

Route 4 NATMAG Update

CAP1912 Impact Update

05 November 2021



Background

- 6 May 2020 - the CAA published CAP 1912 PIR Report
 - Gatwick required to remove all temporary Route 4 satellite-based departures routes - RNAV1 Standard Instrument Departures (SIDs) - that were introduced on 26 May 2016
- 25 Feb 2021 - all changes required by CAP 1912 implemented
 - RNAV1 SIDs FRANE, LAM, BIG and ADMAG removed
 - Clacton (CLN) and Dover (DVR) conventional SIDs truncated into FRANE and MIMFO conventional SIDs
 - Changes published in the UK Aeronautical Information Publication (AIP) and all air traffic control systems and procedures updated



Background contd.

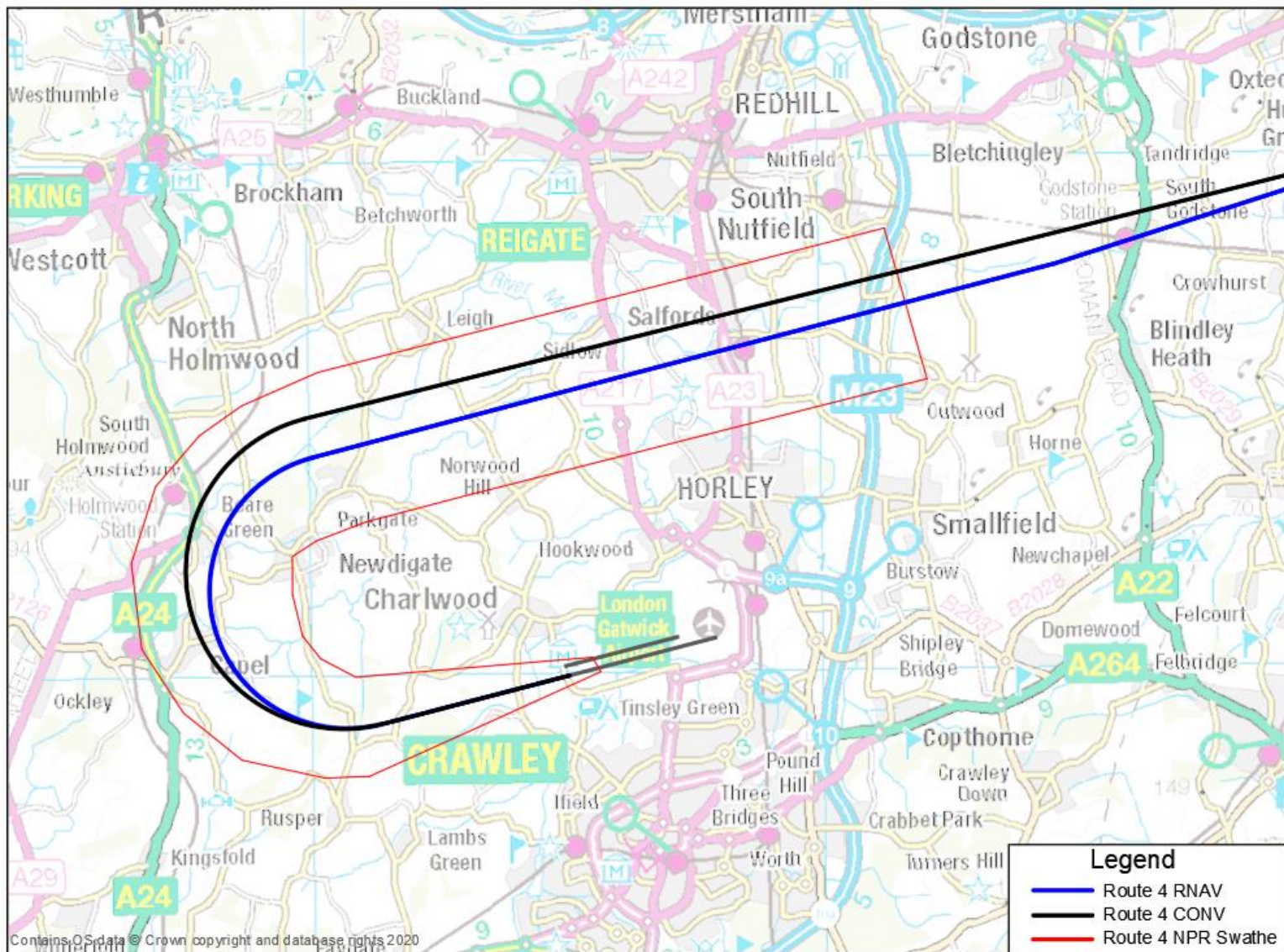
- After CAP1912 implementation, airlines fly Route 4 using satellite-based coded overlays of the conventional SIDs
 - Coded overlays fall outside of the regulated process – it is harder to predict the resulting variations in aircraft tracks
 - Gatwick undertook to monitor track performance following the change on 25 February 2021
- Separately, hazards were identified during the assessment of likely performance of aircraft flying conventional SIDs in the first turn on Route 4
 - Gatwick and ANSL have commenced a trial to monitor track performance of aircraft in the first turn on Route 4
 - During the trial the separation between departures using Route 4 has been increased to ensure the safe separation between departing aircraft
 - Track performance is being monitored to identify and address any potential risks



Route 4 Nominal Tracks 2016 RNAV vs CONV

Route 4 1st Turn

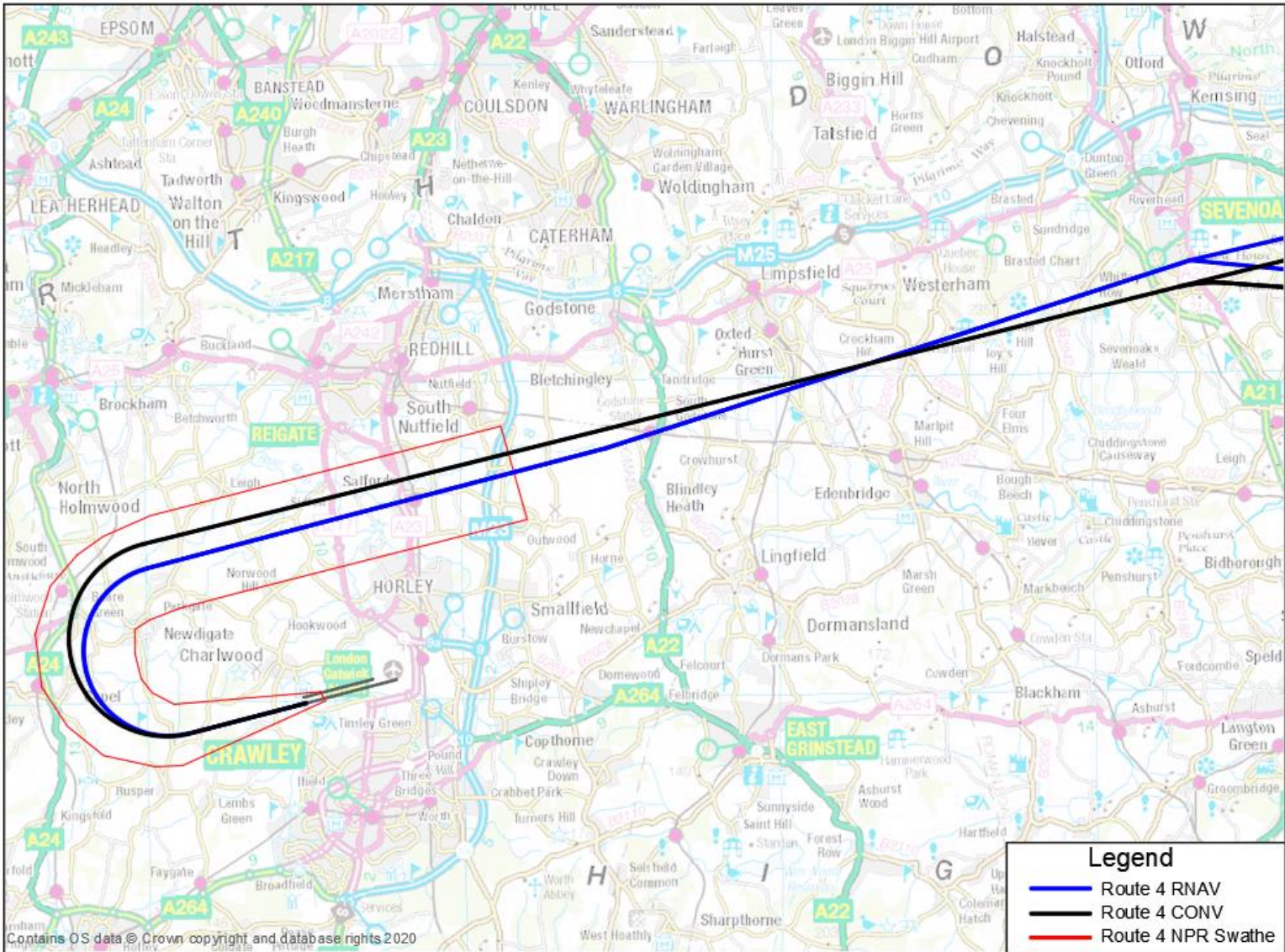
Average flight paths of the Gatwick Route 4 SIDs, conventional and RNAV, drawn according to the AIRAC 01/2020 AIP Data, ICAO PANS OPS 8168 Vol II criteria and CAP 778 criteria where different.



Route 4 Nominal Tracks 2016 RNAV vs CONV

Route 4 to ACORN / SUNAV

Average flight paths of the Gatwick Route 4 SIDs, conventional and RNAV, drawn according to the AIRAC 01/2020 AIP Data, ICAO PANS OPS 8168 Vol II criteria and CAP 778 criteria where different.



Route 4 Post PIR Performance Summary

25 Feb - 30 Sep 2021 inc.

Total of **3,064** Route 4 flights between 25 Feb and 30 Sep 2021 (inc.) recorded in the Gatwick NTK system

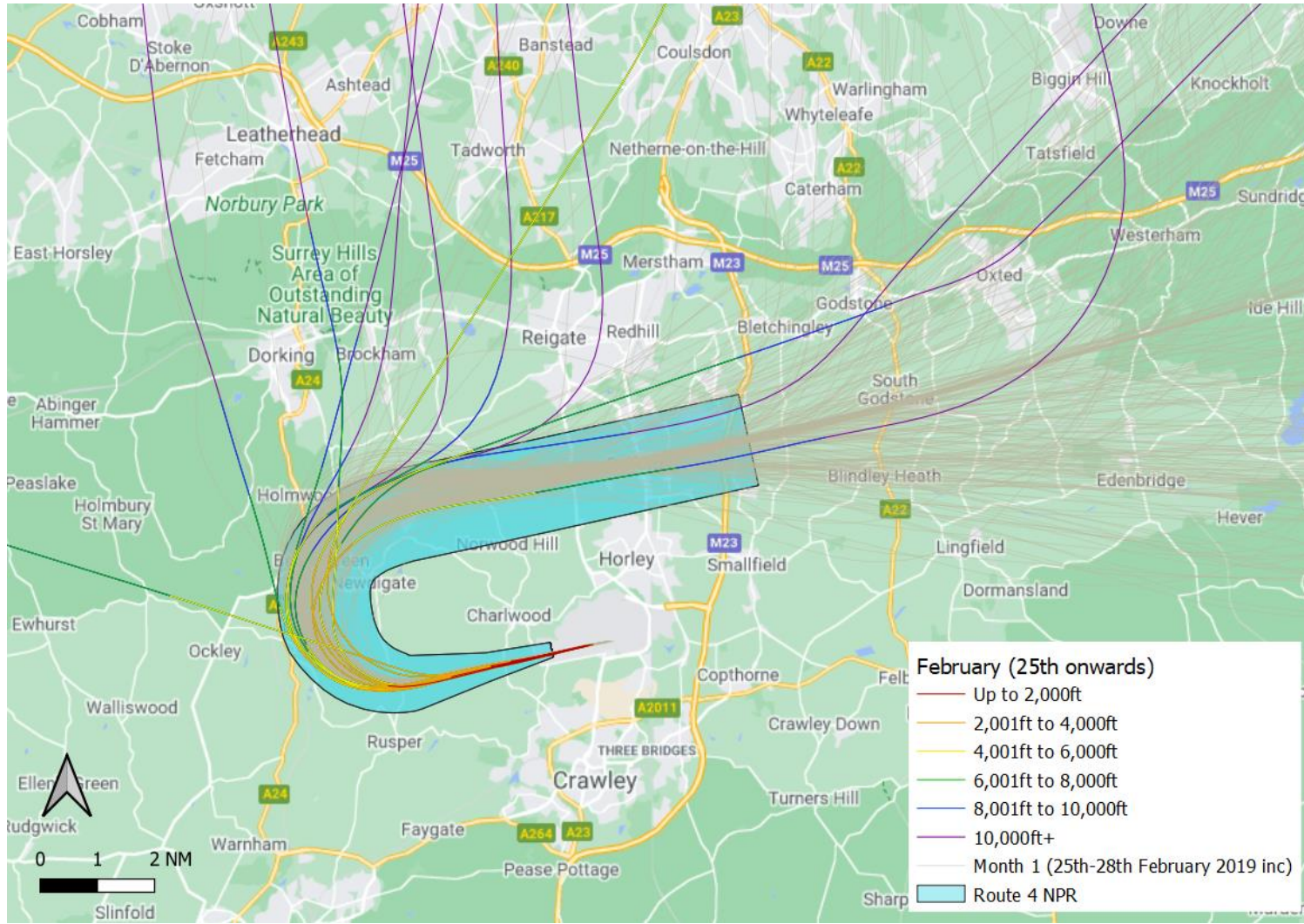
Of those, 87 were positioning flights to Heathrow Airport

Total Route 4 track-keeping compliance for the period was **93.32%** (without LHR positioners)

Total Route 4 track-keeping compliance for the period was **92.82%** (with LHR positioners)



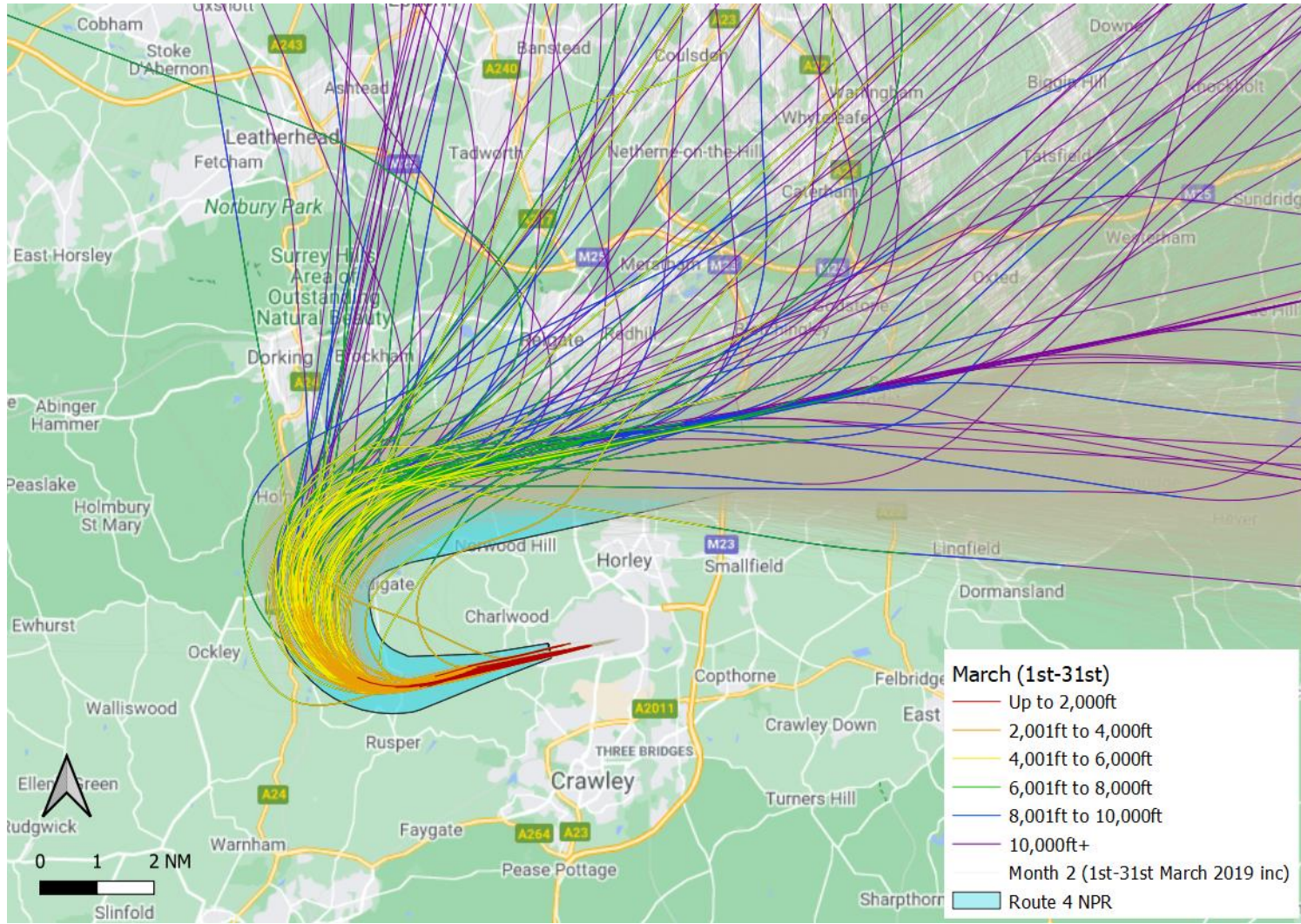
25 Feb – 28 Feb 2021



100% R4 Track Keeping Compliance (12 flights)
1 LHR positioner in month – still 100% compliance



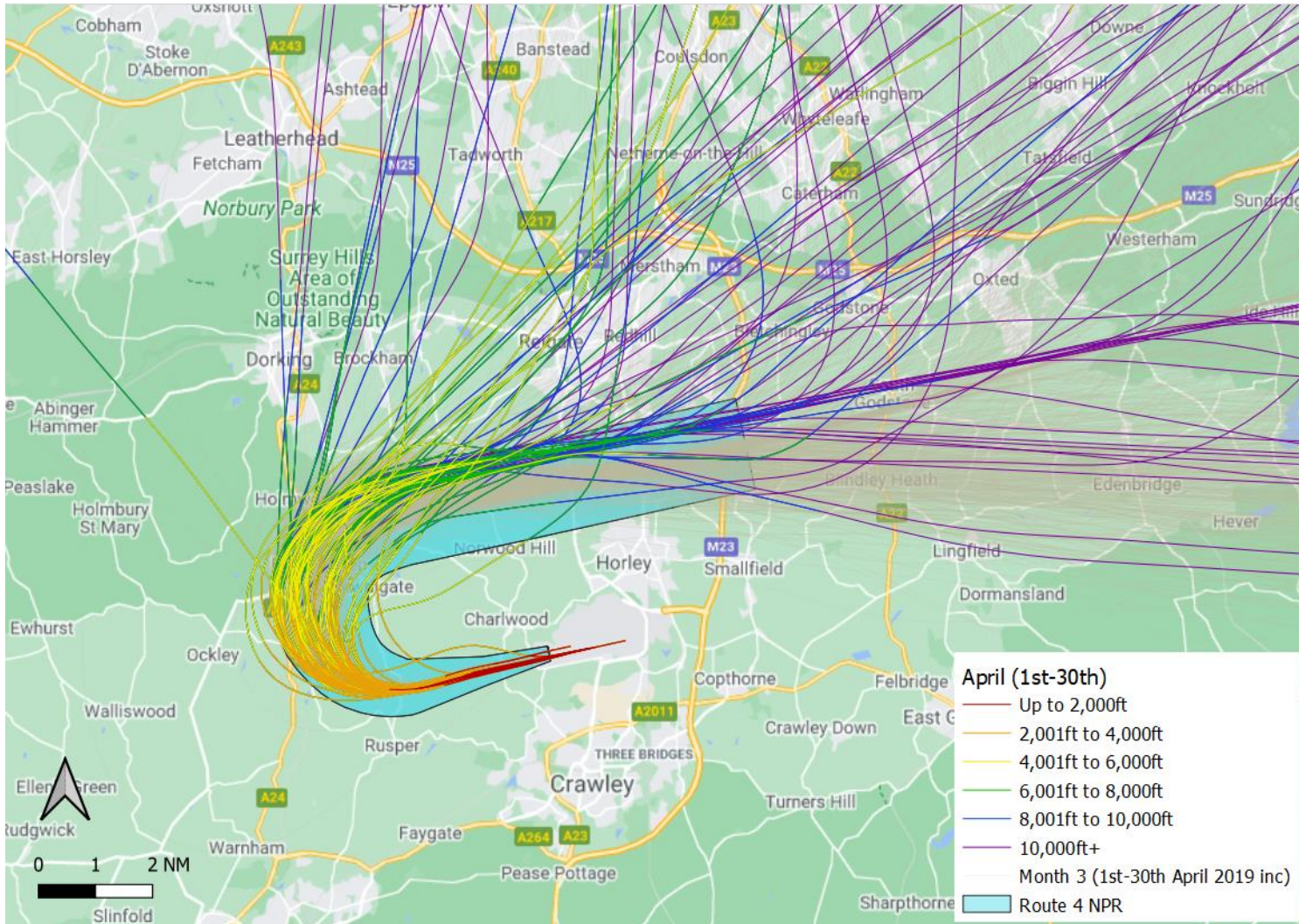
March 2021



95.1% R4 Track Keeping Compliance (101 flights)
8 LHR positioners in month – 97.8% TK compliance without positioners



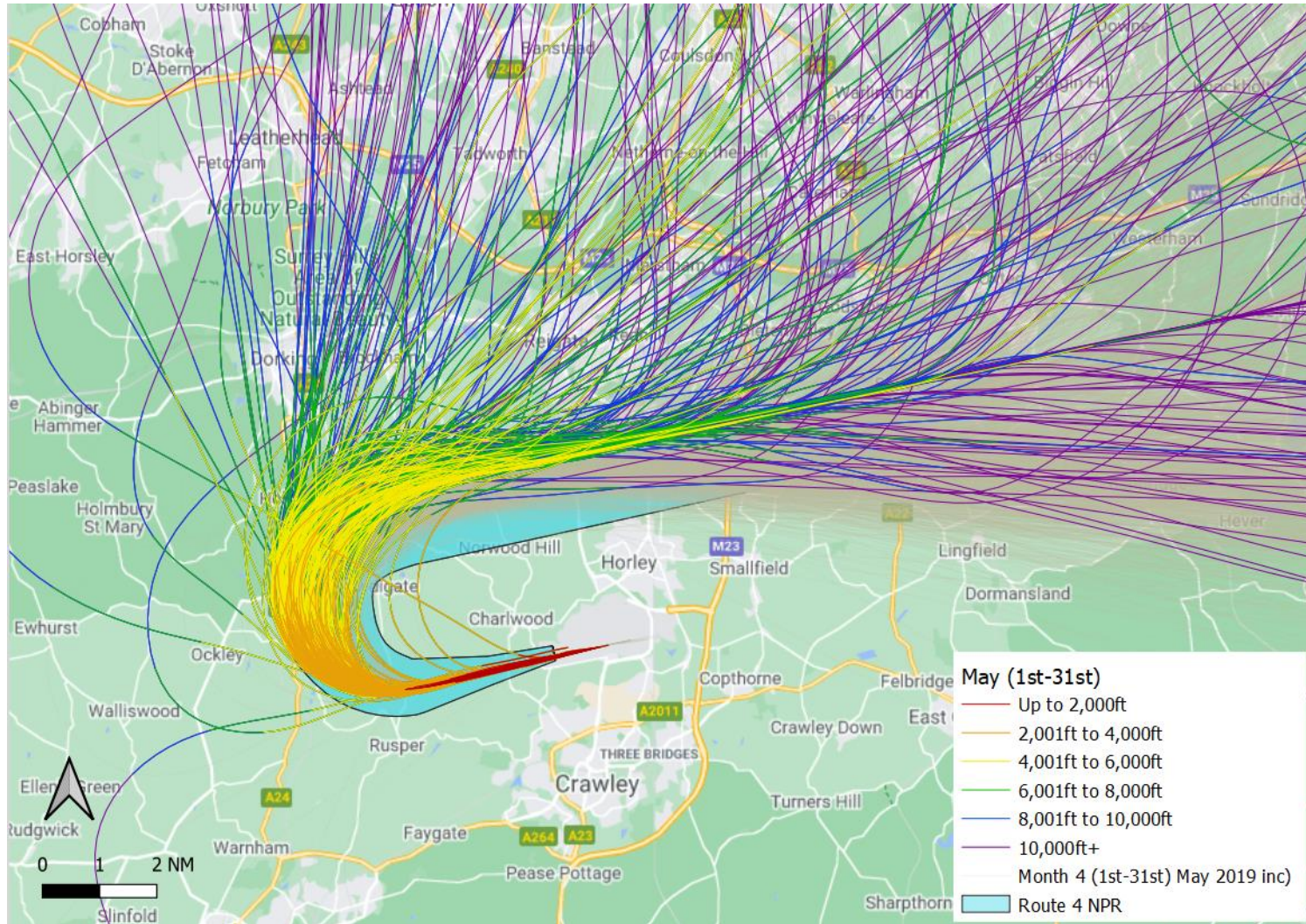
April 2021



92.8% R4 Track Keeping Compliance (83 flights)
8 LHR positioners in month – 97.3% TK compliance without positioners



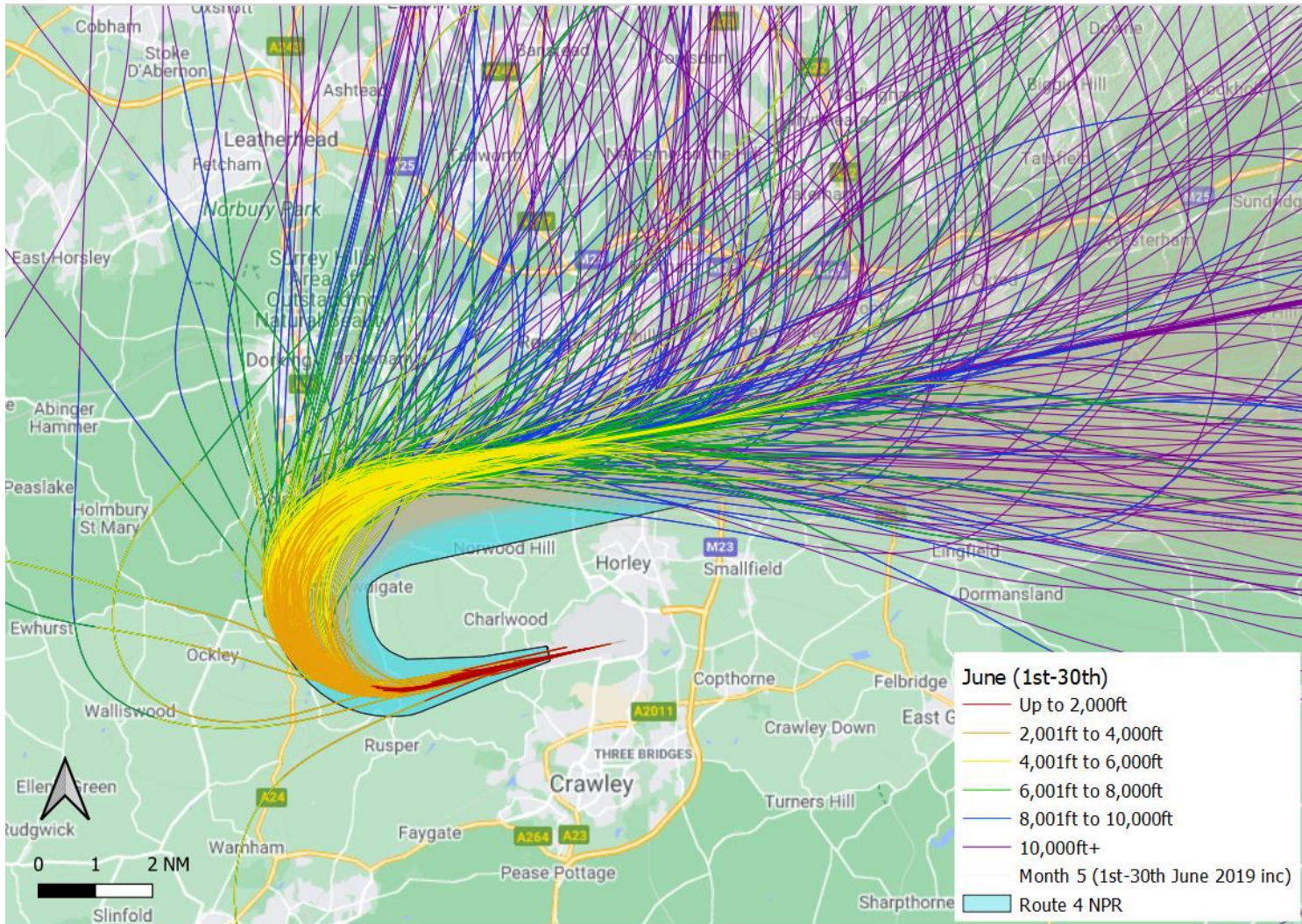
May 2021



93.9% R4 Track Keeping Compliance (246 flights)
19 LHR positioners in month – 95.6% TK compliance without positioners



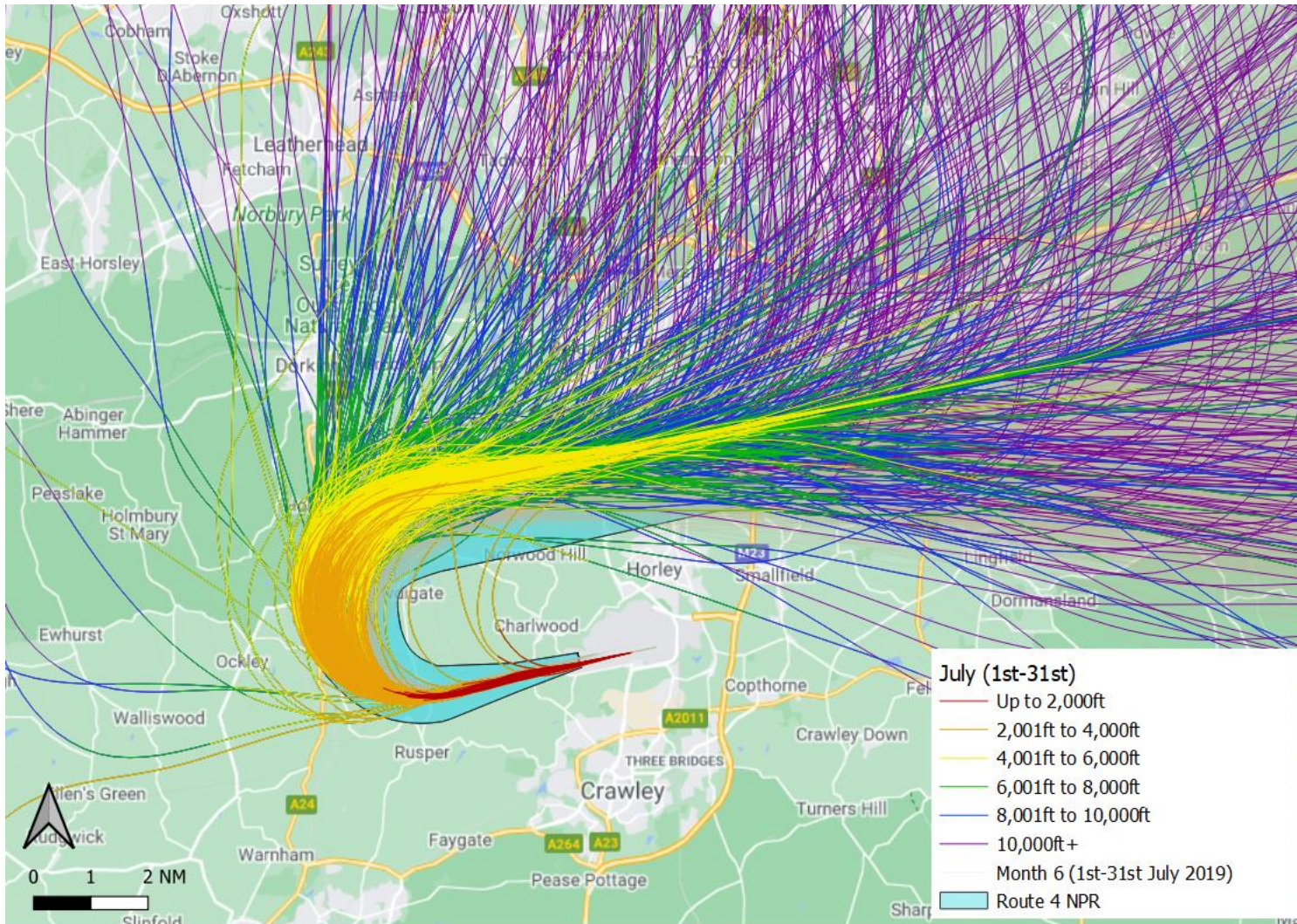
June 2021



89.4% R4 Track Keeping Compliance (293 flights)
9 LHR positioners in month – 89.7% TK compliance without positioners



July 2021

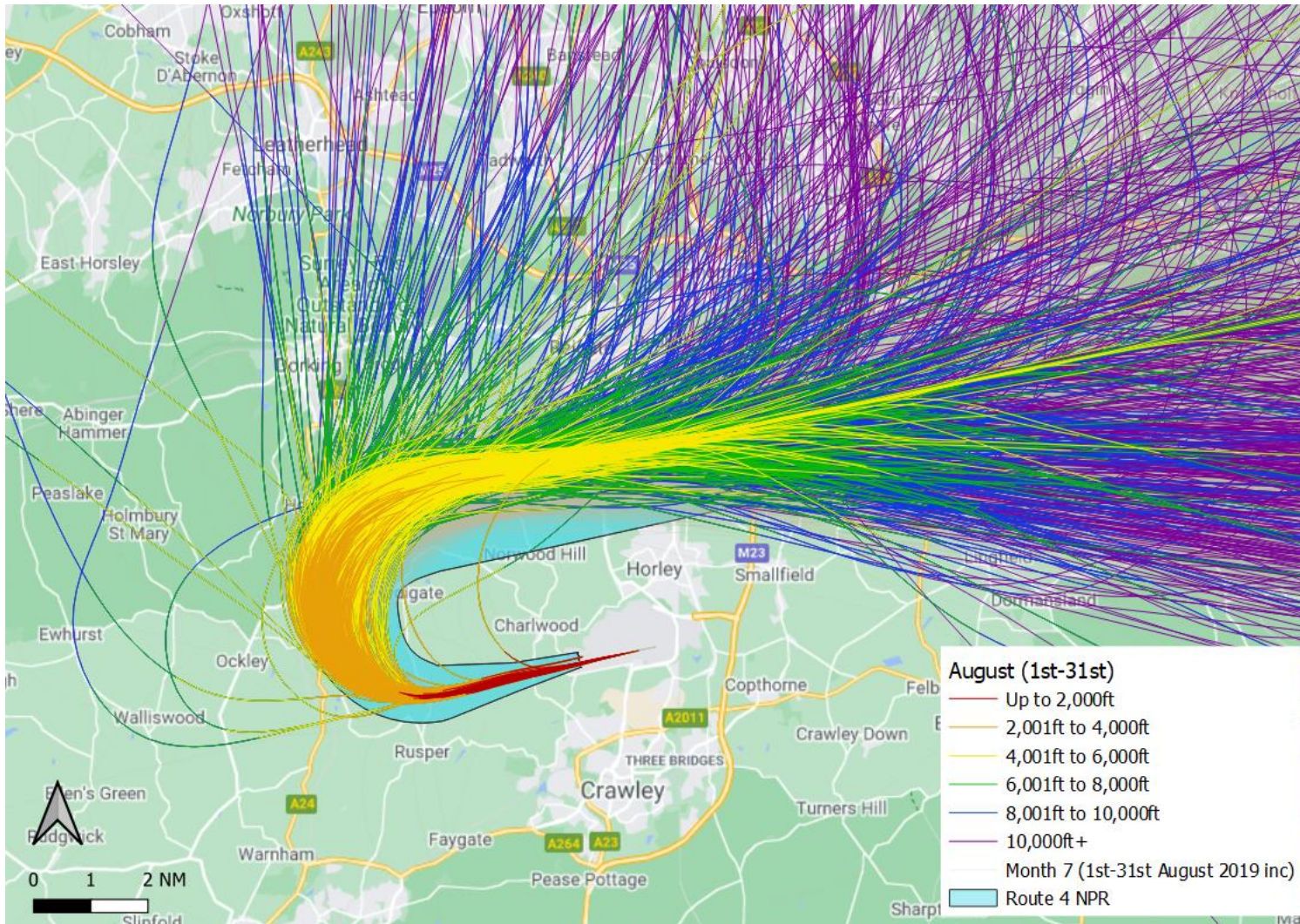


91.58% R4 Track Keeping Compliance (594 flights)

18 LHR positioners in month – 92.19% TK compliance without positioners



August 2021

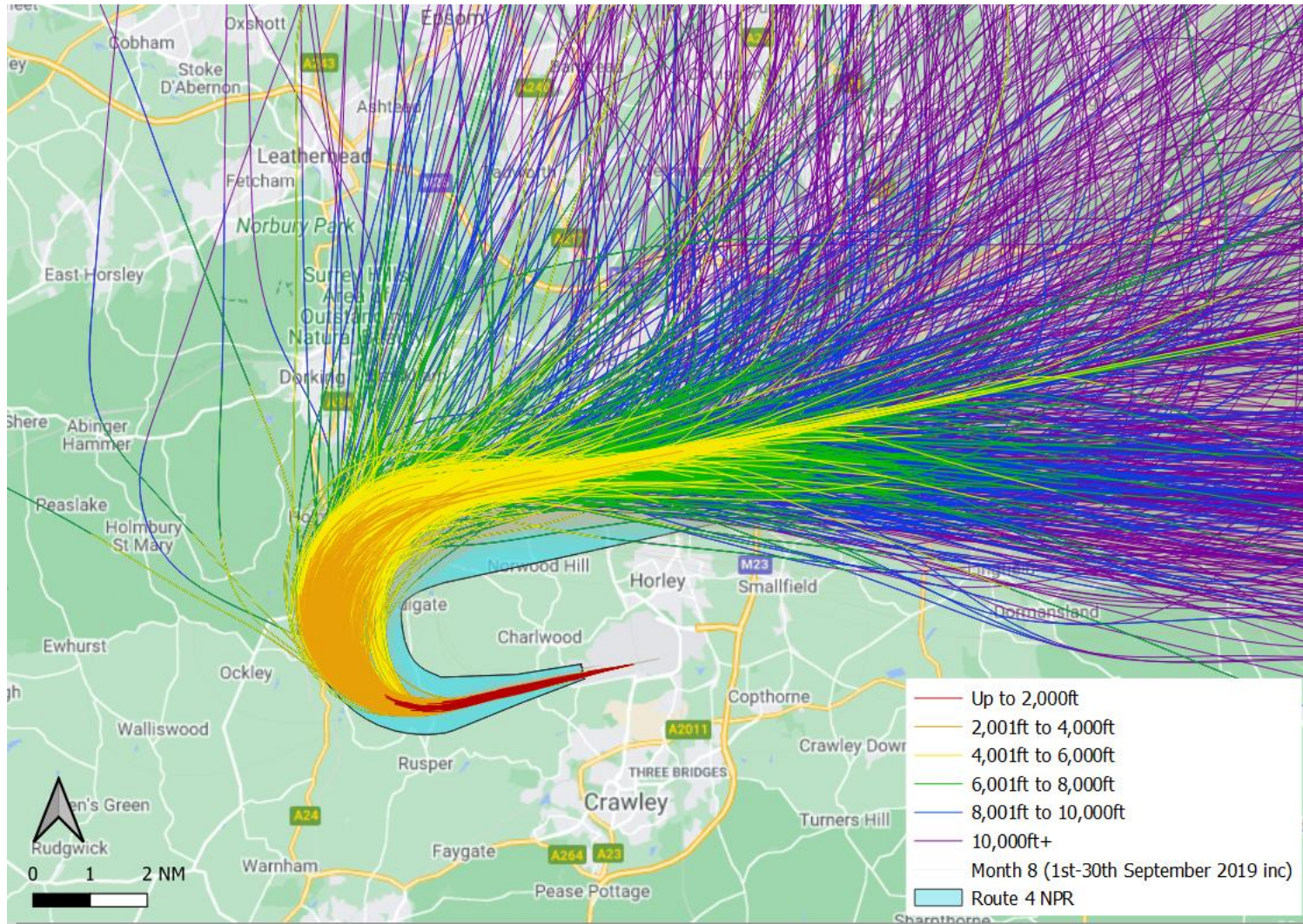


93.96% R4 Track Keeping Compliance (845 flights)

11 LHR positioners in month – 94.01% TK compliance without positioners



September 2021



93.03% R4 Track Keeping Compliance (890 flights)
13 LHR positioners in month – 93.04% TK compliance without positioners



Route ANS Trial Summary

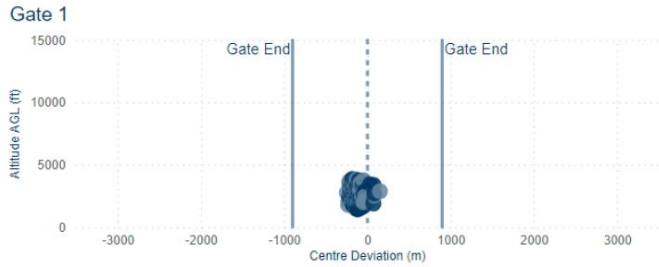


Figure 2. Penetration points for Gate 1 for all months.

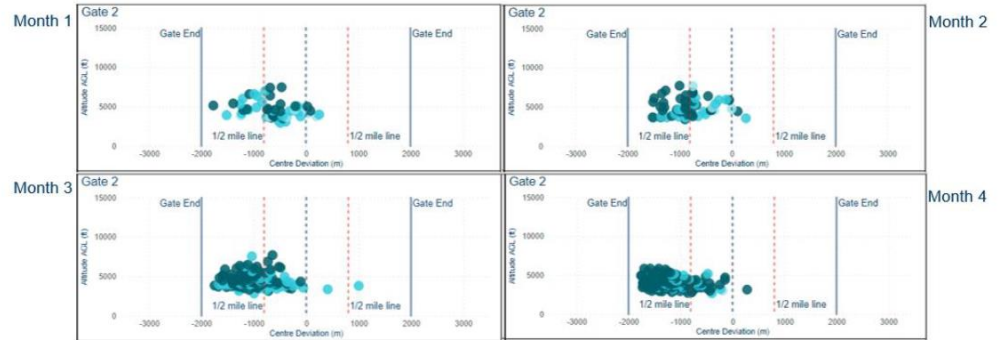


Figure 5. A collection of penetration graphs for Gate 2 per month.

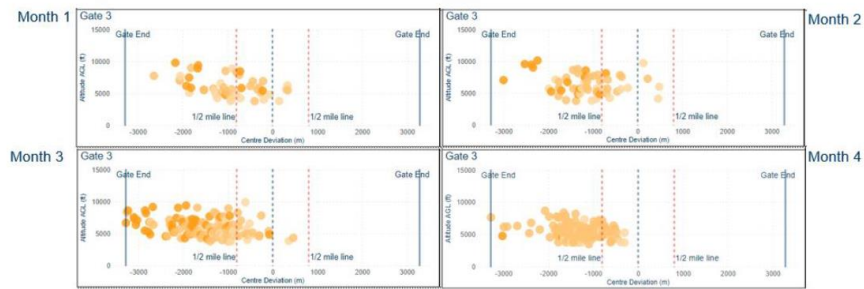


Figure 8. A collection of penetration graphs for Gate 3 per month.

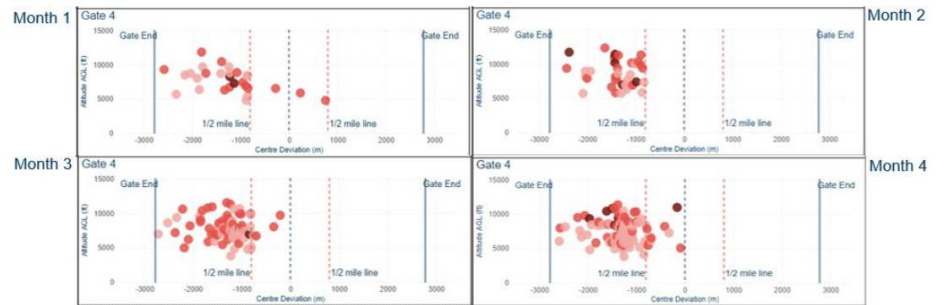
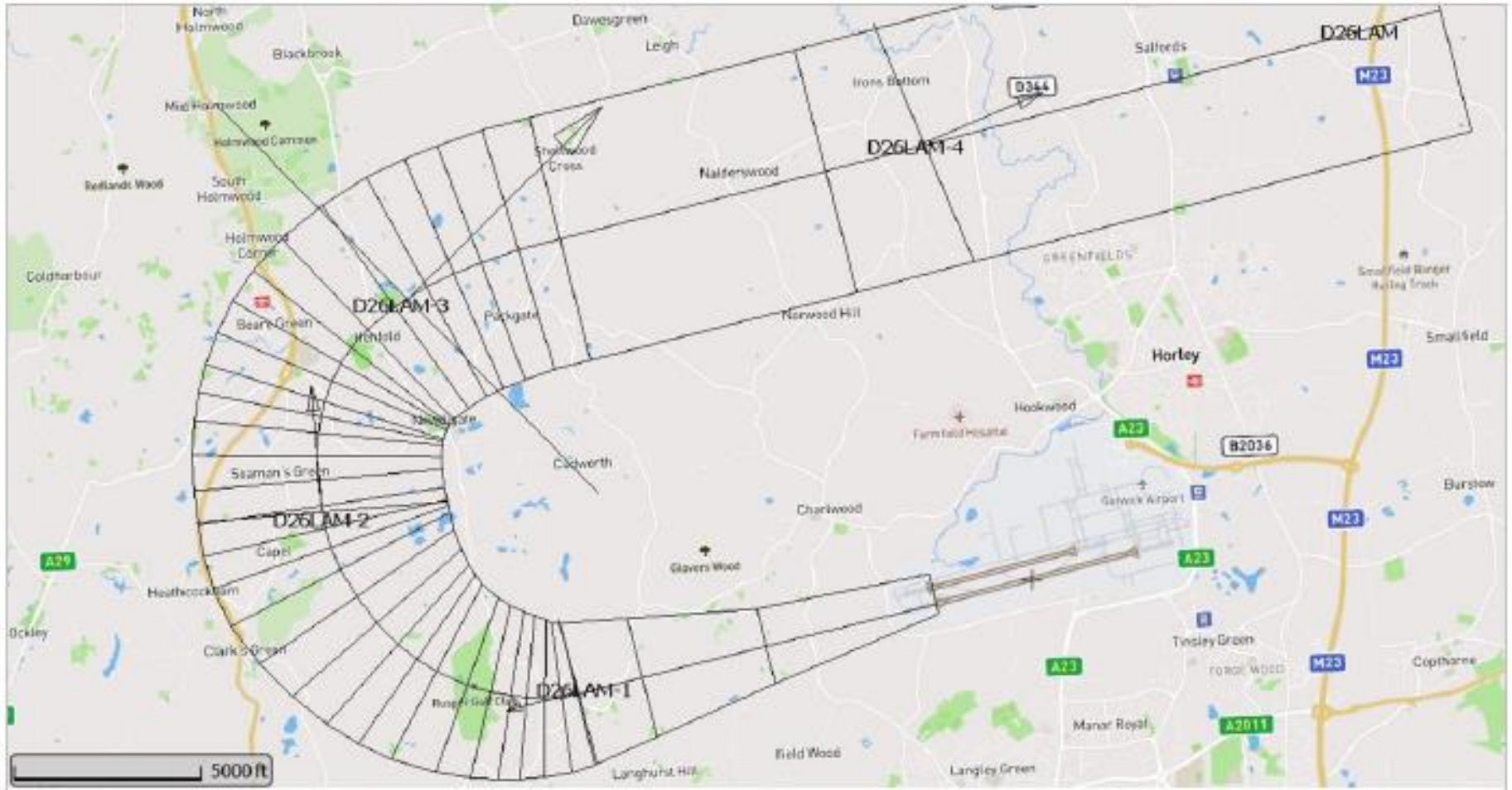


Figure 11. A collection of penetration graphs for Gate 4 per month.



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Gatwick



Route 4 ANS Trial Summary contd.

- Gates 2 and 3 recorded higher level of variation compared to 1 and 4
 - sample moved to the left of the NPR centreline
 - frequent early vectoring meant reduced track repeatability in the turn
- Gates 1 and 4 achieved more repeatable results
- Variation in height and speed of aircraft over the period due to combination of factors stemming from the impact of COVID on air traffic industry:
 - change in destinations, loads (cargo vs passengers)
 - change in flight performance due to reduced load factors
 - change in lockdown laws resulted in operational changes
 - surrounding airspace was less busy with much increased frequency of vectoring
 - individual operations would aim for higher climb rates to vector sooner
- Case studies show high likelihood of repeatable track performance if the same aircraft registration used Rte 4 on the same day – same crew, same AC, same FMS
- Overall, a degree of variation persisted throughout the trial
- Safety assessment is under way

