YOUR LONDON AIRPORT
Gatwick

Ms C Rose
Team Leader, Planning Policy
Reigate & Banstead Borough Council
Town Hall
Castlefield Road
Reigate
Surrey RH2 0SH

26 October 2016

Dear Ms Rose,

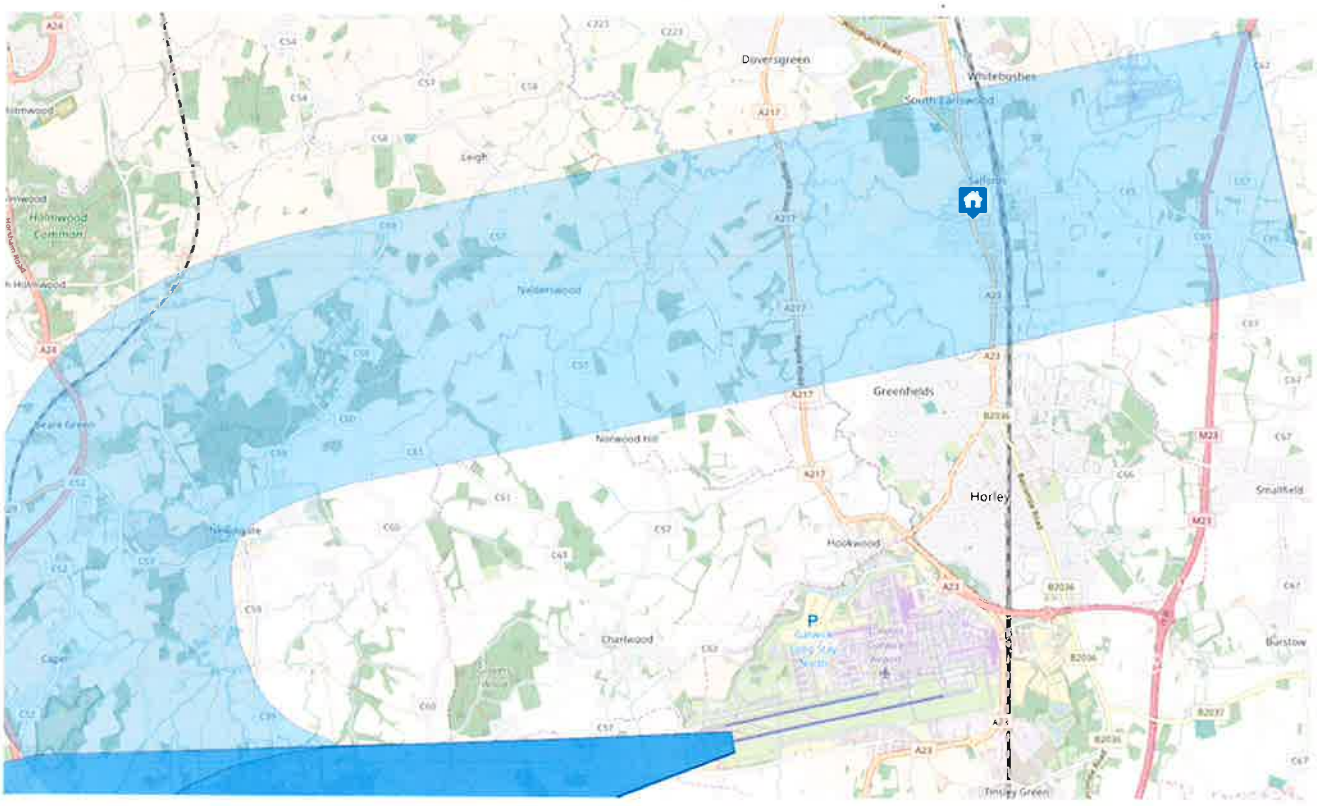
Gatwick Airport - Departure Route 4

Thank you for forwarding by email the letter dated 17 October 2016 from Councillors Durrant, Humphreys, Schofield and Horwood of 17 October 2016 regarding the amendment to our 26 LAM/CLN/ADMAG/BIG Standard Instrument Departure (SID) routes; collectively referred to as 'Route 4'.

I shall break this letter down into a number of sections, addressing the issues raised in turn.

Salfords and Sidlow

By way of context, the Salford and Sidlow area is located beneath the Noise Preferential Route (NPR) associated with Route 4. NPRs provide volumes of pre-defined airspace within which SID routes are established which aircraft must follow on departure from an aerodrome and so provide some certainty as to which areas will be exposed to aircraft activity. Residents of this area will therefore experience departing aircraft as they fly through the NPR in an easterly direction. The location of the NPR is illustrated below by the blue shaded area; the Salfords area is annotated by the 'house' icon.

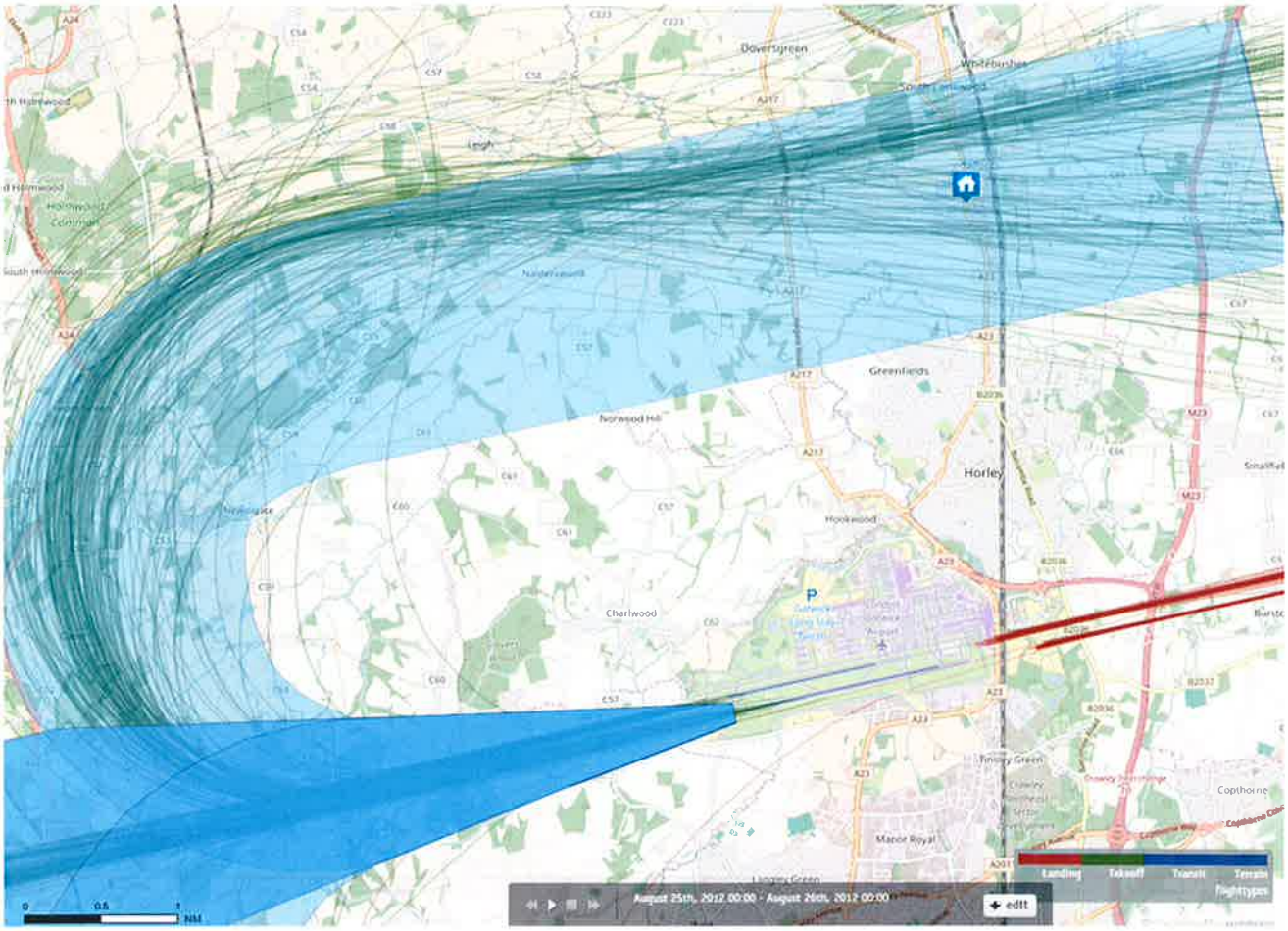


SID routes are published flight procedures followed by aircraft on an Instrument Flight Rules flight plan immediately after take-off from an airport and are primarily designed for air traffic to join the main 'en-route' airways.

With reference to Gatwick Airport, as a designated aerodrome, the locations of all of the NPRs are determined by the Department for Transport and have been in their present locations since the late 1960s. While the location of the Route 4 NPR has not changed, the method of navigation utilised by aircraft using the SID has.

Historically, aircraft navigated the SID by means of ground based navigational aids referred to as 'conventional navigation' but this technology is becoming obsolete and the supporting navigational aids are gradually being withdrawn. Performance Based Navigation is being introduced as a replacement.

The map below illustrates a twenty-four hour period of departing aircraft radar tracks from August 2012 on Route 4 utilising the conventional navigation SIDs.



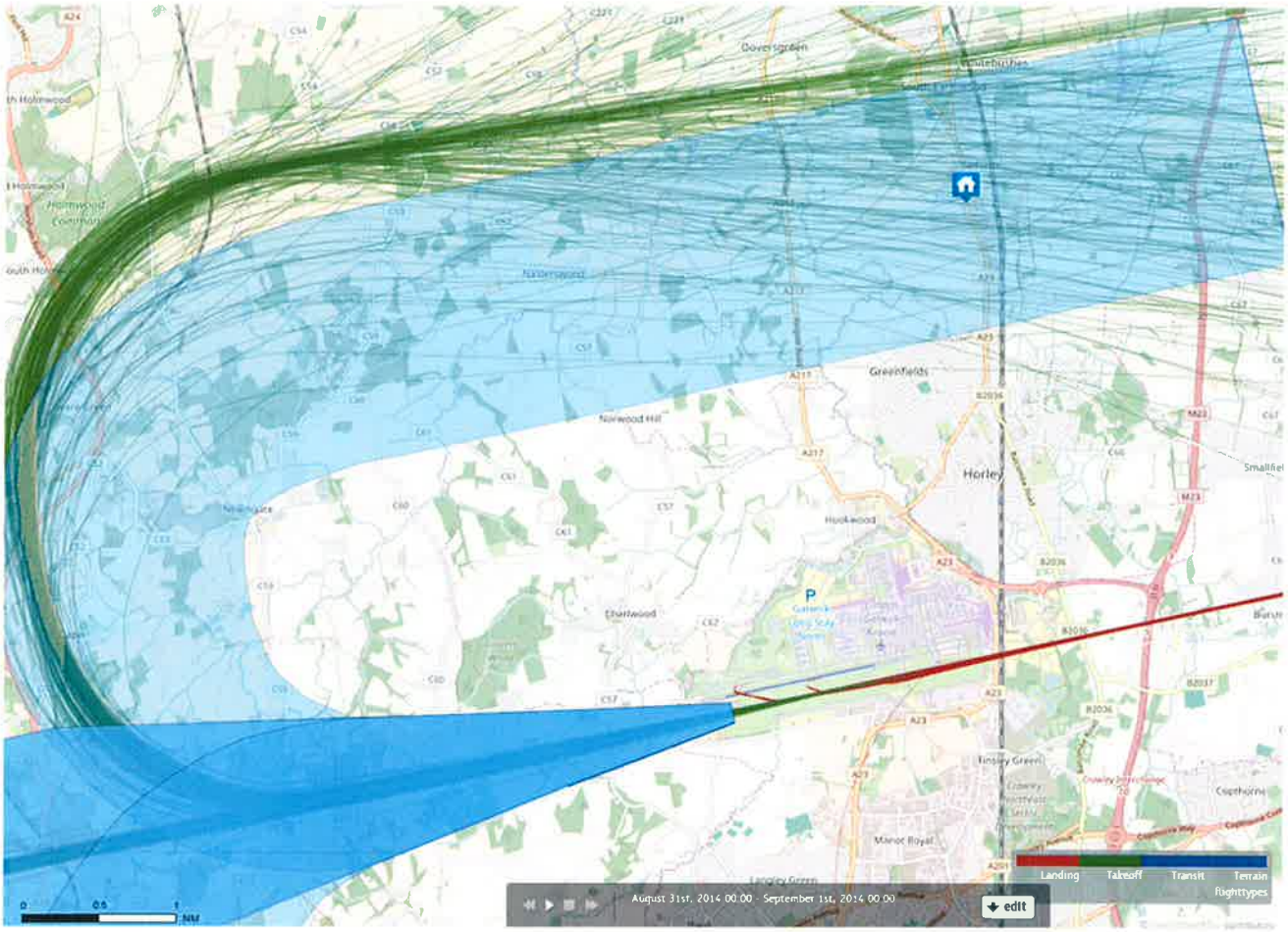
At Gatwick, we developed an Airspace Change Proposal (ACP) to implement a type of Performance Based Navigation called 'R-NAV1'. This was approved by the Civil Aviation Authority (CAA) in November 2013 and became fully operational in May 2014.

The underlying aim of the implementation of R-NAV1 technology is to achieve improved systemisation in the air traffic route network, whereby aircraft fly programmed routes without intervention by pilots or air traffic controllers. The 'conventional' departure routes were designed when aircraft and the associated ground-based navigation beacons did not have that capability.

In introducing R-NAV1, the intention was to replicate the existing 'conventional' SID routes by overlaying the R-NAV1 route as closely over the original route as possible, albeit in a concentrated manner, within the associated NPR.

When replicating the Route 4 R-NAV1 SID, the design criteria available at that time called 'Track-to-Fix' required a mandatory minimum stabilisation period between the initial turn to the north and the second

turn to the east. This inevitably resulted in aircraft flying outside of the confines of the NPR as they flew through the 180° turn and then eastwards. This is illustrated on the map below, again depicting a 24 hour period of aircraft activity, this time from August 2014.



After any ACP, the CAA as our Regulator undertakes a 'Post Implementation Review' (PIR) to ascertain if the end result of the ACP is as originally anticipated. In this instance, the PIR report was issued in November 2015 and it was decided that there was, utilising previously unavailable design criteria, the possibility to better replicate the pattern of aircraft flown prior to the introduction of R-NAV1, with the intention of keeping aircraft within the confines of the Route 4 NPR. As this proposed amendment was an outcome of the PIR, issued by our Regulator, we were essentially required to implement it.

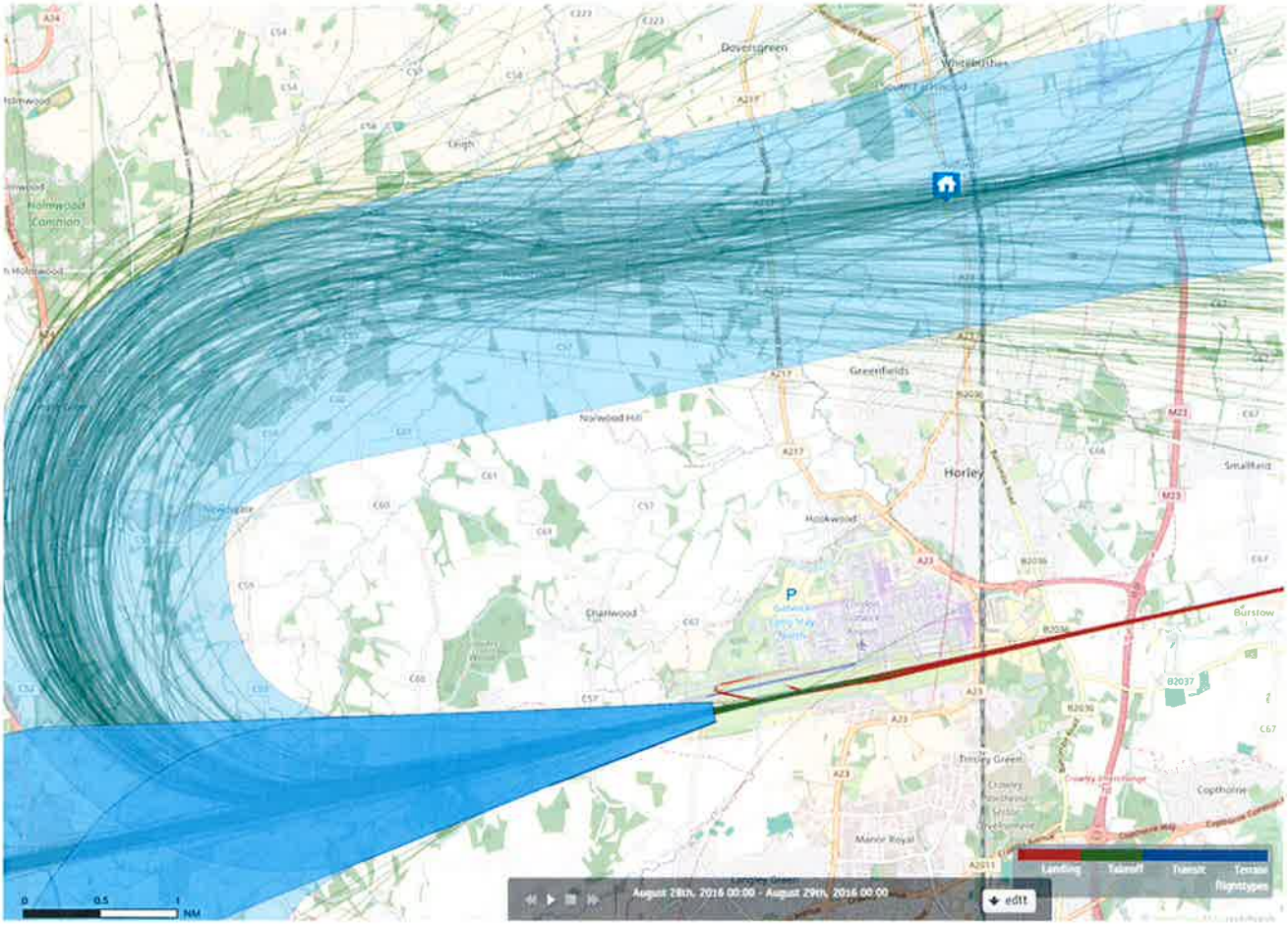
Since the publication of the PIR, Gatwick has been working with our airspace designers and the CAA to devise a solution that would better replicate the historical pattern of traffic which would also remain within the NPR. In designing this solution, we have been cognisant of the fact that aircraft flying this route, even when conventional ground based navigation was employed, had a record of persistent poor track keeping. This is due to the fact that the route has a relatively tight 180° turn which was designed in the 1960s when aircraft were slower and could therefore remain more easily within the NPR confines.

It became clear that there would be no perfect solution to Route 4 that would be acceptable to airlines, air traffic control and local communities that would work in all meteorological conditions. We therefore adopted a compromise solution and this came into effect on 26 May.

The amendment involved utilising new design criteria, the introduction of a new waypoint and a speed restriction within the 180° turn. This 'Course-to-Fix' design is a fully internationally-compliant SID route design, not previously used in the UK but is successfully employed globally. A speed restriction of 220kts around the turn was subsequently adopted as this should ensure that the turn radius is minimised, for NPR containment, whilst ensuring that most aircraft configure to a 'clean wing' with significant benefits to drag reduction, concomitant lower power requirement, resulting in much reduced noise, fuel burn and emission generation.

As a result of this amendment, the track dispersal across the NPR replicates the conventional SID route more closely than the original change, the great majority of the tracks are within the NPR and an element of dispersal within it has been achieved, occasioned by the differing aircraft configurations, bank angles used, weights, Flight Management Systems and individual airline operating procedures.

The map below illustrates a twenty-four hour period of departing aircraft radar tracks from August 2016 on Route 4 with the amendment in place.



We continue to provide detailed information to the CAA which is closely monitoring the operation of the Route 4 SIDs. After a period of six months the CAA will assess if this amendment has been a success, i.e. it has better replicated the pattern of air traffic prior to the introduction of R-NAV1.

Gatwick Airport does not operate in isolation; our arrivals and departures have to be closely integrated on a 'fail safe' basis (e.g. potentially without the benefit of radar) with the departures and arrivals with a number of at airports in the south of England including Heathrow, Stansted, London City, Southend and Luton to name but a few.

As a result of the Air Traffic Control structure in the south east of England; one of the busiest and most complex Terminal Control Areas in the world, the area to the south of Gatwick is congested by its own arrivals and climbing and descending traffic to those other airports served by the London Terminal Control Area. This is why some departures to the south and east of Gatwick have to use Route 4 to enable them to climb above the many arrival routes in a timely manner, While expeditious continuous climb operations on departing aircraft are desirable for environmental and efficiency reasons, it is not possible at the present time for the reasons stated above hence why Gatwick departures have altitude restrictions placed upon them to 'de-conflict' them from other air traffic in the vicinity.

Horley

We are acutely aware that overflight of the town, as published in the UK Aeronautical Information Publication, is expressly prohibited.

Aircraft that overfly Horley have invariably been 'vectored' away from Route 4 by the air traffic controllers at the NATS Control Centre at Swanwick. The practice of vectoring is not new and prior to this amendment,

as the main swathe of traffic was further north than it presently is; aircraft were still vectored at the same stage of flight but avoided Horley.

Levels of traffic being vectored after a Route 4 departure unnecessarily over flying Horley have increased from historical levels of approximately 1-3% to a high of 8-9%.

All air traffic controllers at Swanwick who have duties relating to Gatwick departures have been briefed to avoid overflying Horley and received new guidance regarding vectoring and when it should now take place, taking into account the amendment and the initial view is that this is having some success; there is a downward trend in Horley overflights and we will continue to monitor this matter closely.

Withdrawal of R-NAV1

This amendment is the final stage (Post Implementation Review - required rectification) of the Airspace Change Progress (ACP).

The CAA will endeavour to make and publish its decision as to whether the modified route has achieved its original aims to an acceptable standard, within 3 to 4 months of the end of the monitoring period (26 November 2016).

The commitment to revert to a conventional navigation procedure only applies should the CAA believe that this amendment does not achieve the original aim to the required standard, and so only applies after the ACP process has concluded; we are not at that stage yet.

Night time operations

With reference to the issue of aircraft operating at night, I wish to clarify that Gatwick Airport has always been a 24 hour operation and the Department for Transport formulates the restrictions on the types of aircraft that can be scheduled to fly at night. In setting the restrictions the aim has been to preserve a balance between the need to protect local communities from excessive aircraft noise at night and the operation of services where they provide economic benefit.

The restrictions are divided into summer and winter seasons. The summer season is naturally busier than the winter due to demand. The restrictions consist of a limit on the number of air traffic moments permitted during the night time period and an additional quota count system whereby points are allocated to different aircraft types according to their noise certification levels. The noisier the aircraft type, the higher the points allocated. This provides an incentive for airlines to use quieter aircraft types. We report night flight usage statistics regularly to the Department for Transport and publically via our Flight Performance Team reports which are available online. For the avoidance of doubt, we remain compliant with all restrictions in place and take proactive steps with our airline partners to ensure the quota per season is not exceeded.

You may be interested to know that the current night flying restrictions came into effect at the end of October 2006, have been extended twice and will apply until the end of October 2017. We expect the Department for Transport to commence a public consultation exercise regarding the new night flying restrictions later this year.

I apologise for the length of this letter however I thought it prudent to provide you with full and complete responses to the matters raised in your letter.

Yours sincerely,

Lee Howes
Corporate Responsibility Manager