

[REDACTED]
[REDACTED]
[REDACTED]

27 September 2018
EIR Reference: E0003901

Dear [REDACTED]

Thank you for your recent request of 10 September 2018, for the release of information held by the Civil Aviation Authority (CAA). Your request has been considered in line with the provisions of the Environmental Information Regulations 2004 (EIR).

Your request:

'A constituent of [REDACTED], whose home is very near Heathrow, has a suspicion that in August 2002 Heathrow moved their flight path or started using a section of it that was not operational until then, as this is when she started hearing planes overhead. She also claims that over the years Heathrow planes have been flying increasingly lower.

Therefore on her behalf (and in her words) we would like to FOI:

1) why was our postcode (NW10 6TX) affected from August 2002, and where were planes flying before then?

2) why aren't pilots trained to climb steeper over Ealing from the moment they leave the runway enclosure, where they are already at 1000 ft.?

She gives some examples of flights that have disturbed her neighbourhood:

BA085 LHR-YVR just over 3000 ft 02/09/18.

BA031 LHR-HKG approx. 2800 ft on 02/09/18.

BA283 LHR-LAX approx. 2700 ft on 26/07/18.

BA011 LHR-SIN approx 2300 ft on 27/06/18.'

Our response:

Aircraft taking off from Heathrow are required to follow specific departure flight paths called noise preferential routes (NPRs), unless directed otherwise by air traffic control (ATC). Each

Civil Aviation Authority

Aviation House Gatwick Airport South Gatwick RH6 0YR. www.caa.co.uk

Email: foi.requests@caa.co.uk

NPR is contained in a corridor extending 1.5 km either side of the NPR centre line. Aircraft flying inside this corridor are considered to be flying on-track.

Once an aircraft reaches an altitude of 4,000 feet, ATC can instruct the aircraft to turn onto a more direct heading to its destination, which may take the aircraft outside the NPR corridor - this is called vectoring. There may be occasions where it is necessary for safety reasons (e.g. to avoid severe weather conditions) to vector aircraft off NPRs below 4,000 feet. Maps illustrating the layout of Heathrow's departure flight paths are available on Heathrow Airport's website at <https://www.heathrow.com/noise/heathrow-operations/departure-flight-paths>.

Postcode NW10 6TX lies close to the nominal centreline of Heathrow's easterly Brookmans Park (BPK) and Buzad (BUZ) departure flight paths. To investigate the extent of any possible change in aircraft concentrations along the easterly BPK/BUZ routes from August 2002, we have undertaken an analysis of Heathrow departures during the six-month period immediately before and immediately after 1 August 2002.

Attachment 1 shows the general pattern of flight tracks on these routes in the form of track density diagrams, which help to illustrate where the majority of aircraft fly. The first diagram in Attachment 1 covers the period February 2002 to July 2002. The second diagram covers August 2002 to January 2003. The colour shading in each diagram illustrates the percentage of easterly departure flight tracks that passed through individual 50x50 metre grid squares positioned over the entire area of interest.

Therefore, and in response to question 1) above, you can see by comparing these diagrams that there is no evidence of any significant change in the pattern of flights above the NW10 area from August 2002 onwards.

For information, we have also included the corresponding track density diagram for departures during the period February 2018 to July 2018. It is apparent from this diagram that overall, aircraft are now flying a slightly narrower and more concentrated flight path than shown in the previous two diagrams for 2002/2003. This is largely due to the improved navigation performance of modern aircraft.

Regarding the constituent's suggestion that "*over the years Heathrow planes have been flying increasingly lower*", in July 2018 the CAA published a review of departure noise abatement procedures at the London airports. A summary of the main report can be downloaded at: <http://www.caa.co.uk/CAP1691a>. One of the main findings from the review was that there has been a gradual decrease in average aircraft heights at Heathrow over recent years (up to 400 feet lower on particular routes in some instances). However, the report also concluded that lower heights have not led to overall noise increases due to the continued introduction of quieter aircraft types, replacing older, noisier types.

We have nonetheless carried out a further height analysis of Heathrow departures and have found no evidence of any significant difference in average heights over the NW10 area between the two six-month periods immediately before and after 1st August 2002, see Table 1.

Table 1 Average heights of aircraft departing over NW10 6TX

Period	Average height (feet above runway level)
Feb 2002 to July 2002	5,100
Aug 2002 to Jan 2003	5,000
Feb 2018 to July 2018	4,800

Whilst the results in Table 1 do show a slight reduction (of up to 300 feet) in the average height for the 2018 period compared to 2002/2003, we do not consider this to be a significant change. All other things being equal, the difference in noise level under the flight path (due to the shorter sound propagation distance) between an aircraft flying at 5,100 feet compared to the same aircraft at 4,800 feet would be less than 1 decibel, which would be imperceptible under normal conditions.

As you may be aware, for safety and technical reasons aircraft generally take off and land into a headwind. The wind direction, which varies over the course of the year, therefore has an important influence on the usage of Heathrow's runways. Heathrow's predominant wind direction is from the west, so aircraft take off and land towards the west on average around 70 percent of the time and towards the east for 30 percent of the time.

The percentage of westerly and easterly departures at Heathrow for each month between February 2002 and January 2003 is shown in Attachment 2. As you can see, there were some relatively large swings between easterly and westerly operations over the period shown. In terms of the numbers of departures along the easterly BPK/BUZ route for example, September 2002 experienced a six-fold increase compared to June (and a four-fold increase compared to July). These relatively large changes in the number of easterly departures during the summer months of 2002 may partly explain any perceived change in departure traffic over the NW10 area at that time.

In response to question 2), it should first be clarified that the flight crew's primary aim on departure is to accelerate the aircraft to take-off speed and then depart from the runway to climb rapidly. At or above 800 feet, engine power may be reduced in order to preserve an adequate service life for the engines, and to reduce noise. Also, at or above 800 feet altitude, the aircraft may be accelerated from the take-off speed. Engine power is therefore used to gain both altitude and speed. The balance between how much energy is put into gaining altitude and speed, and at what altitudes power reduction and acceleration are initiated, and in what order, are set out in an airline's noise abatement departure procedure(s). Some airports may direct airlines to use preferred departure procedures, though they have no formal power to enforce this.

Aircraft departing from Heathrow, however, are required by the government to be at a height of not less than 1,000 feet at 6.5 km from the start of take-off. After passing the 1,000 feet point, aircraft are then required to maintain a climb gradient of not less than 4% to an altitude of 4,000 feet. These requirements are promulgated through a formal notice under Section 78(1) of the Civil Aviation Act 1982 which is published in the UK Aeronautical Information Publication (<http://www.nats-uk.ead-it.com/>). Heathrow Airport monitors all departing aircraft against these requirements and works with airlines with regards to their compliance (<https://www.heathrow.com/noise/reports-and-statistics/reports>).

The upper diagram in Attachment 3 shows the aircraft ground tracks for the four specific flights identified above. As you can see, all four departures flew along the centre of the route and were therefore well within the NPR corridor when passing over the NW10 area.

The lower diagram in Attachment 3 shows the vertical departure profiles for the same four flights. Also shown on the diagram for reference is the minimum 4% climb gradient requirement. As you can see, none of the four departures flew below the minimum gradient line at any point along the profile. (For information, Postcode NW10 6TX is approximately 19 km from the start of take-off position on the easterly BPK/BUZ routes.)

In summary, whilst I don't doubt that the flights identified above, and other aircraft in general which fly over the NW10 area, can cause some level of disturbance, this activity is entirely legitimate.

If you are not satisfied with how we have dealt with your request in the first instance you should approach the CAA in writing at:-

Caroline Chalk
Head of External Information Services
Civil Aviation Authority
Aviation House
Gatwick Airport South
Gatwick
RH6 0YR

caroline.chalk@caa.co.uk

The CAA has a formal internal review process for dealing with appeals or complaints in connection with requests under the Environmental Information Regulations. The key steps in this process are set in the attachment.

Should you remain dissatisfied with the outcome you have a right to appeal against the decision by contacting the Information Commissioner at:-

Information Commissioner's Office
FOI/EIR Complaints Resolution
Wycliffe House
Water Lane
Wilmslow
SK9 5AF

<https://ico.org.uk/concerns/>

If you wish to request further information from the CAA, please use the form on the CAA website at <http://publicapps.caa.co.uk/modalapplication.aspx?appid=24>.

Yours sincerely

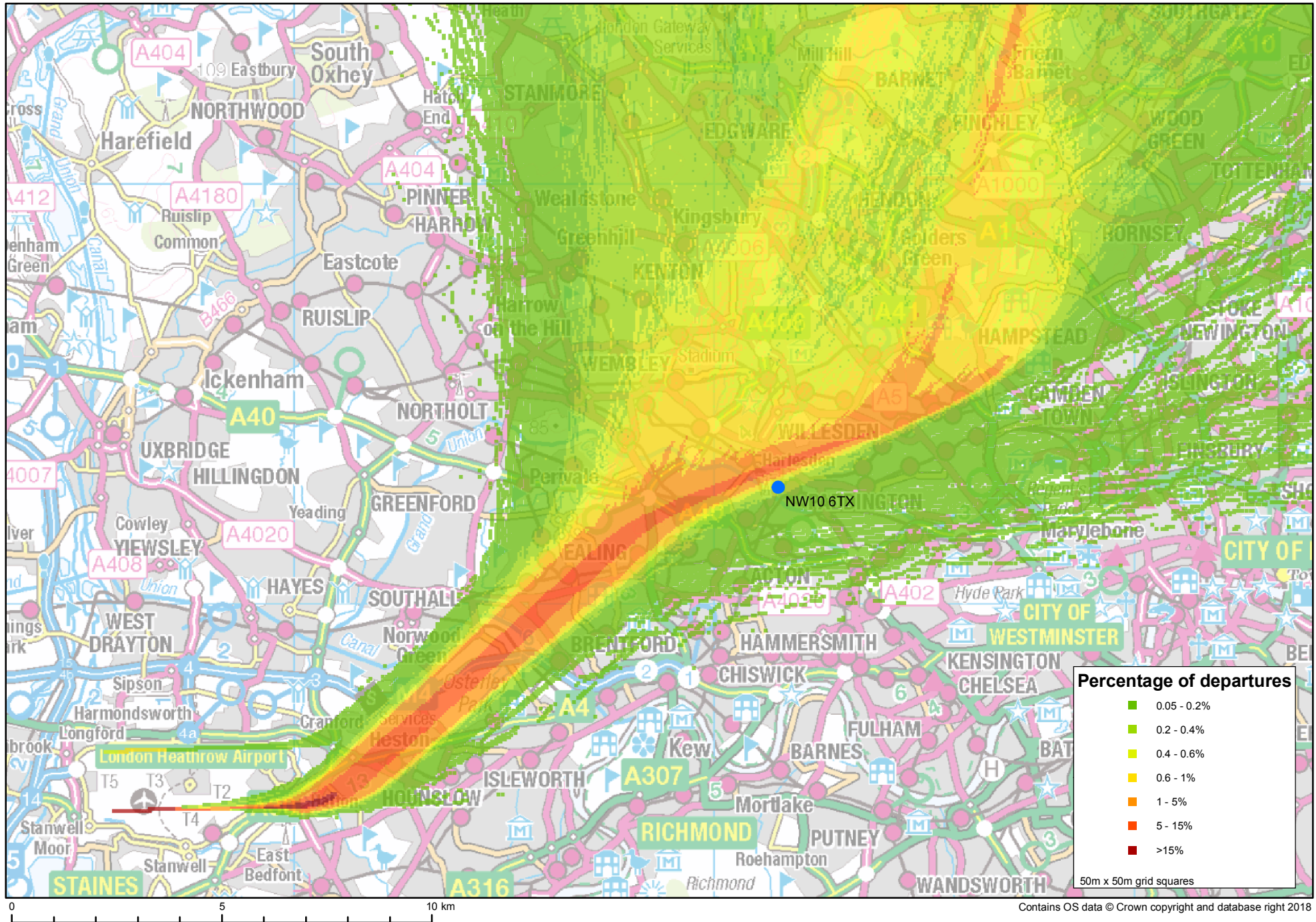


Jade Fitzgerald
Information Rights Officer

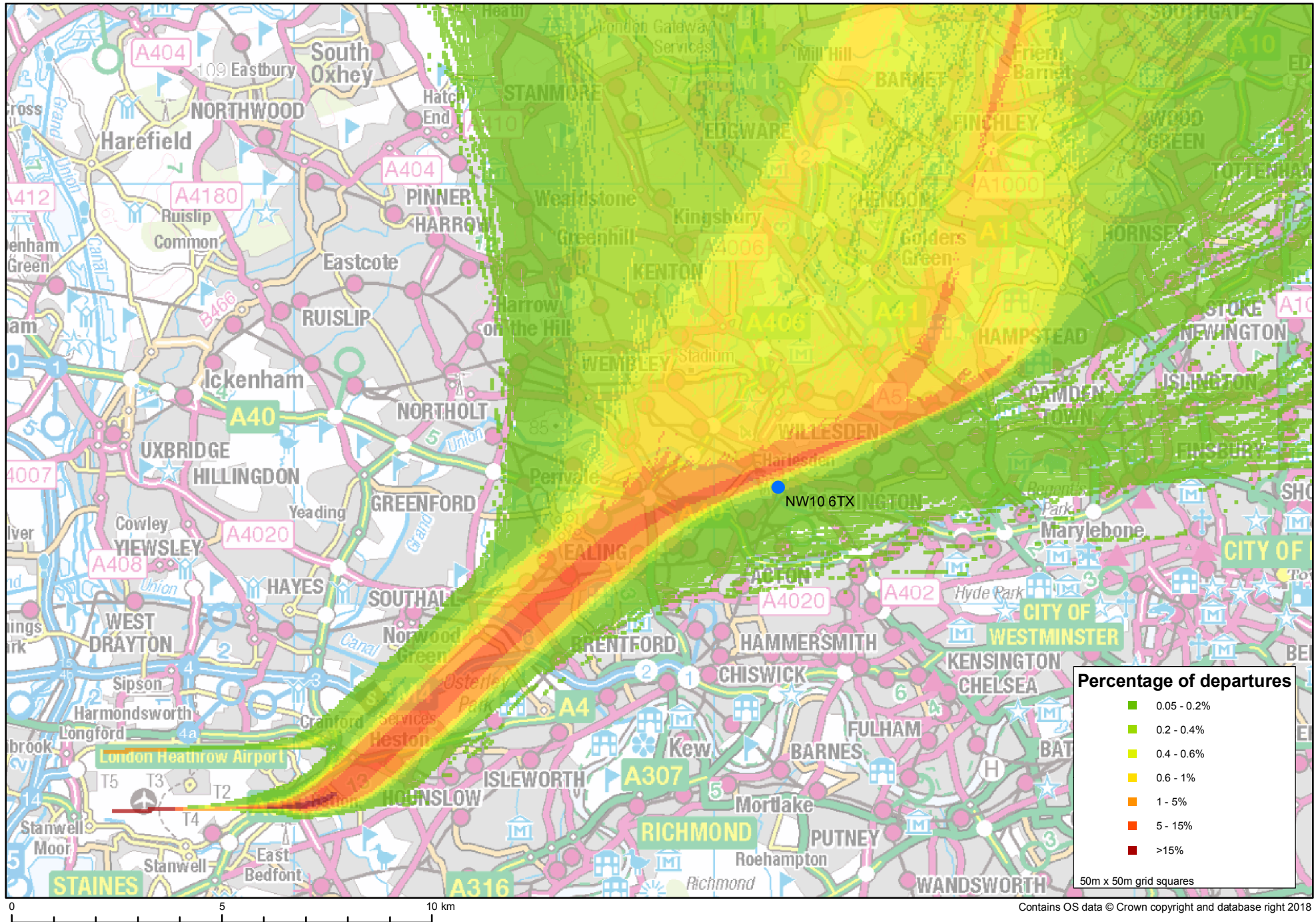
CAA INTERNAL REVIEW & COMPLAINTS PROCEDURE

- The original case to which the appeal or complaint relates is identified and the case file is made available;
- The appeal or complaint is allocated to an Appeal Manager, the appeal is acknowledged and the details of the Appeal Manager are provided to the applicant;
- The Appeal Manager reviews the case to understand the nature of the appeal or complaint, reviews the actions and decisions taken in connection with the original case and takes account of any new information that may have been received. This will typically require contact with those persons involved in the original case and consultation with the CAA Legal Department;
- The Appeal Manager concludes the review and, after consultation with those involved with the case, and with the CAA Legal Department, agrees on the course of action to be taken;
- The Appeal Manager prepares the necessary response and collates any information to be provided to the applicant;
- The response and any necessary information is sent to the applicant, together with information about further rights of appeal to the Information Commissioners Office, including full contact details.

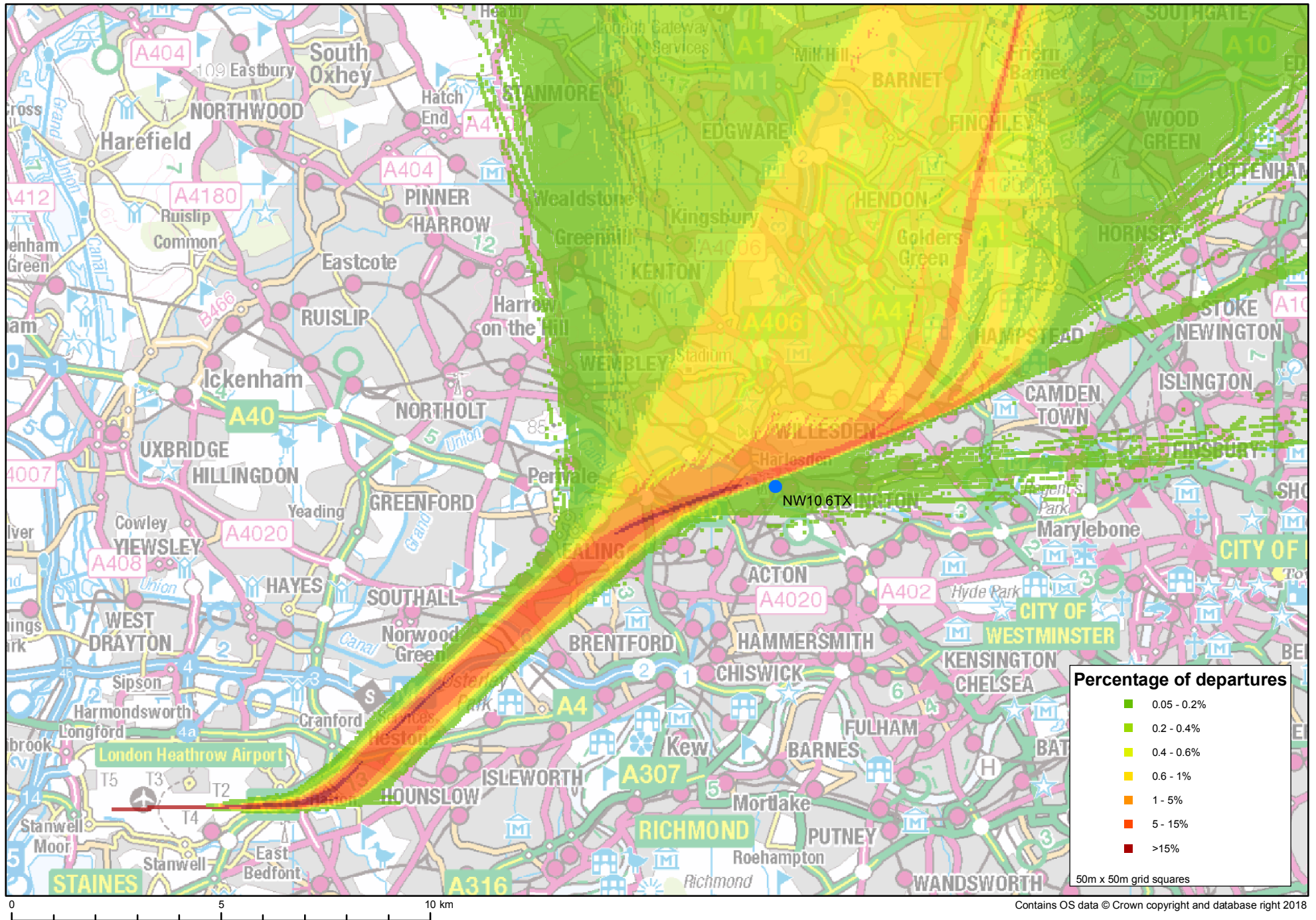
Heathrow easterly BPK/BUZ departure track density diagram, February 2002 to July 2002



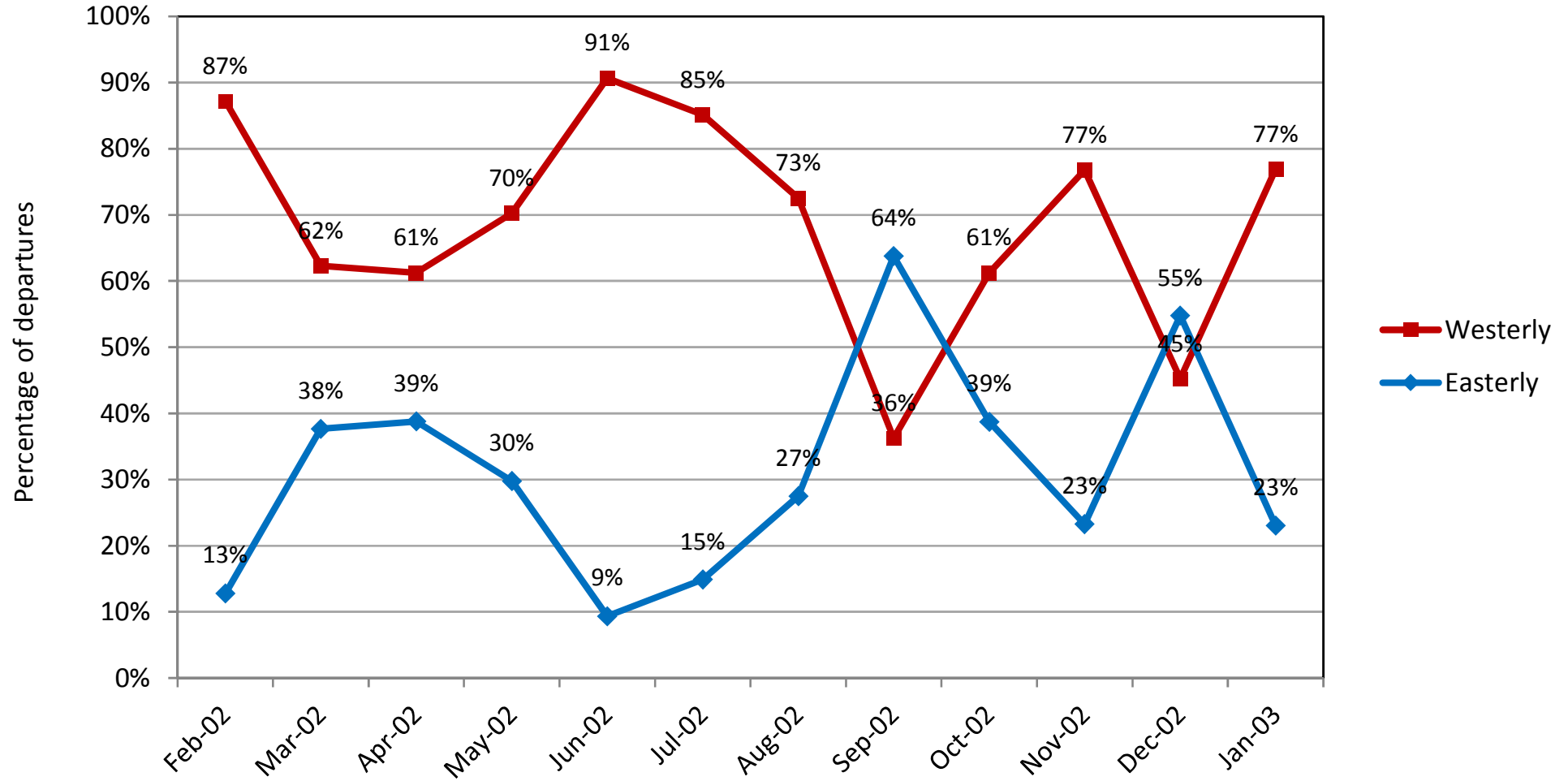
Heathrow easterly BPK/BUZ departure track density diagram, August 2002 to January 2003



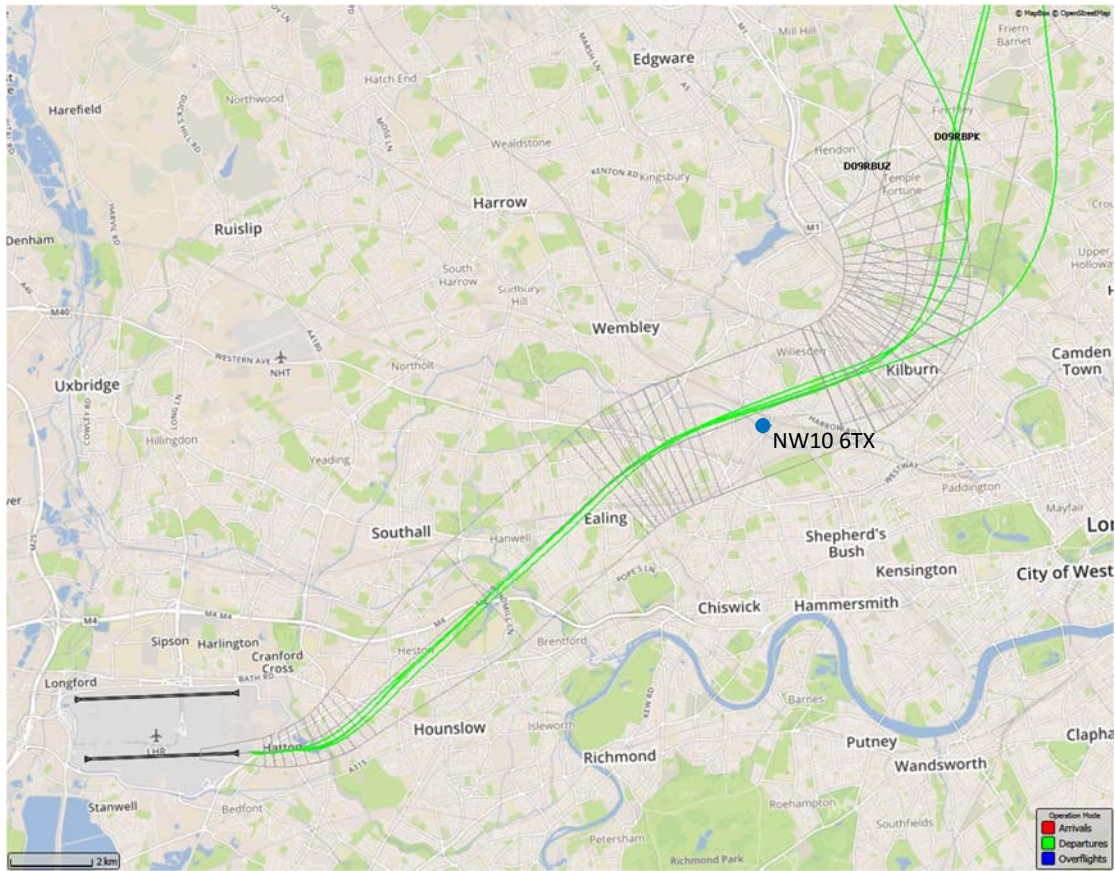
Heathrow easterly BPK/BUZ departure track density diagram, February 2018 to July 2018



Heathrow departure runway direction by month, Feb 02 to Jan 03



Heathrow easterly 09R BPK/BUZ departures over NW10 6TX



Heathrow easterly 09R BPK/BUZ departure profiles

