Active Noise Abatement at London Heathrow

ICANA 2016, Frankfurt

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Heathrow Flight Performance

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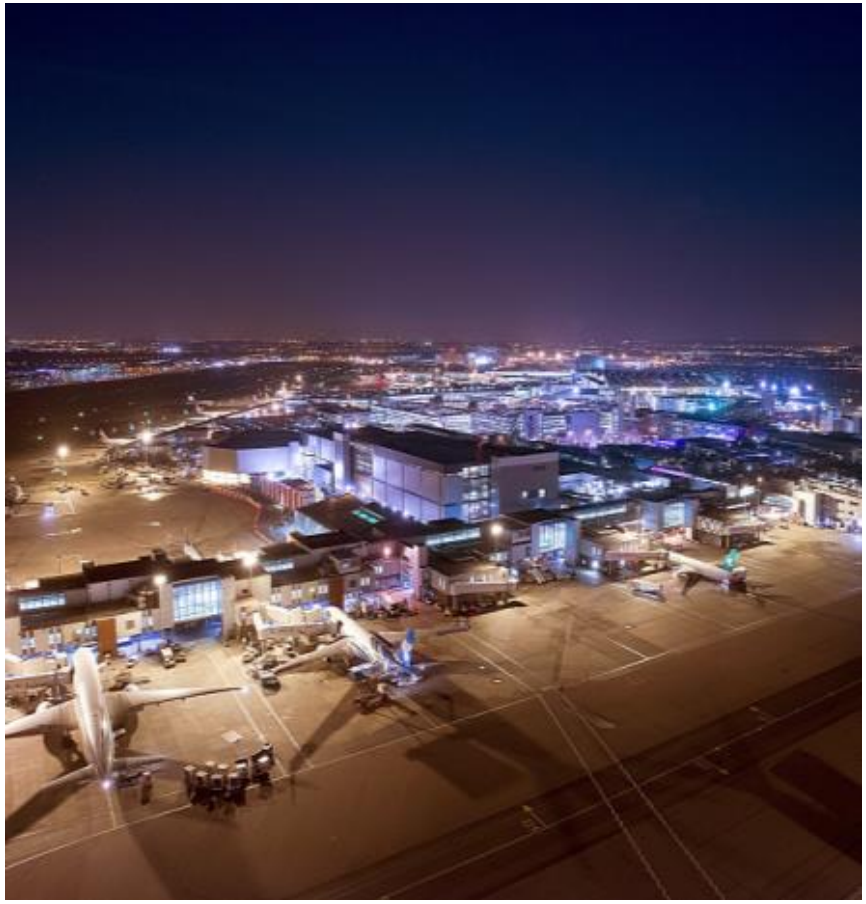
Heathrow today



- 75 million passengers
- 76,000 employees, 400 companies
- UK’s biggest port by value
  29% non-EU exports
- World’s busiest 2 runway airport
  Operating at 98% runway capacity
- World class passenger service
  Skytrax 2016 Best Airport in W. Europe
  ACI Best major airport in Europe
- 180 destinations / 90 countries

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Challenges in words…

- Operating at capacity
- Ability to recover from disruption
- Maintain and expand our social license to grow
- Airspace modernisation to handle capacity
- Building trust with our local community and other stakeholders

HOW

Realistic operational improvements

Improved stakeholder perception

Demonstrable evidence

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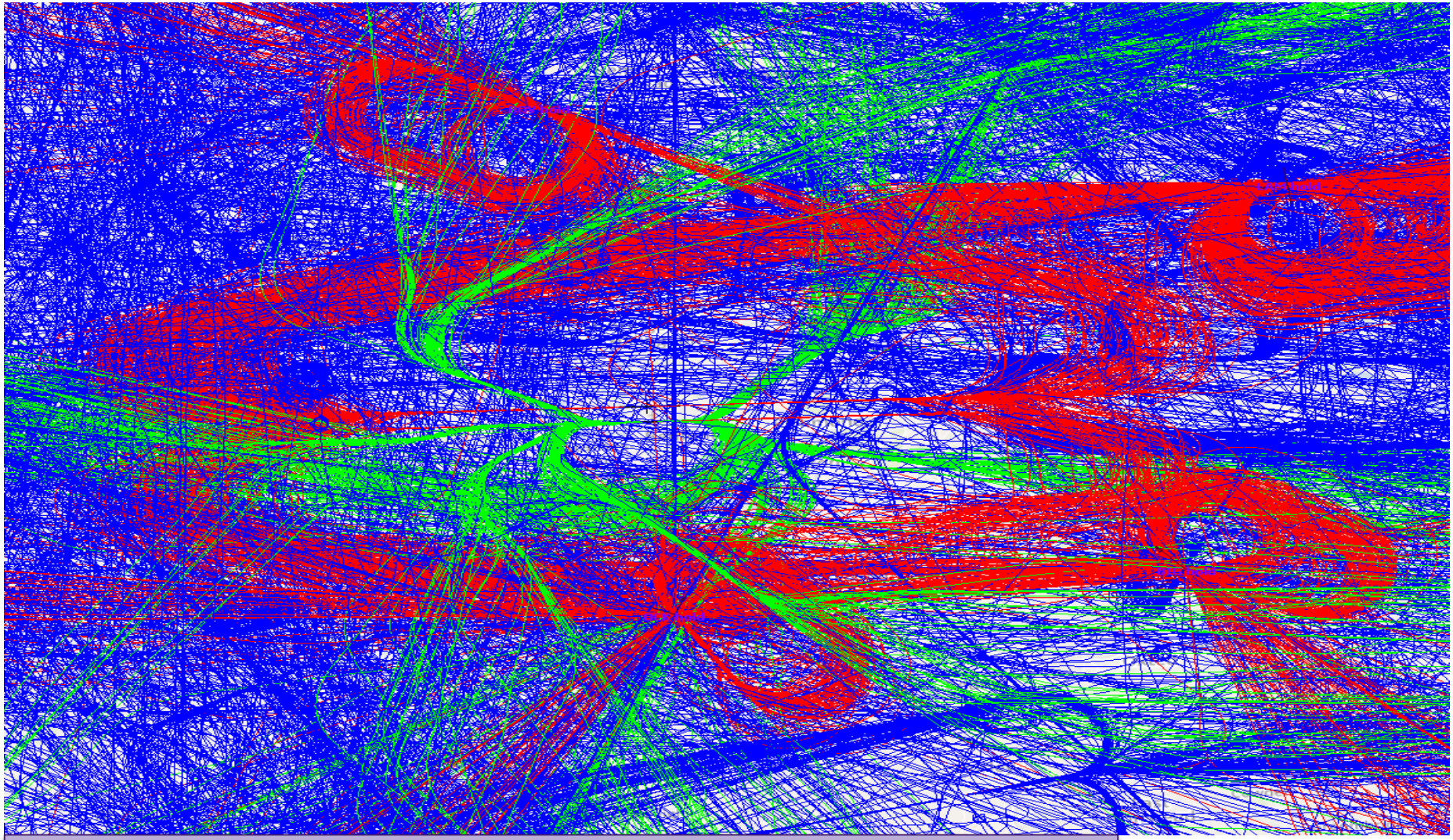
… and in a picture



One day of operations as captured by ANOMS (Green = LHR departures, Red = LHR arrivals, Blue = all other, non-LHR traffic)

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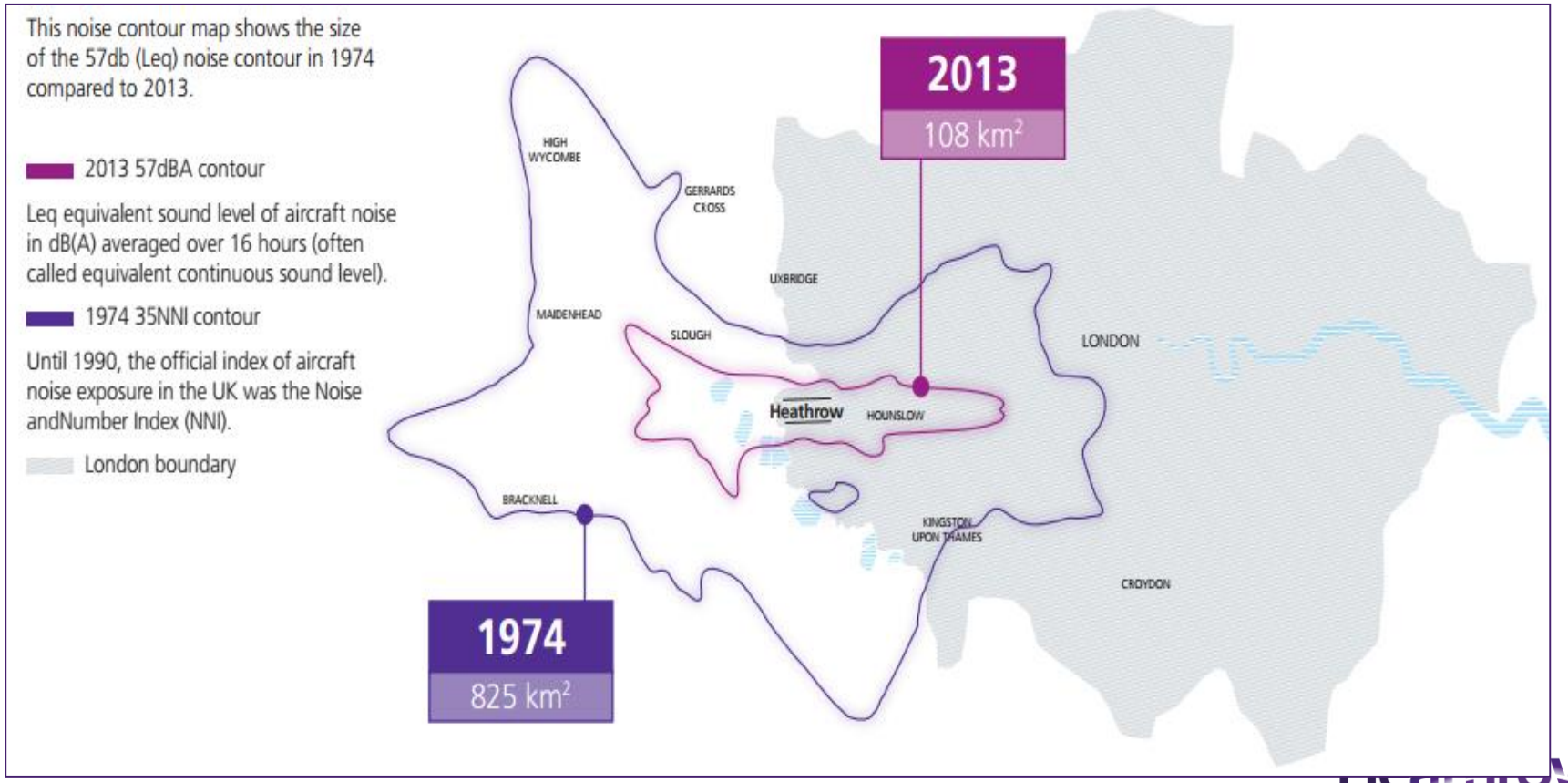
Noise today

History as proof: Since the 1970's, flights at Heathrow have doubled yet some noise level contours have fallen 10 fold.



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Noise today & into the future

- Continuous Descent Approaches
- Track keeping and Noise abatement procedures
- Airspace trials
- Steeper Approach Trials
- Increased climb gradient
- FlyQuiet
- … but also
- Landing gear deployment, late running aircraft, A320 retrofit, Chapter 3 voluntary phase out…

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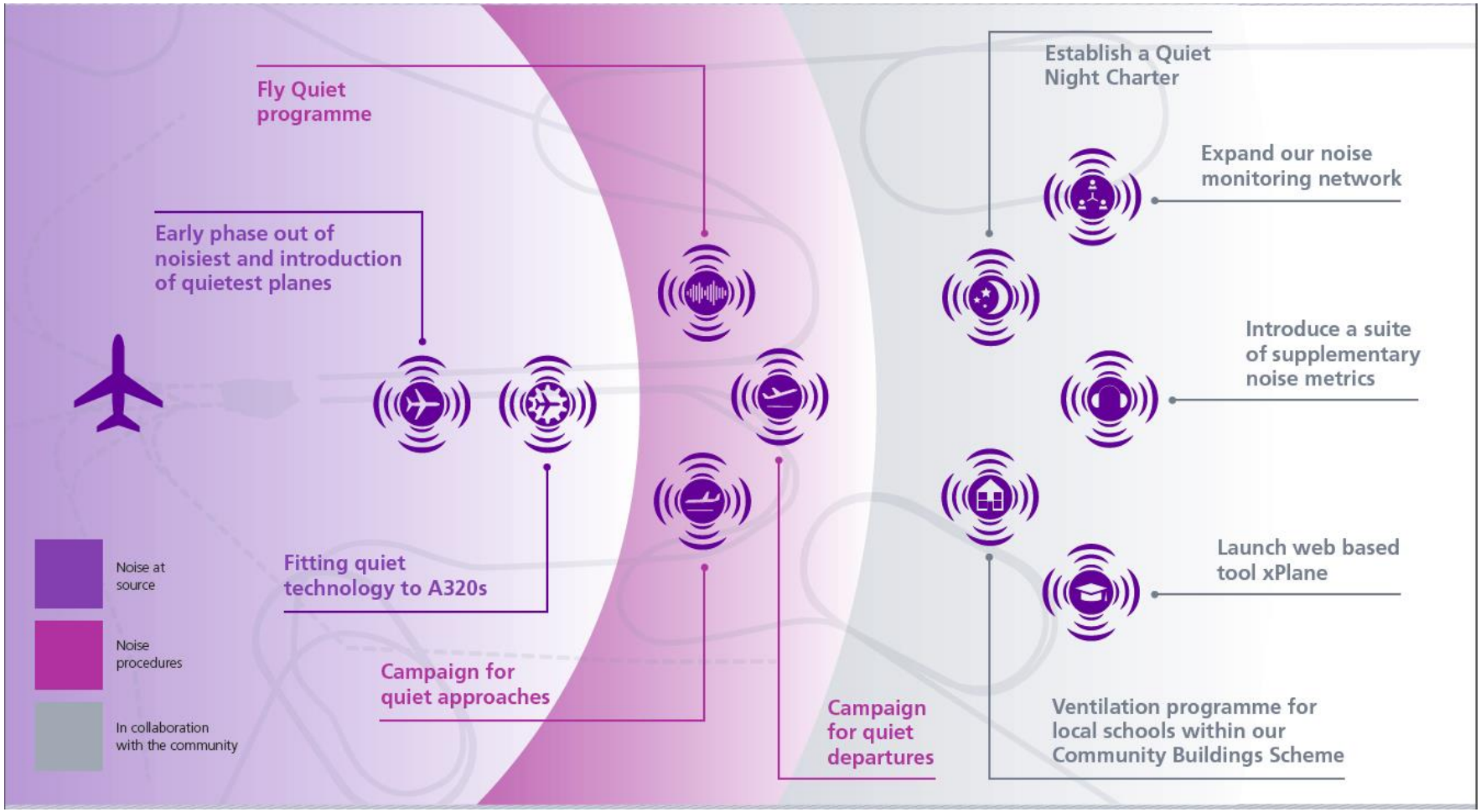
Noise blueprint 2016/2017



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AIP requirements: 1000ft rule and 4% noise abatement gradient

- UK AIP EGLL AD 2.21:
  - After take-off the aircraft shall be operated in such a way that it is at a height of not less than 1000 ft aal at 6.5 km from start of roll as measured along the departure track of that aircraft.
  - Where the aircraft is a jet aircraft, after passing the point referred to in sub-paragraph (1) above, it shall maintain a gradient of climb of not less than 4% to an altitude of not less than 4000 ft. The aircraft shall be operated in such a way that progressively reducing noise levels at points on the ground under the flight path beyond that point are achieved.
- We are working with the ANOMS supplier on new functions in our noise and track keeping system that will enable identification of the 4% climb gradient infringements.
  - NPR corridors with 4% gradient ‘floor’ rather than GND-4000ft AMSL corridors

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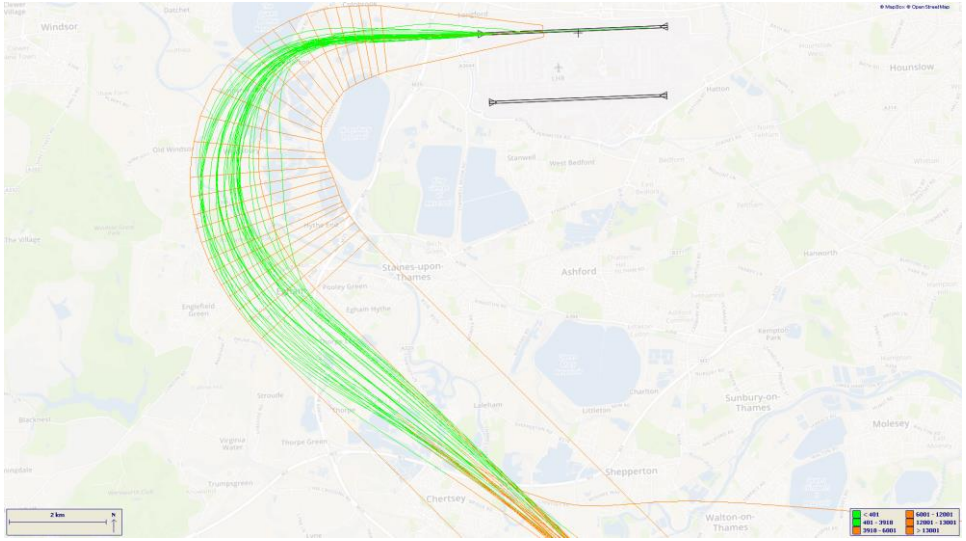
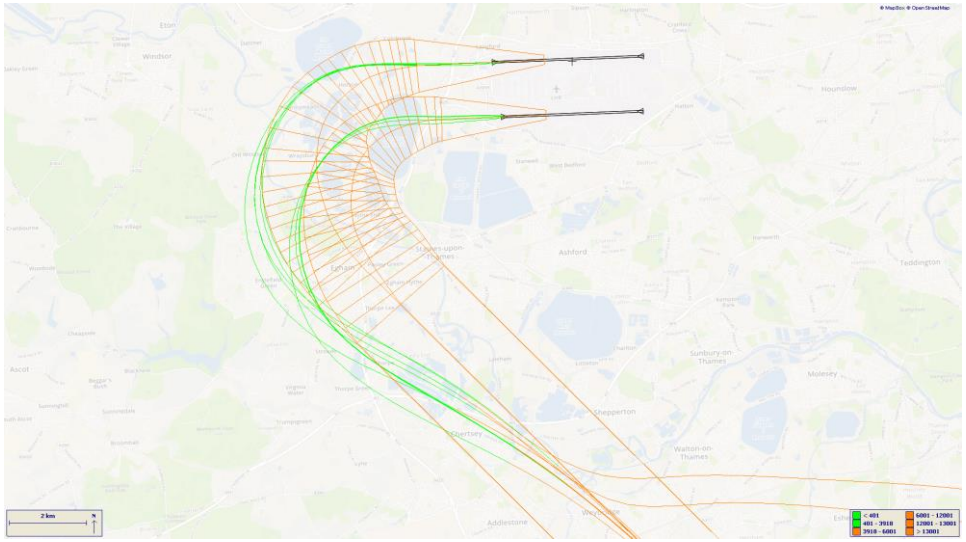
AIP requirements: Track keeping and CDA

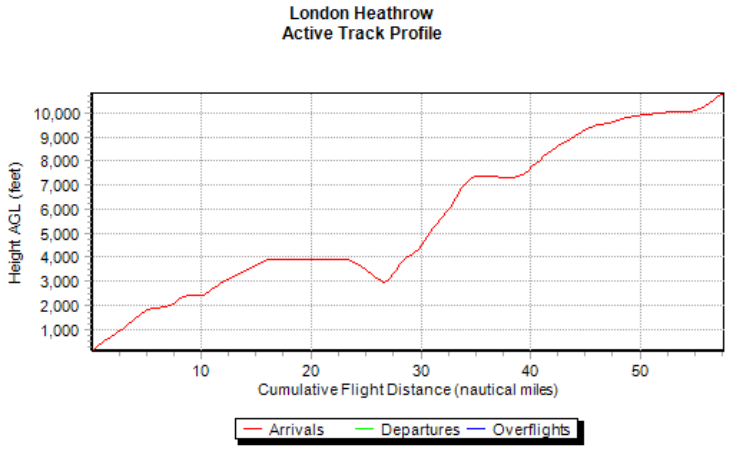




For practical purposes a working definition of CDA as defined in AIP for Heathrow, Gatwick and Stansted is as follows: an arrival is classified as a CDA if it contains, below an altitude of 6000ft:

***– no level flight**; or*

– one phase of level flight not longer than 2.5nm



FlyQuiet programme

Rank	Airline name	1 QC/seat	2 Chapter number	3 CDA violations	4 Track keeping violations	5 Pre-0430	6 Pre-0600
1	British Airways - short haul						
2	Aer Lingus						
3	Etihad Airways						
4	Emirates						
5	Qantas Airways						
6	American Airlines						
7	United Airlines						
8	Scandinavian Airlines System						
9	Malaysia Airlines						
10	KLM Royal Dutch Airlines						

Strategic metrics: QC/seat and Chapter #

Operational metrics: CDA and track keeping

Time-bound: pre0430 and pre0600 violations

41	Pakistan International Airlines						
42	Jet Airways						
43	Air China						
44	European Air Transport						
45	Turkish Airlines - long haul						
46	Aeroflot - long haul						
47	Turkish Airlines - short haul						
48	Kuwait Airways						
49	Royal Air Maroc						
50	El Al						

- Quarterly league table
- Top 50 airlines by count of flights
- 6 metrics with RAG bands
- Objective is to improve overall noise environment and make LHR a better neighbour
- An important element in the portfolio of tools for noise reduction
- Enables identification of areas in need of improvement
- Allows better resource utilisation
- Introduced a kind of competition in noise performance
- Helps change behaviours

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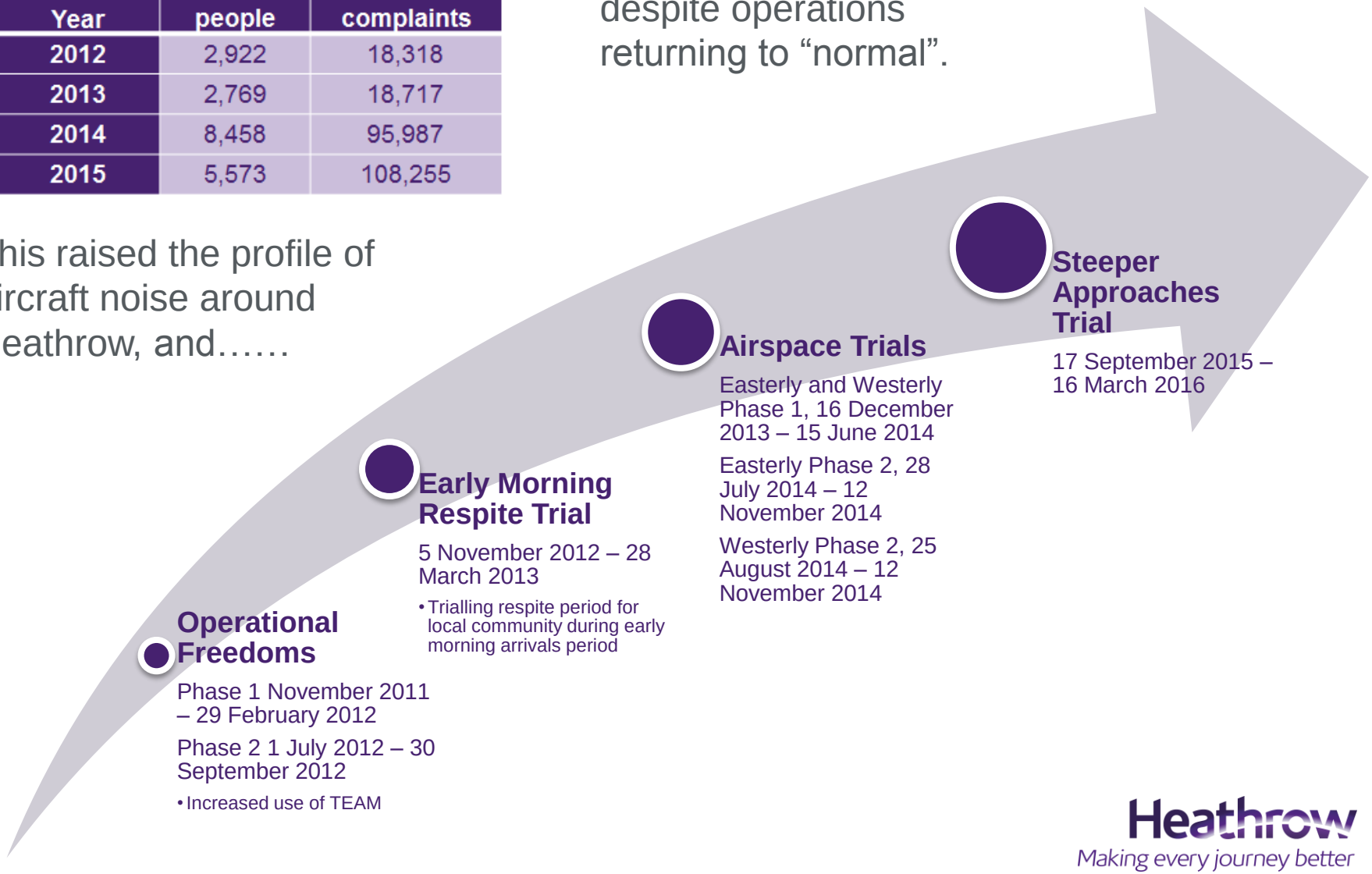
Airspace Trials

Year	No. of people	No. of complaints
2012	2,922	18,318
2013	2,769	18,717
2014	8,458	95,987
2015	5,573	108,255

….these numbers have continued increasing despite operations returning to “normal”.

This raised the profile of aircraft noise around Heathrow, and……



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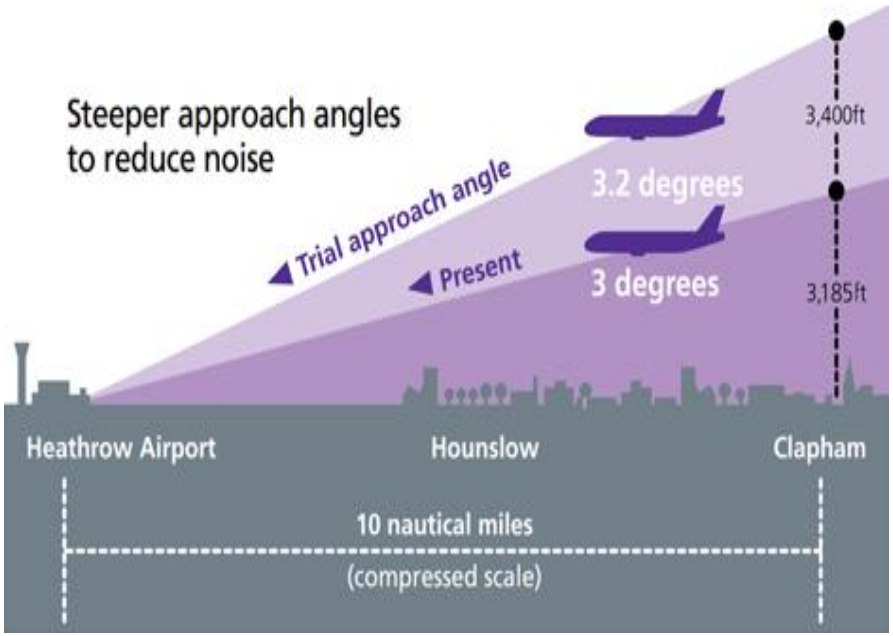
Slightly Steeper Approach trial



- Sept 2015 - Mar 2016
- c. 2500 RNAV 3.2deg arrivals
  - BA c. 85%
  - Outside CAT III conditions
- Actual angle 3.14deg due to relatively low temperatures during the trial period
- Noise: average noise differential of -0.5dBA (SEL), with maximum reduction of -1.4dBA (SEL)
- No detrimental impact observed or found in key areas such as go-arounds, speed adherence, landing gear deployment etc
- Trial re-run planned for summer 2017 to gather more data

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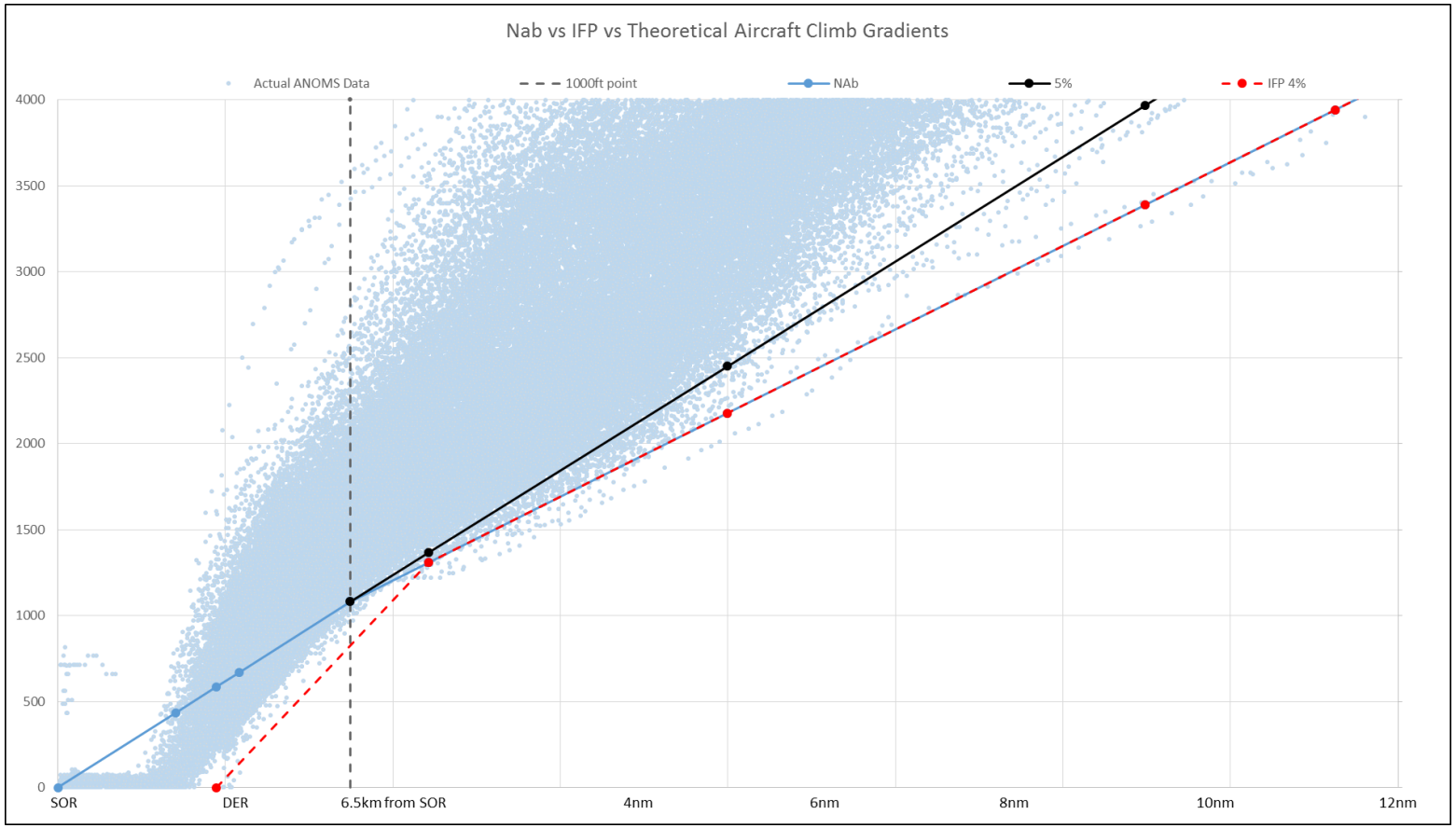
Increased climb gradient trial – work in progress



- Trial principles & preparation underway
- Actual climb gradient not determined yet
- Planned for one SID only (09RDET) over 2017 and 2018 (dates TBC)

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“Making Heathrow a better neighbour” - how?

- All this work helps with the identification of shortcomings and problem areas, and enables improvement proposals - but without stakeholder buy-in the desired effects are unlikely to materialise
- A change leading to improvement can only be achieved through close cooperation with both airlines as well as the ATC provider
  - Close relationship with NATS on operational/environmental issues
  - Challenge of maintaining relationship with 80+ airline stakeholders
  - ANOMS is a key enabler: automated reports, dedicated functions free up resources for actual engagement with airlines on areas that need attention

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Thank you for your attention and…
Any questions?

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