Farnborough Noise Group

Aviation and Farnborough Airport

Zero Carbon Guildford

16th January 2025

What we are going to cover

- Why aviation is a particular problem
- The solutions offered by the industry
- Airspace Modernisation Strategy
- Farnborough Airport – What's happening?
- Farnborough Noise Group
- What you can do about the situation?

40 minutes

- Questions

20 minutes

- Coffee/Chats/networking

30 minutes

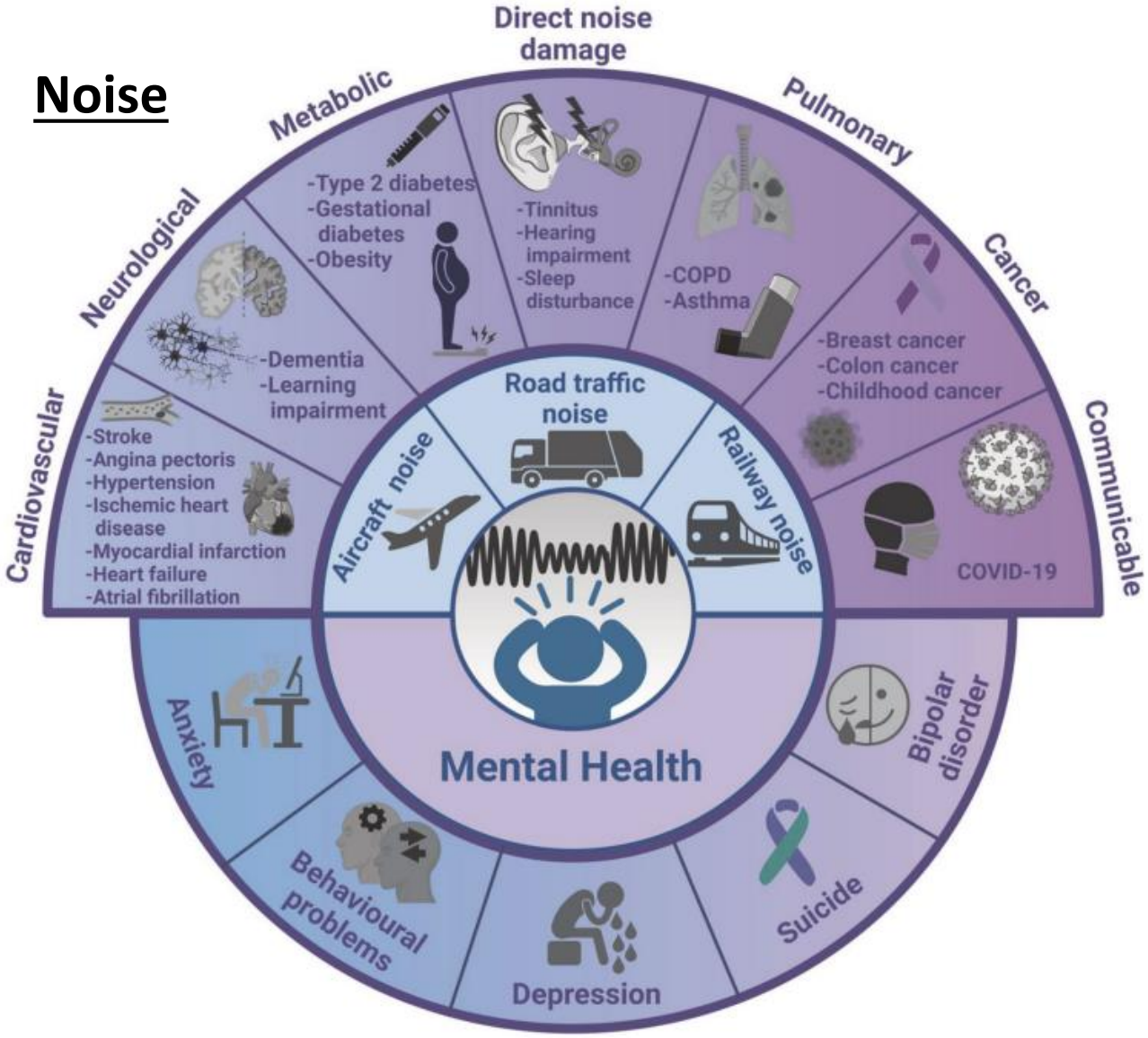
It’s not just emissions……..

Pollution

“The annual mortality of human-made air pollution in the UK is roughly equivalent to between **28,000 and 36,000 deaths every year**. It is estimated that between 2017 and 2025 the total cost to the NHS and social care system of air pollutants (**fine particulate matter and nitrogen dioxide**), for which there is more robust evidence for an association, will be **£1.6 billion**.”

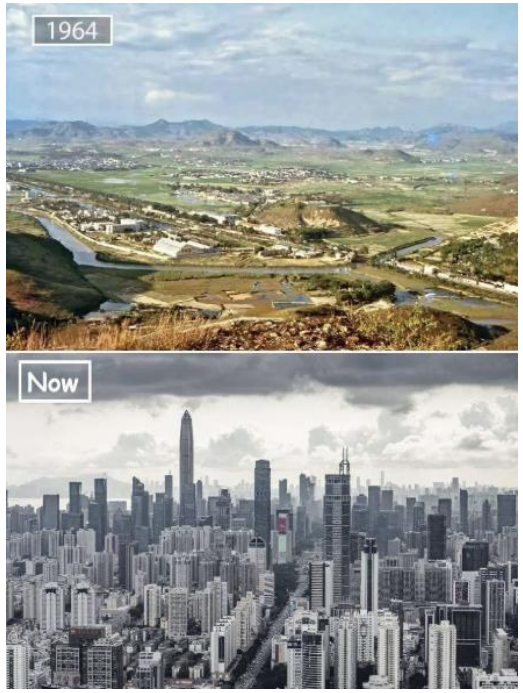
www.gov.uk/government/publications/air-pollution-applying-all-our-health/air-pollution-applying-all-our-health

Noise



Hahad O et al. Noise and mental health: evidence, mechanisms, and consequences. J Expo Sci Environ, 2024

Why aviation is a particular problem in emissions reduction



Growth of middle classes (Shenzhen)

15% efficiency improvement.
vs 20 – 30 year aircraft lifespan

Non-CO2 impacts (contrails, NOX) doubles warming effect of CO2

We use our skies like our rivers as a "free resource" with no regard for the harm caused

Why aviation is a particular problem in emissions reduction

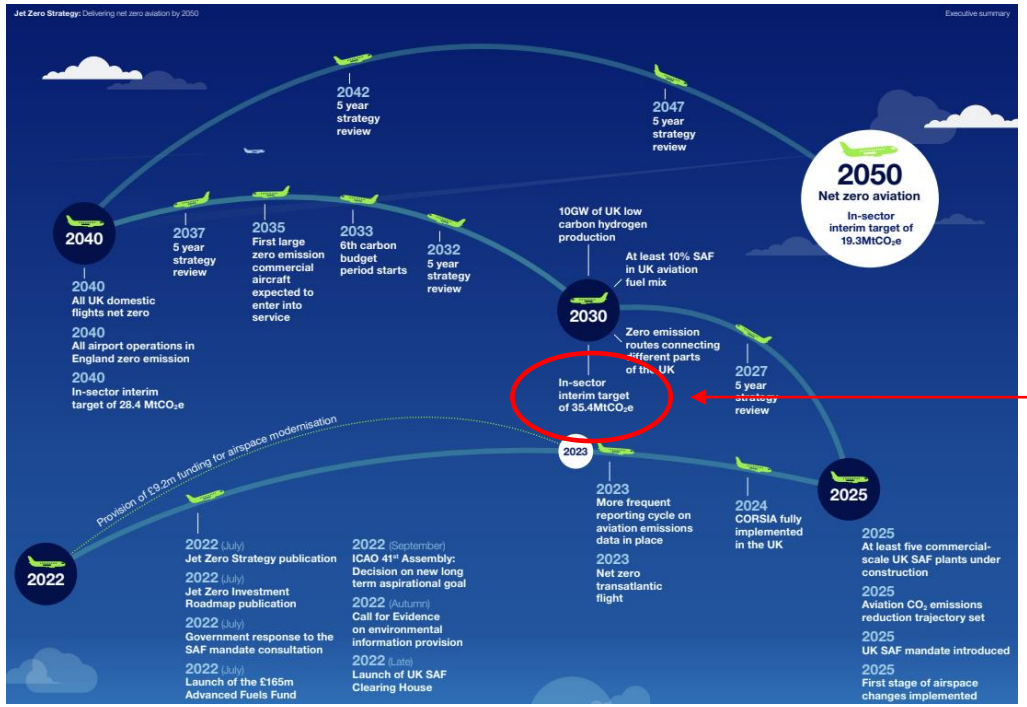
legislation.gov.uk

Climate Change Act 2008
Net Zero by 2050

Department for Transport

Jet Zero strategy 2022
Delivering net zero aviation by 2050

Jet Zero strategy 2022



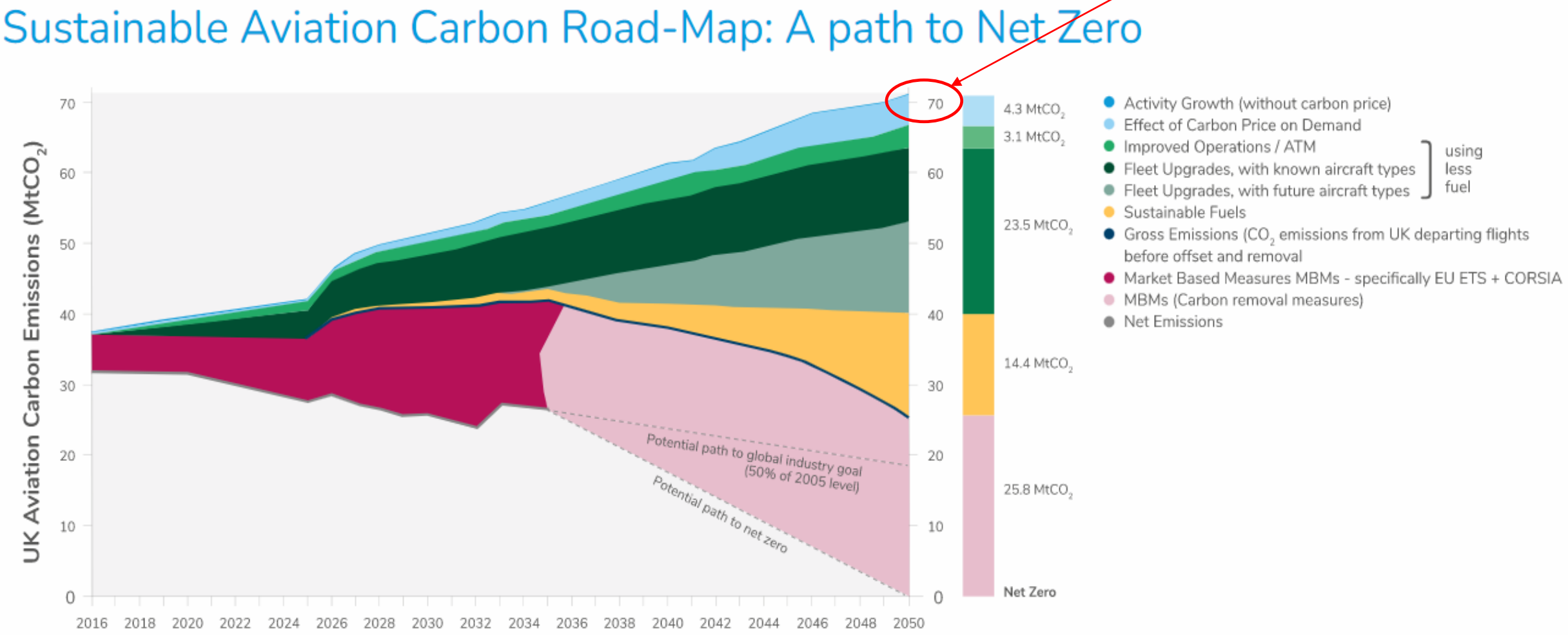
Targets already off-track.

In July 2022, the High Court held that the Government's Net Zero Strategy was unlawful and ordered it to produce a revised strategy that complied with its obligations under the Climate Change Act 2008 (Leigh Day)

Why aviation is a particular problem in emissions reduction

2022…..

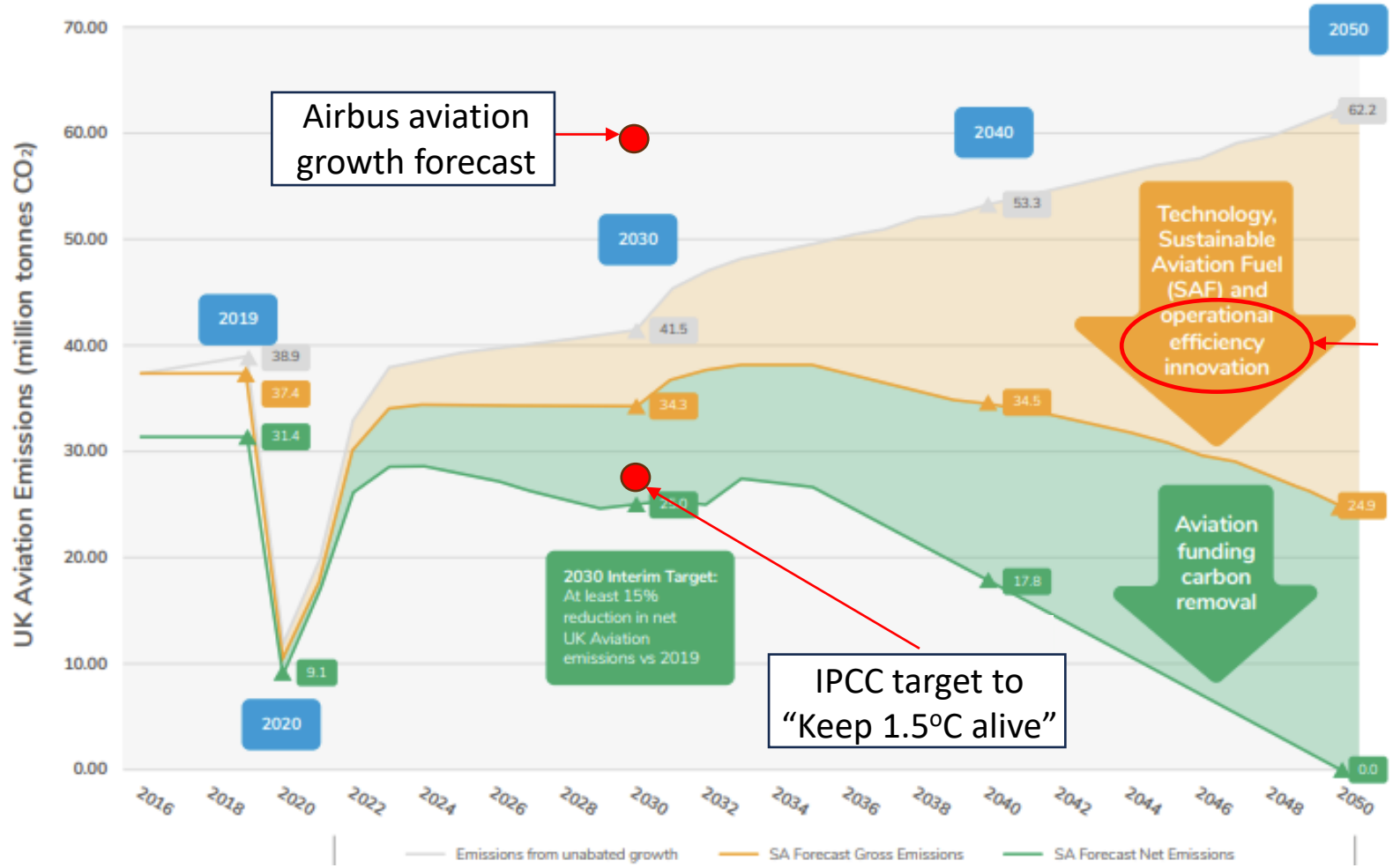
71MtCO$_2$ by 2070



Why aviation is a particular problem in emissions reduction

2024…..

UK Aviation Emissions



SAF was 14.4 $MtCO_2$
Now 37.3 $MtCO_2$

We'll come back to this….

Sus

The solutions offered by the industry

- Sustainable Aviation Fuel (SAF)
- Carbon Capture
- Electric battery
- Hydrogen
- Offsetting

In 2024, the Advertising Standards Authority upheld complaints against Farnborough Airport and operators regarding greenwashing in their communications

Lots more information at https://stay-grounded.org/greenwashing/

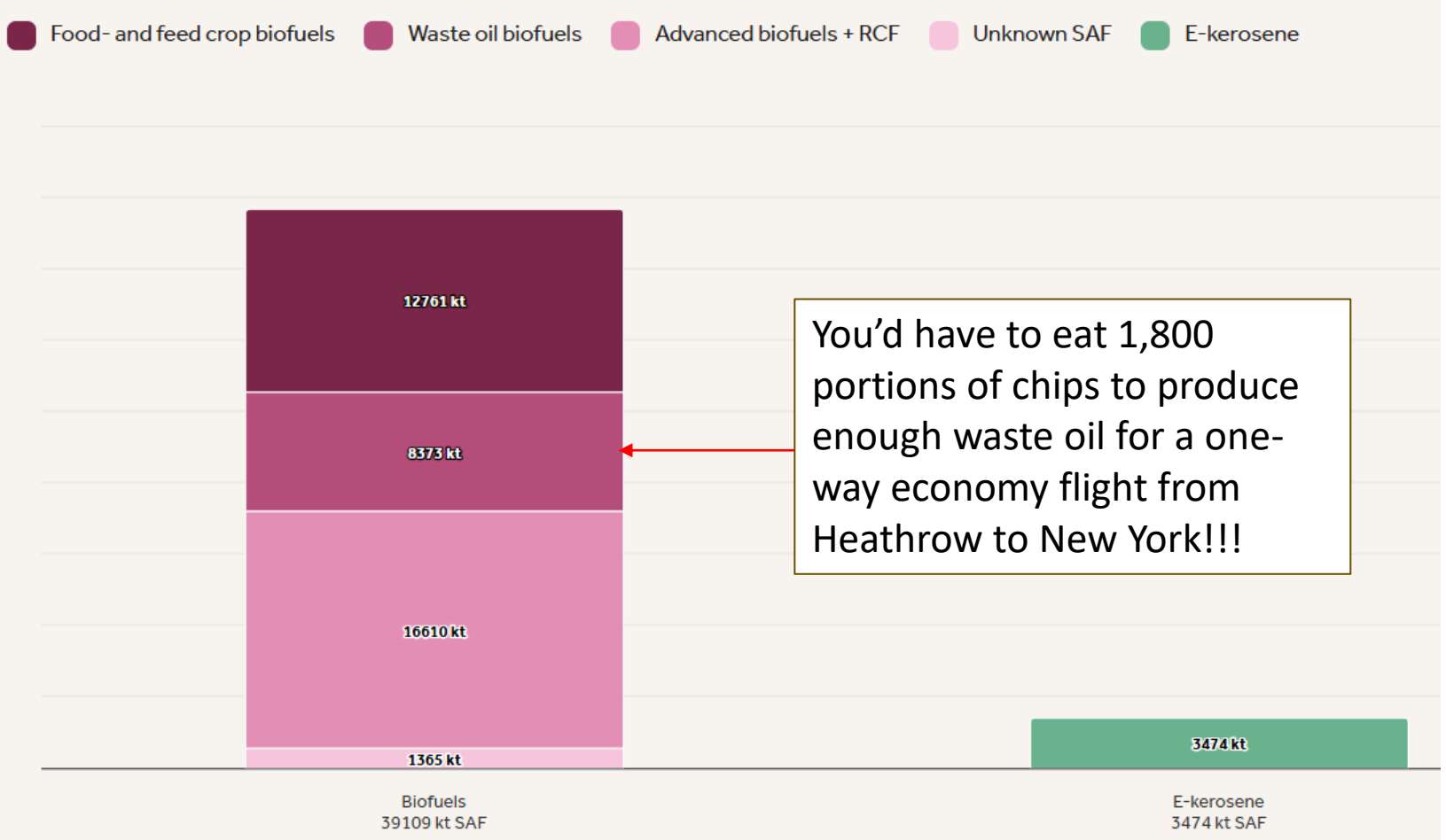
The solutions offered by the industry - SAF

Airlines are betting on the wrong kind of SAF

Airline SAF agreements (past and future; including investments, memorandums of understanding and letters of intent)

Currently, most of the airlines ranked in T&E's SAF observatory are using and committing to the wrong type of SAF, casting doubts on their ability to address aviation's climate impacts. E-kerosene makes up less than 10% of their SAF agreements, while crop-based biofuels account for more than 30%.

*RCF = recycled carbon fuels



You'd have to eat 1,800 portions of chips to produce enough waste oil for a one-way economy flight from Heathrow to New York!!!

Source: T&E (2024), based on data from ICAO (2024), BNEF (2024), Stratas (2024), and press announcements

T&E

Farnborough Noise Group

The solutions offered by the industry – Carbon Capture

Carbon capture plan is a colossal waste of money

Part of a carbon capture plant at a power station in Texas. Photograph: Luke Sharrett/Bloomberg via Getty Images

George Monbiot rightly eviscerates the government's foolish plan to waste nearly £22bn on the carbon capture and storage (CCS) venture (Labour's carbon-capture scheme will be Starmer's white elephant: a terrible mistake costing billions, 11 October). But he only hints at a worse aspect of the plan: that it is entirely unproven to work on the scale needed to be effective, as many studies have shown.

The Guardian – October 2024

Environment

Our plans to tackle climate change with carbon storage don't add up

A project in Blomoyna, Norway, aims to pump CO_2 under the ocean
Andrea Gjestvang/Bloomberg/Getty

Plans to tackle climate change by sucking carbon dioxide from the air and storing it underground are wildly unrealistic, according to a new analysis, calling into question our ability to meet climate goals.

New Scientist – April 2024

- Offsetting businesses charge £5 - £10/Tonne CO_2
- Carbon Capture - £700/Tonne CO_2 now - reducing to about £200 over 15 years

The solutions offered by the industry – Others

Tecnam's P-Volt all-electric passenger aircraft project stalls due to battery limitations

Christopher Surgenor · 19 June 2023 · 2 min read

- Energy content of fuel
  - Jet A1 kerosine – 12,000 Wh/kg
  - Lithium-ion battery – 500 Wh/kg
  - Lithium-sulphur battery – 2,700 Wh/kg
- Speed/range/passenger load

Leading hydrogen aircraft startup is suddenly grounded

Universal Hydrogen had raised $100 million from investors to build hydrogen-fuel-cell aircraft. Now it's liquidating its business.

July 2024

- Technical challenges
  - -253°C tank in fuselage
  - Needs global infrastructure
  - Hydrogen not "green"
- Speed/range/passenger load

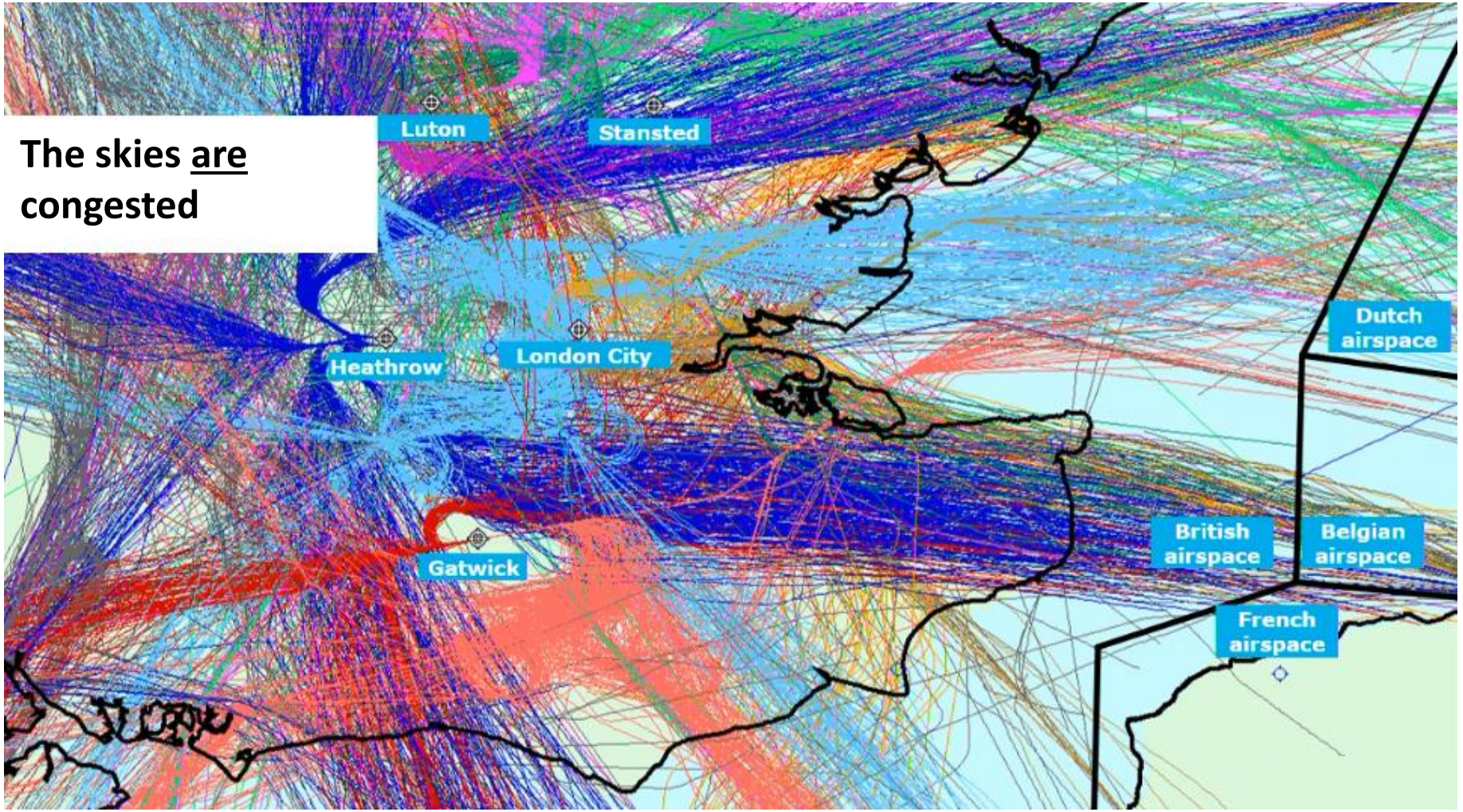
Cost of SAF vs Jet A1 fuel and carbon capture

Airbus 320 Neo	Athens Rtn	Malaga Rtn	Prague Rtn	
Fuel burn rate	640	640	640	Gallons/hr
Fuel burn rate	2,423	2,423	2,423	Litres/hr
Flight length	7.5	6.0	4.0	Hours
Litres burnt	18,169	14,536	9,690	Litres
Killogrames burnt	14,536	11,628	7,752	Kilos
Tonnes burnt	14.5	11.6	7.8	Tonnes
Cost of Jet A-1	0.45	0.45	0.45	£/litre
Cost of SAF	1.35	1.35	1.35	£/litre
Flight cost Jet A-1	8,176	6,541	4,361	£
Flight cost SAF	24,529	19,623	13,082	£
Passengers per plane	130	130	130	
Jet A-1 cost per passenger	63	50	34	£
SAF cost per passenger	189	151	101	£
CO2 emissions per Kg fuel	3.16	3.16	3.16	Kg
Non CO2 impact	1.9	1.9	1.9	Conversion factor
CO2 for flight	46	37	24	Tonnes
CO2e for flight	87	70	47	Tonnes
Cost of carbon capture	700	700	700	£/Tonne
Carbon capture for flight	61,090	48,872	32,581	£
Carbon capture per passenger	470	376	251	£

"Fuel" costs will be ten times higher with SAF and Carbon Capture vs today's Jet A-1 fossil fuel

£34 to £350

The Airspace Modernisation Strategy



The Airspace Modernisation Strategy

Airspace does need to be redesigned:

- Improve safety
- GPS navigation
- Reduce impact

<u>But based on fewer flights</u>

Government's **Airspace Modernisation Strategy**:

- Double capacity by 2030
- Change all flightpaths
- Increase flightpath density
- Increase night flights
- Put flightpaths over rural areas

…….”Sewers in the sky”

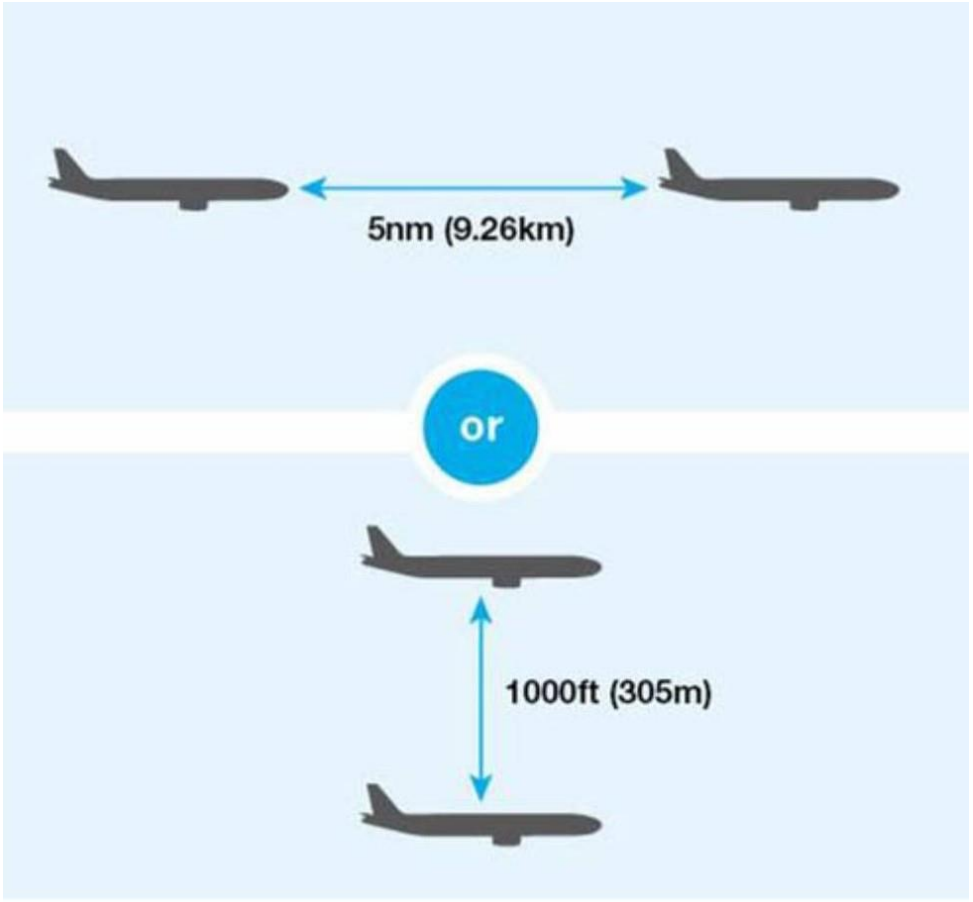
Coming to a village near you? The new motorways in the sky

Flight paths at the busiest 20 airports are being transformed to save fuel and cut delays, but people living underneath fear increased noise and pollution

Nicholas Hellen, Transport Editor
Saturday February 24 2024, 6.00pm, The Sunday Times

The Airspace Modernisation Strategy

Aircraft separation requirements



- Heathrow – aircraft every 90 seconds
- Gatwick – aircraft every 60 seconds

- Gatwick's new runway will double the number of flightpaths

- AMS results in 2 million flights a year for Heathrow, Gatwick, Farnborough (~7,000/day) over this area below 10,000ft

Why it's a problem in the Guildford Area, and a growing problem

We'll come back to this….

How Farnborough's new flightpaths impacted the area in 2020

2012 – about 10 flights/day
2024 – in excess of 100 flights/day

- Commercial aircraft
- Private jets
- Helicopters
- Light aircraft

Big increase in noise & significant impact on property prices

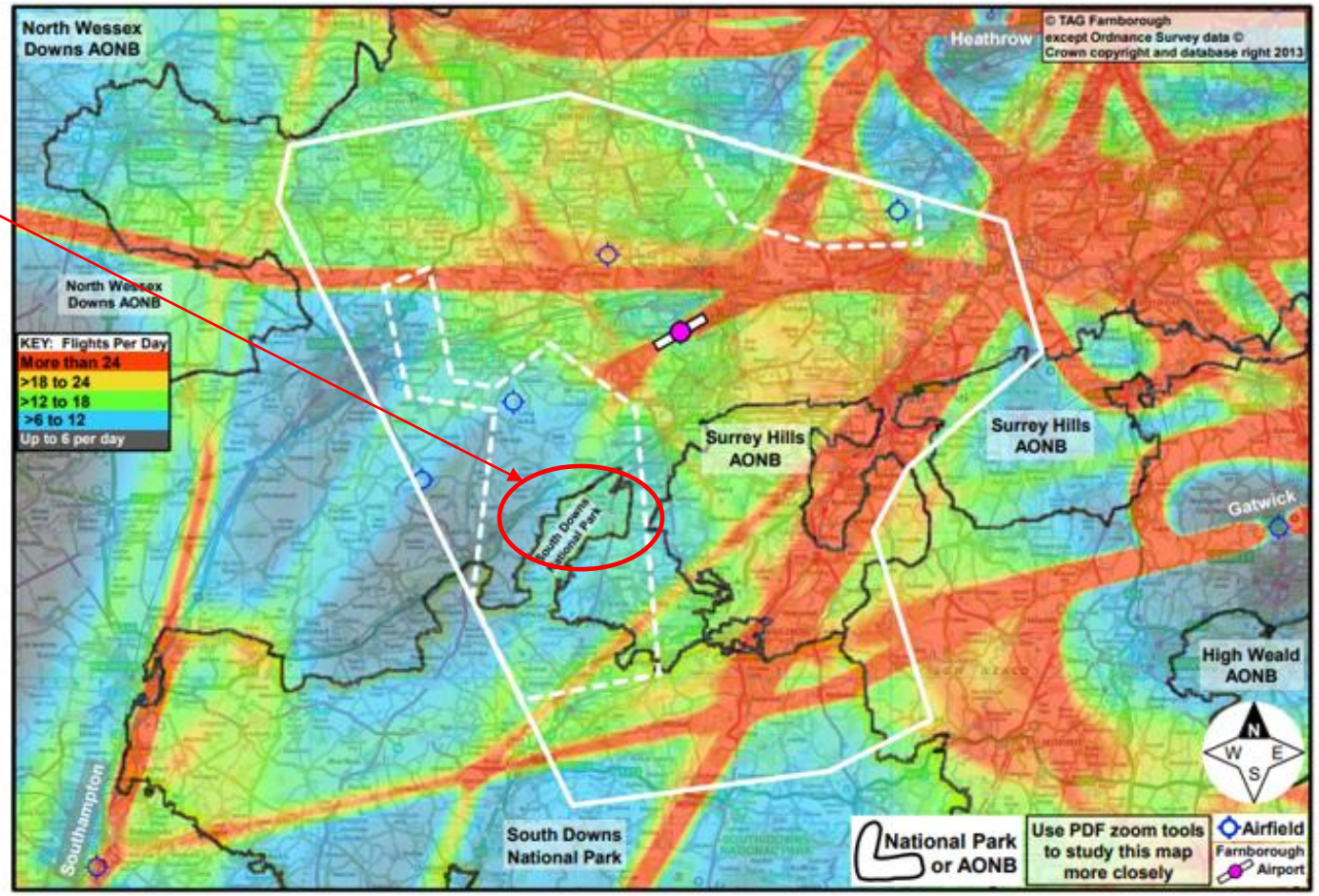


Figure B3: All commercial flights (up to 20,000ft) density plot with National Parks and AONBs

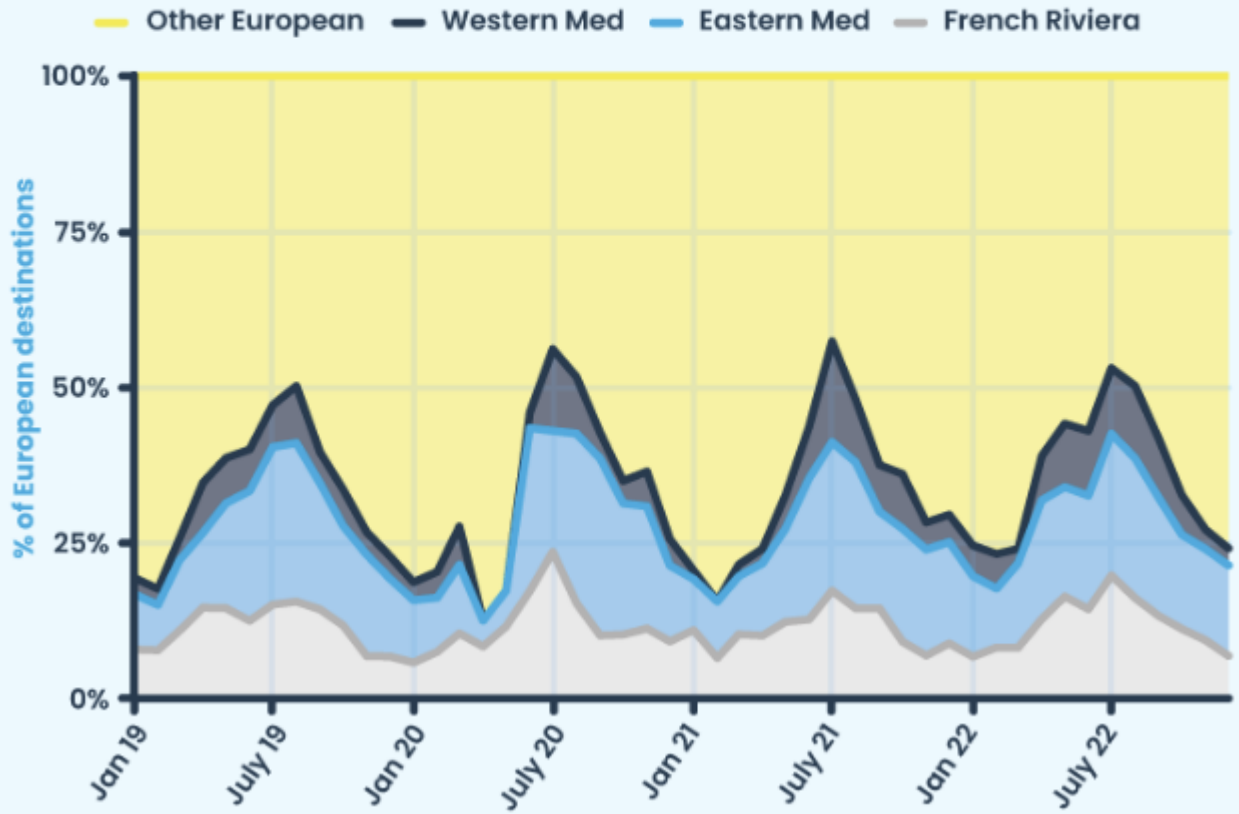
Farnborough Airport – Background

- Owned by Macquarie
- FAL Masterplan and Government support was for Airport to be business flights only
- Number of flights restricted
- At capacity at weekends already
- Average of 2.5 passengers /plane
- Flights often empty – 35% in 2023
- Emissions 30-40 times a commercial flight

Farnborough Airport – What's happening currently

- Want to operate larger aircraft and increase weekend flights
- Planning application in 2023
- Strong pushback - information missing
- Unrealistic business case
- Second consultation January 2025?
- RBC alone deciding application. CAA alone deciding airspace changes
- Friends of the Earth case law - lifetime emissions must be included in Environmental Impact Assessment

Figure 6. Share of departures to Mediterranean destinations as a percentage of total departures to European destinations from Farnborough.



"Jetting away with it – How private jets pollute the most and pay the least" Possible, July 2023

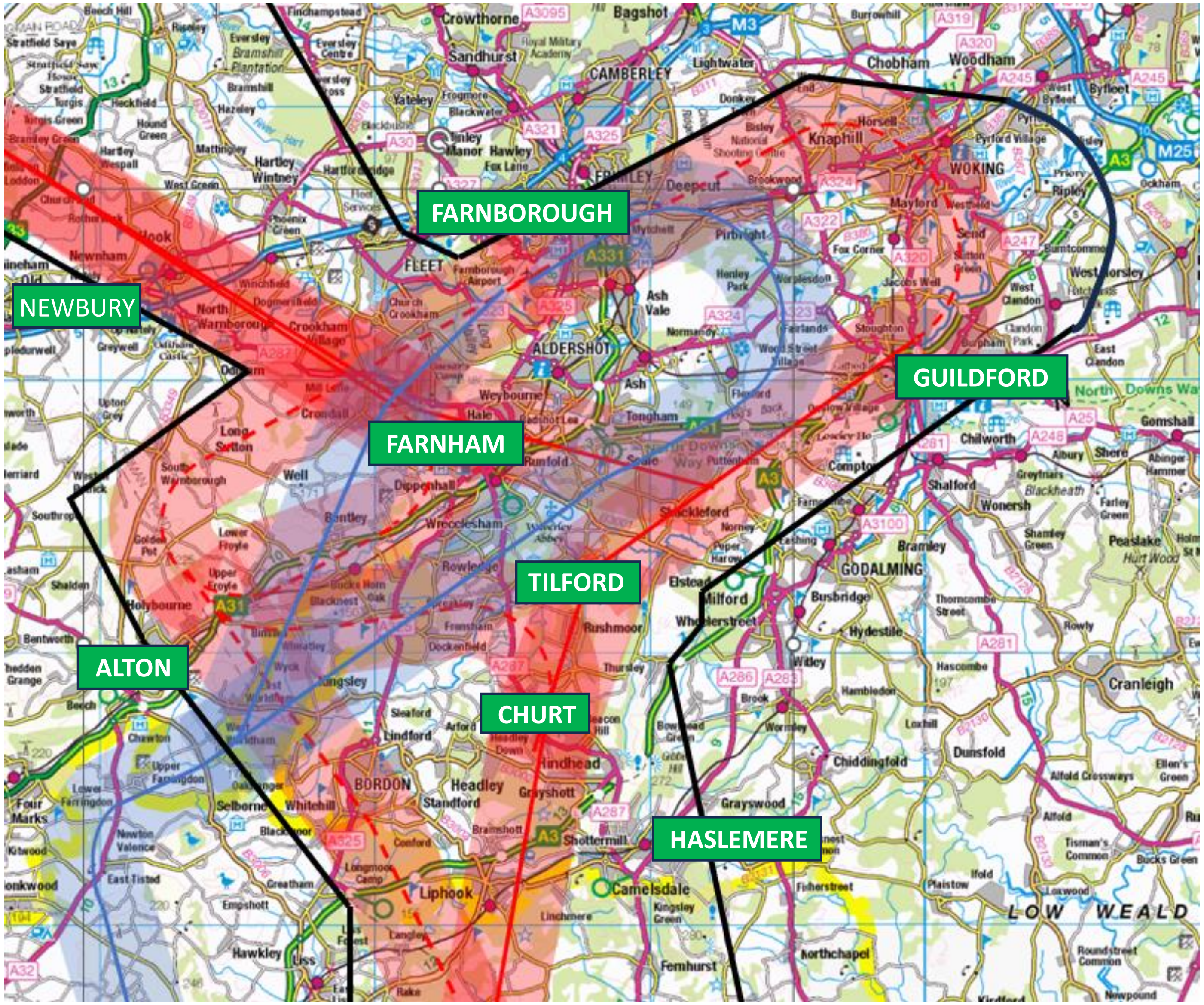
2014 Farnborough flightpath consultation

Blue = Departures
Red = Arrivals

- Some areas overflown by both
- Performance Based Navigation (PBN)
- Three main contributors to airspace change being approved:

    1) Less people overflown
    2) Less people significantly impacted by noise
    3) Economic impact

But…. PIR to evaluate changes never completed



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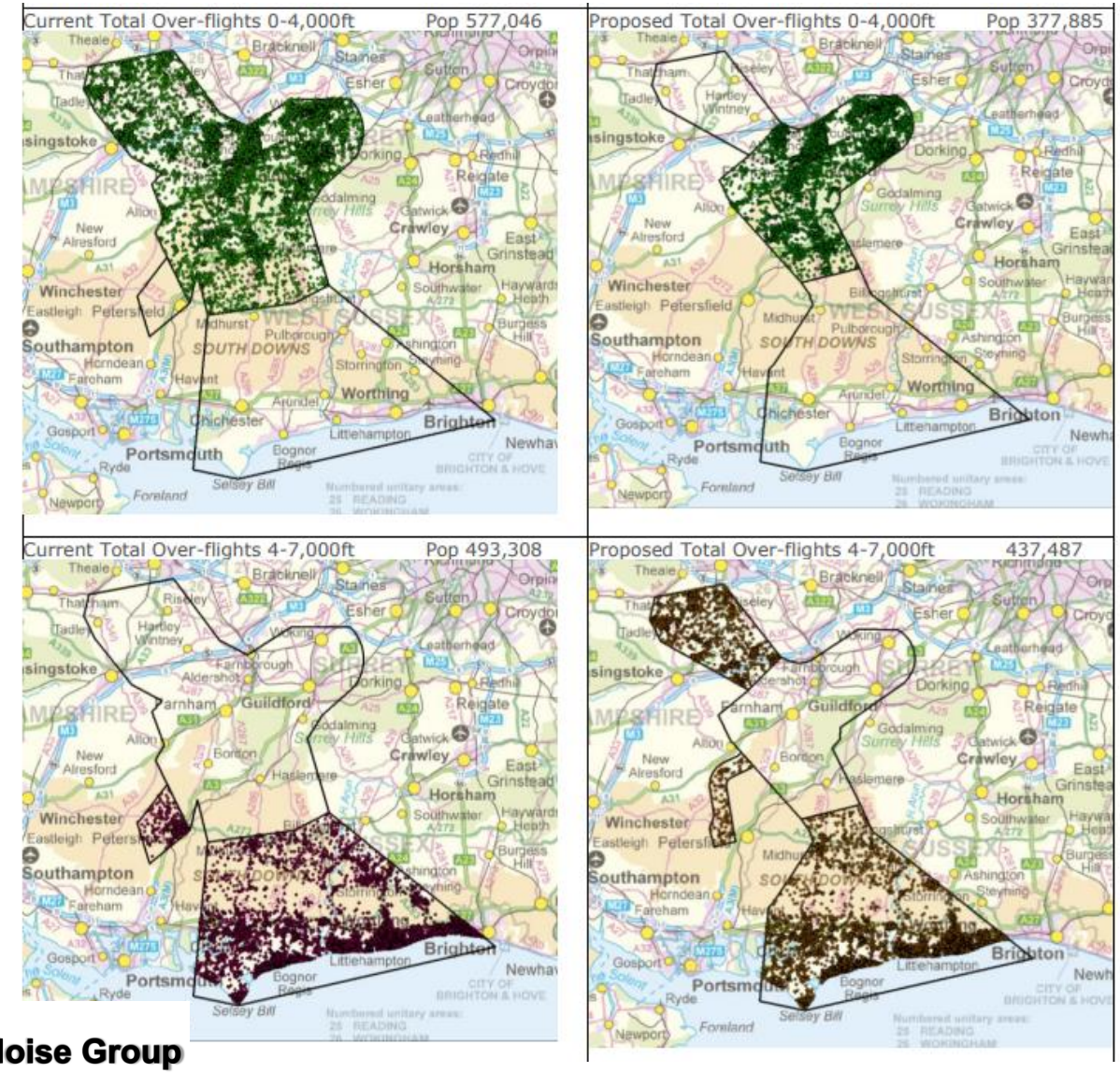
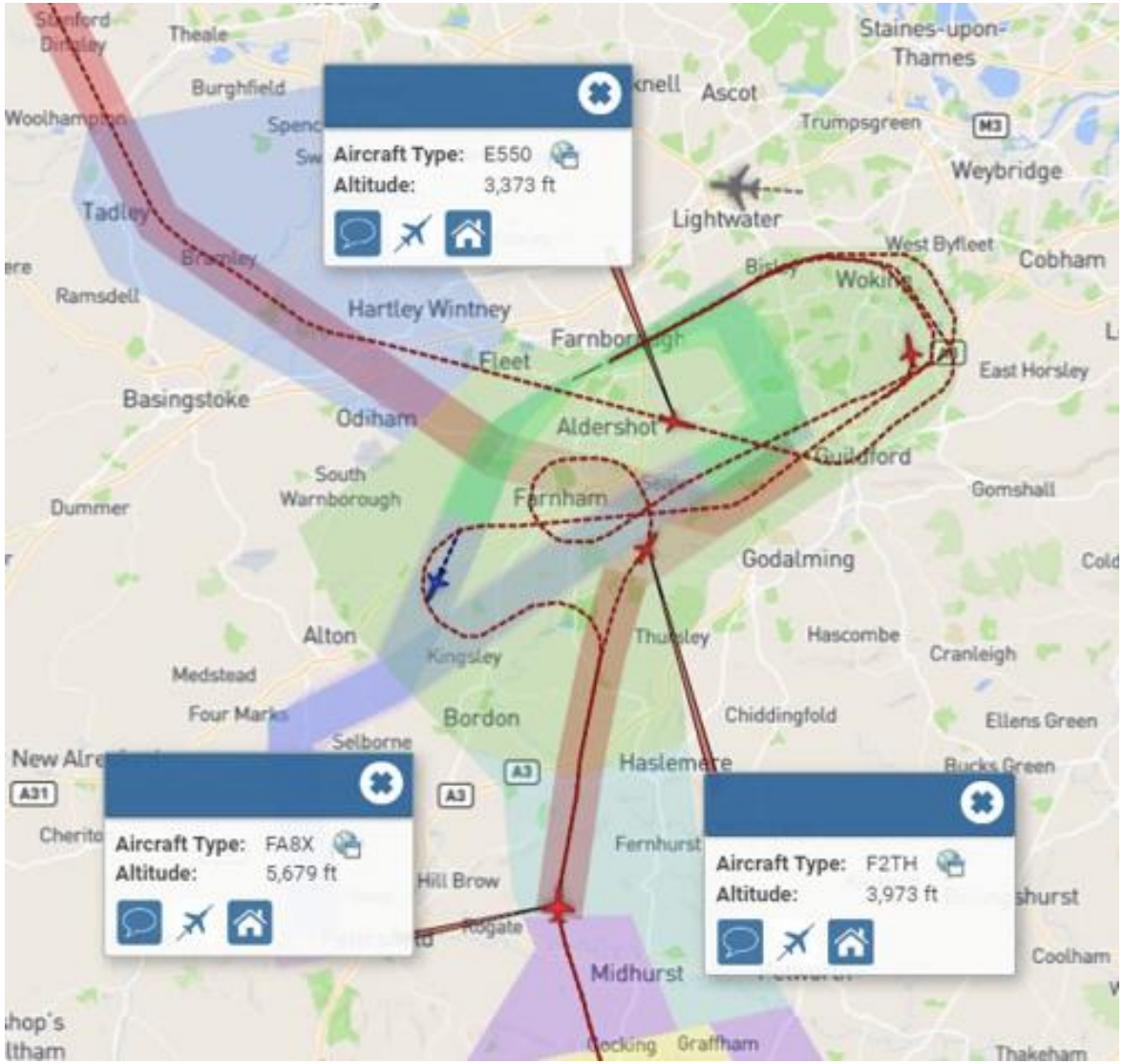
1) Less people overflown – Significant change?
2014 Consultation mapping



1) Less people overflown
Farnborough flightpaths not being flown

- Even with PBNs, approx 40% of Farnborough flights don't follow designated flightpath or height
- "Tactically vectored" – A response that fits all FAL/ RBC responses
- Tactically vectored should distinguish between emergencies and congestion.



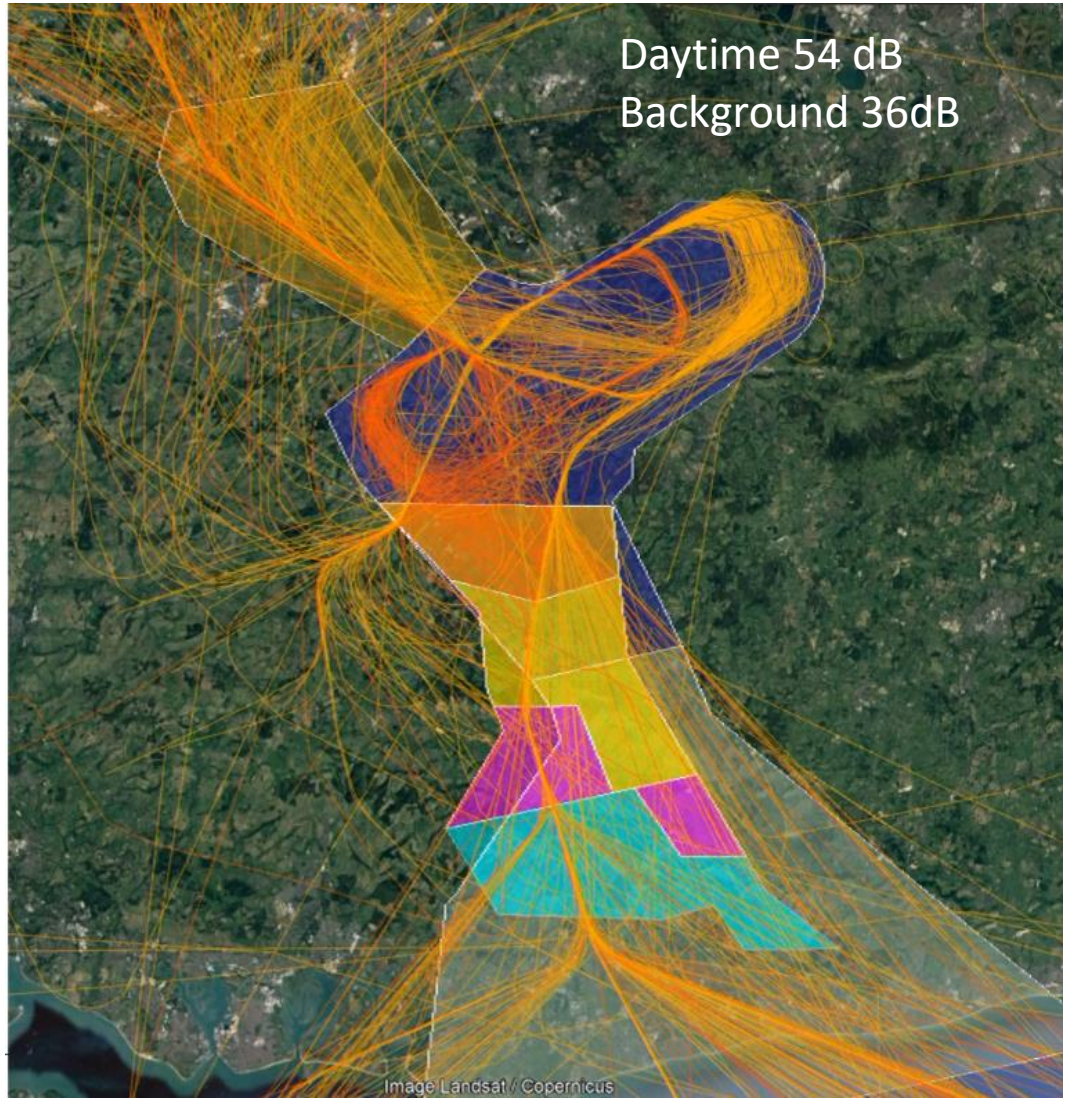
Farnborough Noise Group

2) Less people “significantly” affected
No full assessment including noise monitors undertaken to date

- Nothing within the Post Implementation Review (PIR) showed actual noise monitoring
- Planning Application 2023 – No actual noise measurement
- Churt Noise Assessment September 2023 and October 2023 using a noise monitor:
  - Refused noise monitoring equipment over a number of years.
  - 2023 FAL reluctantly agreed (S106 requirement!) to Churt noise monitoring which took over a year to release to the public with no opportunity for Churt residents to comment.
  - Report only assessed Farnborough aircraft within restricted parameters and therefore not a total noise impact assessment which local residents expected.
  - Noise sub committee group in FACC seems ineffective, no minutes of meeting held

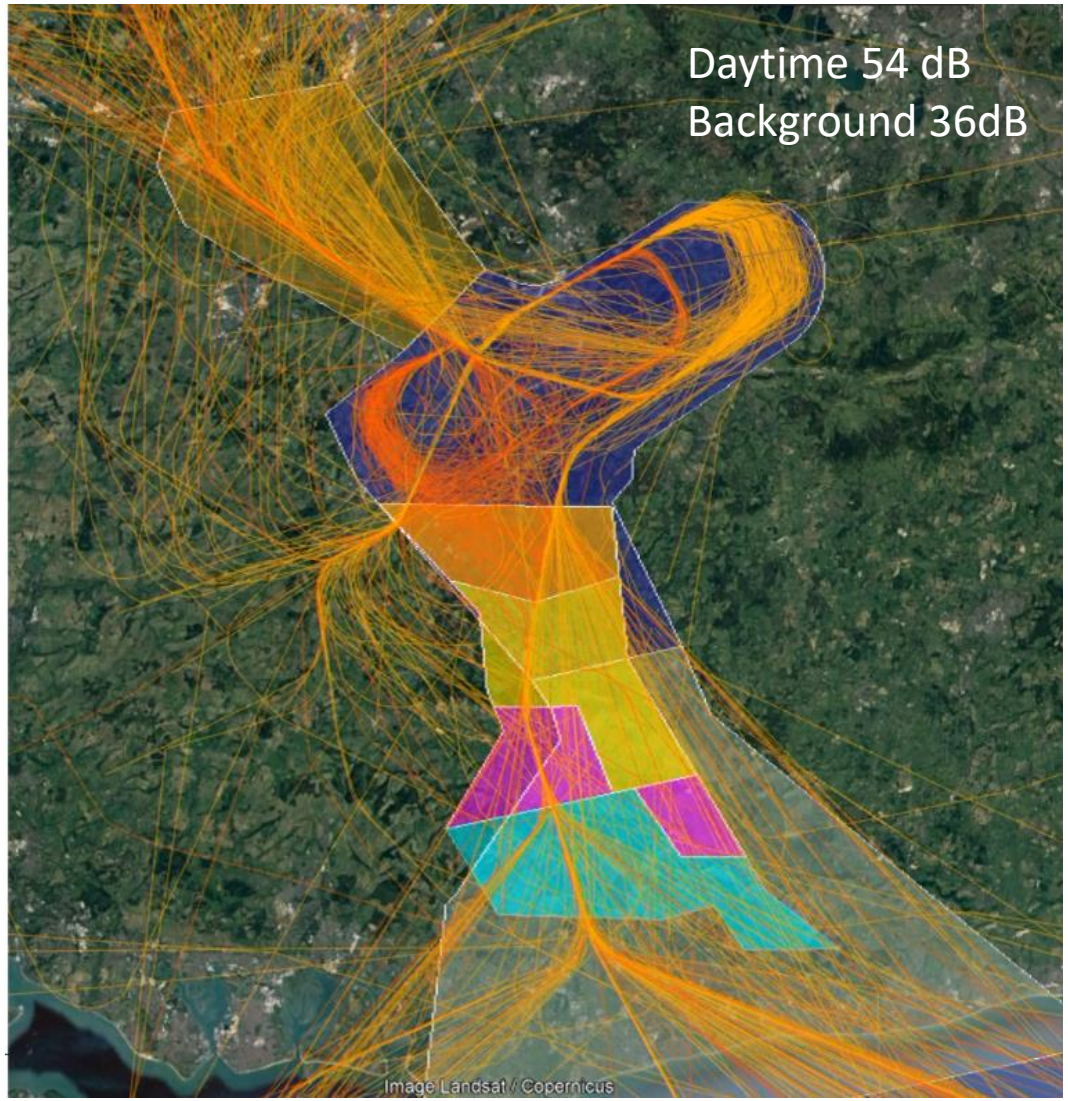
2) Less people “significantly” affected
Churt Report - Farnborough Departures & Arrivals up to 10,000ft

- All airspace **still** being used despite promises of less people being impacted by being overflown (one a day?).
- Climb heights not followed in line with Airspace change consultation
- Have the number of residents “significantly” affected by noise reduced? Churt report: daytime average noise level from all sources throughout the measurement period was **54 dB** LAeq,16h and the corresponding background daytime noise level was **36 dB** LA90.



2) Less people “significantly” affected
Farnborough Departures & Arrivals up to 10,000ft

- Other flights such as Heathrow, Gatwick, helicopters, etc. and those above 7,000ft **not** included.
- Currently only approximately 35,000 Farnborough flights. Impact of twice as many 70,000?
- **55 dB Airport** Leq contour budget limit around airport. Should contours also be estimated along a flight path, all aircraft?
- FAL Flightpath 2040 – How does significant noise compare. Daytime noise 54dB, Background noise 36dB



FAL Flightpath 2040 – Environmental statement

Daytime 54dB
Background 36dB

Government Guidelines/Aviation Guidelines

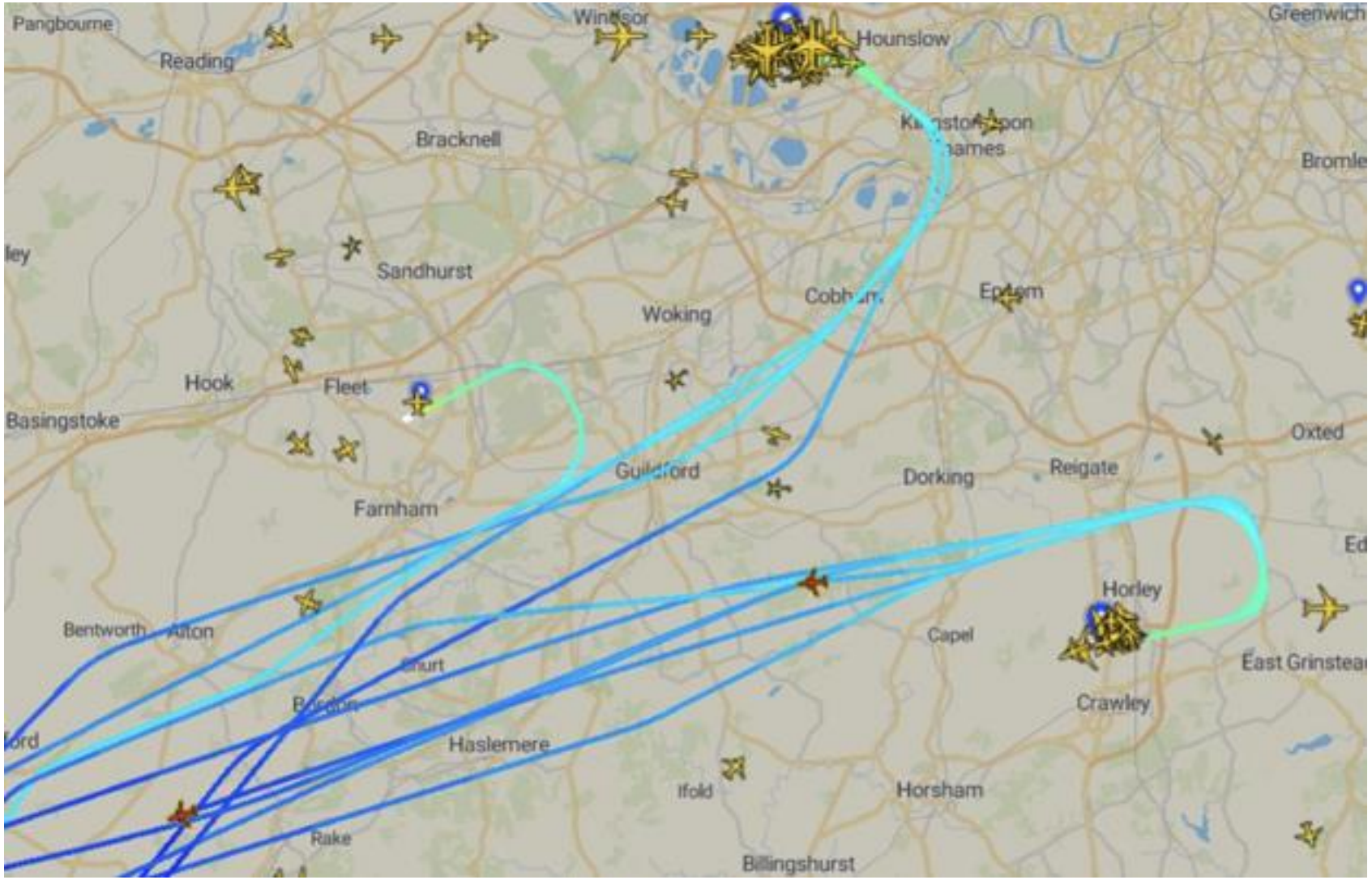
- NOEL – No Observed Effect Level. This is the level below which no effect can be detected;
- LOAEL – Lowest Observed Adverse Effect Level. This is the level above which adverse effects on health and quality of life can be detected; and
- SOAEL – Significant Observed Adverse Effect Level. This is the level above which significant adverse effects on health and quality of life occur.
- **Farnborough Airport Flightpath 2040**
- "Set LOAEL at **51dB** LAeq 16 hr for daytime".
- "Set SOAEL at **54dB** LAeq 16 h - SoNA study points to an increased sensitivity to noise at low levels, and has resulted in the UK Government now considering 54 dB LAeq,16h to be the onset of significant community annoyance, which was previously considered to be 57 dB LAeq,16h.
  54 dB LAeq,16h has therefore now been adopted for the threshold of community annoyance in this Environmental statement."

Typical noise levels – Aviation comparison model

Aircraft noise is monitored using a logarithmic average over 16 hours!

Situation	Sound Pressure Level LpA dB(A)
Threshold of pain	130
Threshold of discomfort	120
Chainsaw, 1m distance	110
Disco, 1m from speaker	100
Diesel truck pass-by, 10m away	90
Kerbside of busy road, 5m away	80
Vacuum cleaner, distance 1m	70
Conversational speech, 1m	60
Quiet office	50
Room in quiet, suburban area	40
Quiet library	30
Background in TV studio	20
Rustling leaves in the distance	10
Hearing threshold	0

Combined impact of flightpaths not considered

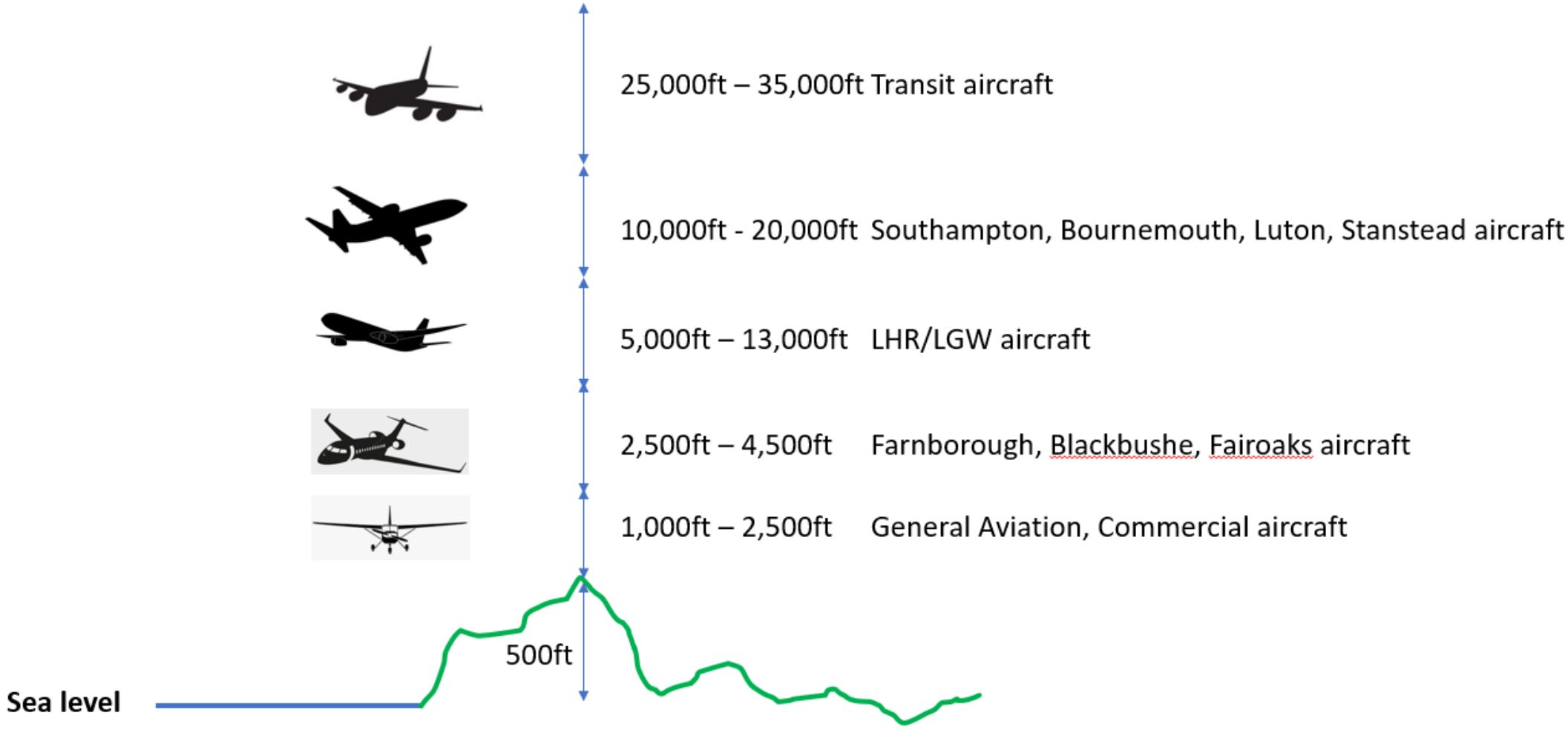


Each airport has its own Noise budget

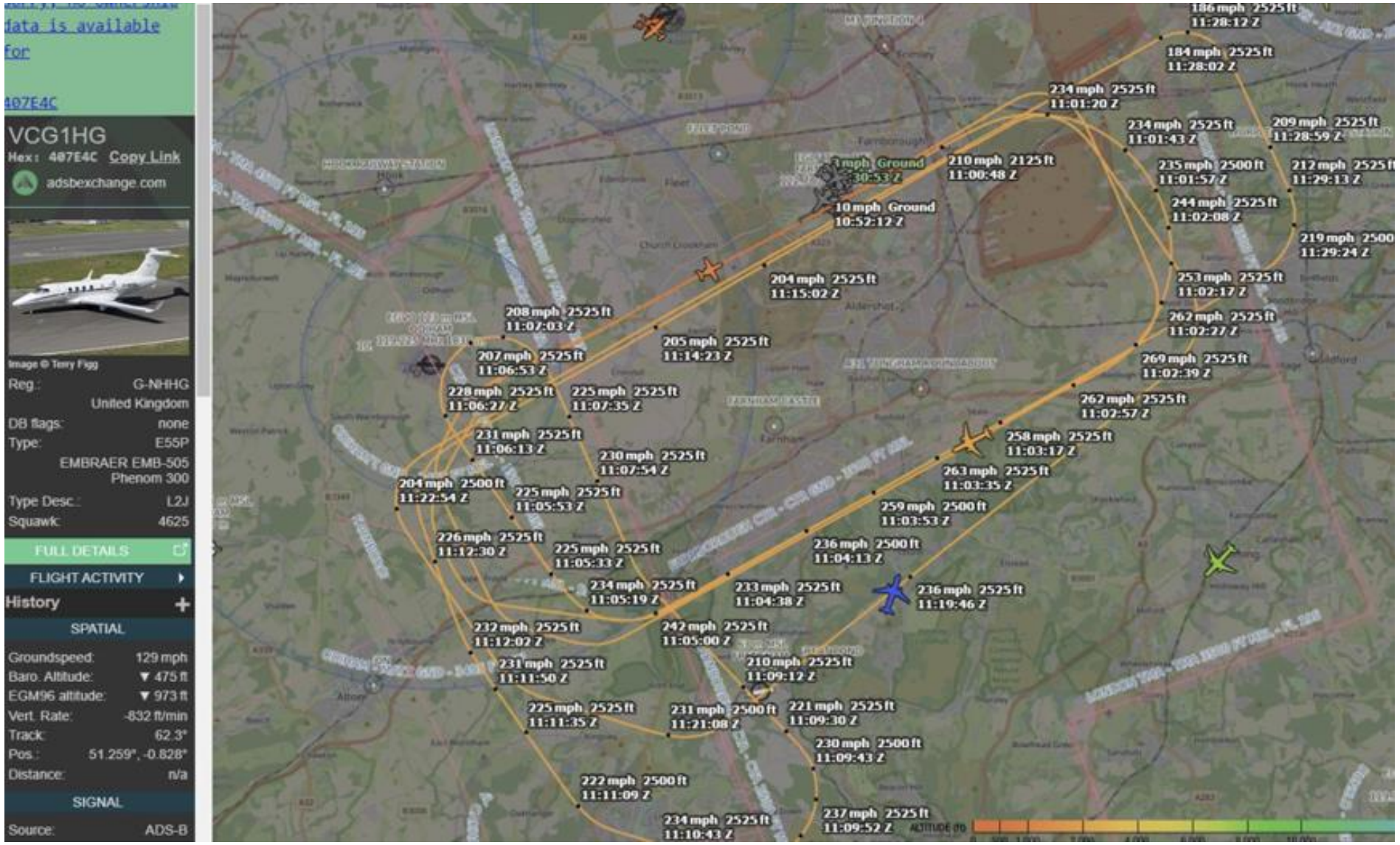
Overflight Ascending order

RAF Odiham
General Aviation
Lasham Airport
Farnborough Airport
Gatwick Airport
Heathrow Airport
Southampton Airport
Luton Airport
Stanstead Airport
Other UK
Other Worlwide

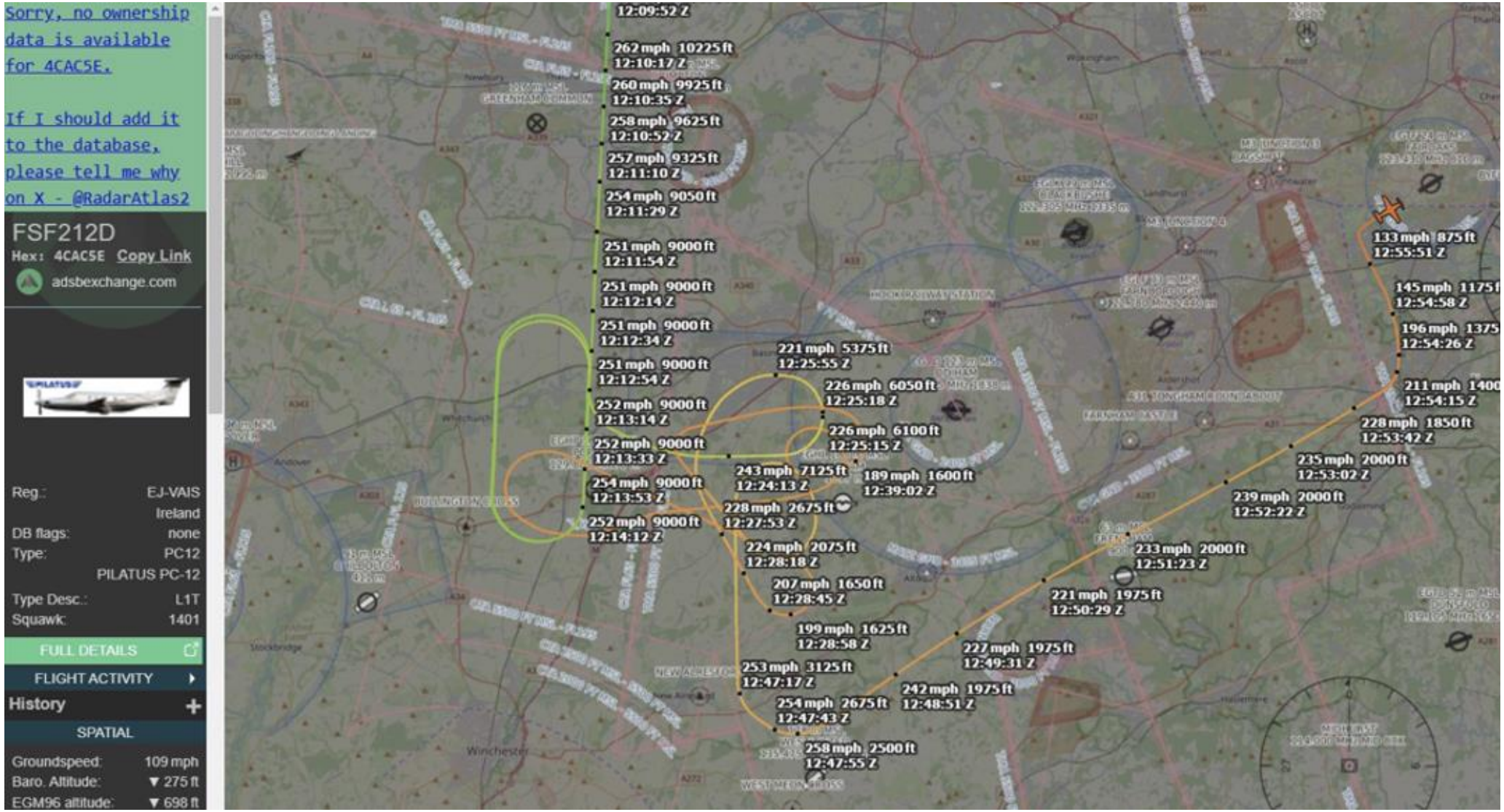
Multiple layers of aircraft added together creates a lot of noise



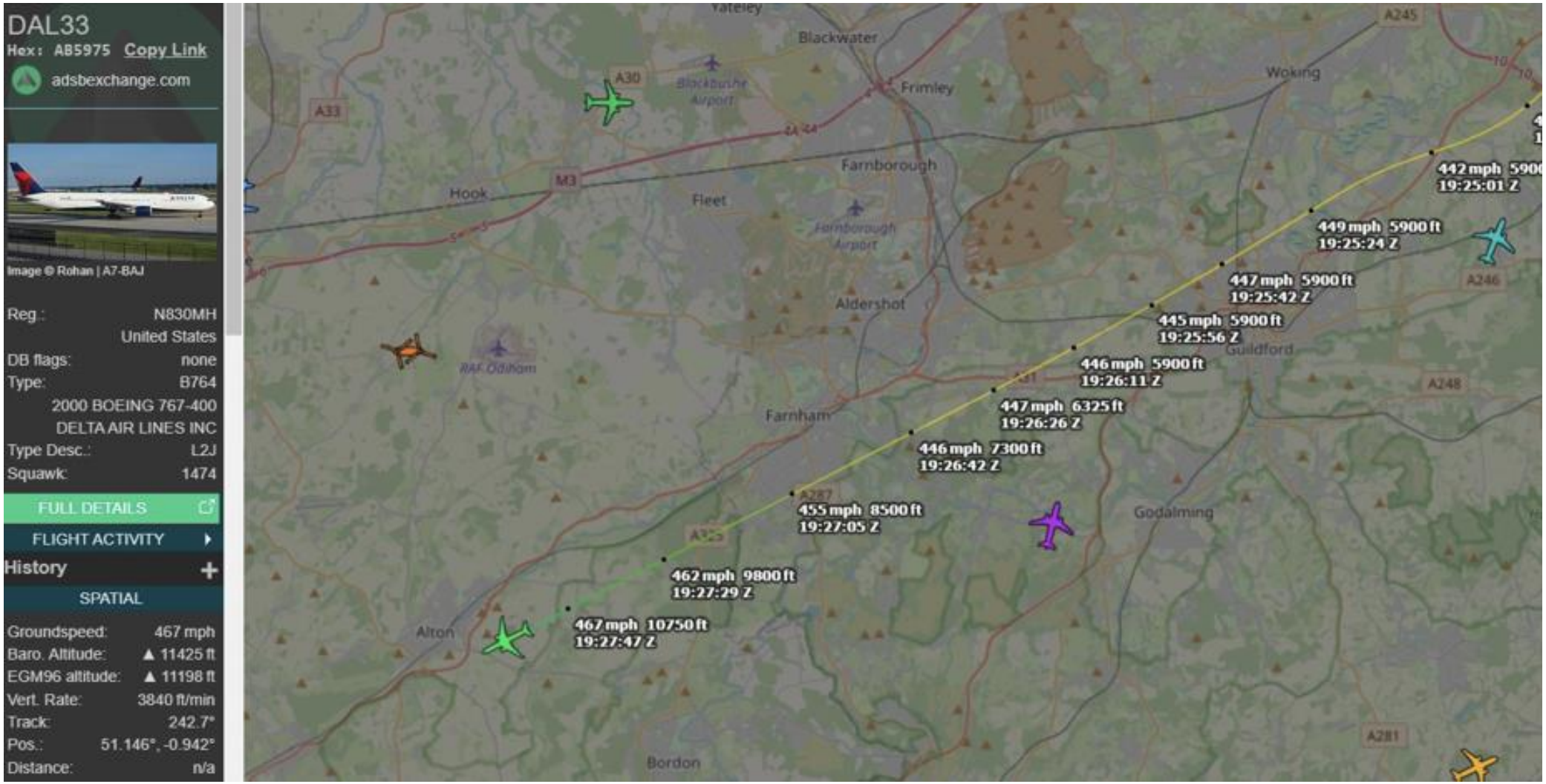
Farnborough flightpaths not being flown



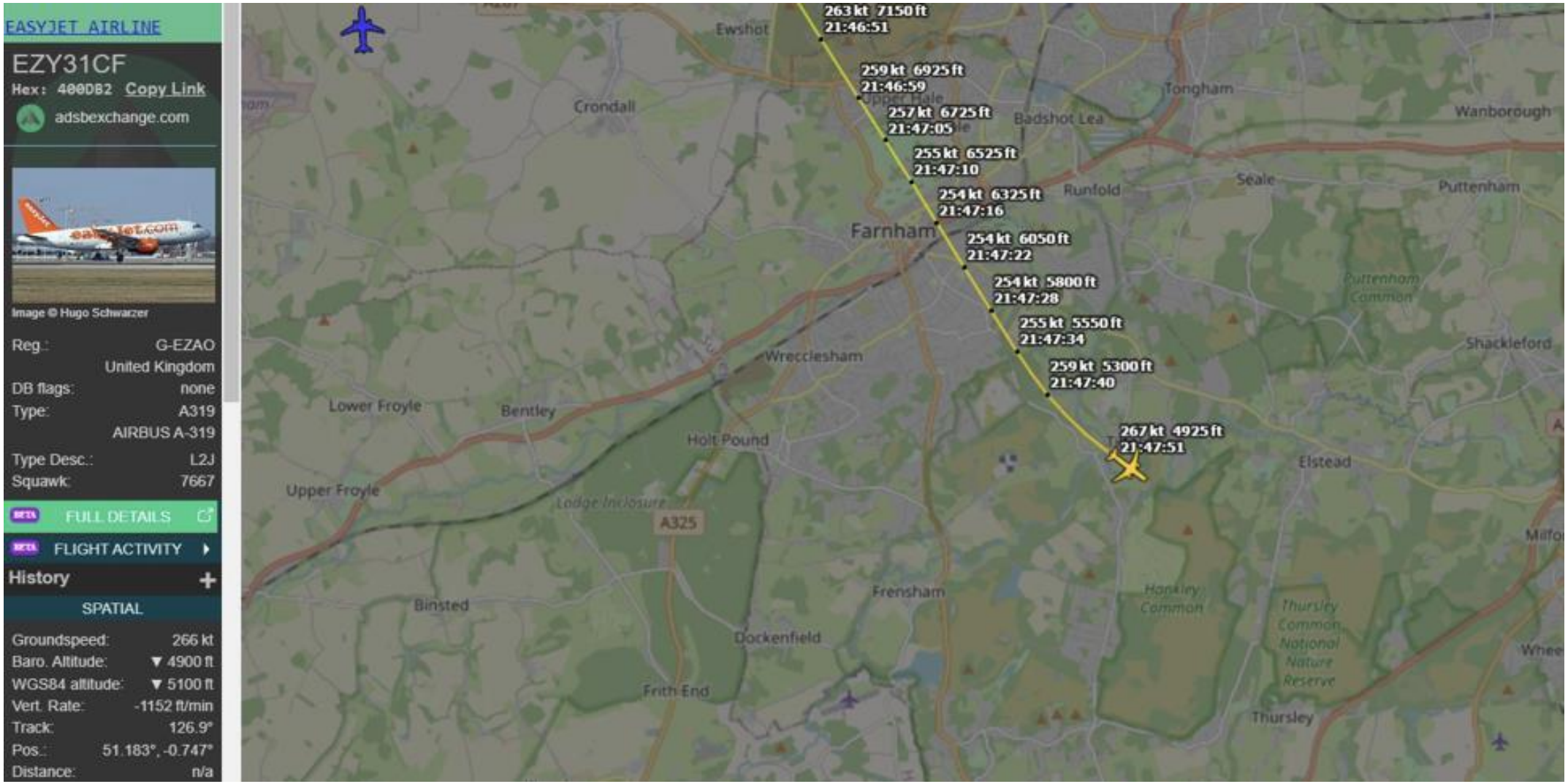
Circling into Fairoaks



Low from Heathrow



Low to Gatwick



What Farnborough Noise Group has been doing

Why is FNG needed?

- Lack of accessible expertise and impartiality
- Lack of transparency
- Lack of information not funded by FAL
- Government often influenced by growth
- Independent Commission on Civil Aviation Noise (ICCAN) – only lasted from November 2018 to September 2021!

What Farnborough Noise Group has been doing

What do we do?

- Provide factual information relating to Farnborough Airport
- Represent the views of the public in East Hampshire and West Surrey
- Challenge Farnborough Airport, the CAA, DfT and FACC
- Member of UK and European airport groups
- No longer providing input to AMS consultation

Website: www.farnboroughnoise.org
Facebook: https://www.facebook.com/groups/farnboroughnoise

What can you do about the situation? No action will be perceived by FAL and RBC as acquiescence!

Respond to the Airport consultation

Get the news into social media/media

Weekend flights must be revisited, says MP Hunt

BY DANIEL GEE
daniel.gee@farnhamherald.com
07583 633922

FARNBOROUGH Airport's flight expansion plans have met stiff opposition from the Chancellor of the Exchequer and South West Surrey MP Jeremy Hunt.

In his formal response to the consultation, Mr Hunt said the proposal to increase the number of flights from 50,000 to 70,000 per year "could have far-reaching implications for many who live under the flight paths and close to the airport".

He hailed the significance of Farnborough Airport to the UK's ability to attract international investment "and how important the airport is to our local economy", and praised the airport for establishing itself as a leader in the business aviation sector.

But added he is "acutely aware this expansion comes at a cost for local people, and I am keen to help ensure our responsibilities to these people and other responsibilities – especially environmental concerns – are properly addressed by [the airport] in this process".

Mr Hunt described the 70,000 flights forecast as an "ideal case scenario" for the airport which is more than double the number of flights currently operated per year from Farnborough, and said "whatever final number is agreed, it must be a balanced negotiation between all parties".

On the proposal to raise a cap on weekend flights from 8,900 (17.8 per cent of the current total limit) to 18,900 (27 per cent of the current limit), Mr Hunt said this is "something I completely understand local people under the flightpath find unreasonable and a severe imposition".

He continued: "Many residents have referred to an erosion of their mental health and feel the large increase in weekend flights would significantly negatively impact them.

"I therefore find this element of the consultation proposal hardest to reconcile.

"I strongly feel the proposed overall quantum of weekend flights needs to be revisited and adjusted downwards."

He also criticised plans to extend the 8am-8pm weekend operating hours to 7am to 9pm, and to allow heavier aircraft to operate unrestricted at weekends, and reiterated his request for "actual noise levels" to be monitored at different locations.

But perhaps Mr Hunt's most stinging rebuke was reserved for his environmental concerns, on which he said an increase in flights "will inevitably increase total emissions and Farnborough Airport's carbon footprint".

"The nature of a business airport is such that fewer passengers per flight and thus emissions per passenger are significantly higher per customer," he said, adding that much of Farnborough's wider flightpath is over the Surrey Hills Area of Outstanding Natural Beauty, a place of "quiet escape and tranquility".

"For these reasons I therefore fully support continuation of appropriate environmental restrictions at Farnborough Airport – in line with whatever is finally agreed in respect of flight numbers."

Notable objections to Farnborough's expansion proposals have also been submitted by:

- Surrey Heath MP and Secretary of State for Levelling Up, Housing and Communities, Michel Gove (see https://www.michaelgove.com/campaigns/farnborough-airport)
- East Hampshire MP Damian Hinds (whose 1,200-word response can be downloaded at https://tinyurl.com/bp5h478e)
- The Conservative parliamentary candidate for the new Farnham and Bordon constituency, Greg Stafford. See https://twitter.com/GregoryStafford

MP Jeremy Hunt and Farnham and Bordon candidate Greg Stafford met airport CEO Simon Geere and COO Les Freer earlier this month

Involve councils/ors & MPs

Demonstrate

Complain to Rushmoor Borough Council or raise flight issues with WebTrak

Farnborough Noise Group

Questions?

Useful information

- Facebook page – https://www.facebook.com/groups/farnboroughnoise
- Email address - farnboroughnoisegroup@gmail.com
- Web page - www.farnboroughnoise.org
- Rushmoor Borough Council - complaints@farnboroughairport.com
- WebTrak – https://webtrak.emsbk.com/fab

Farnborough Airport Group - Consolidated Summary Financials

£ Millions	2023	% of Turnover	2022	% of Turnover	2021	% of Turnover	2021 to 2023	% of Turnover
Group Turnover								
Landing & Handling	28.50	25%	24.20	22%	18.40	26%	71.57	24%
Fuel Sales	42.00	37%	47.70	43%	23.80	34%	114.31	39%
Parking & Hangarage	16.60	15%	14.20	13%	12.10	17%	43.18	15%
Real Estate	6.30	6%	5.50	5%	4.80	7%	16.71	6%
Other	7.30	6%	7.10	6%	3.70	5%	18.23	6%
Airport operations	100.80	90%	98.70	89%	62.70	90%	263.99	90%
Hotel operations	11.60	10%	11.60	11%	7.20	10%	30.61	10%
Total	112.40	100%	110.30	100%	69.90	100%	294.60	100%
Loss in the period	(26.50)	-24%	(11.30)	-10%	(51.50)	-74%	(89.64)	-30%
Employee numbers	411.00		389.00		343.00			
Cash paid to Macquarie:								
Interest Paid	18.40	16%	18.40	17%	18.50	26%	55.63	19%
Dividends	37.00	33%	14.00	13%	11.00	16%	62.46	21%
Total	55.40	49%	32.40	29%	29.50	42%	118.09	40%
Balance Sheet								
Intangible Asset - capitalised licence to operate	493.40		517.20		541.00			
Tangible Assets	210.10		170.50		165.90			
Net Current Assets	3.50		10.50		12.40			
Debt - Banks	(246.60)		(165.40)		(156.70)			
- MacQuarie	(306.70)		(306.70)		(306.70)			
Other Net Liabilities	(122.90)		(131.80)		(136.40)			
Net Assets	30.80		94.30		119.50			
Share Premium	214.60		214.60		214.60			
Retained Earnings	(183.80)		(120.30)		(95.10)			
	30.80		94.30		119.50			