Shaping the future: London Gatwick's Route 4 Airspace Change

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LONDON GATWICK

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1 Background and the need for change

1.1 Why do you need to transition to a satellite-based system?

The upgrade to satellite-based navigation is a long-term strategic requirement as outlined in the Government's Airspace Modernisation Strategy; thus, all UK airspace will eventually have to comply with this requirement as the existing ground-based navigation technology currently serving Route 4 is being phased out.

Failure to adopt satellite-based navigation procedures on Route 4 would, barring Government or CAA intervention, result in aircraft being unable to utilise this departure route once the ground beacons supporting the Route 4 conventional procedure are decommissioned. This would be an unacceptable outcome if the integrity of the London Gatwick operation is to be maintained.

You can read more about this in Chapter 1 of our Main Consultation Document.

1.2 What was the historical preferential route?

All the background information to Route 4, including the flight path, the historic challenges with the route, and what is flown today can be found within our Main Consultation Document - Chapters 1 to 3.

1.3 Is the intention to increase the number of flights?

No, our intention is not to increase the number of flights. Our Full Options Appraisal (FOA) assessed a range of criteria, one of which included the assessment of impact to capacity and resilience. The outcome of the FOA indicates that none of the shortlisted options will increase or decrease the capacity on this route when compared to the current day operations.

2 Route design and the four options

2.1 How does this proposal differ from the historical route flown on Route 4, and how does it differ from the RNAV (Satellite) route temporarily introduced in 2016?

All shortlisted options have been designed to remain as close as possible to, or within, the published Noise Preferential Route (NPR) conformance monitoring swathe, thereby aiming to minimise the number of newly overflown residents. An NPR is a track line on a map which aims to minimise the number of people overflown by departing aircraft. NPRs are set by the Government and have existed since the late 1950s, when the airports were in public ownership. NPRs are not within the scope of this consultation.

Differences between conventional and satellite-based navigation standards mean it is not possible to replicate historical procedures precisely.

Two of the options seek to replicate existing procedures:

1. Option A reflects the current procedure as closely as possible; and
2. Option D replicates the 2016 procedure as closely as possible.

3. The other shortlisted options provide variations on the current procedure, either aiming to keep more traffic in the turn within the NPR swathe (Option B) or aiming to increase dispersal of traffic systematically and to reduce the occurrence of direct overflight (Option C).

If you would like to learn more about the history and design principles of the Route 4 options, please refer to Chapters 2, 3 and 4 of the Main Consultation Document.

2.2 You said Option D replicates a 2016 route. Was that 2016 route the route that was historically withdrawn due to legal challenges?

Yes. That route was part of the previous airspace change which was withdrawn following a legal challenge of the process used to introduce that procedure.

However, this is a completely new airspace change process, which complies with the CAP1616 v5. We have included this option (Option D) since it is a valid flight procedure that has been flown in the past and provides an additional option for consideration.

2.3 Is there any reason Route 4 cannot track the M25 (far less tight turn) where noise would be much less of an issue?

Yes. The airspace to the north of Gatwick is constrained by other routes and London airports flying above Route 4.

Positioning the route further north to track the M25 would interfere with these existing airspace structures and operations, which we are required to avoid.

2.4 If the main aim is to stay as close to the current route, then shouldn't Option A be most preferred, and Option D the least preferred?

One of our design principles – as agreed with stakeholders at earlier stages of this airspace change process – is to stay within or close to the current Noise Preferential Route. However, that is not the only factor to consider, we have a total of nine design principles that have helped us design the options.

As part of the preparation for this consultation, we have assessed the four options using the Government's Transport Analysis Guidance (TAG), which ultimately provides a monetary value to compare the positive or negative impacts of each option by looking at factors such as noise and emissions. In this case, Option D performed the best and it was therefore selected as the 'preferred option' for the purpose of this consultation.

The full list of design principles can be found at Table 2, in Chapter 2 of the Main Consultation Document. The assessment results and outcomes can be found in Chapters 5, 6 and 7.

2.5 Which of the four options flies over the least densely populated areas overall?

Based on the detailed overflight assessment, conducted by the Environmental Research and Consultancy Department (ERCD) of the CAA and the Transport Analysis Guidance (TAG) results, Option D performs best regarding noise, which indicates it overflies or impacts the fewest people.

Our population data is based on updated 2021 census supplied by CACI ltd, which includes known future housing developments and population expansions.

2.6 When you refer to the Route 4 Noise Preferential Route (NPR) as a constraint on the option design, are you referring to the NPR centreline or the wider NPR 'swathe'?

An NPR is a track line on a map which aims to minimise the number of people overflown by departing aircraft. NPRs are set by the Government and have existed since the late 1950s, when the airports were in public ownership. In 1991, a buffer extending 1.5km to each side of the NPR centreline was introduced to help assess track-keeping, providing a conformance monitoring swathe of 3km. NPRs are not within the scope of this consultation.

London Gatwick has – via the agreed Design Principles for this ACP outlined in Section 2 of the Main Consultation Document – committed to only progressing designs which remain within, or as close to, the current NPR swathe while dispersing traffic as much as possible within the swathe.

2.7 Why does only one of the options give dispersion on the turn?

All four options have been designed so that there will be some degree of dispersion during the initial turn. The extent of dispersal is defined by the RNAV technology that the new route procedures will employ, in that satellite- based navigation is more precise and tends to concentrate flight paths on or around the nominal centreline.

Despite this, all four options are aiming to create as much dispersal as they can (within the RNAV design capabilities) by using 'course to fix' instructions within the initial turn phase, rather than 'radius to fix'. This means an aircraft's Flight Management System (FMS) will determine how the aircraft will fly the turn to ensure it arrives at the next waypoint on the correct heading that the aircraft must maintain upon reaching the waypoint. This ensures a degree of dispersion during the turn as each aircraft's FMS will fly the turn in a slightly different way.

Option C is looking to maximise dispersion by offering three separate turn tracks in the design which converge after the turn, thereby extending the flyable area and providing dispersion and respite to some overflown populations. This option increases variability in flight paths, but this variation will need to take place at pre-agreed periods for safety and operational reasons.

2.8 Why did London Gatwick not produce an option with a much larger dispersal to make it fairer on overflown communities?

One of the key design requirements for this ACP is that any new options should avoid overflying communities not previously overflown by Route 4. In line with feedback from stakeholders and community representatives, we have sought to disperse traffic as much as possible - within, as far as possible, the Route 4 Noise Preferential Route 3km conformance monitoring swathe - to provide periods of respite for overflown communities. Specifically, Option C looks to maximise dispersion by offering three separate turn tracks in the design which converge after the turn, thereby extending the flyable area and providing dispersion and respite to some overflown populations.

2.9 Why do the options all look so similar?

The four options presented as part of this public consultation have been shortlisted from a longer set of options that were designed and developed during an earlier stage of the airspace change process. The four options taken forward to this stage have been shortlisted because they are compliant with the regulatory requirement of Route 4 to be aligned with the Noise Preferential Route

(NPR) and most closely align with the design principles agreed with stakeholders and community representatives engaged with during earlier stages of the process. Other options have been discounted because they did not align with stakeholder feedback or did not meet one or more of the agreed design principles. You can learn more about the earlier stages of the process, including the longlist of options developed previously in the Design Principles Evaluation at Route4ACP.co.uk. To explore the four shortlisted options in more detail and overlay each option to enable a comparison to be made, you can use our address look-up tool, which is available **here**.

3 Flight operations and track keeping

3.1 Will the satellite-based system mean that aircraft fly the exact same route every time?

Satellite-based navigation is inherently more precise and therefore tends to result in increased concentration of traffic around the published route track. This has a mixed effect of potentially increasing the overflight of communities or locations directly under the flight path, while reducing overflight of locations around the path.

In earlier stages of this process, we agreed a set of design principles with local stakeholders. One of those principles is to disperse aircraft around the nominal track as much as possible - within the constraints of RNAV design - to provide respite in the initial turn phase of the route. We have included that optionality within all our shortlisted options - you can read more about the options and the reason each option has been designed the way it has - in Chapters 2 to 4 of the Main Consultation Document (Table 2 is the full list of the Design Principles), and the Full Options Appraisal.

3.2 Won't this make flights more concentrated, surely this will increase impact on overflown communities?

Most of the aircraft currently using Route 4, fly them using satellite-based navigation. Therefore, our expectation is that the overall impact would remain broadly the same.

We have also responded to the feedback received from stakeholders to date, many of whom have expressed a preference for greater dispersion of aircraft to avoid excessive concentration. All options have a level of dispersion built into the 180° turn, plus Option C is looking to maximise dispersion by offering three separate turn tracks in the design which converge after the turn, thereby extending the flyable area and providing dispersion and respite to some overflown populations.

3.3 Why should we believe the proposed routes shown in your four options when a high proportion of planes fail to comply with the current NPR?

The current Noise Preferential Route (NPR) is aligned with the conventional procedure. The ability of aircraft to follow a route set out in the published procedures is affected by a range of factors leading to dispersion. For some aircraft, it is technically impossible to fly such tight turns, while for others, safety or weather-related considerations can introduce dispersion. This is why, in our depictions of the routes, we show a shaded dispersion range indicating where aircraft may be expected to fly when accounting for these external factors.

With the above in mind, satellite-based (RNAV) designed, published and flown procedures increase track-keeping conformance with the published track. RNAV procedures come with additional flight information, published in the procedure related coding tables, which further serve to achieve consistency in how the route is flown. This was evidenced with Route 4 operations between 2016 and 2019, when NPR conformance on the route was the highest on record (86%+ vs. current, conventional 65%).

3.4 If you know a turn is 'tight', won't this mean the airlines are simply more likely to fail to closely follow the route from day one?

The new route is not wholly about ensuring that aircraft are able to follow the designed route as closely as possible, especially as feedback received from many stakeholders expressed a preference for greater dispersion of aircraft to avoid excessive concentration. There are a range of factors, technical, operational, environmental and otherwise which have determined the design and selection of the shortlisted options.

3.5 In your animations, why doesn't your example plane fly within the shaded zone which you explained is where the majority of planes will fly?

The line in the animation represents the "instruction" or nominal route the aircraft systems are programmed to fly. The shaded zone represents the modelled dispersion range that aircraft will likely fly due to variables like weather, aircraft weight and aircraft flight characteristics. In the turn, aircraft cannot always follow the centreline perfectly. The aircraft itself is an animated 3D demonstration, showing the design altitude as well as the direction of flight – this is why it may appear as if it is 'outside' the shaded zone. Instead, the aircraft is vertically above the centreline as indicated by the curtain following the aircraft.

For Option D, the shaded dispersion area sits slightly beyond the line because the turn is very tight, meaning aircraft may naturally drift outward, slightly wide of the instruction. The animation shows the designed route (the instruction), while the shading shows the likely real-world outcome.

3.6 In respect of dispersion, what variance in distance is available to flights operating within each of the shaded zones for each option?

The shaded zones are not a "usable range" or a fixed corridor of available airspace. They are a projection generated by a fast-time simulation model. They demonstrate where aircraft are likely to be, given variations in conditions (e.g., weather, aircraft weight and aircraft flight characteristics) rather than a defined distance available to pilots.

3.7 Why are the media illustrations and online maps not true to what is flown; they do not show that the route vectors (turns) southeast?

All the maps accurately depict the published departure route instructions that pilots are required to follow up to 4,000ft. However, once aircraft climb above 4,000ft, they are deemed to be clear of the Noise Preferential Route (NPR) and may be instructed to vector (turn) away from the published procedure. Above 4,000ft altitude, air traffic control (ATC) may vector aircraft to direct them to their final destination, allowing them to climb more efficiently or to ensure safe separation from other traffic. Consequently, the actual flown tracks may vary and diverge from the defined procedure shown on the consultation maps as aircraft climb above 4,000ft. This consultation concerns the published departure procedure itself, not the ATC vectoring practices. Nevertheless, it should be

noted that vectoring may deliver positive environmental and noise outcomes if conditions allow, by enabling earlier climb to higher altitudes (noise reduction) or offering more direct paths to destinations (emissions reduction).

3.8 How are you accounting for vectoring in your assessments?

Vectoring (the process by which Air Traffic Control (ATC) direct aircraft away from a published procedure) typically happens above 4,000 feet or once aircraft have left the Noise Preferential Route (NPR).

Existing vectoring practices will continue regardless of this proposal. Vectoring is a standard practice where ATC gives specific heading instructions to pilots, rather than the pilot following the published automated route. ATC often intervene to improve efficiency or safety. For example, they might vector an aircraft to steer it slightly away to maintain safe separation from other aircraft.

For our assessments, we applied the same level of dispersion due to vectoring to the baseline and all shortlisted options, using 10 years of historical data, to ensure a fair comparison.

3.9 How often does vectoring happen?

Vectoring means giving an aircraft specific headings using an Air Traffic Services surveillance (or radar) system. It is carried out on an ad-hoc basis under the direction of air traffic controllers. Aircraft are usually vectored for safety, to avoid weather, to sequence traffic, or for operational efficiency when flying above 4,000 ft to help them climb more efficiently or follow a more direct route that can reduce emissions. Once an aircraft is vectored, it leaves its published route and continues towards its destination under this direct guidance by Air Traffic Control.

3.10 What contingency navigation arrangements will be in place to ensure safe operations if satellite-based navigation is disrupted or lost during and after the phase-out of ground-based navigation aids?

The aviation industry is conscious of the vulnerability of satellite-based navigation to disruption – whether from radio frequency interference, space weather effects, or wider systemic outages – and Government policy is to retain contingency capability. For example, the Civil Aviation Authority (CAA) - the UK's airspace aviation regulator - has published guidance (CAP1428) to flight operators and other industry stakeholders on the likely impacts of space weather on aviation.

In the event of Global Navigation Satellite Systems (GNSS) being lost, there are established alternatives based on other technologies which can support aircraft to safely navigate at cruising altitude, arrival/departure, and on the ground. Reports of GNSS interference have increased in recent years, and the CAA has set out recommended actions for airlines to maintain the integrity of navigation during any potential outages.

By way of an example, the CAA's CAP1926 publication sets out contingency arrangements for pilots/operators in the event of a loss of GNSS.

3.11 Is Option C the only option that offers dispersal during the turn?

No. All four options introduce some level of dispersal because they use a navigation method known as "course to fix", rather than "radius to fix". This means aircraft may follow slightly different flight paths rather than a single precise curved track.

However, Option C is the only option that includes three separate turning paths, which converge after the turn. The purpose is to extend the dispersal in the turn as much as possible within the constraints / capabilities of satellite-based navigation standard. For safety and operational reasons, these three turning paths would not all be used at the same time.

3.12 Will the tighter turn in Option D make it more difficult for aircraft to fly?

No. The procedure has been designed to ensure that aircraft can safely and reliably follow the route. It is worth noting that the procedure has been flown before, between 2016 and 2019.

Modern aircraft use advanced flight management systems that enable them to fly precise flight paths. The turn proposed in Option D is within normal operational limits for aircraft departing from London Gatwick.

As with all flight procedures, the route would need to meet the safety requirements set by the Civil Aviation Authority before it could be implemented.

3.13 Has London Gatwick been testing any of the new routes recently?

No. London Gatwick does not yet have formal approval to implement any of the routes presented as part of this public consultation. Currently, aircraft flying Route 4 are following the current conventional procedure, published in the Aeronautical Information Publication (AIP). Before any changes to airspace design for Route 4 can be implemented, London Gatwick must complete the airspace change process and receive formal approval from the CAA. You can learn more about the airspace change process and where London Gatwick is in the process **here**.

3.14 Given the move to more accurate forms of satellite-based navigation, why can planes not follow the centreline for each route option precisely?

Satellite-based navigation is inherently more precise and therefore tends to result in increased concentration of traffic around the published route track. This has a mixed effect of potentially increasing the overflight of communities or locations directly under the flight path, while reducing overflight of locations around the path. In line with feedback from stakeholders and community representatives received during earlier stages in the process, many of whom expressed a preference for greater dispersion of aircraft to avoid excessive concentration, we have sought to disperse traffic as much as possible in the turn. There are also operational factors that impact the performance of aircraft like weather, aircraft type and weight, which sometimes mean that aircraft are not able to fly the centreline for each option precisely.

3.15 Why have you described the turn as 180 degrees northwards?

The use of the word northwards was to simply and clearly distinguish from initial turns to the south.

4 Noise, environmental impacts and data

4.1 Where can I find more information about the noise impacts for the four options?

Chapter 4 of the Main Consultation Document sets out each of the four options we are consulting on, including the geographical differences between the options. This is shown visually with both

the departure route nominal track and the expected flight track dispersal area included. We also have tools on our website with more information:

1. We have an animated video which brings together all four options, and we have four standalone videos which help explain each of the options in more detail.
2. We also have a postcode look up tool which illustrates the different impacts of each option relative to a specific location.

Chapter 5 details the process followed to assess each of the shortlisted options against the baseline, while Chapters 6 and 7 show the relative impact of each option vs current day as well as the conclusions and preferred option recommendation resulting from the assessment.

4.2 Where is the historical Noise Preferential Route corridor, and what areas have been historically impacted?

The Noise Preferential Route (NPR) is a track line on a map established by the Government to minimise the number of people overflown by departing aircraft. These routes have existed since the late 1950s, and for Route 4, the NPR replicates the published conventional procedure and terminates at 4,000ft altitude. Once aircraft climb above this altitude, they are deemed to be clear of the NPR and may be vectored at the discretion of Air Traffic Control.

In 1991, a buffer extending 1.5km to each side of the NPR nominal centreline was introduced to help assess track-keeping, providing a conformance monitoring swathe of 3km. This was intended to prevent aircraft from departing the published procedure below 4,000ft altitude and to provide communities with reassurance on where departing aircraft could be expected.

Historically, the route heads west before turning north and east, flying in the vicinity of South Holmwood, Leigh, Redhill and Reigate before continuing towards their destination. Full background information on the evolution of Route 4 can be found in Chapters 1 to 3 of the Main Consultation Document.

4.3 Is London Gatwick reviewing the Noise Preferential Route (NPR) as part of this consultation?

No. Noise Preferential Routes (NPRs) are set by the UK Government through the Department for Transport and are not part of this public consultation.

An NPR is a track line on a map that departing aircraft are required to follow, where possible, in order to keep the aircraft on or around the published route and minimise the number of people overflown. NPRs have been in place since the late 1950s when major UK airports were publicly owned, and they continue to be an important noise management measure.

Following engagement with the community stakeholders during Stage 2 of this airspace change, we have aimed to keep the Route 4 shortlisted options within the currently published NPR monitoring swathe as much as possible.

Following the eventual implementation of a route as result of this airspace change, we expect that the DfT will review the published NPR to align with the published RNAV route.

4.4 What will the noise shadow be from this concentrated route?

Satellite-based navigation is inherently more precise than conventional navigation and therefore, depending on the design, tends to result in an increased concentration of traffic along the published route. It potentially increases the overflight of communities or locations directly under the flight path,

while reducing overflight of locations around the path that were historically affected by the wider dispersion of conventional navigation – this is particularly relevant along straight segments of the route.

Aircraft systems cannot always follow the centreline of a route perfectly, particularly in the turn. Chapter 4 of the Main Consultation Document sets out each of the four options, showing the track and the modelled dispersion range where aircraft may naturally drift outward, slightly wide of the designed centreline, showing the likely real-world dispersion effect.

We recognise that an aircraft doesn't need to be directly overhead for someone on the ground to feel it is flying over them or to experience noise from it. The Civil Aviation Authority (CAA) has set the criteria for what counts as an overflight (CAP1498) and how aircraft noise should be assessed as a result. We have used these criteria to evaluate the noise impact of each option.

Our online tools, including an animated video, bring together all four options to further illustrate variances in track and noise impact.

4.5 Can you elaborate with regards to the specific factors that cause the changes in noise, emissions and fuel burn and why they differ from option to option.

The inputs for the modelling (aircraft types, destinations, numbers) are identical for all options. The differences arise from the geometry of the turn in each option thus potentially avoiding some densely populated areas (also potentially affecting others).

For example, Option D is further south and involves a tighter turn. To achieve this, aircraft flight management systems may use different power and flap settings compared to the northern options, resulting in different noise and fuel burn outcomes.

4.6 Where does the noise data used come from?

The noise data presented in this consultation is produced using the UK civil aircraft noise model known as ANCON. This model is developed and maintained by the Civil Aviation Authority (CAA), the UK's aviation regulator.

To calculate the impact, the ANCON model compares noise exposure against estimates of the number of people and households within the survey area, as well as noise-sensitive buildings like hospitals. Population data is taken from the latest 2021 Census information. The number of people experiencing exposure to noise is then evaluated for impacts on health and quality of life using the Department for Transport's aviation noise Transport Analysis Guidance (TAG) workbook.

For the specific baseline of this proposal, noise exposure from air traffic was measured over the busy 92-day summer period.

4.7 How do you know the assumptions in the model are accurate?

All the technical information presented in the consultation materials uses the most up-to-date data available, with modelling carried out in line with best practice. The noise contours are produced using the UK civil aircraft noise model (ANCON version 2.4), which is developed and maintained by the Civil Aviation Authority (CAA), the UK's aviation regulator.

To ensure the model reflects real-world outcomes as accurately as possible, our route depictions include a shaded dispersion area generated by a fast-time simulation model. This projection

accounts for specific variable factors like weather conditions, aircraft weight, and aircraft flight characteristics, all of which influence an aircraft's ability to remain precisely on the published track.

The baseline noise exposure was established by measuring anticipated 2027 and 2036 air traffic over the busy 92-day summer period.

4.8 Could you please provide waypoint coordinates (latitude and longitude) for Option D?

The latitude and longitude coordinates for Option D can be found in the Route 4 ACP Coding Table. Please note that while satellite-based navigation design utilises these coordinates, the waypoints act as part of a sequence. Each waypoint type includes specific instructions about how the aircraft should pass it, turn at it, or use it to shape its trajectory. This means that even if two waypoints have identical coordinates, the flight path they produce can differ depending on how the waypoint is coded.

4.9 For the monetary cost benefit/disbenefit work on noise, does this assessment include N60 and N65 data or is it just based on Leq contours?

In accordance with CAP1616i: Environmental Assessment Requirements and Guidance for Airspace Change Proposals, the monetary cost benefit / disbenefit on noise is solely derived from the LAeq average noise contours.

CAP1616i defines 'Continuous Noise Levels (LAeq) and Contours' as primary noise metrics whilst the 'Number Above Contours' (N65 daytime and N60 night-time) are referred to as secondary noise metrics. In full compliance with the requirements of CAP1616i, only the primary noise metrics have been used to assign the monetary values for the change in the various health impacts.

4.10 With the Leq contours did you just model down to 51 dB in the day and 45dB at night or did you go lower?

In line with the CAP1616i definitions, the LAeq contours were solely modelled down to 51dB in the day (0700 – 2300 (16h)) and 45dB in the night (2300 – 0700 (8h)). This data was modelled by the CAA's Environmental Research and Consultancy Department (ERCD) and is representative of an average summer day/night.

4.11 What is the difference between LAeq and N60/N65?

The LAeq metric represents the average noise level over a defined period, such as the standard 16-hour daytime assessment window, and provides an overall picture of the general noise environment. In contrast, the N60 and N65 metrics count the number of individual aircraft noise events that exceed 60 dB at night or 65 dB during the day. While LAeq smooths all noise into a single average value, N60 and N65 highlight how often noticeable noise events occur, offering a clearer understanding of the concentrated impact of aircraft noise on communities.

4.12 Do the NPV (£) figures in the analysis mean that Gatwick benefits most (financially) from Option D?

As shown in the consultation materials, there is no difference in the operational or deployment costs of any of the options to London Gatwick. The financial figures noted in the appraisal

process are solely for sake of enabling a like for like comparison to be made by using standardised metrics.

The NPV (Net Present Value, £) figures represent an aggregated monetary impact, by the proposed changes, on users, the environment and wider society. NPVs are used to compare different options on a consistent basis, to understand their overall economic value, and support transparent, evidence-based decision-making This is standard practice for projects of this kind and accords with the Department for Transport's Transport Analysis Guidance (TAG), which all airspace change proposals must use when assessing the impact of airspace design options.

4.13 Given Option D is a tighter turn, does it not result in more fuel burn as aircraft will need to use additional thrust to make the tighter turn and climb more quickly? This appears to conflict with the results of the options appraisal process which suggests that Option D will result in the least impacts in terms of fuel burn and CO2 emissions of the four options?

The tighter Option D design was included in response to earlier engagement feedback and was designed to also generate dispersion in the turn, again in accordance with the design principles and earlier stakeholder feedback. Although the design appears tighter, the actual track flown over the ground will be determined by the way individual aircraft Flight Management Systems interpret the coding of KKW02 and WPT09 to get the aircraft back on to track following the turn. The actual track flown will therefore be within the modelled, green-shaded dispersal area, as shown at Figure 11 within the Consultation Document.

Attempting to fly the dark green design line would result in increased power to cope with a tighter turn. However, to ensure a logical consistency when comparing options, the fuel burnt calculation was completed by considering design track distance for each option as a proxy for fuel burnt. It is accepted that the fuel burn calculation is sensitive to the actual track distance flown, and small distance differences across the options will result in large total figures when multiplied up by the volume of fuel burn for each aircraft movement. Ultimately, at these lower altitudes, and in line with Government guidance, the predominant environmental consideration has to be noise; the Option D track results in a lower noise impact due to the smaller number of densely populated areas that are overflown along the length of the route.

4.14 Does the modelling identify who is newly impacted by each or any of the options?

CAP1616i – which is the guidance we are following - requires us to present the number of daytime and night-time overflights with population overflown as part of their assessment. The assessment of newly overflown population is not required by this guidance.

Additional to above guidance, following stakeholder feedback from previous stages and considering airspace constraints around the route, we have endeavoured to keep all proposed options within the current published Noise Preferential Route (NPR) swathe, therefore we do not anticipate any newly overflown populations.

4.15 Why does the postcode lookup tool show an increase in night-time noise events for my area, when the noise contour maps suggest there is little or no change?

The postcode lookup tool provides an indication of potential impacts by using the nearest available data point to the postcode entered. In some cases, this can mean the result shown relates to a location nearby rather than the exact community itself.

For example, in the case of Crockham Hill, the nearest data point used by the tool is located just northwest of South Godstone. This is why the postcode lookup tool may show an increase in night-time noise events under some options, even though the noise contour maps indicate that Crockham Hill itself sits outside the main area of significant noise impact.

The noise contour maps remain the most reliable source for understanding the overall extent of predicted noise impacts across the study area. These contours show that by the time aircraft on Route 4 reach communities further east of South Godstone, the vast majority will have either:

- climbed above 4,000 feet, or
- been vectored towards their destination.

5 Consultation process and Government policy

5.1 Is there any concern that consultation feedback will be skewed because Option D is so different to options A, B and C (i.e. anyone who objects to A will object to A, B and C and so they will all get more objections).

The consultation presents the options in a ranked order from 1 to 4; there is no mechanism within the consultation to “object” to any option.

The final determination of which option is taken forward will not be based solely on the number of responses favouring (or opposing) a particular option or on how an option is ranked. Decisions will be based on the rationale and arguments provided in the feedback, not just the volume of responses.

We are committed to full transparency throughout this process. All feedback and data collected will be shared with the Civil Aviation Authority (CAA) and published for public review, ensuring that the decision-making process is open and evidence based.

5.2 What will happen to this consultation if the Air Navigation Guidance is changed?

The Government has recently consulted on changes to the Air Navigation Guidance, the outcome of which may impact how noise impacts are assessed as part of the Airspace Change Process in the future. The Route 4 Airspace Change Proposal is guided by CAP1616 v5 and the Air Navigation Guidance 2017, which considers the noise impacts of aircraft flying between the surface and 7,000ft. The impacts assessed as part of this consultation use the criteria set out in the Air Navigation Guidance 2017. We do not expect that the regulations governing this airspace change will change.

5.3 What will happen if the government changes the Air Navigation Guidance, so that noise is only considered up to 4,000ft – over which area(s) will the route be vectored (turned)?

The Route 4 Airspace Change Proposal is guided by the Air Navigation Guidance 2017, which requires the consideration of noise impacts for aircraft flying between 4,000ft and 7,000ft. While the Government has recently consulted on changes to this guidance, the current assessment for this proposal continues to use the existing criteria.

Regarding the path flown, the Noise Preferential Route (NPR) for Route 4 has a designated upper limit of 4,000ft. Once aircraft are above this altitude, they are no longer on the Noise Preferential Route and may be vectored. This consultation concerns the departure routes themselves, not the paths taken by vectored aircraft.

5.4 How will my feedback influence this Airspace Change Proposal (ACP)?

Public and stakeholder feedback is a key part of the airspace change process set out by the Civil Aviation Authority.

Earlier in the process, London Gatwick engaged with stakeholders and community representatives to help develop the shortlisted options presented in this consultation.

As part of the consultation, London Gatwick is required to identify a preferred option. Based on the technical assessments carried out to compare the options, Option D has been identified as the preferred option at this stage.

However, no final decision has been made. London Gatwick will carefully consider all feedback received during the consultation and assess whether any updates to the design of the Airspace Change Proposal are required.

If significant changes are identified as a result of consultation feedback, further consultation may be required.

If further consultation is not necessary, London Gatwick will prepare the final documentation for submission to the CAA as part of Stage 4. This will include a Consultation Response Document and a Final Options Appraisal, which will be published on the CAA portal and will explain how consultation feedback has been taken into account in the final design.

5.5 Is there a quick way to find out the impact of each option where I live or work?

To help people understand and compare the potential impacts and benefits of each option, we have created a postcode lookup tool. This allows you to enter your postcode and see the predicted noise impacts of each route option in your area.

The postcode lookup tool is available on the consultation website at route4acp.co.uk, and available here.

5.6 Do the route animations on your website accurately show the altitude that aircraft will fly?

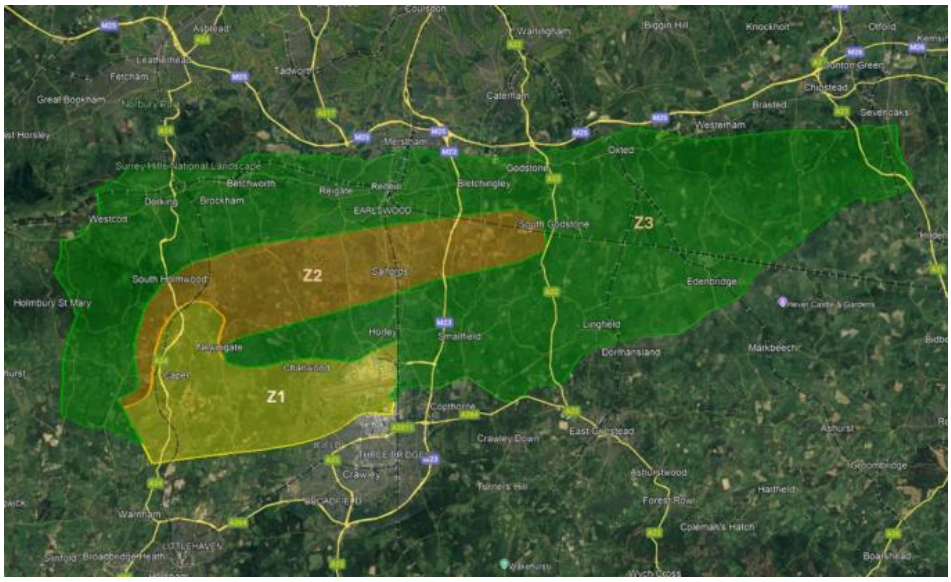
The animated videos on our website are illustrative and designed to help show how the options compare with one another - they do not reflect the actual climb rate on the proposed options.

For the accurate altitude climb visualisations, please refer to the postcode tool published on the website, available here.

5.7 How did London Gatwick decide on consultation zones and approach to publicising the consultation?

In line with CAP1616, the guidance for airspace change in the UK which we are following, as part of our preparation for this consultation we identified which stakeholders are likely to be impacted, positively or negatively by the Airspace Change Proposal (ACP). To do this, we considered the levels of impact on communities and stakeholders.

To ensure that consultation activity is appropriately targeted towards those living, working or otherwise using the areas likely to be most affected by this ACP, we developed consultation zones:



The zones are shown above with Zone 1 shaded yellow, Zone 2 shaded orange, Zone 3 shaded green.

The zones were designed using our technical assessments of potential impacts for each of the options, specifically:

- Zone 1 represents the most impacted area covered by LAeq, 16h and LAeq, 8h noise contours for the baseline route and the four proposed ACP options for Route 4. This accounts for areas that experience average noise levels of 51dB or higher between 07:00 and 23:00 and/or average noise levels of 45dB or higher between 23:00 and 07:00.
- Zone 2 represents the next most impacted area identified via N60 and N65 noise contours and are not already covered by Zone 1. This accounts for areas that experience 20 or more aircraft noise events that exceed 65dB between 07:00 and 23:00 and/or 10 or more aircraft noise events that exceed 60dB between 23:00 and 07:00.
- Zone 3 represents the other impacted areas, potentially affected by our ACP based on current and historical data on Route 4 overflight.

Across all zones, we issued posters to key locations like libraries, village halls and community spaces, press releases to local and regional media, we placed adverts in local newspapers and community newsletters, and have run a campaign on social media targeted at local people. However, as the most impacted areas, homes, businesses and public services also received a newsletter delivered to individual addresses. For more information see sections 3.1, 3.2, 3.3, 3.4, 3.5, 3.6 and 4.1 of the Consultation Strategy.

5.8 How much influence will public and stakeholder feedback have, given a preferred option has been identified? What would the public feedback need to include to outweigh the optional appraisal results?

London Gatwick is required by CAA's airspace change process to identify a preferred option ahead of public consultation. Based on the technical assessments carried out during the Full Option Appraisal stage, Option D has been identified as the preferred option since it performs best in terms of noise impact, emissions and fuel burn metrics.

The airspace change process guidance is clear that public and stakeholder feedback will help the sponsor (London Gatwick) understand stakeholders' views about the impacts of the airspace change proposal. This feedback will help London Gatwick make *informed* decisions regarding the airspace change proposal ahead of its submission at the end of Stage 4 for CAA approval – this will include a final design option and a justification for its selection. Public and stakeholder feedback will be *conscientiously* considered by London Gatwick and we will need to provide evidence to the CAA to that effect.

Importantly, in coming to its decision the CAA must take into account a number of legal duties and, where applicable, government policy, these include the Air Navigation Directions 2023, statutory factors in section 70 of the Transport Act 2000, and other relevant requirements of government policy and legislation.