP must be maintained	2
11	Route 4 procedures should follow M25 and A24 corridors where background noise already high	14
12	Designs should be built to concentrate dispersion below 7,000ft	15
13	Procedures should include RF legs	8
14	ARINC 424 coding must ensure aircraft follow the desired lateral and vertical paths	13
15	Routes should be designed to limit the wrap around turn to no more than 180°	3
16	Route 4 designs must consider FASI-S objectives and ensure alignment	10
17	Route 4 designs should not be constrained by the lateral dimensions of the existing NPR to 4,000ft	9

Table 1 - Stakeholder Prioritised Shortlist of Design Principles

Thank you for completing this table.

YOUR LONDON AIRPORT Gatwick

Gatwick Route 4 Redesign of RNAV SIDs

Design Principles Review Response

Document Details

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1 Responses

As one of our key stakeholders, London Gatwick Airport appreciates the time and effort you have invested in helping us to develop Design Principles to support the Route 4 airspace redesign project. We would now welcome any futher comments you may have to help us further develop the shortlist of Design Principles. These principles will serve as the framework against which detailed design work may commence. An opportunity for further involvement will be provided during the design work, and again during the formal consultation, which will include a much wider group of aviation and non-aviation stakeholders.

Please mark your response to each of the questions below add provide any additional comments you wish us to consider.

Send your completed document to lgwairspace.rte4@gatwickairport.com by 1700 hours on 28th June 2019.

Thank you for your continued support.

Question 1
Do you agree that London Gatwick Airport has developed its Route 4 Design Principles in full accord with the process detailed in CAP 1616, Step 1B?
Response ☒Yes ☐No
Additional Comments:

Question 2
Do you agree that the comprehensive list of Design Principles captures the specific areas of concern you have articulated in either a questionnaire or during participation in one of the focus groups?
Response ☒Yes ☐No
Additional Comments:

Question 3
Do you broadly support our reasons for not including certain Design Principles in the short list? If not, please provide further comment.
Response ☒Yes ☐No
Additional Comments:

Question 4
Do you believe any of the items seleted for the shortlist of Design Principles are inappropriate selections? If so, please explain why.
Response ☐Yes ☒No
Additional Comments:

Question 5
Do you agree with the prioritisation that we have applied to the shortlist of Design Principles? If not, please add any comments and use Table 1 on page 6 to provide us with your preferred prioritisation.
Response ☒Yes ☐No
Additional Comments:

Question 6
Are there other Design Principles not included in the long list list that you feel should be considered as candidates for the final shortlist? If so, please provide your comments.
Response ☐Yes ☒No
Additional Comments:

Question 7
Do you have any other comments on how the CAP 1616, Step 1B process has been conducted to date?
Response ☐Yes ☒No
Additional Comments:

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If however, you believe an item should have a higher priority, then please use the right hand column to indicate this.

Prioritised No (a)	Design Principle (b)	Your priority (c)
1	Route 4 options will be designed safely with full regulatory compliance	
2	Designs should be built to manage dispersion below 7,000 ft	
3	New Route 4 designs should give due regard to the historic routings in use before 2012	
4	Designs should seek to minimize overflight of previously unaffected locations	
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Table 1 - Stakeholder Prioritised Shortlist of Design Principles

Thank you for completing this table.

YOUR LONDON AIRPORT Gatwick

Gatwick Route 4 Redesign of RNAV SIDs

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Please mark your response to each of the questions below add provide any additional comments you wish us to consider.

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Thank you for your continued support.

Question 1
Do you agree that London Gatwick Airport has developed its Route 4 Design Principles in full accord with the process detailed in CAP 1616, Step 1B?
Response ☒Yes ☐No
Additional Comments:

Question 2
Do you agree that the comprehensive list of Design Principles captures the specific areas of concern you have articulated in either a questionnaire or during participation in one of the focus groups?
Response ☒Yes ☐No
Additional Comments:

Question 3
Do you broadly support our reasons for not including certain Design Principles in the short list? If not, please provide further comment.
Response ☒Yes ☐No
Additional Comments: Whilst we broadly support the reasons for removing certain previously short listed Design Principles, we do not agree with the justification for removing Design Principle 23 'Route 4 procedures should seek to minimise noise exposure during the night-time period'. Kent is mainly impacted by noise from arrivals at Gatwick Airport, but there is continually emerging evidence on the impacts of aviation noise that strongy demonstrates the real health costs felt by individuals. The level of distress caused by night time noise in particular is significant. Ultimately these costs are picked up by the National Health Service (NHS) and by the wider economy in reduced productivity, not solely just within the areas overflown by Route 4. Gatwick is therefore ask to reconsider the inclusion of this Design Principles within their short list.

Question 4
Do you believe any of the items seleted for the shortlist of Design Principles are inappropriate selections? If so, please explain why.
Response ☐Yes ☒No
Additional Comments:

Question 5
Do you agree with the prioritisation that we have applied to the shortlist of Design Principles? If not, please add any comments and use Table 1 on page 7 to provide us with your preferred prioritisation.
Response ☒Yes ☐No
Additional Comments:

Question 6
Are there other Design Principles not included in the long list list that you feel should be considered as candidates for the final shortlist? If so, please provide your comments.
Response ☒Yes ☐No
Additional Comments: Route 4 turns to the north and then east after take off and then heads east towards Edenbridge and Sevenoaks, overflying the Kent Downs Area of Outstanding Natural Beauty (AONB), albeit above 4,000ft by that point. While we appreciate that the concentration of flight paths is in accordance with current Government policy of concentrating aircraft take offs along the fewest possible number of specified routes that avoid densely populated areas, there are also legal duties to have regard to the purposes of National Parks and AONB to help preserve the tranquillity of the countryside. Reference has been made to the Surrey Hills AONB within new Design Principle 6, but consideration should also be given to minimising the impact of adverse noise on other protected landscapes. Furthermore, during an easterly wind, aircraft take off and are at a minimum of 3,000ft, but typically 4,000ft or more over Marsh Green, Hever, Markbeech and Penshurt. These settlements are also all within the swathe for low flying (less than 4,000ft) arrivals. Therefore a change of wind direction from the prevailing westerly winds to easterly winds bring departing aircraft over-flight, which although flying higher, are generally even noisier. Therefore we would urge that the settlements of Marsh Green, Hever, Markbeech and Penshurst are avoided by the overflight of Route 4. The northern part of Edenbridge, and the settlements of Marlpit Hill, Four Elms, Toy's Hill, Ide Hill, and Crockham Hill are also over-flown by aircraft at a minimum of 3,000ft, typically 4,000ft or more. This means that there is over-flight of Chartwell, a National Trust property of national importance (the former home of Sir Winston Churchill) and the Kent Downs AONB. Where it is practical to avoid over-flight of these areas below 7,000ft, this should be encouraged. We ask that the settlements of Edenbridge, and the settlements of Marlpit Hill, Four Elms, Toy's Hill, Ide Hill, and Crockham Hill, the National Trust property of Chartwell, and where possible, the Kent Downs AONB, are also avoided by the overflight of Route 4.

Question 7
Do you have any other comments on how the CAP 1616, Step 1B process has been conducted to date?
Response ☐Yes ☒No
Additional Comments:

Table 1 on the next page lists the Design Principles initially prioritised according to the volume of responses (greatest volume at the top of the list) returned in questionnaires and from comment during discussions at the recent focus groups.

If you agree that the Design Principles have been prioritised correctly, then please indicate this by marking the table with a comment.

If however, you believe an item should have a higher priority, then please use the right hand column to indicate this.

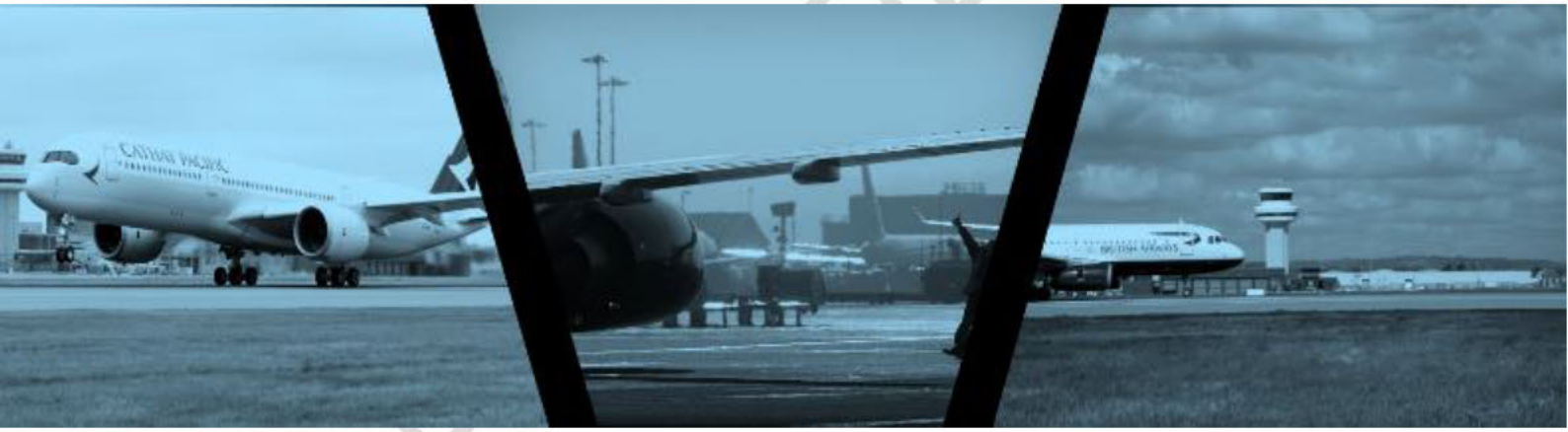
Prioritised No (a)	Design Principle (b)	Your priority (c)
1	Route 4 options will be designed safely with full regulatory compliance	
2	Designs should be built to manage dispersion below 7,000 ft	
3	New Route 4 designs should give due regard to the historic routings in use before 2012	
4	Designs should seek to minimize overflight of previously unaffected locations	
5	Designs will seek to avoid overflight of notified noise sensitive areas	
6	Route 4 designs should seek to minimise the impact of adverse noise on the Surrey Hills AONB	
7	Route 4 designs should consider neighbouring airports procedures to ensure adequate deconfliction	
8	Routes should include an extended westerly climb profile before a later easterly turn	
9	Designs should not include respite options that place routes over newly overflown populations	
10	Overflight protections already contained in the UK AIP must be maintained	
11	Route 4 procedures should follow M25 and A24 corridors where background noise already high	
12	Designs should be built to concentrate dispersion below 7,000ft	
13	Procedures should include RF legs	
14	ARINC 424 coding must ensure aircraft follow the desired lateral and vertical paths	
15	Routes should be designed to limit the wrap around turn to no more than 180°	
16	Route 4 designs must consider FASI-S objectives and ensure alignment	
17	Route 4 designs should not be constrained by the lateral dimensions of the existing NPR to 4,000ft	

Table 1 - Stakeholder Prioritised Shortlist of Design Principles

Thank you for completing this table.

Gatwick Route 4 Redesign of RNAV SIDs

Design Principles Review Response



Document Details

Reference	Description
Document Title	Gatwick Route 4 Redesign of RNAV SIDs
	Design Principles Review Response
Document Ref	71248 031
Issue	Issue 1 Final
Date	7th June 2019
Classification	

1 Responses

As one of our key stakeholders, London Gatwick Airport appreciates the time and effort you have invested in helping us to develop Design Principles to support the Route 4 airspace redesign project. We would now welcome any futher comments you may have to help us further develop the shortlist of Design Principles. These principles will serve as the framework against which detailed design work may commence. An opportunity for further involvement will be provided during the design work, and again during the formal consultation, which will include a much wider group of aviation and non-aviation stakeholders.

Please mark your response to each of the questions below add provide any additional comments you wish us to consider.

Send your completed document to lgwairspace.rte4@gatwickairport.com by 1700 hours on 28th June 2019.

Thank you for your continued support.

Question 1
Do you agree that London Gatwick Airport has developed its Route 4 Design Principles in full accord with the process detailed in CAP 1616, Step 1B?
Response ☐Yes ☒No
Additional Comments: GAL has unreasonably ruled out a suggested design principle, against the advice set out in Paragraph 108 of CAP1616, that seemingly had significant support as it was suggested by Local Government organisations, public responses, and two of the three focus groups. Please see answer to Question 3 for further explanation.

Question 2
Do you agree that the comprehensive list of Design Principles captures the specific areas of concern you have articulated in either a questionnaire or during participation in one of the focus groups?
Response ☒Yes ☐No
Additional Comments: No further comment.

Question 3
Do you broadly support our reasons for not including certain Design Principles in the short list? If not, please provide further comment.

Response ☐Yes ☒No
Additional Comments: Original Design Principle 21 stated '*Route 4 designs should remain within the existing NPR'*. GAL's reasoning for discounting said principle states the following: 'In order to explore all options for the Route 4 SIDs, the Design Principle '*Route 4 designs should not be constrained by the existing NPR*' will be taken forward to the short list. This will allow options that remain within the NPR to be designed hence this Design Principle has been covered'. This reasoning is insufficient. GAL has effectively ignored this suggested design principle in favour of the opposing principle that suggests Route 4 designs should not be constrained by the existing NPR. Paragraph 111 of CAP1616 states that design principles may contradict one another and therefore both principles are eligible for the prioritised shortlist. It is understood that by discounting this suggested principle, options that remain within the NPR can still be designed, as well as those outside of it. However, paragraph 108 of CAP1616 states that design principles should take account of Noise Preferential Routes and in discounting this suggested design principle, GAL has not specifically taken account of the existing NPR through the design principles and therefore not fulfilled their obligations as the airspace change sponsor.

Question 4
Do you believe any of the items seleted for the shortlist of Design Principles are inappropriate selections? If so, please explain why.
Response ☒Yes ☐No
Additional Comments: *'Route 4 designs should not be constrained by the lateral dimensions of the existing NPR to 4,000ft'* – please see answer to Question 3. *'Designs should be built to concentrate dispersion below 7,000ft*' – this is an inappropriate selection as if implemented, it would unfairly concentrate adverse noise effects upon a smaller number of people rather than fairly and equitably distributing them across a wider number of already-affected people. *'Route 4 procedures should follow M25 and A24 corridors where background noise already high'* – this is an inappropriate selection as the A24 corridor is host to a number of communities such as Capel, Beare Green and South Holmwood. To suggest that Route 4 should follow the A24 corridor would unfairly increase the adverse aircraft noise effects upon these communities. Furthermore, the M25 is a significant distance from the 'Potentially Affected Area' as shown on the CAA Airspace Change Portal and so to suggest that Route 4 should follow the M25 corridor would unfairly impact a number of communities and organisations that are not currently affected by aircraft noise from Route 4 and are not aware of this airspace change process. Therefore, this design principle should not be considered further. *'Routes should include an extended westerly climb profile before a later easterly turn'* – whilst this is not deemed to be an inappropriate selection for a design principle, there is significant concern that an extended westerly climb before a later easterly turn could see communities further west and outside the current NPR, such as Ockley, affected by aircraft noise where they

are not currently. Furthermore, it could worsen noise impacts for Capel, Beare Green and South Holmwood and would potentially see overflight of the Surrey Hills AONB that is nationally designated to conserve and enhance its natural beauty and tranquillity. By limiting the priority of this principle, there would still be scope to include an extended westerly climb however other principles would be given a higher priority and therefore the potential adverse impacts outlined above from a later easterly turn would be reduced.

Question 5
Do you agree with the prioritisation that we have applied to the shortlist of Design Principles? If not, please add any comments and use Table 1 on page 7 to provide us with your preferred prioritisation.
Response ☐Yes ☒No
Additional Comments: The prioritisation of design principles is broadly acceptable however please see Table 1 on page 6 for the preferred prioritisation. Furthermore, a design principle that states '*Route 4 designs should remain within the existing NPR*' would be highly prioritised.

Question 6
Are there other Design Principles not included in the long list list that you feel should be considered as candidates for the final shortlist? If so, please provide your comments.
Response ☐Yes ☒No
Additional Comments: No further comment.

Question 7
Do you have any other comments on how the CAP 1616, Step 1B process has been conducted to date?
Response ☐Yes ☒No
Additional Comments: No further comment.

Table 1 on the next page lists the Design Principles initially prioritised according to the volume of responses (greatest volume at the top of the list) returned in questionnaires and from comment during discussions at the recent focus groups.

If you agree that the Design Principles have been prioritised correctly, then please indicate this by marking the table with a comment.

If however, you believe an item should have a higher priority, then please use the right hand column to indicate this.

Prioritised No (a)	Design Principle (b)	Your priority (c)
1	Route 4 options will be designed safely with full regulatory compliance	1
2	Designs should be built to manage dispersion below 7,000 ft	2
3	New Route 4 designs should give due regard to the historic routings in use before 2012	4
4	Designs should seek to minimize overflight of previously unaffected locations	3
5	Designs will seek to avoid overflight of notified noise sensitive areas	6
6	Route 4 designs should seek to minimise the impact of adverse noise on the Surrey Hills AONB	7
7	Route 4 designs should consider neighbouring airports procedures to ensure adequate deconfliction	8
8	Routes should include an extended westerly climb profile before a later easterly turn	14
9	Designs should not include respite options that place routes over newly overflown populations	5
10	Overflight protections already contained in the UK AIP must be maintained	9
11	Route 4 procedures should follow M25 and A24 corridors where background noise already high	X
12	Designs should be built to concentrate dispersion below 7,000ft	X
13	Procedures should include RF legs	10
14	ARINC 424 coding must ensure aircraft follow the desired lateral and vertical paths	11
15	Routes should be designed to limit the wrap around turn to no more than 180°	12
16	Route 4 designs must consider FASI-S objectives and ensure alignment	13
17	Route 4 designs should not be constrained by the lateral dimensions of the existing NPR to 4,000ft	X

Table 1 - Stakeholder Prioritised Shortlist of Design Principles

Thank you for completing this table.

YOUR LONDON AIRPORT Gatwick

5 Requested Feedback

Please provide your feedback using the standalone document entitled Design Principles Review Response, provided separately.

Please send your completed response document to the address immediately below by 1700 hours on 28th June 2019:

lgwairspace.rte4@gatwickairport.com

Question 1	
Do you agree that London Gatwick Airport has developed its Route 4 Design Principles in full accord with the process detailed in CAP 1616, Step 1B?	
	Response ☑Yes ☐No
Additional Comments:	

Question 2	
Do you agree that the comprehensive list of Design Principles captures the specific areas of concern you have articulated in either a questionnaire or during participation in one of the focus groups?	
	Response ☑Yes ☐No
Additional Comments: POSSIBLY ADD A REQUIREMENT TO ENSURE POST AUGUST A/C DO NOT BE GIVEN THE SAME VECTORED TRANSITS	

Question 3	
Do you broadly support our reasons for not including certain Design Principles in the short list? If not, please provide further comment.	
	Response ☑Yes ☐No
Additional Comments: EXCEPT SEE Q2	

Question 4
Do you believe any of the items seleted for the shortlist of Design Principles are inappropriate selections? If so, please explain why.
Response ☐Yes ☑No
Additional Comments:

Question 5
Do you agree with the prioritisation that we have applied to the shortlist of Design Principles? If not, please add any comments and use Table 1 (page 6 of the attached Response document) to provide us with your preferred prioritisation.
Response ☑Yes ☐No
Additional Comments:

Question 6
Are there other Design Principles not included in the long list that you feel should be considered as candidates for the final shortlist? If so, please provide your comments.
Response ☐Yes ☐No
Additional Comments: SEE REPLY TO Q 2

Question 7
Do you have any other comments on how the CAP 1616, Step 1B process has been conducted to date?
Response ☐Yes ☑No
Additional Comments:

The table referred to in Question 5 has been included in the standalone document entitled Design Principles Review Response, provided separately for your responses.

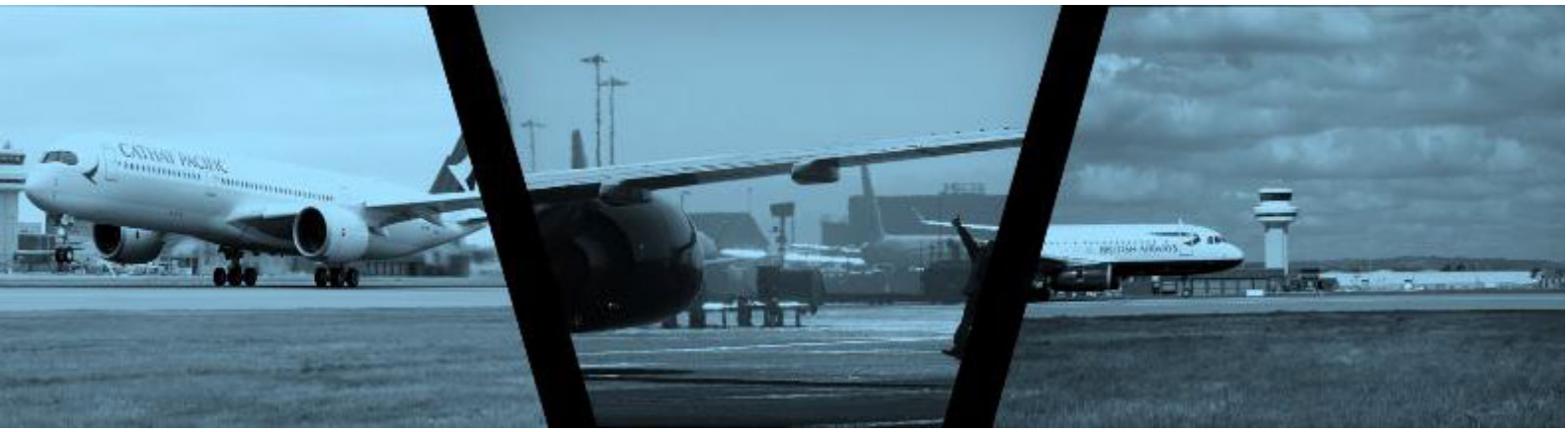
YOUR LONDON AIRPORT Gatwick

28 JUNE 2019

PLANE JUSTICE

Gatwick Route 4 Redesign of RNAV SIDs

Design Principles Review Response



Document Details

Reference	Description
Document Title	Gatwick Route 4 Redesign of RNAV SIDs
	Design Principles Review Response
Document Ref	71248 031
Issue	Issue 1 Final
Date	7th June 2019
Classification	

1 Responses – PLANE JUSTICE

As one of our key stakeholders, London Gatwick Airport appreciates the time and effort you have invested in helping us to develop Design Principles to support the Route 4 airspace redesign project. We would now welcome any futher comments you may have to help us further develop the shortlist of Design Principles. These principles will serve as the framework against which detailed design work may commence. An opportunity for further involvement will be provided during the design work, and again during the formal consultation, which will include a much wider group of aviation and non-aviation stakeholders.

Please mark your response to each of the questions below add provide any additional comments you wish us to consider.

Send your completed document to lgwairspace.rte4@gatwickairport.com by 1700 hours on 28th June 2019.

Thank you for your continued support.

Question 1
Do you agree that London Gatwick Airport has developed its Route 4 Design Principles in full accord with the process detailed in CAP 1616, Step 1B?
Response ☐Yes ☐No
Additional Comments: CAP 1616 is a relatively new process for everyone involved in aviation (and a process which was being written up whilst the Route 4 judicial review was in train). It is also a process where the CAA are both author of the rules and the arbiter as to whether compliance with those rules has been achieved. We consider that Gatwick has undertaken Step 1B in utmost good faith and with a high degree of professionalism, but we do not think we are in a position to state that this is in full accord with the process determined by the CAA. We regret we cannot offer a yes/no answer to this question.

Question 2
Do you agree that the comprehensive list of Design Principles captures the specific areas of concern you have articulated in either a questionnaire or during participation in one of the focus groups?
Response ☐Yes ☒No
Additional Comments: There is one area that has possibly not been captured. We raised in our last submission our concern at the statement in the previous questionnaire that procedure designers were required to work with design constraints to avoid built-up areas, and gave the reasons for our concern. We assume we can take it from the current round of engagement that this was standard wording in the previous questionnaire and that this

constraint will not apply as a 'default setting' in relation to designs put forward in this ACP.

Question 3

Do you broadly support our reasons for not including certain Design Principles in the short list? If not, please provide further comment.

Response ☒Yes ☐No

Additional Comments:

We support not including the 11 design principles listed in section 3.3 (Table 2), but would comment specifically on some of these as follows:-

a) Original no. 3. We accept the reason given by Gatwick in the context of this ACP, but would support a change in the vertical profile of Route 4 to accommodate CCO within the FASI-South ACP.
b) Original no. 6. We firmly support the non-inclusion of this design principle. Such vectoring can also provide a natural form of dispersion, and it is our hope and anticipation that vectoring practice and procedure on Route 4, together with the route itself, will return very substantially to that which prevailed in 2012.
c) Original No. 21: We firmly support the non-inclusion of this design principle. We believe NPRs are an anachronism which provide a false sense of entitlement to move flight paths. The focus should be on where the planes are or were actually flying. (Please refer to section D9 of our paper 'Ethical Principles for Airspace Design'.)
d) Original no. 23. We reluctantly accept the reason given for non-inclusion of this principle. We state here however:-
(a) that we would wish to see Gatwick freezing night flight frequency at 2018 levels and looking to a phased reduction going forward;
(b) that night flights are doubly unwelcome for those subjected to a route which was moved over them in circumstances that have been found unlawful.
e) Original no. 24. We accept the reasoning for exclusion of this as a design principle because noise reduction below 7,000 feet has greater priority in any event under ANG 2017.
f) Original no. 26. An additional reason for rejecting this for us would be that following this principle might conceivably overfly new communities.

Question 4

Do you believe any of the items seleted for the shortlist of Design Principles are inappropriate selections? If so, please explain why.

Response ☒Yes ☐No

Additional Comments:

a) **Table 3, original ref. 17 (column 2). We can support this principle only on the strict understanding that "previously" means 2012 backwards (i.e. areas that have never been affected by Route 4).** ***Specifically, communities overflown on Route 4 since May 2016 should never have been overflown and have been overflown as a result of an unlawful process as conceded by the CAA in Judicial Review.***

b) Original ref. 28. We would be wary of any such noise sensitive areas which existed prior to May 2016, but which were only "notified" subsequent to that date, where the motivation might be to consolidate a 'no overflight position' which that area only enjoyed as a result of changes which we hold should never have taken place.

c) Original ref. 10. We would only support this design principle in situations where there was a bona fide safety issue which required deconfliction with neighbouring airports. ***Otherwise, the requirements of Route 4 should prevail because this ACP arises from an unlawful design process as determined by judicial review.***

d) Original ref. 13 ("Overflight protections already contained in the UK AIP must be maintained"). ***We can support this design principle if it is solely referring to planning overflight restrictions that were in force in 2012 and earlier (and we are here thinking of the Horley situation). Indeed, these historical restrictions could already be covered by the design principle under original ref. 17.***

With the important exception of the above, we are highly suspicious of this design principle as its language could be used to entrench the current Route 4 status quo, since a move of route 4 to its 2012 or pre-2012 lateral position might be said to breach "overflight protections" in the current AIP.

We have accorded this design principle priority 7 in the Question 5 Table, ***but this is only on the basis that this design principle refers solely to planning overflight restrictions that were in force in 2012 and earlier.*** *We would wish to see this design principle deleted entirely, to the extent it has a meaning other than this.*

e) Original ref. 15. What does "concentrate dispersion below 7,000 feet" mean? It could mean you only have dispersion below 7,000 feet, and concentrate routes after they reach 7,000 feet, but in this case the principle is already covered under Orig ref 14 ("Designs should be built to manage dispersion below 7,000 feet"). Or it could mean that you *eliminate* dispersion below 7,000 feet (i.e. by concentrating it), which is not acceptable. So it seems to us that this principle is either already covered under 14 or is unacceptable.

f) Original ref. 7. We are deeply puzzled and concerned why, if a technical parameter like a Radius to Fix is proposed to make it into the shortlist, it is the ONLY such parameter to do so, when there are a number of other Leg Types, or indeed Waypoint types etc? Indeed is this even what would be described as a design principle? Gatwick surely need to be open-minded on the technical methods to be employed to deliver a route

which accords with the process?

g) Original ref. 9. We are puzzled by this entry as a design principle. Either it is stating the blindingly obvious – aircraft should follow the chosen path – or it is moving into the technology by which any chosen design may be executed, in which case similar comments to those in Original ref. 7 above apply.

Question 5

Do you agree with the prioritisation that we have applied to the shortlist of Design Principles? If not, please add any comments and use Table 1 on page 8 to provide us with your preferred prioritisation.

Response ☐Yes ☒No

Additional Comments:

Please see our Table of priorities on page 8 below.

(i) Please note there are qualifications in the Table attached to our priority numbers 3, 6, 7, 8, 10 & 11.
(ii) We have deleted your priority nos. 12, 13 & 14 for the reasons given in the Table & in Q4 above.
(iii) As regards our priority number 10, we do not agree with respite in principle. We believe it is a recipe for long term discord between communities, and for undue influence being wielded by those who 'umpire' the allocation of the respite. (We define respite as the allocation of different routes on different days or time periods, except where such allocation occurs 'naturally' because of prevailing wind direction)
(iv) As regards our priority number 8 re NPRs, **please see our comments in Q3 (c) above:** T*his is not an endorsement to overfly people who were not overflown in 2012.*
(v) As regards our priority number 12, and whilst we fully recognise the value of AONBs, given the proximity of the Surrey Hills AONB to the Route 4 turn, it is not feasible from an operational perspective to avoid overflying this area completely. *Some areas of this AONB on the turn have always sustained a degree of overflight/ noise from Route 4, and proposed designs put forward within this ACP which to some extent overfly this AONB should not be disallowed under this design principle* ***- except in circumstances where a design would cause greater noise above this AONB than existed prior to 2012.***

Question 6

Are there other Design Principles not included in the long list list that you feel should be considered as candidates for the final shortlist? If so, please provide your comments.

Response ☒Yes ☐No

Additional Comments:

Following on from Question 4 (f) above, if a Radius to Fix is to be considered a design principle we would wish to put forward our technical design parameters which are referred to in our reply

to Question 1 in the first Design Principles Questionnaire which we submitted om 10 May 2019. We offered to share these with Gatwick at whatever time is appropriate.

Question 7
Do you have any other comments on how the CAP 1616, Step 1B process has been conducted to date?
Response ☐Yes ☒No
Additional Comments:

Table 1 on the next page lists the Design Principles initially prioritised according to the volume of responses (greatest volume at the top of the list) returned in questionnaires and from comment during discussions at the recent focus groups.

If you agree that the Design Principles have been prioritised correctly, then please indicate this by marking the table with a comment.

If however, you believe an item should have a higher priority, then please use the right hand column to indicate this.

Prioritised No (a)	Design Principle (b)	Your priority (c)
1	Route 4 options will be designed safely with full regulatory compliance	1
2	Designs should be built to manage dispersion below 7,000 ft	4
3	New Route 4 designs should give due regard to the historic routings in use before 2012	2
4	Designs should seek to minimize overflight of previously unaffected locations	3 **But** see Q4 (a)
5	Designs will seek to avoid overflight of notified noise sensitive areas	11 **But** see Q4 (b)
6	Route 4 designs should seek to minimise the impact of adverse noise on the Surrey Hills AONB	12
7	Route 4 designs should consider neighbouring airports procedures to ensure adequate deconfliction	6 **But** see Q4 (c)
8	Routes should include an extended westerly climb profile before a later easterly turn	5
9	Designs should not include respite options that place routes over newly overflown populations	10 **But** see Q5 (iii) above
10	Overflight protections already contained in the UK AIP must be maintained	7 **But** see Q4 (d) above
11	Route 4 procedures should follow M25 and A24 corridors where background noise already high	9
12	~~Designs should be built to concentrate dispersion below 7,000ft~~	Deleted as either unacceptable or repetitive (see Q4 (e))
13	~~Procedures should include RF legs~~	Deleted - either not a design principle, or too pre-emptive (See Q4 (f))
14	~~ARINC 424 coding must ensure aircraft follow the desired lateral and vertical paths~~	Deleted (See Q4 (g))
15	Routes should be designed to limit the wrap around turn to no more than 180°	4
16	Route 4 designs must consider FASI-S objectives and ensure alignment	13
17	Route 4 designs should not be constrained by the lateral dimensions of the existing NPR to 4,000ft	8 **BUT** see Q3 (c) above

Table 1 - Stakeholder Prioritised Shortlist of Design Principles

Draft Response: Gatwick Airport Route 4 Departure: Design Principles

The Council is interested in the current/future design of Route 4 as the current departure route wraps 180° turning right shortly following take-off and therefore flies directly over the borough of Reigate & Banstead causing disturbance to residents of the parish of Salfords & Sidlow, south of Redhill and Reigate and north of Horley. The current Route 4 departure route is not compliant with the criteria set for it by the Civil Aviation Agency and causes greater disturbance to borough residents than the previous 'legacy' route as when flown in 'real world' conditions planes struggle to fly the route in large number an therefore 'balloon out' over larger swathes of the borough.

Q1: Do you agree that London Gatwick Airport has developed its Route 4 Design Principles in full accord with the process detailed in CAP 1616, Step 1B?

Paragraph D8 of the CAP 1616 Guidance and the box on pp.139 provides a list of evidence that the airport will need to provide the CAA at this stage, including:

- A list of those stakeholders engaged;
- An explanation of the engagement methods employed;
- The issues raised during the engagement process;
- Evidence of a two-way conversation during the engagement process: evidence that sponsors considered the principles proposed by stakeholders, that these informed the change sponsor's final set of principles and that when principles were not included in the final shortlist this was explained to the stakeholder proposing them;
- Information with regards to where stakeholders have agreed/ disagreed with the proposed design principles; and
- A clear rationale for the change sponsor's decision where design principles have not been agreed.

Whilst during this engagement stage we would not necessarily expect to see the level of information that will be provided to the CAA, at the moment we do not feel that sufficient information has been provided in order for us to assess whether the airport has developed its Route 4 Design Principles in full accord with the process detailed in CAP 1616.

For example, there is insufficient information provided in order to understand whether there has been 'meaningful engagement'[1]. No information has been provided with regards to who the airport has engaged with, why other organisations have not been engaged, a summary of stakeholders' comments or how the airport has taken into consideration comments raised by stakeholders.

Q2: Do you agree that the comprehensive list of Design Principles captures the specific areas of concern you have articulated in either a questionnaire or during participation in one of the focus groups?

As stated in our previous response (and our responses to the FASI-South engagement), the Council considers that the core principle regarding airspace design should be that it should not increase – and where possible should reduce – noise disturbance to communities and residents; to minimise the number of newly overflown people; and to minimise the total population overflown.

We consider that these should form the key core principles for airspace design and that all other airspace design principles should be subsidiary to these (noting that airport safety is enshrined in national and international legislation).

[1] The CAP 1616 Guidance says that "an important part of Step 1B is for the design principles to be drawn up through discussion between the change sponsor and affected stakeholders at this early stage in the process" and that "meaningful engagement will be required throughout the process by sponsors"

The other principles we feel are particularly important in relation to this issue are:

- that the future Route 4 departure route should reflect the pre-2012 'legacy' position towards the northern edge of the current noise preferential route (but stress that it should remain within the current noise preferential route to minimise the number of newly overflown residents) and
- that the no overflight of Horley provision should be retained.

With regards to whether the proposed design principles capture the specific areas of concern that we have previously raised, we have a number of comments. More generally, as stated in our response to the previous question, we feel that there is a lack of clarity regarding the rationale for the selection of the final proposed design principles and would welcome some more information regarding how these have been arrived at.

Proposed design principle 2: Designs should be built to manage dispersion below 7,000ft

As stated in our previous response, the Council supports managed dispersal below 7,000ft but only within the existing noise preferential route. We do not consider that the proposed principle fully captures this point and would expect the principle to not support dispersal outside of the existing noise preferential route.

Proposed design principle 3: New Route 4 designs should give due regard to the historic routings in use before 2012

We cautiously welcome the inclusion of a design principle that will give regard to the historic routings in use before 2012; however we feel that this should go further and require future routes to remain within the current noise preferential route to minimise the number of newly overflown residents. As stated in our previous response, the Council supports the position of Salfords & Sidlow Parish Council that the future Route 4 airspace design should reflect the pre-2012 'legacy' position towards the northern edge of the current noise preferential route but stresses that it should remain within the current noise preferential route to minimise the number of newly overflown residents.

We do not consider that the reason provided by Gatwick for not including the design principle "Route 4 designs should remain within the existing NPR" is sufficient or clear[2].

Proposed design principle 4: Designs should seek to minimise overflight of previously unaffected locations

To an extent, we see how this design principle takes into consideration our previous comments, namely that a core principle should be to minimise the number of newly overflown people and to minimise the total population overflown. However, we think that this design principle should be extended to make it clear that the review will minimise overflight of residents previously unaffected and to reduce the total number of people overflown.

Proposed design principle 9: Designs should not include respite options that place routes over newly overflown populations

As stated in our previous response, the Council supports genuine respite which is actually experienced by local residents and communities, but we consider that this needs to be balanced against the number of newly overflown people. We therefore consider that this proposed design principle takes into consideration our comments regarding respite.

Proposed design principle 10: Overflight protections already contained in the UK AIP must be maintained

As noted above, we agree that overflight protections for Horley must be maintained.

[2] Reason provided by Gatwick: In order to explore all options for the Route 4 SIDs, the Design Principle *'Route 4 designs should not be constrained by the existing NPR'* will be taken forward to the short list. This will allow options that remain within the NPR to be designed hence this Design Principle has been covered.

Proposed design principle 11: Route 4 procedures should follow M25 and A24 corridors where background noise is already high

The CAP 1616 guidance advises that "design principles encompass the safety, environmental and operational criteria and strategic policy objectives that the change sponsor aims for in developing the airspace change proposal". Design principles therefore form a qualitative framework that is used to assess the suitability of airspace design options. We do not consider that this is a design principle, rather it appears to be a design option.

Notwithstanding this, we do not consider that this proposed design principle takes into consideration our previous comments and no substantive reason is provided as to Gatwick's justification for including it. Aircraft and road traffic noise are very different, and there is no rationale for the suggestion that people who are already affected by road noise (which is much more directional and therefore reduced via screening) are 'fair game' to be affected by aircraft noise.

Proposed design principle 12: Routes should be designed to concentrate dispersion below 7,000ft

We do not consider our comments regarding managed dispersion have been fully taken into consideration. As stated in our previous response, the Council supports dispersion below 7,000ft but only within the existing noise preferential route. We do not support dispersal outside of the existing noise preferential route and the principle should be clearer in this regard.

Proposed design principle 17: Route 4 designs should not be constrained by the lateral dimensions of the existing noise preferential route to 4,000ft

Again, we cannot see from the information provided how this proposed design principle takes into consideration our previous comments, which is that the route should reflect the pre-2012 'legacy' position towards the northern edge of the current noise preferential route and that it should minimise the number of newly overflown people. This design principle would be contradictory to these comments.

Q3: Do you broadly support our reasons for not including certain Design Principles in the short list? If not, please provide further comment.

The Council feels that there is a lack of clarity regarding the rationale for the selection of the final proposed design principles. We consider that some of the reasoning/justification provided is limited and lacks clarity.

We are concerned by the reason provided to not include the design principle 'Route 4 designs should remain within the existing NPR'. It is insufficient to say that 'Route 4 designs should not be constrained by the existing NPR' will be taken forward and that "it will allow options that remain within the NPR to be designed" as the wording of the proposed design principle suggests that routes will not be limited by the existing NPR and therefore can be designed outside of the NPR. As stated in our previous response, we consider that the proposed Route 4 design should reflect the pre-2012 "legacy" position towards the northern edge of the current NPR.

Q4: Do you believe any of the items selected for the shortlist of Design Principles are inappropriate selections? If so, please explain why.

As a general point, whilst there have been attempts to include some sort of justification for excluding some design principles, it is not clear why other design principles have been included.

The CAP 1616 guidance advises that "design principles encompass the safety, environmental and operational criteria and strategic policy objectives that the change sponsor aims for in developing the airspace change proposal". Design principles therefore

form a qualitative framework that is used to assess the suitability of airspace design options against. Given this, we consider that a number of the proposed design principles are in fact design options.

The Council also has concerns regarding the clarity of the proposed design principles, in particular, the technical language and acronyms used. In line with the CAP 1616 Guidance, we consider that the proposed design principles should be clear, concise, non-technical strategic policy objectives that the airport seeks to achieve in developing the airspace change proposal.

Q5: Do you agree with the prioritisation that we have applied to the shortlist of Design Principles? If not, please add any comments and use Table 1 to provide us with your preferred prioritisation.

The Council notes that no information has been provided as to the rationale for prioritising the proposed design principles and considers that this information would have been helpful in assessing the prioritisation of the proposed design principles. It is not entirely clear the rationale for including some of the proposed principles at all.

We will not therefore comment on the detailed prioritisation.

Instead, as stated in our previous response, we would reiterate our view that there should be core design principles and subsidiary design principles. We feel that this would allow the creation of key strategic policy objectives that need to be delivered and subsidiary design principles which would influence airspace design but would be assessed against the core principles. We note that this principle has been accepted by Gatwick as part of the wider airspace modernisation and would like to see it replicated for Route 4. The Council considers that the core principle should be to not increase – and where possible reduce – noise disturbance to communities and residents; to minimise the number of newly overflown people; to minimise the total population overflown; and to reflect the pre-2012 'legacy' position towards the northern edge of the current noise preferential route. We consider that other proposed design principles should be subsidiary to these.

Q6: Are there any other Design Principles not included in the long list you feel should be considered as candidates for the final shortlist? If so, please provide your comments.

We consider that the following should be considered as design principles:

- Overflight of Horley: As stated in our previous response, we would like to see specific reference to retaining the current no overflight restriction over Horley.
- Noise Preferential Route: As stated in our previously, we consider that a core design principle should be 'Route 4 designs should remain within the existing NPR'.
- Noise: As stated in our previous response, we consider that there should be a design principle to not increase, and where possible reduce noise disturbance to communities and residents, minimise the number of newly overflown people, and minimise the total population overflown. This would be in line with the National Aviation Policy Framework (2013)'s overall objective on noise, "to limit and where possible reduce the number of people in the UK significantly affected by aircraft noise". We note that whilst safety – like noise – is prescribed by national legislation, it is still proposed to be a design principle. We therefore consider that the same approach should be taken for noise. The Council notes that elsewhere design principles have included the "should limit and where possible, reduce noise effects from flights" reflecting this national policy.

We also think that the proposed design principle 'designs should seek to minimise overflight of previously unaffected locations' should be extended to include minimising overflight of previously unaffected 'populations'.

Q7: Do you have any other comments on how the CAP 1616, Step 1B process has been conducted to date?

Notwithstanding our comments to the previous questions, we reserve our position in relation to future changes to Route 4 given that no information is currently available about the potential level of local impact. In reviewing Route 4, the airport will need to provide sufficient information for local stakeholders and residents in order to understand the amount and level of disturbance that may be experienced, including compared to the 'baseline' situation.

With regards to level of the engagement, we would also reiterate out comments from the previous engagement exercise that the short amount of time provided us to comment has provided challenges, particularly due to the overlap of the previous engagement exercise with local elections which has reduced member involvement.

In addition, we note that paragraph 150 of the CAP 1616 Guidance says that a key consultation requirement is that "meaningful material is available in a form that dose not require technical knowledge to understand it". In future rounds of consultation/ engagement, we would urge the airport to provide documents in non-technical language (or a glossary/ information boxes clearly explaining the technical language used).

Design Principles Review Response

Rusper Parish Council

Send to lgwairspace.rte4@gatwickairport.com

1 - Do you agree that London Gatwick Airport has developed its Route 4 Design Principles in full accord with the process detailed in CAP 1616, Step 1B?

No

Comments: Consideration has not been given to the total amount of aircraft noise from all routes (only routes 3 and 4), which does not give a fair representation of the noise suffered.

2 - Do you agree that the comprehensive list of Design Principles captures the specific areas of concern you have articulated in either a questionnaire or during participation in one of the focus groups?

N/A

3 - Do you broadly support our reasons for not including certain Design Principles in the short list? If not, please provide further comment.

N/A

4 - Do you believe any of the items selected for the shortlist of Design Principles are inappropriate selections? If so, please explain why.

Yes

Comments: More consultation should take place if you are proposing to fly new routes.

5 - Do you agree with the prioritisation that we have applied to the shortlist of Design Principles? If not, please add any comments and use Table 1 (page 6 of the attached Response document) to provide us with your preferred prioritisation.

No

Comments: Prioritisation as supplied by CAGNE is agreed by Rusper PC.

6 - Are there other Design Principles not included in the long list that you feel should be considered as candidates for the final shortlist? If so, please provide your comments.

Yes

Comments:

Newly designed routes and dispersal to stay within current NPR.

Noise of CCO to be considered.

Night flights to be banned.

7 - Do you have any other comments on how the CAP 1616, Step 1B process has been conducted to date?

No

YOUR LONDON AIRPORT Gatwick

Gatwick Route 4 Redesign of RNAV SIDs

Design Principles Review Response from Salfords and Sidlow Parish Council

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INVESTORS IN PEOPLE

Document Details

Reference	Description
Document Title	Gatwick Route 4 Redesign of RNAV SIDs
	Design Principles Review Response
Document Ref	71248 031
Issue	Issue 1 Final
Date	7th June 2019
Classification	

1 Responses

As one of our key stakeholders, London Gatwick Airport appreciates the time and effort you have invested in helping us to develop Design Principles to support the Route 4 airspace redesign project. We would now welcome any futher comments you may have to help us further develop the shortlist of Design Principles. These principles will serve as the framework against which detailed design work may commence. An opportunity for further involvement will be provided during the design work, and again during the formal consultation, which will include a much wider group of aviation and non-aviation stakeholders.

Please mark your response to each of the questions below add provide any additional comments you wish us to consider.

Send your completed document to lgwairspace.rte4@gatwickairport.com by 1700 hours on 28th June 2019.

Thank you for your continued support.

Question 1
Do you agree that London Gatwick Airport has developed its Route 4 Design Principles in full accord with the process detailed in CAP 1616, Step 1B?
Response ☒Yes ☐No
Additional Comments: We are trusting that this has happened.

Question 2
Do you agree that the comprehensive list of Design Principles captures the specific areas of concern you have articulated in either a questionnaire or during participation in one of the focus groups?
Response ☒Yes ☐No
Additional Comments: We are responding for Route 4 specific and not for any other airspace change.

Question 3
Do you broadly support our reasons for not including certain Design Principles in the short list? If not, please provide further comment.
Response ☐Yes ☒No
Additional Comments: Principle No 21 (Route 4 designs should remain within the existing NPR) should not be excluded. The reasons are contradictory

Question 4
Do you believe any of the items seleted for the shortlist of Design Principles are inappropriate selections? If so, please explain why.
Response ☒Yes ☐No
Additional Comments: The two principles relating to safety, which are your original Nos 1 and 7, are essential for safe aviation route planning and therefore should not be included as options.

Question 5
Do you agree with the prioritisation that we have applied to the shortlist of Design Principles? If not, please add any comments and use Table 1 on page 6 to provide us with your preferred prioritisation.
Response ☐Yes ☒No
Additional Comments: We have prepared the schedule of our priorities. We have 'disregarded' the safety aspects as mentioned above. Principle No 2 (our No 3) – given this a high priority because we believe dispersal should be allowed once aircraft have reached 4000 feet as in line with the legacy position. Principle 4 (our No 5) – clarity on previously unaffected locations should be defined. We have assumed this means areas which have never been affected by Route 4. Principle No 9 (our No 8) -we are not in favour of respite measures. Principle 15 - to limit wrap around turn to no more than 180 degrees will make sure the aircraft remain on the legacy route to the northern part of the NPR which is consistent with our priorty No 1 (your No 3).

Question 6
Are there other Design Principles not included in the long list list that you feel should be considered as candidates for the final shortlist? If so, please provide your comments.
Response ☐Yes ☒No
Additional Comments:

Question 7
Do you have any other comments on how the CAP 1616, Step 1B process has been conducted to date?

	Response ☐Yes ☒No
Additional Comments:	

Table 1 on the next page lists the Design Principles initially prioritised according to the volume of responses (greatest volume at the top of the list) returned in questionnaires and from comment during discussions at the recent focus groups.

If you agree that the Design Principles have been prioritised correctly, then please indicate this by marking the table with a comment.

If however, you believe an item should have a higher priority, then please use the right hand column to indicate this.

Prioritised No (a)	Design Principle (b)	Your priority (c)
1	Route 4 options will be designed safely with full regulatory compliance	17
2	Designs should be built to manage dispersion below 7,000 ft	3
3	New Route 4 designs should give due regard to the historic routings in use before 2012	1
4	Designs should seek to minimize overflight of previously unaffected locations	5
5	Designs will seek to avoid overflight of notified noise sensitive areas	9
6	Route 4 designs should seek to minimise the impact of adverse noise on the Surrey Hills AONB	10
7	Route 4 designs should consider neighbouring airports procedures to ensure adequate deconfliction	16
8	Routes should include an extended westerly climb profile before a later easterly turn	4
9	Designs should not include respite options that place routes over newly overflown populations	8
10	Overflight protections already contained in the UK AIP must be maintained	7
11	Route 4 procedures should follow M25 and A24 corridors where background noise already high	12
12	Designs should be built to concentrate dispersion below 7,000ft	15
13	Procedures should include RF legs	6
14	ARINC 424 coding must ensure aircraft follow the desired lateral and vertical paths	13
15	Routes should be designed to limit the wrap around turn to no more than 180°	2
16	Route 4 designs must consider FASI-S objectives and ensure alignment	11
17	Route 4 designs should not be constrained by the lateral dimensions of the existing NPR to 4,000ft	14

Table 1 - Stakeholder Prioritised Shortlist of Design Principles

Thank you for completing this table.

Tel: [redacted]

Email: [redacted]

SURREY
COUNTY COUNCIL

London Gatwick Airspace
Gatwick Airport Limited
Gatwick Airport
West Sussex
RH6 0PN

Environment &
Infrastructure Directorate
Spatial Planning & Policy
Team
Surrey County Council
County Hall
Kingston upon Thames
KT1 2DN

Emailed to: lgwairspace.rte4@gatwickairport.com

28 June 2019

Dear Sir or Madam

Surrey County Council's Response to Gatwick Route 4 Redesign of RNAV SIDs

Thank you for consulting Surrey County Council on the design principles for the redesign of Gatwick Route 4 RNAV SIDS. This letter comprises an officer response to the consultation. We have included our feedback in response to the questionnaire accompanying the document along with our response to the prioritised list of principles, as annexes 1 and 2, attached to this letter.

As a stakeholder in this consultation process, Surrey County Council's primary interest is the wellbeing of local communities and the minimisation of the impacts on residents of airport operations – particularly with regard to noise and air pollution.

In responding to consultations on airspace change, the council has consistently raised the issue of concentrated flight paths with no respite and we have also made it clear that we are opposed to operations that generate frequent aircraft overflights and high noise levels in areas previously not overflown.We therefore welcome the design principle that recognises the importance of respite from noise.

We recognise that community engagement is not strictly a matter relating to design principles, however we would stress that every effort must be made to ensure that Surrey communities likely to be affected are kept informed of future consultations on airspace change proposals at Gatwick Airport and that residents are given the opportunity to attend events local to them to enable their full participation.

It is understood from the recent consultation on the draft aviation Green Paper that the Government intends to produce a masterplan that will set out the airspace changes for all the areas affected and it is hoped that this will be made available during the later stages of the consultation process so that it is clear how these proposals fit in with the rest of the changes in the South East. It would seem important that the design principles meet those upon which Gatwick Airport has recently consulted as part of the Future Airspace Strategy Implementation – Soth (FASI-South).

Finally we would suggest that the Government's recent acceptance of the Climate Change Commissions recommendation to become "net zero" in terms of greenhouse gas emissions by 2050 is likely to present new challenges and potentially to have a significant impact on the aviation industry and on the design constraints for wider airspace design. Surrey County Council would like to know how you will be addressing these challenges and whether you would consider working with the County Council's surrounding Gatwick to set SMART objectives to achieve zero net carbon emissions by 2050.

Please contact [redacted] with any queries, either by telephone on 0208 541 9453 or by email at [redacted].

Yours sincerely

[redacted]

[redacted]

Spatial Planning and Policy Team Leader

Question 1
Do you agree that London Gatwick Airport has developed its Route 4 Design Principles in full accord with the process detailed in CAP 1616, Step 1B?
Response ☐Yes ☐No
Additional Comments: CAP1616 does not set detailed guidance on how to engage with local communities in the early stages and it is considered that GAL should not seek to meet the minimum requirements included in this document but should seek to achieve the maximum feasible engagement with local communities. It is very important that parish councils, resident associations and any other community groups are consulted on these proposals and given a reasonable deadline to respond. We also suggest that the neighbourhood planning groups are consulted. Contact details for all of these groups should be sought from the relevant borough and district councils.

Question 2
Do you agree that the comprehensive list of Design Principles captures the specific areas of concern you have articulated in either a questionnaire or during participation in one of the focus groups?
Response ☐Yes ☐No
Additional Comments: A concern is how these design principles once implemented will fit in with the wider Future Airspace Strategy Implementation – South (FASI-South) without being compromised in order to meet deconfliction objectives. Areas within Surrey are overflown from a number of airports and there is a need for collaboration and coordination and transparency to ensure that residents can understand the impact of other airports' airspace change proposals. On this basis, the principle prioritised as 14 is supported.

Question 3
Do you broadly support our reasons for not including certain Design Principles in the short list? If not, please provide further comment.
Response ☐Yes ☐No
Additional Comments: Community engagement remains a matter of concern in relation to the process of implementing airspace change. Night flights are also an issue of concern as any sensitivity to noise from revised flight paths is likely to be exacerbated for any communities overflown at night.

Question 4
Do you believe any of the items seleted for the shortlist of Design Principles are inappropriate selections? If so, please explain why.
Response ☐Yes ☐No
Additional Comments: The objective to “concentrate dispersion” is not fully understood and appears to be a contradiction in terms.

Question 5
Do you agree with the prioritisation that we have applied to the shortlist of Design Principles? If not, please add any comments and use **Error! Reference source not found.** on page 5 to provide us with your preferred prioritisation.
Response ☐Yes ☐No
Additional Comments:

Question 6
Are there other Design Principles not included in the long list list that you feel should be considered as candidates for the final shortlist? If so, please provide your comments.
Response ☐Yes ☐No
Additional Comments: As Government has accepted the CCC’s recommendation for the UK to become “net-zero” in terms of greenhouse gas emissions by 2050, it is suggested the design constraints may be affected in view of this target which will in turn affect the final design.

Question 7
Do you have any other comments on how the CAP 1616, Step 1B process has been conducted to date?
Response ☐Yes ☐No
Additional Comments: It is critically important for local communities to be properly engaged and to have the opportunity to respond and influence the decisions that can so significantly impact on their environment. Surrey County Council has received complaints from local residents about the intensification of overflights. This ususally occurs in areas that have previously not experienced significant aircraft noise.

Error! Reference source not found. **Design Principles**

N.B The County Council is unable to prioritise or rank options at this early stage as it is difficult to assess issues when there is little data available on the numbers of people to be affected by any potential proposals. We would however reiterate that we consider predictable respite from noise to be an essential piece of mitigation of existing and increased operations at Gatwick. We have indicated in the table below which design principles we support.

Prioritised No (a)	Design Principle (b)	Your priority (c)
1	Route 4 options will be designed safely with full regulatory compliance	Agree
2	Designs should be built to manage dispersion below 7,000 ft	Agree
3	New Route 4 designs should give due regard to the historic routings in use before 2012	Agree
4	Designs should seek to minimize overflight of previously unaffected locations	Agree
5	Designs will seek to avoid overflight of notified noise sensitive areas	Agree
6	Route 4 designs should seek to minimise the impact of adverse noise on the Surrey Hills AONB	Agree
7	Route 4 designs should consider neighbouring airports procedures to ensure adequate deconfliction	Agree
8	Routes should include an extended westerly climb profile before a later easterly turn	
9	Designs should not include respite options that place routes over newly overflown populations	What are these options?
10	Overflight protections already contained in the UK AIP must be maintained	Agree
11	Route 4 procedures should follow M25 and A24 corridors where background noise already high	Agree
12	Designs should be built to concentrate dispersion below 7,000ft	Not sure what this means
13	Procedures should include RF legs	It is unclear what this will achieve
14	ARINC 424 coding must ensure aircraft follow the desired lateral and vertical paths	
15	Routes should be designed to limit the wrap around turn to no more than 180°	
16	Route 4 designs must consider FASI-S objectives and ensure alignment	Agree
17	Route 4 designs should not be constrained by the lateral dimensions of the existing NPR to 4,000ft	

YOUR LONDON AIRPORT Gatwick

Gatwick Route 4 Redesign of RNAV SIDs

Design Principles Review Response

Document Details

Reference	Description
Document Title	Gatwick Route 4 Redesign of RNAV SIDs
	Design Principles Review Response
Document Ref	71248 031
Issue	Issue 1 Final
Date	7th June 2019
Classification	

1 Responses

As one of our key stakeholders, London Gatwick Airport appreciates the time and effort you have invested in helping us to develop Design Principles to support the Route 4 airspace redesign project. We would now welcome any futher comments you may have to help us further develop the shortlist of Design Principles. These principles will serve as the framework against which detailed design work may commence. An opportunity for further involvement will be provided during the design work, and again during the formal consultation, which will include a much wider group of aviation and non-aviation stakeholders.

Please mark your response to each of the questions below add provide any additional comments you wish us to consider.

Send your completed document to lgwairspace.rte4@gatwickairport.com by 1700 hours on 28th June 2019.

Thank you for your continued support.

Question 1
Do you agree that London Gatwick Airport has developed its Route 4 Design Principles in full accord with the process detailed in CAP 1616, Step 1B?
Response ☐ ☐No
Additional Comments: Some technical proposals have been added without explaining what they are and how they might affect design (short list 13). Also some proposals are inadequately worded so that their real meaning is unclear (short list 2, 12 and 15). Two proposal (3 and 4) have been disguarded because of a misunderstanding between ICAO CCO and the unrestricted climb at normal climb rate that the CNGs were requesting A further round of consultation is required following proper explanations of what these mean and their likely impact and also a review of the unrestricted climb suggestions. In addition more data is required to enable a proper evaluation of these proposals.

Question 2
Do you agree that the comprehensive list of Design Principles captures the specific areas of concern you have articulated in either a questionnaire or during participation in one of the focus groups?
Response ☐No
Additional Comments: (Numbering refers to the numbering in your Table 1 (Long List)) **2.** We do not understand the logic in selecting 2012 as a "historic date" even though you say before 2012, which could presumably include any date back to the 1960s. We strongly believe a historic date should be selected when the aircraft on this route followed the original SID design such as the 1996 route 4 flight path illustrated on GAL website (Aircraft noise & airspace-Airspace-Route 4-Route 4 historical information) when the majority of aircraft

tracked along the centre line of the NPR.

The PRNAV routing should replicate the flight paths within the NPR experienced in the 1990s

The aim should be that 100% of flights (other than aircraft experiencing emergencies) remain within the NPR and close to the centre line.

Many communities north of Gatwick are impacted significantly by route 3 north of route 4. Any movement north of the present route 4 would mean some communities would be even more impacted by the concentration of the two routes. This is unacceptable and would give them no respite at all from aviation noise from Gatwick Airport.

The Route 4 NPR should be retained in its present position. The NPR has been in place since the 1960s and local people have made significant investment decisions based on the fixed locations of NPRs and the historical flight paths along the centre line of the NPR. Any change to this principle would be unacceptable.

3. and 4. These reference Continuous Climb Operations. In our questionnaire response we were, as I suspect were other respondents, not referring to the ICAO defined CCO, but requesting a procedure whereby the current enhanced air traffic control technology could facilitate a continuous and unrestricted climb for departures, at normal climb rates, to 7,000ft or above.

The ICAO CCO procedures are not appropriate in the case of noise sensitive routings such as Route 4. You seem to have rejected this principle due to misunderstanding what was being suggested.

Your Question 4 in the Questionnaire (*Do you believe aircraft conducting continuous climb to higher altitude after taking off (where this is safe to do so) may improve (lessen) exposure to noise in your local area?*) was not explicit and did not reference the ICAO CCO procedures.

In addition, as we suggested in our response, it is essential that you provide comparative data on the noise level of aircraft at 4,000 flying level at say 250Kts and aircraft at various higher levels with climb power set, in order that we can make an informed decision and validate our intuitive opinion. We also have concerns that 4 engine aircraft, with their lower climb rates, may create more noise within the NPR with an unrestricted climb than two engine aircraft. We need data on this aspect and it may well be that some aircraft types need to be excluded from unrestricted climb departures.

9 and 21.

9 should read **-** ARINC 424 coding must ensure aircraft follow the desired lateral and vertical paths, routing aircraft along the centre line of the NPR.

21 should read - Route 4 designs should place the majority of aircraft on the center line and ensure that all aircraft remain within the existing NPR

Route 4 designs should follow the center line of the NPR and contain all aircraft within the existing NPR

In our response we said *The aim should be that 100% of flights, other than aircraft avoiding weather or experiencing emergencies, remain within the NPR. The NPR is 3 km in width and 100% compliance for PRNAV operation is a very realistic target.* We backed this up with a quote from a letter written by Tim May, Head of Airspace and Noise Policy, Aviation Directorate, D of T, in which he said with reference to NPRs "*With the implementation of PBN, we are expecting that track keeping compliance can increase to something closer to 100%, but there will always be occasions when aircraft fail to comply, including for legitimate reasons relating to safety."* We believe your design principle 9, although contributory to this aim, in itself is insufficient.

We also commented in our response on the effect of aircraft speed in the turn. This has not been addressed. I have copied our response below for reference.

The PRNAV procedure should be revised to place the majority of aircraft on the centre line of the NPR and not on the northern edge, as is currently the case. We believe that operating at 220Kts the majority of aircraft will be in the northern third of the NPR. In fact, we calculate that even an accurately flown continuous 25 degree bank angle turn at 220Kts in zero wind would place the aircraft approximately 550m north of the centre line. We believe that further consideration should be given to restricting operating speed until the turn is complete. Completing the turn at 190Kts would ensure that virtually all aircraft, under all wind conditions, would remain

easily within the NPR. The track distance covered during the turn would be approximately 34% less compared with a turn at 220Kts. If track distance is representative of numbers of houses overflown, then 34% fewer residents are affected by noise directly overhead during the turn at 190Kts vs. 220Kts. We would appreciate seeing accurately calculated data showing the end of turn position relative to the NPR centre line for a range of speeds and bank angles.

In the past the 190Kts turn option has been dismissed by the airlines on the basis of fuel efficiency and noise. We would appreciate seeing data from Airbus and Boeing detailing the differences between a 190kt climbing turn vs. a 220 Kt climbing turn on representative aircraft.

14 and 15. Design should reduce concentration as far as possible and should at least maintain the current dispersal around the turn.

17. This principle should only apply to locations outside of the NPR.

"Designs should seek to minimize overflight of previously unaffected locations **outside of the NPR."**

Question 3

Do you broadly support our reasons for not including certain Design Principles in the short list? If not, please provide further comment.

Response ☐No

Additional Comments: (numbering refers to long list)

3. See our comments in Q2 above. A key principle which would be a "win / win" for airlines and the environment is to have the vast majority of departing aircraft making an unrestricted climb at normal climb rates to 7000ft or above. You assertion that this would *'. keep aircraft at lower altitudes for longer.."* is based on the misunderstanding that what is being suggested is ICAO defined CCOs, and is therefore not a valid reason for not including a principle based on unrestricted climbs. We want to know if you intend to pursue discussions with Heathrow to raise the height of their flights so that unrestricted climbs can operate on Route 4. Failure to do this would be a significant missed opportunity. See also the answer to question 6

4. As in 3 above your assertion that this would result in a greater noise impact, is based on ICAO CCOs and not unrestricted climbs.

18. Whilst we accept that the Wizad SID is not within the scope of the Route 4 redesign and also cannot be flight planned due to arrival conflicts, we feel very strongly that with the increased traffic using Route 4, tactical use of the Routes 7, 8 and 9 should be used whenever possible to relieve the noise burden on residents under Route 4. Given the present navigation and surveillance technology available use these routes should be possible on a much higher percentage of occasions than in the past.

21. This principle should not be removed and it should replace shortlist principle 17. Your rather convoluted logic that argues that 21 is covered by 17 does not stand up to analysis. It's true that 17 allows for the possibility that the route could be within the NPR but this is weak and meaningless compared with the wording of 21 which is more explicit and in line with community thinking. Inclusion of principle 21 is also contradictory to your reason for rejecting long list principle 27.

27. We commented in our questionnaire response ***A key factor in all discussions, whether government or community, on the effects of aircraft noise is that of respite. Located under the flight paths of both Routes 3 and 4, residents represented by our organisation are affected by departure noise regardless of runway direction in use. The only communities that cannot be provided with respite are those on the extended centre line of single runway airports. That is not the case for residents north of Gatwick who suffer noise from both Routes 3 and 4, and increasingly from Heathrow departures.***

The fact that some communities suffer noise from more than one route, and this is not restricted to Routes 3 and 4, and from more than one airport is generally historic as this route structure was designed against a background of

conventional procedural navigation, communications and surveillance. Given the current technical standards this should be readdressed to provide respite to all residents, other than those on the centre line, by restricting noise impact to one route and / or airport.

Route 4 is the busiest Gatwick departure route and thus has a disproportionately large environmental impact. Gatwick should investigate if it is possible to reduce reliance on this route.

Question 4

Do you believe any of the items seleted for the shortlist of Design Principles are inappropriate selections? If so, please explain why.

Response ☐Yes

Additional Comments: (numbering refers to short list)

Principle 8 from the short list appears to imply considering turning the aircraft further west than currently. This is a very bad idea and should be rejected both because it takes planes outside the NPR and because it would take them over the Surrey Hills AONB.

Principle 11 of the short list is bizarre and has never to our knowledge been suggested as a possibility in all the years we have been campaigning. So it's very strange to find it suddenly introduced with no previous discussion. The A24 goes through the Holmwoods, Dorking and Leatherhead before it reaches the M25. It makes no sense at all to inflict more noise on all these densely populated areas.

Principle 13. Whilst we understand that defining the turn using an RF leg should provide more accurate tracking and capture of the NPR centre line, we need to be given data to demonstrate the effects this will have applied to Route 4 and in particular the effect of dispersion around the turn.

Principle 15 – we do not understand this principle. Although there is a 180 degree track change required for Route 4 departures, there will very often be a requirement to turn through more than 180 degrees in order to regain the Easterly departure route track with Southerly winds and inaccurately flown turns. As drafted this principle should be dropped, as it appears that aircraft would be required to flying along the northern edge of the NPR monitoring zone or even outside it. The consequence of this would be to take aircraft closer to more populated areas such as Reigate and Redhill.

Principle 17 of the short list undermines the concept of the NPR and should also be dropped. This has been the basis on which people have been able to determine, in advance of deciding to live in a particular location, the extent to which they are likely to be affected by departing aircraft. It is totally unreasonable for the industry to propose trampling all over this by attempting to remove this constraint.

Question 5

Do you agree with the prioritisation that we have applied to the shortlist of Design Principles? If not, please add any comments and use Table 1 on page 9 to provide us with your preferred prioritisation.

Response ☐No

Additional Comments:

So much change is required to the shortlist that it is hardly meaningful to rank it in its current state. This should form part of a further consultation with a more coherent list. We have therefore not attempted to prioritise the

current list.

Question 6

Are there other Design Principles not included in the long list list that you feel should be considered as candidates for the final shortlist? If so, please provide your comments.

Response ☐Yes

Additional Comments:

1. All departures should make an unrestricted climb to 7000 feet or above. Exceptions could be made based on specific aircraft type performance where this would create a negative effect on noise.
2. No single location should suffer noise from Route 4 in addition to any other Gatwick route or Heathrow route. This could also be considered as a proposed amendment to short list proposal 7. As currently drafted it seems to be solely concerned with the safety aspects of routes being close to each other. This is fine to include but consideration is also required as to the overall noise an area is expected to suffer. Where in the process is this managed? Who is responsible for deciding what's reasonable when more than one airport wants to fly over the same space? Clearly such issues need to be considered together rather than separately determining each airport's application

Question 7

Do you have any other comments on how the CAP 1616, Step 1B process has been conducted to date?

Response ☐Yes ☐No

Additional Comments:

See response to Question 6 about lack of overview of overall impacts on an area

Table 1 on the next page lists the Design Principles initially prioritised according to the volume of responses (greatest volume at the top of the list) returned in questionnaires and from comment during discussions at the recent focus groups.

If you agree that the Design Principles have been prioritised correctly, then please indicate this by marking the table with a comment.

If however, you believe an item should have a higher priority, then please use the right hand column to indicate this.

Prioritised No (a)	Design Principle (b)	Your priority (c)
1	Route 4 options will be designed safely with full regulatory compliance	
2	Designs should be built to manage dispersion below 7,000 ft	
3	New Route 4 designs should give due regard to the historic routings in use before 2012 (1996)	
4	Designs should seek to minimize overflight of previously unaffected locations	
5	Designs will seek to avoid overflight of notified noise sensitive areas	
6	Route 4 designs should seek to minimise the impact of adverse noise on the Surrey Hills AONB	
7	Route 4 designs should consider neighbouring airports procedures to ensure adequate deconfliction	
8	Routes should include an extended westerly climb profile before a later easterly turn	
9	Designs should not include respite options that place routes over newly overflown populations	
10	Overflight protections already contained in the UK AIP must be maintained	
11	Route 4 procedures should follow M25 and A24 corridors where background noise already high	
12	Designs should be built to concentrate dispersion below 7,000ft	
13	Procedures should include RF legs	
14	ARINC 424 coding must ensure aircraft follow the desired lateral and vertical paths	
15	Routes should be designed to limit the wrap around turn to no more than 180°	
16	Route 4 designs must consider FASI-S objectives and ensure alignment	
17	Route 4 designs should not be constrained by the lateral dimensions of the existing NPR to 4,000ft	

Table 1 - Stakeholder Prioritised Shortlist of Design Principles

Thank you for completing this table.

YOUR LONDON AIRPORT Gatwick

Gatwick Route 4 Redesign of RNAV SIDs

Design Principles Review Response

GATWICK AIRPORT LIMITED, DESTINATIONS PLACE, GATWICK AIRPORT, WEST SUSSEX, RH6 0NP
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INVESTORS IN PEOPLE

Document Details

Reference	Description
Document Title	Gatwick Route 4 Redesign of RNAV SIDs
	Design Principles Review Response
Document Ref	71248 031
Issue	Issue 1 Final
Date	7th June 2019
Classification	

1 Responses

As one of our key stakeholders, London Gatwick Airport appreciates the time and effort you have invested in helping us to develop Design Principles to support the Route 4 airspace redesign project. We would now welcome any futher comments you may have to help us further develop the shortlist of Design Principles. These principles will serve as the framework against which detailed design work may commence. An opportunity for further involvement will be provided during the design work, and again during the formal consultation, which will include a much wider group of aviation and non-aviation stakeholders.

Please mark your response to each of the questions below add provide any additional comments you wish us to consider.

Send your completed document to lgwairspace.rte4@gatwickairport.com by 1700 hours on 28th June 2019.

Thank you for your continued support.

Question 1
Do you agree that London Gatwick Airport has developed its Route 4 Design Principles in full accord with the process detailed in CAP 1616, Step 1B?
Response ☐Yes ☐No
Additional Comments: No Comments

Question 2
Do you agree that the comprehensive list of Design Principles captures the specific areas of concern you have articulated in either a questionnaire or during participation in one of the focus groups?
Response ☐Yes ☐No
No comments

Question 3

Do you broadly support our reasons for not including certain Design Principles in the short list? If not, please provide further comment.

Response ☒Yes ☐No

Additional Comments:

Broad support. However, it is considered that further explantion is needed as to why numbers 3, 4 and 23 are not included in the final shortlist, particularly in relation to any benefits they may bring in terms of noise minimisation/reduction.

It is also noted that numbers 24, 26 and 27 did not make the shortlist. There will be the need to seek to optimise solutions that deal with noise and pollution.

Question 4

Do you believe any of the items seleted for the shortlist of Design Principles are inappropriate selections? If so, please explain why.

Response ☐Yes ☒No

Additional Comments:

Question 5

Do you agree with the prioritisation that we have applied to the shortlist of Design Principles? If not, please add any comments and use Table 1 on page 7 to provide us with your preferred prioritisation.

Response ☐Yes ☐No

Additional Comments:

Unable to comment in detail but note that there appears to be an overlap and possible conflict between numbers 2 and 12 on the prioritised list.

Question 6
Are there other Design Principles not included in the long list list that you feel should be considered as candidates for the final shortlist? If so, please provide your comments.
Response ☐Yes ☐No
Additional Comments: Not technically able to comment

Question 7
Do you have any other comments on how the CAP 1616, Step 1B process has been conducted to date?
Response ☐Yes ☐No
Additional Comments: Not technically able to comment

Table 1 on the next page lists the Design Principles initially prioritised according to the volume of responses (greatest volume at the top of the list) returned in questionnaires and from comment during discussions at the recent focus groups.

If you agree that the Design Principles have been prioritised correctly, then please indicate this by marking the table with a comment.

If however, you believe an item should have a higher priority, then please use the right hand column to indicate this.

Prioritised No (a)	Design Principle (b)	Your priority (c)
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17	Route 4 designs should not be constrained by the lateral dimensions of the existing NPR to 4,000ft	

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Thank you for completing this table.

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Please mark your response to each of the questions below add provide any additional comments you wish us to consider.

Send your completed document to lgwairspace.rte4@gatwickairport.com by 1700 hours on 28th June 2019.

Thank you for your continued support.

Question 1
Do you agree that London Gatwick Airport has developed its Route 4 Design Principles in full accord with the process detailed in CAP 1616, Step 1B?
Response ☒Yes ☐No
Additional Comments: Step 1B requires that the sponsor has up to date knowledge of local plans whilst developing design principles. The Council's Local Plan: 2033 sets out future land allocations for development in Tandridge District and can be found on the Council's website. An Infrastructure Delivery Plan has also been published to sit alongside the Local Plan and sets out more on anticipated delivery for schools, medical services and residential development. https://www.tandridge.gov.uk/Planning-and-building/Planning-strategies-and-policies/Local-Plan-2033-emerging-planning-policies/Local-Plan-2033/Examination-library In the absence of being able to understand the scale of change resulting from this re-design, it is not possible to highlight specific locations that will be of key concern at this time. However, particular attention is drawn to the proposed allocation of land at South Godstone (Strategic Policy SGC01 'South Godstone Garden Community').

Question 2
Do you agree that the comprehensive list of Design Principles captures the specific areas of concern you have articulated in either a questionnaire or during participation in one of the focus groups?

	Response ☒Yes ☐No
Additional Comments: N/A	

Question 3
Do you broadly support our reasons for not including certain Design Principles in the short list? If not, please provide further comment.
Response ☒Yes ☐No
Additional Comments: The rationale behind non inclusion of certain design principles is understood.

Question 4
Do you believe any of the items seleted for the shortlist of Design Principles are inappropriate selections? If so, please explain why.
Response ☐Yes ☒No
Additional Comments: N/A

Question 5
Do you agree with the prioritisation that we have applied to the shortlist of Design Principles? If not, please add any comments and use Table 1 on page 6 to provide us with your preferred prioritisation.
Response ☒Yes ☐No
Additional Comments: N/A

Question 6
Are there other Design Principles not included in the long list list that you feel should be considered as candidates for the final shortlist? If so, please provide your comments.
Response ☐Yes ☒No
Additional Comments:

N/A

Question 7
Do you have any other comments on how the CAP 1616, Step 1B process has been conducted to date?
Response ☐Yes ☒No
Additional Comments: No specific comments, however given the early stage of this process and lack of clarity surrounding specific impacts of the route change, Tandridge District Council reserve the right to raise issues and matters surrounding route changes, design principles and anything else that may be relevant, throughout the process.

Table 1 on the next page lists the Design Principles initially prioritised according to the volume of responses (greatest volume at the top of the list) returned in questionnaires and from comment during discussions at the recent focus groups.

If you agree that the Design Principles have been prioritised correctly, then please indicate this by marking the table with a comment.

If however, you believe an item should have a higher priority, then please use the right hand column to indicate this.

	Prioritisation noted and agreed	
Prioritised No (a)	Design Principle (b)	Your priority (c)
1	Route 4 options will be designed safely with full regulatory compliance	
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