LAMP PIR Requirements D3, D-Env2, D-Env3

Data and Commentary for Luton and Northolt departures
Post-implementation of LAMP Phase 1A

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V3 for publication (new slides 15-16)

NATS

Module D Luton and Northolt - Introduction

This document is divided into two sections:

D3 Flights using DET SID for positioning, or for routing via L10 RINTI

Combined Env-D2 and Env-D3, vertical/lateral profiles of flights, and proportions of flights benefitting from new route

D3 Data

D3 Post-LAMP1A, flights using DET SID for positioning, or for routing via L10 RINTI

Feb 2016-17	Route	Count	Note
Luton	DET	123	Mostly positioning to Gatwick (105 flights)
Luton	RINTI	5	Subset of DET count above, mostly to Le Touquet
Luton	RINTI	28	Via new route M85 ITVIP DVR – not via DET SID
Northolt	DET	4	Two positioning to Lydd, two to Le Touquet
Northolt	RINTI	2	Le Touquet, as above
Northolt	RINTI	10	Via new route M85 ITVIP DVR – not via DET SID

What does this show?

DET SID now rarely used.

Traffic via L10 RINTI mostly uses new route M85 ITVIP DVR and does not use the DET SID.

Additional info

Overall proportions of traffic via DVR are consistent with pre-LAMP1A, but they now almost all use the new route

D-Env2 and D-Env3

D-Env2 Illustrations of vertical and lateral profiles
D-Env3 Proportions that benefit from the new route

The following whisker plots are based on 10-day summer data samples:

1-10 August 2015 pre-implementation
1-10 August 2016 post-implementation

These are representative samples, illustrating the typical traffic flows and proportions of Luton/Northolt departures that benefit from the new route. Only relevant traffic flows are shown.

Each data sample has its traffic measured through a gate, and the vertical proportions for FL bands are shown pre- and post-implementation.

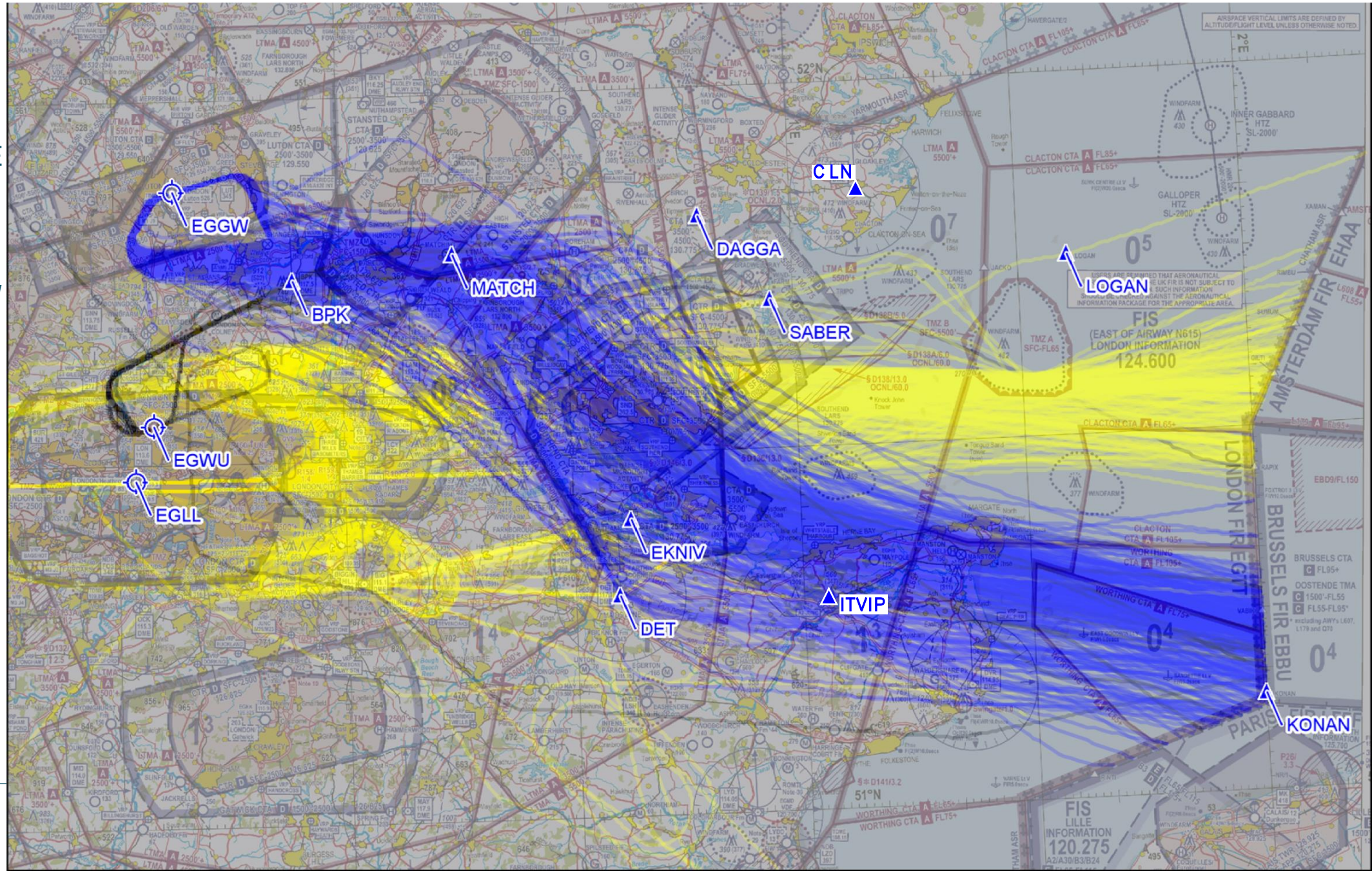
Comparing pre- and post-percentages, those in **bold** show where the benefit happens.

2015-08-01 to 10 Overview of track data

10 days of 2015 data

Blue: GW deps DVR
Grey: WU deps DVR
Yellow: LL Arrs from E

NOTE
Analysis tool does not show tracks relative to each other's vertical reference, i.e. blue GW tracks via DET were *beneath* yellow LL arrivals until past the W-bound flow.



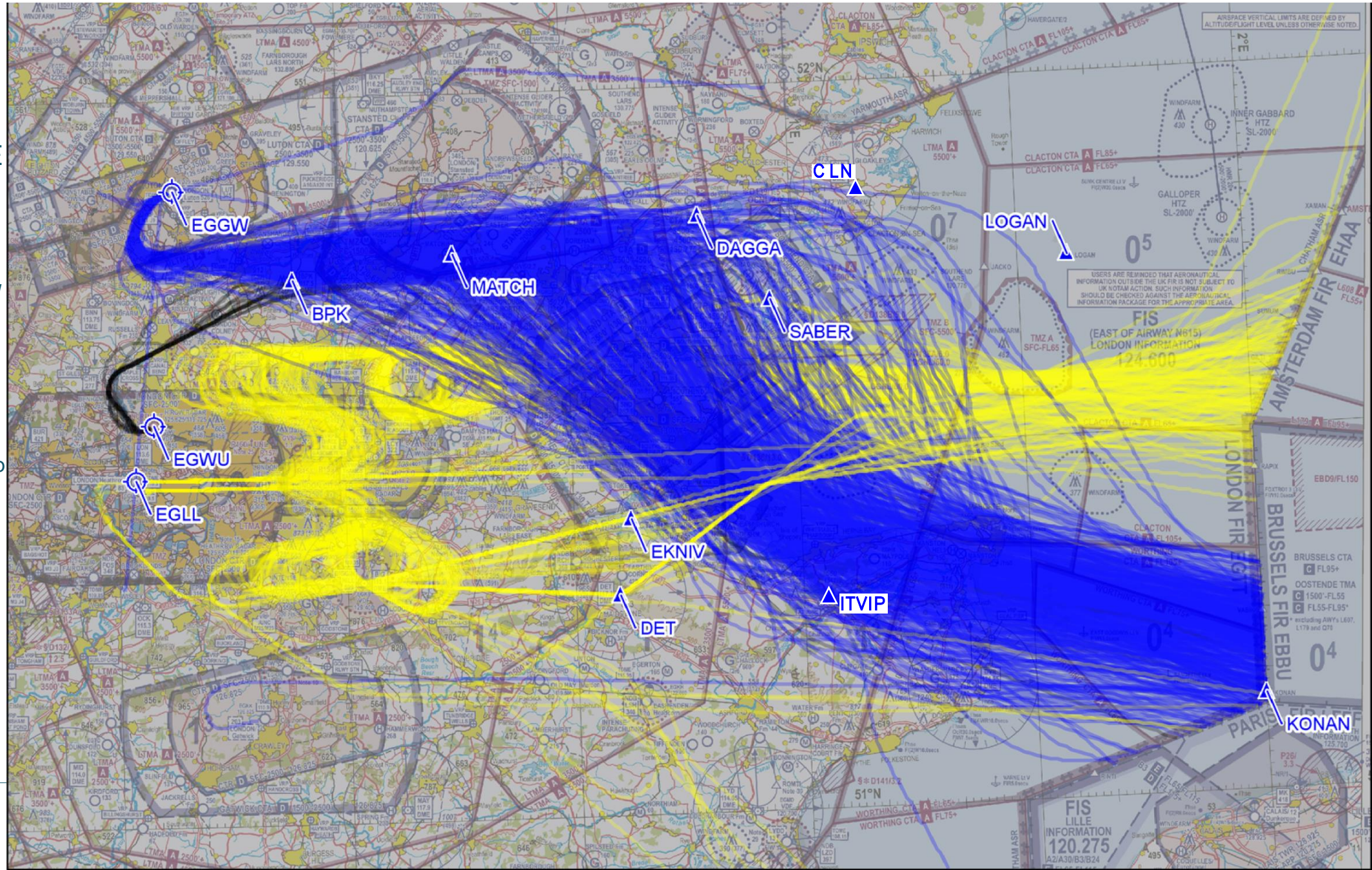
2016-08-01 to 10 Overview of track data

10 days of 2016 data

Blue: GW deps DVR
Grey: WU deps DVR
Yellow: LL Arrs from E

NOTE
Analysis tool does not show tracks relative to each other's vertical reference, i.e. blue GW tracks via MATCH-DET were *above* yellow LL arrivals then turn S above the W-bound flow.

Also, slightly darker track opacity in this picture is due to the tool's output setting, and is *not* data-related.

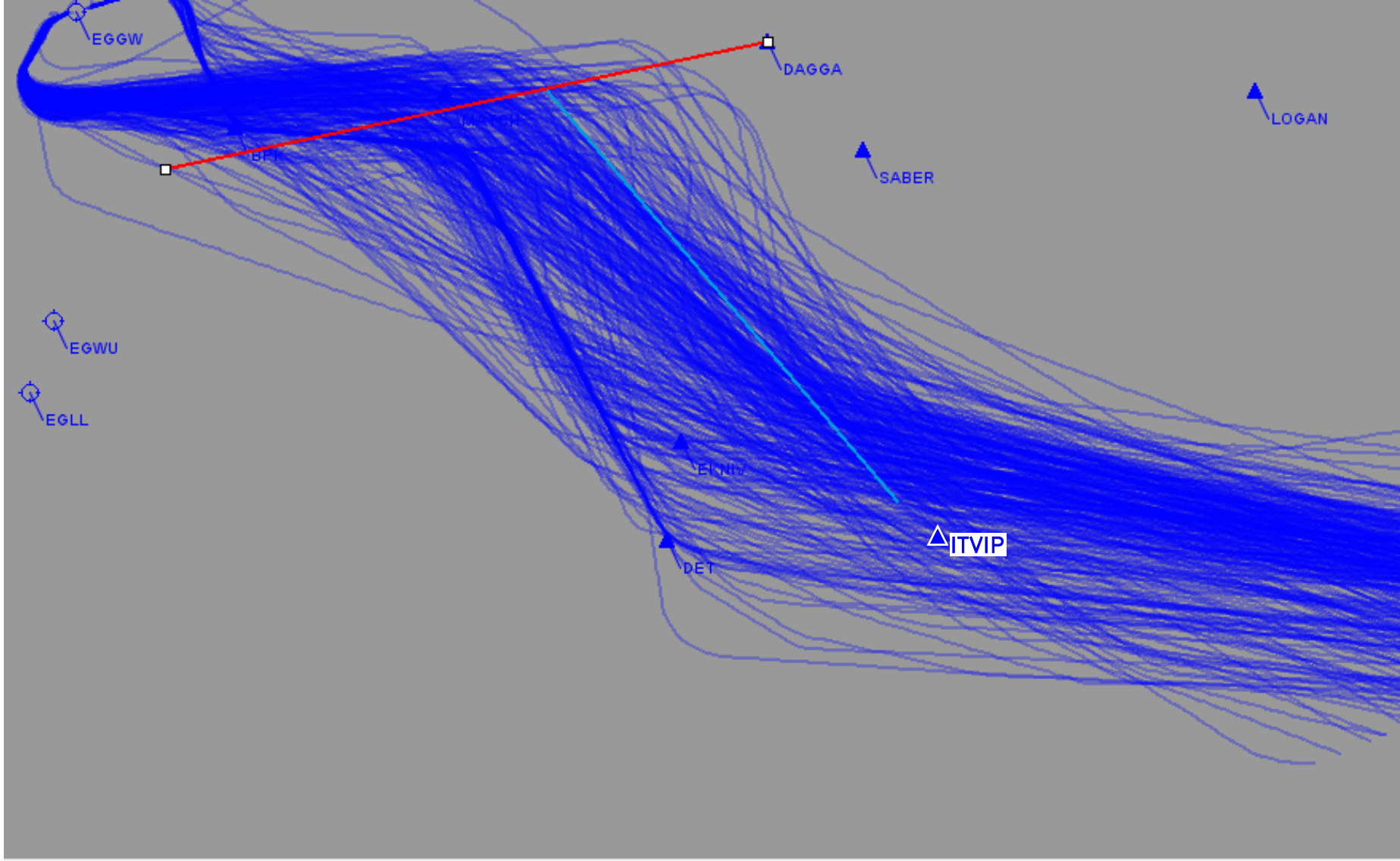


EGGW
2015-08-01 to 10

Deps –
FL measured thru red gate

35%	<=FL100
41%	FL100-FL150
23%	FL150-FL200
<1%	>=FL200

A large proportion of Luton DVR deps are below FL100 thru this gate



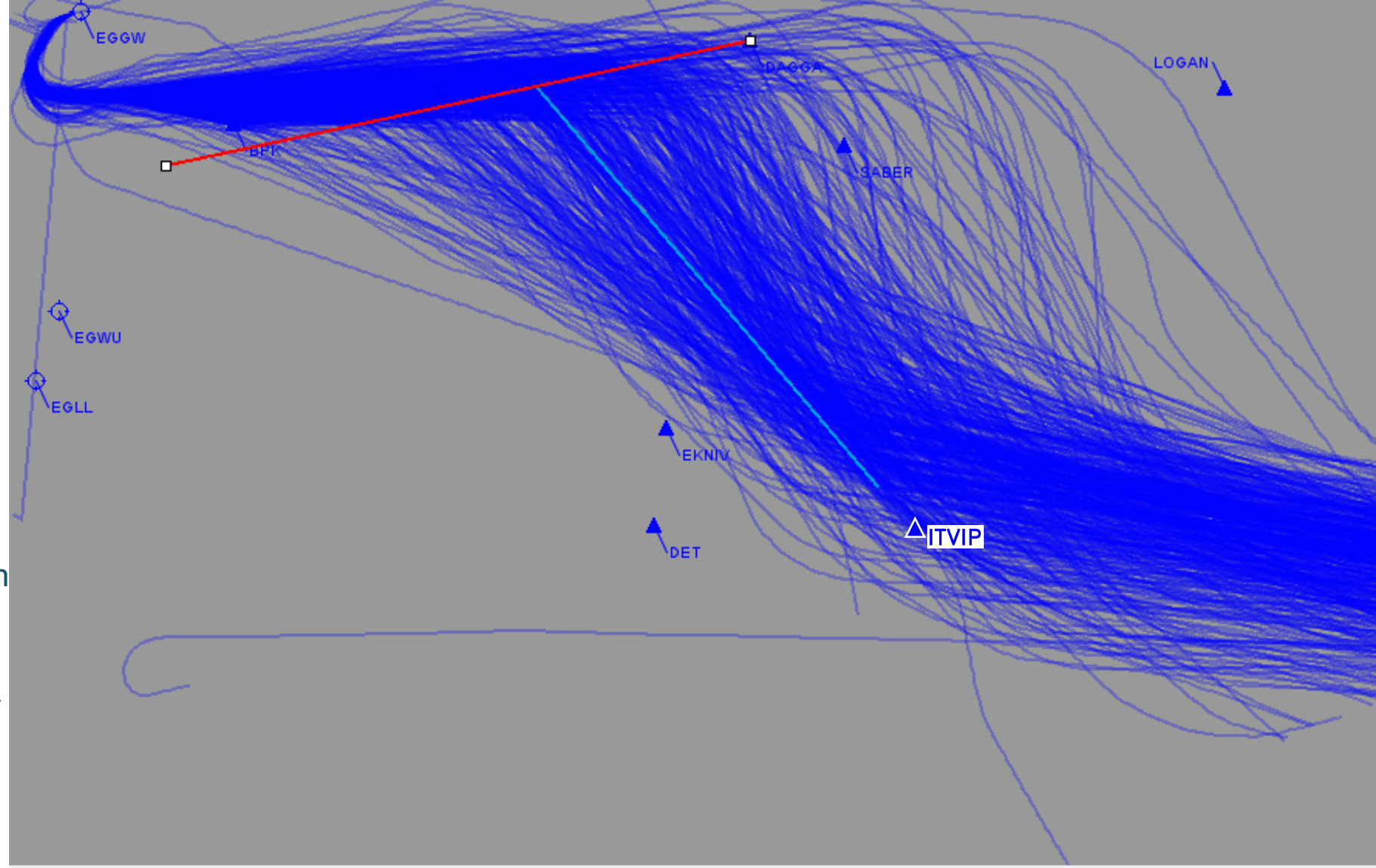
<= FL 100	]FL 100, FL 150]	]FL 150, FL 200]	>= FL 200	Total
112	129	74	2	317

EGGW
2016-08-01 to 10

Deps –
FL measured thru red gate

3%	<=FL100
40%	FL100-FL150
56%	FL150-FL200
<1%	>=FL200

c.32% of Luton DVR deps moved from "below FL100" to "above FL150", which is above the majority of the Heathrow arrival flow in that area.

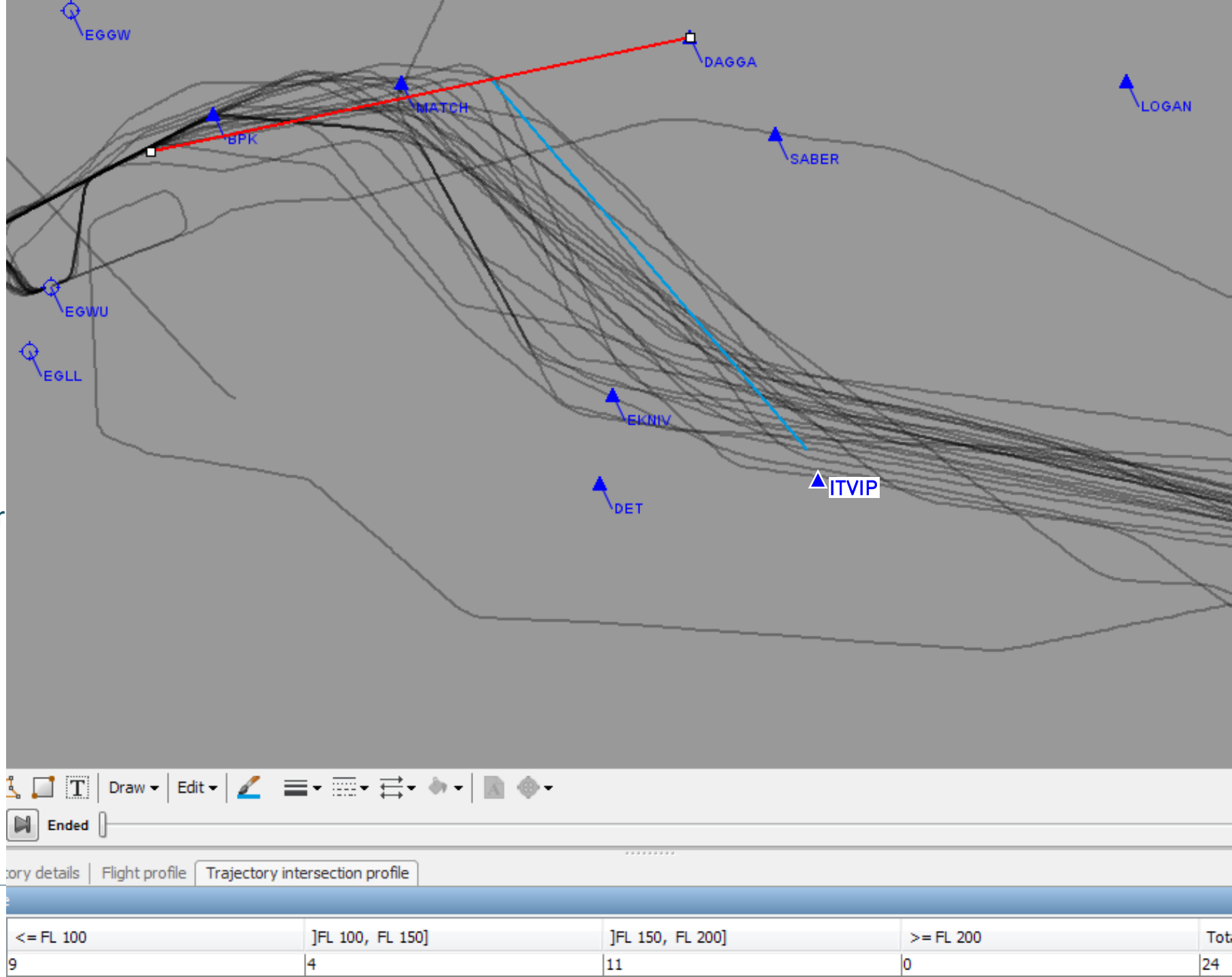


EGWU
2015-08-01 to 10

Deps –
FL measured thru red gate

37%	<=FL100
17%	FL100-FL150
46%	FL150-FL200
0%	>=FL200

Northolt's number of movements over the sample periods mean caution should be exercised when drawing conclusions.
1 movement is c.4%.

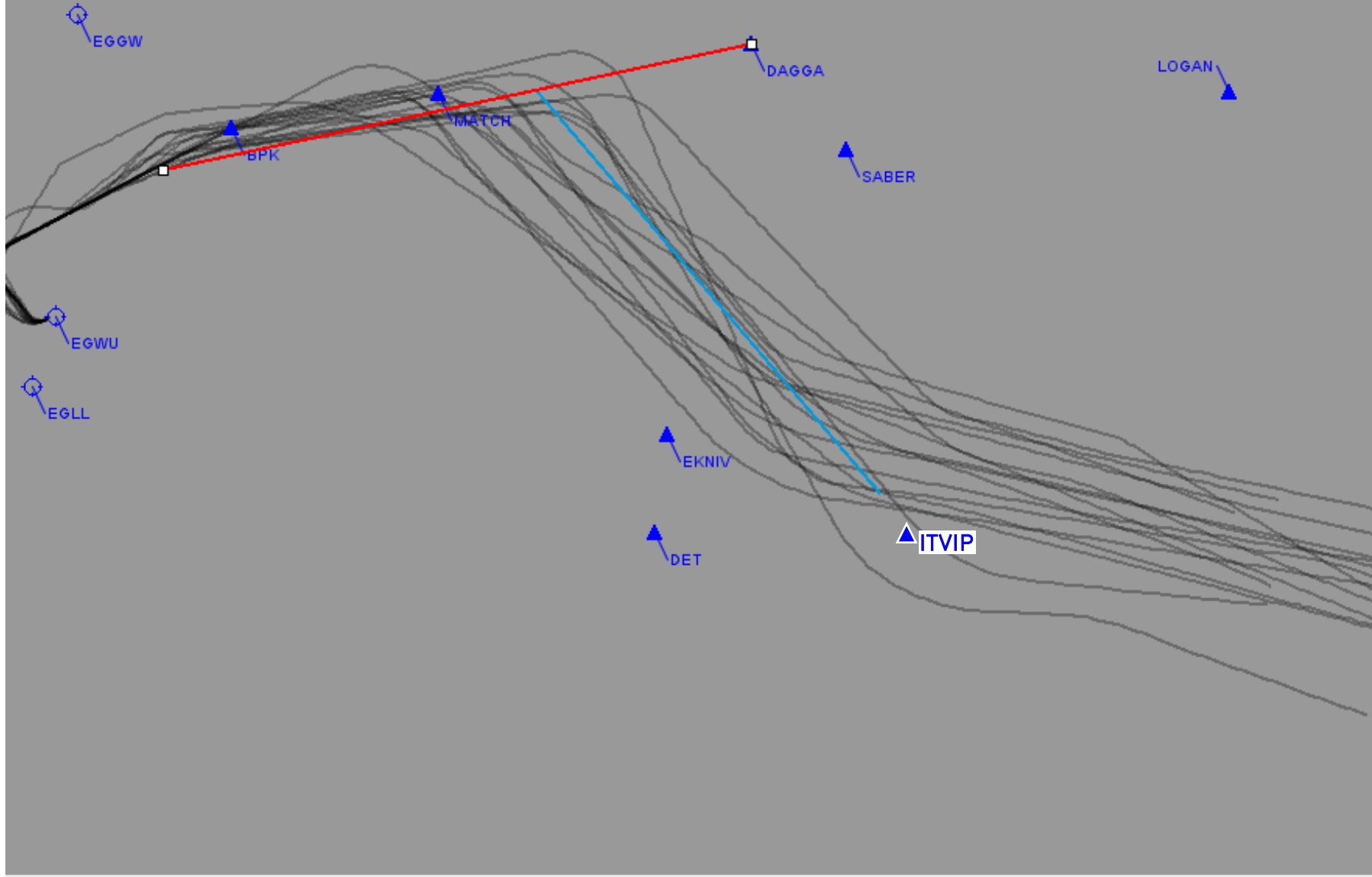


EGWU
2016-08-01 to 10

Deps –
FL measured thru red gate

18%	<=FL100
29%	FL100-FL150
47%	FL150-FL200
6%	>=FL200

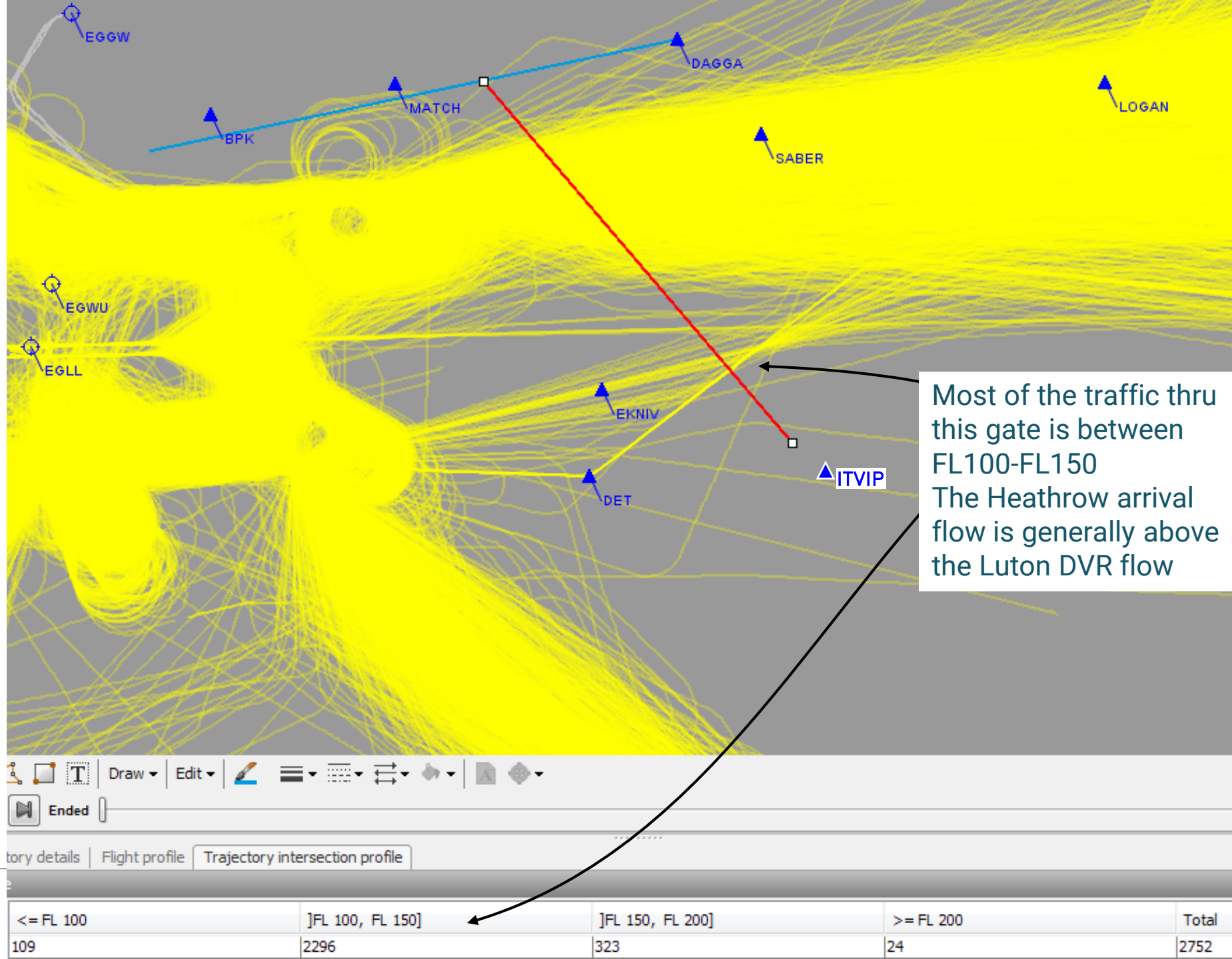
Northolt's number of movements over the sample periods mean caution should be exercised when drawing conclusions.
1 movement is c.6%.
Generally, fewer flights transit the gate below FL100 and more are in the next-highest FL bracket.



EGLL
2015-08-01 to 10

Arrs –
FL measured thru red gate

4%	<=FL100
83%	FL100-FL150
12%	FL150-FL200
<1%	>=FL200

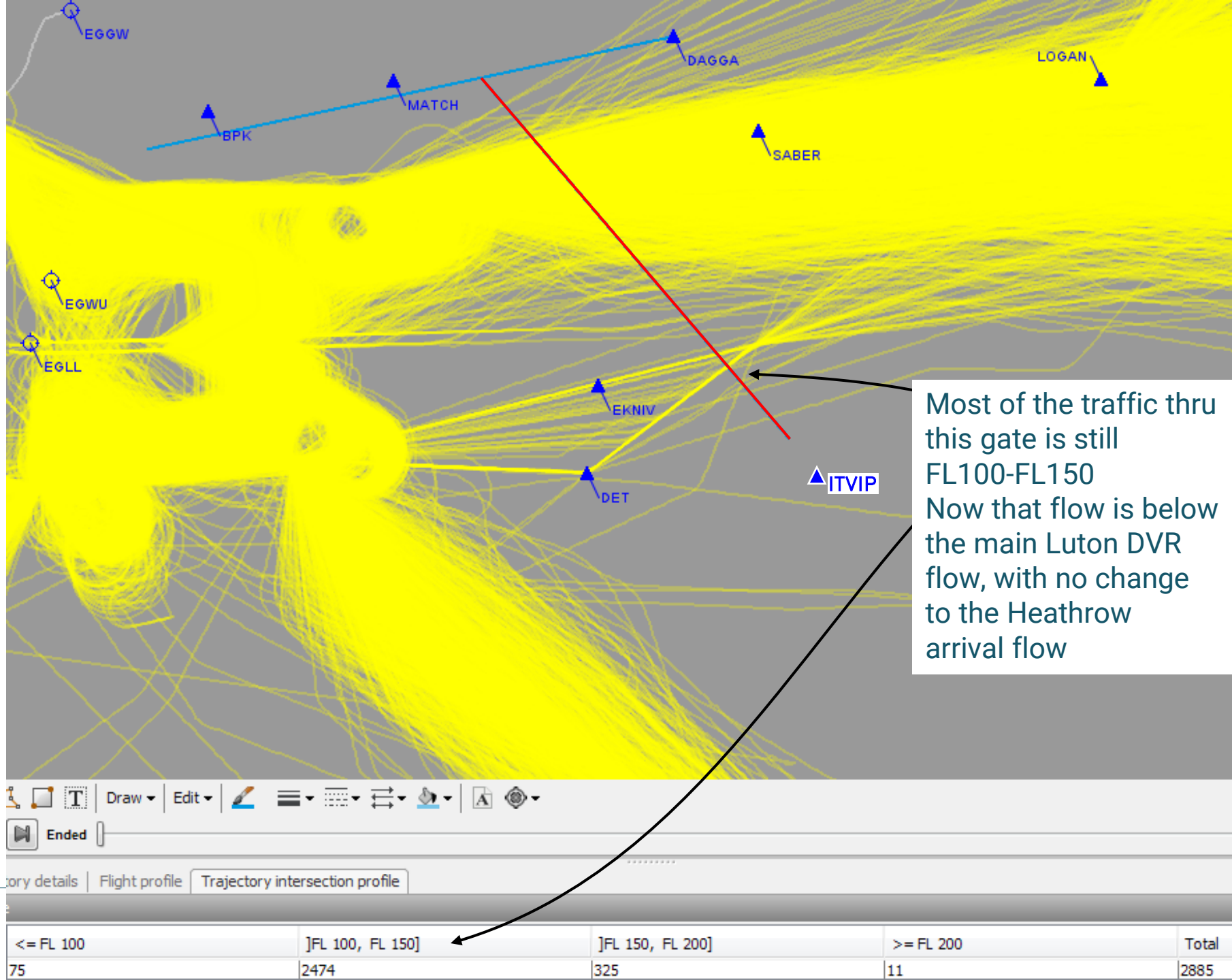


EGLL
2016-08-01 to 10

Arrs –
FL measured thru red gate

<3%	<=FL100
86%	FL100-FL150
11%	FL150-FL200
<1%	>=FL200

No significant change in proportions (as expected)



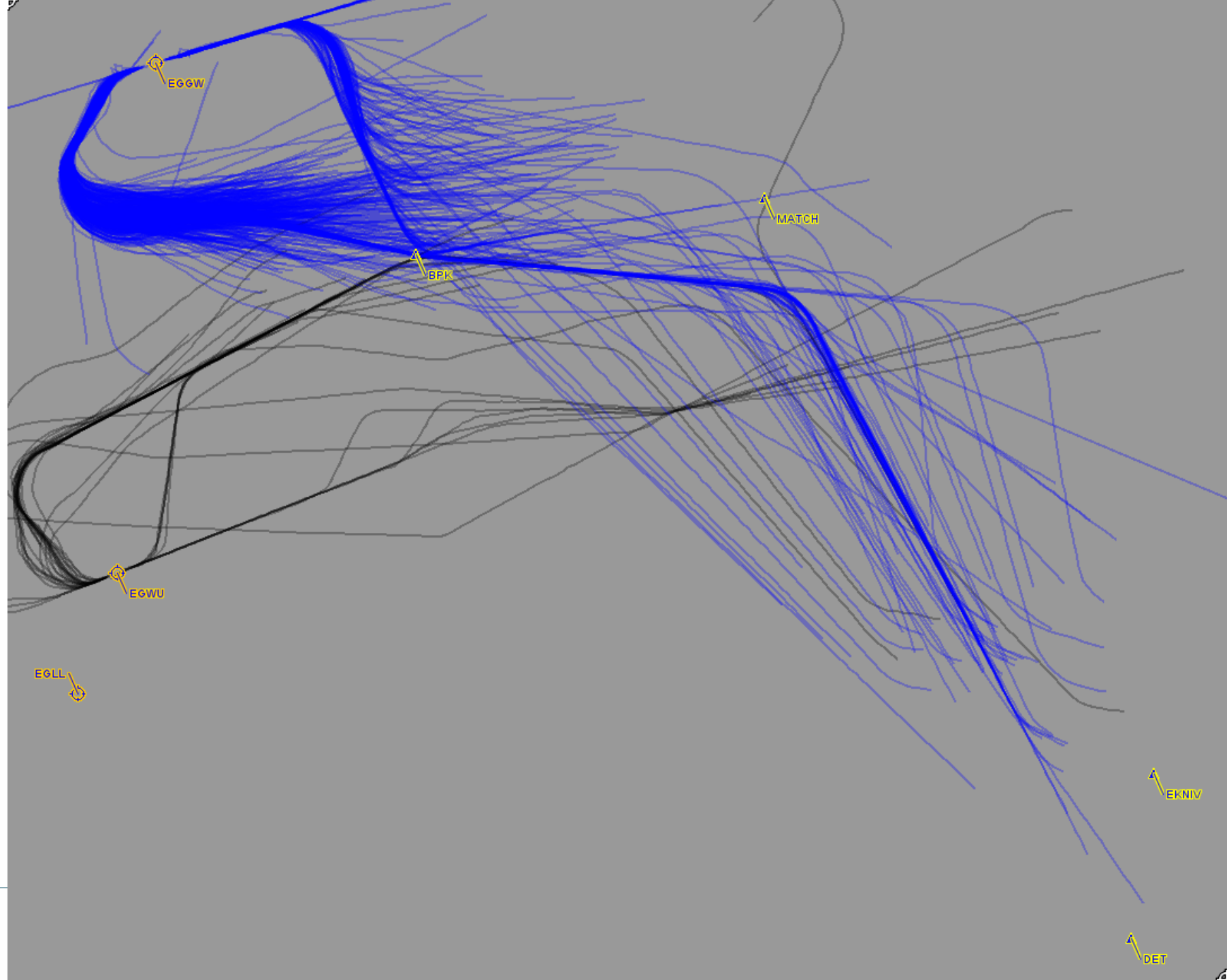
EGGW and EGWU 2015-08-01 to 10

10 days of 2015 data

Blue: Luton EGGW departures
Grey: Northolt EGWU departures

Showing departures only up to FL75
(Analysis tool could not differentiate traffic at different QNH settings)

Several Luton departures did not climb above FL75 between BPK and MATCH/DET in this pre-LAMP1A traffic data sample, likely due to Heathrow arrival traffic above, flowing from east to west (yellow in prev slides)



EGGW and EGWU 2016-08-01 to 10

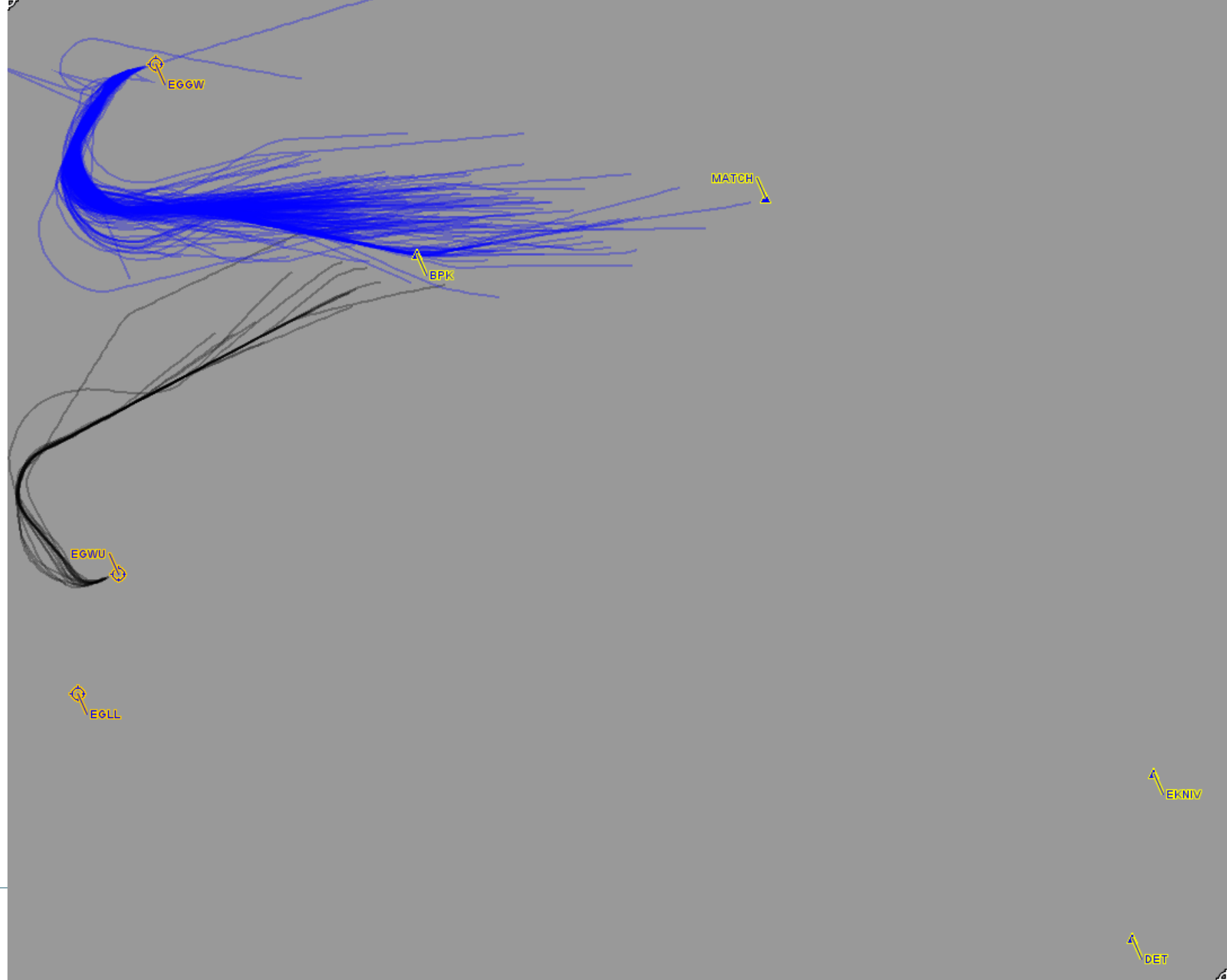
10 days of 2016 data

Blue: Luton EGGW departures
Grey: Northolt EGWU departures

Showing departures only up to FL75
(Analysis tool could not differentiate traffic at different QNH settings)

Most Luton departures climbed above FL75 before BPK, few were below FL75 between BPK and MATCH

This was a westerly-only period, however if there had been easterly traffic in the sample it would've climbed eastwards in a similar manner



Conclusion of D-Env2, D-Env3

The sample data presented here is representative of the relevant traffic flows in this region.

Based on the sample data, c.32% of 2016 Luton DVR flights are at least 5,000ft higher than their 2015 equivalents, through the gate illustrated in the track plots. They then turn south, above the Heathrow arrival flow, due to this LAMP Module.

Northolt flights gain a similar advantage, but the proportions are harder to quantify with confidence due to Northolt having comparatively fewer departures. However, the arrangement works equally for Northolt.

The Heathrow arrival flow from the east continues westbound towards LAM in a similar manner, with fewer Lutons (and Northolts) “trapped” beneath that flow.

Module D’s purpose was to keep Luton and Northolt traffic climbing east until above the Heathrow arrival flow, before turning south. The evidence shows that this occurs as predicted.

Radar Track Sample Data Summary

Both use the same ten days in different years, 1 to 10 August 2015 (pre) and 2016 (post-implementation)

Year, Airport	Deps towards DVR
2015 EGGW	317
2016 EGGW	440
2015 EGWU	24
2016 EGWU	17

	Arrivals from E
2015 EGLL	2,752
2016 EGLL	2,885

Count based on spatial filtering of relevant traffic flows

End