

Environmental Effects

Q3 2026

Agenda

- Admin: Apologies and previous minutes
- Matters arising from previous meetings
- Noise – Bickerdike Allen – Nick Williams
- General Sustainability update
- Environmental Compliance
- AOB

Noise

Nick Williams, Bickerdike Allen

Noise Assessment Approach

- Two key policy thresholds, LOAEL and SOAEL
- <https://www.gov.uk/guidance/noise--2>
- LOAEL – Lowest Observed Adverse Effect Level
 - Above this level noise starts to cause small changes in behaviour and attitude, for example, having to turn up the volume on the television or needing to speak more loudly to be heard
- SOAEL – Significant Observed Adverse Effect Level
 - Above this level the noise causes a material change in behaviour such as keeping windows closed for most of the time or avoiding certain activities during periods when the noise is present

Noise Assessment Approach

- Step 1 – quantify noise
- If above SOAEL – significant effect – avoid
- If above LOAEL – mitigate and reduce to a minimum
- Step 2 – compare situation with and without development
- Significant effect due to development if large enough change (compared to the situation without development)
- Smaller change required at higher noise levels i.e. above SOAEL

Noise Assessment – Sources Considered



- Main consideration typically air noise
- Ground noise also relevant

Road traffic noise

- Calculation method is Calculation of Road Traffic Noise (CRTN)
- Assessed in line with DfT guidance – LA 111 (part of Design Manual for Roads and Bridges)
- Significant effects usually limited to cases where road layout is altered

Construction

- Assessment considers which equipment used and respective noise levels
- Information taken from on British Standard BS 5228
- Other key inputs are which bits of equipment being used simultaneously, and for how long

Construction

- Predictions make some pessimistic assumptions e.g. 100% on-time if more detailed info not available, which is often true at planning stage
- Purpose is to highlight potential issues which are considered in detail via Construction Environmental Management Plan (CEMP)
- 15mppa assessment highlighted some potential significant effects – these can be avoided by using barriers. No likely significant effects once CEMP implemented

Vibration

- Construction
 - Similar approach to noise assessment
 - Key activities are piling and vibratory compaction
 - Separation distance is significant so no significant effects predicted for 15mppa
- Aircraft
 - Vibration can occur when noise is above a certain level
 - Assessment checks whether noise threshold exceeded for any properties
 - Finding was that threshold not exceeded now or at 15mppa

Air Noise

- Considers noise from aircraft arriving and departing
- Includes associated noise from aircraft on the ground:
 - Start of roll noise – when engines power up on runway before takeoff
 - Reverse thrust noise – when landing aircraft use engines to slow down

Air Noise – Primary Metrics

- LAeq,16h and LAeq,8h
- Based on busy 92-day summer period (mid June to mid Sept)
- Take into account both the number of flights and how loud they are
- Based on govt guidance which is derived from research (community surveys)
- Used in UK since 1990
- SONA 2014 specifically reviewed which was best metric and concluded these remained the best

Air Noise – Additional Metrics

- Other metrics have no agreed criteria and based on govt work (SONA 2014) primary metrics are the best indicators of community response. However govt policy (APF) is that additional metrics should be presented to aid understanding of impacts
- N65 – number of daytime flights above 65 dB Lmax
- N60 – similar but for night and 60 dB Lmax

Air Noise – Additional Metrics

- Lden – EU metric. Similar to LAeq,16h but considers the 24-hour annual day, with 5 dB penalty for evening (1900-2300) and 10 dB penalty for night (2300-0700) movements to reflect that these are more sensitive time periods
- Lnight – EU metric, same as LAeq,8h but based on annual period
- SEL / LAmax – measures of individual aircraft noise level. SEL is total noise energy, LAmax is instantaneous maximum

Air Noise – Additional Metrics

- Highly annoyed (HA) / highly sleep disturbed (HSD) – population level metrics which estimate the number of people HA/HSD based on the external level (e.g. LAeq,16h). Give an indication of how the overall noise impact changes
- Awakenings – population level metric which estimates the number of awakenings due to aircraft noise, based on external L_{Amax} level.

Air Noise – Calculation

- Air noise is experienced over a wide area – not possible to measure at every location (and even if it was, need to assess future noise). Therefore modelling approach is used
- 2 models commonly used in UK
 - ANCON – developed by CAA, not commercially available
 - AEDT (replaced INM) – developed by FAA (USA), widely used in industry
 - Both models give similar results with similar inputs

Air Noise – Calculation

- AEDT allows for:
 - Runway locations
 - Flight tracks
 - Local terrain (ground height)
 - Aircraft operation (arrival/departure)
 - Aircraft type
 - Departure weight (estimated from destination)

Air Noise – Model validation

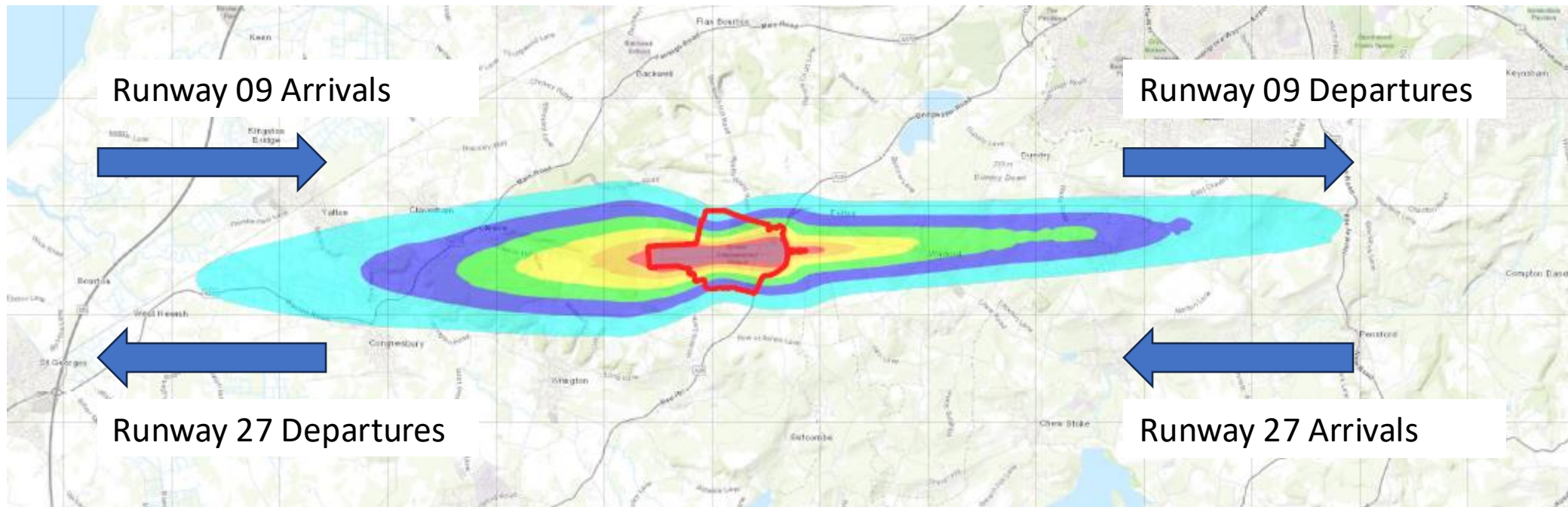
- AEDT has in-built library of noise and performance data for many aircraft types
- Noise levels measured at permanent NMTs
- For each of most common aircraft types, average measured level compared with AEDT prediction at NMTs
- Model adjusted to match levels measured at Bristol
- Adjustments relatively small – generally less than 1 dB

Air Noise – Model validation

- CAA document on minimum modelling requirements – CAP2091
- Sets expectation for different levels of detail based on population exposure
- Bristol is category D which requires no model validation, so approach followed is higher standard than required by CAA

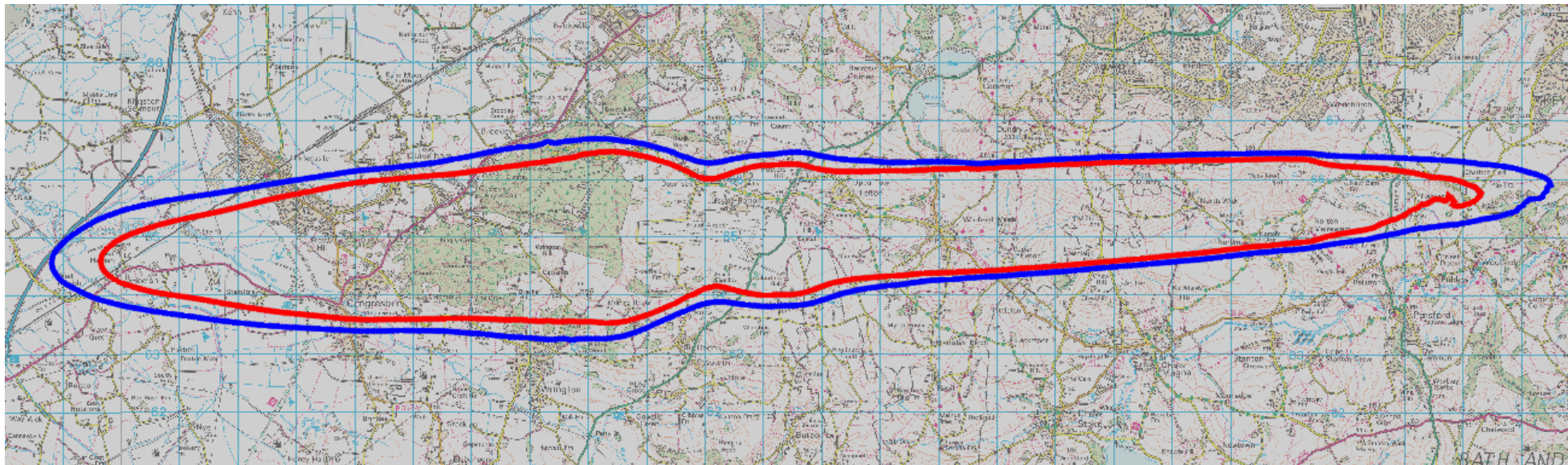
Air Noise – Contours explained

- Main output is noise contours



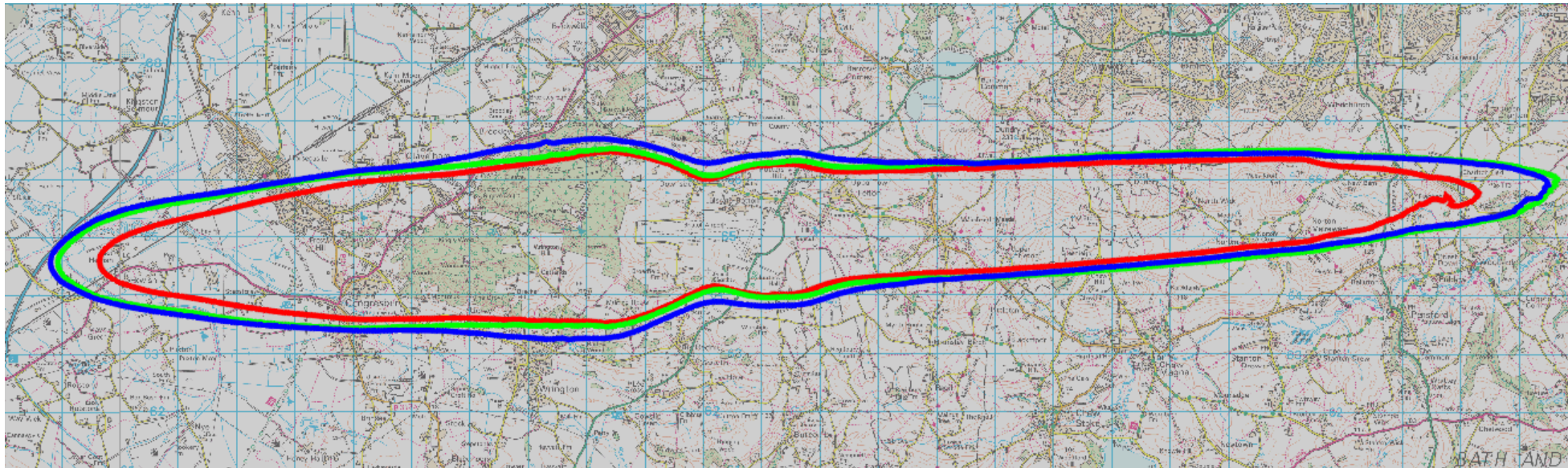
Air Noise – Contours explained

- Example contour – 45 dB LAeq,8h (night)
- 2029 12mppa (blue), 2038 12mppa (red)
- Contour gets smaller over time as fleet evolves
- Bigger reduction to west due to departures improving more



Air Noise – 15mppa findings

- Example contour – 45 dB LAeq,8h (night)
- 2029 12mppa (cyan), 2038 12mppa (red), 2038 15mppa (green)
- 2038 15mppa larger than 2038 12mppa but smaller than 2029 12mppa (similar)



Air Noise – 15mppa findings

- Overall finding is increase of around 1 dB (range from 0-2) for both day and night
- For people below SOAEL, 3 dB change is needed to trigger significant effect in planning terms
- For people above SOAEL, 1 dB change is needed. Insulation required to avoid significant effect

Insulation Scheme

- Those exposed to highest noise levels eligible for insulation scheme
- Scheme to be enhanced as part of application process:
 - Remove annual funding cap
 - Increase amount offered, in particular for those exposed to night noise
 - Seek to introduce approved contractors
- To be secured via S106 agreement with NSC (ideally) or Unilateral Undertaking

Ground Noise

- Considers noise from aircraft on the ground
- Does not include start of roll / reverse thrust – these are included in air noise
- Main sources are taxiing and aircraft on stands (using engines or APUs)
- Character is quite different to air noise – often longer duration but much quieter

Ground Noise

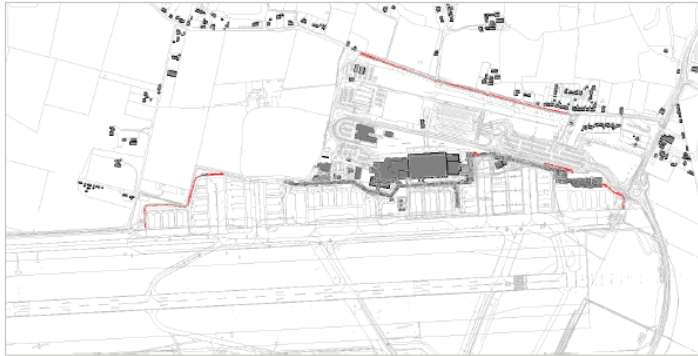
- Uses modelling approach similar to air noise but different software
- Relevant standard is ISO 9613-2
- Multiple software packages which implement this, BAP use CadnaA which is widely used in acoustics industry

Ground Noise

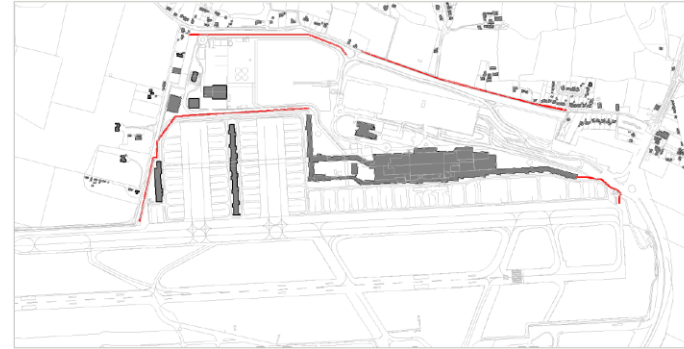
- Outputs are contours, similar concept to air noise
- Can be more easily screened by barriers as aircraft on ground
- Conservative assumption that future aircraft no quieter than existing
- 15mppa produces more noise from aircraft but there are benefits for some due to increased screening

Ground Noise

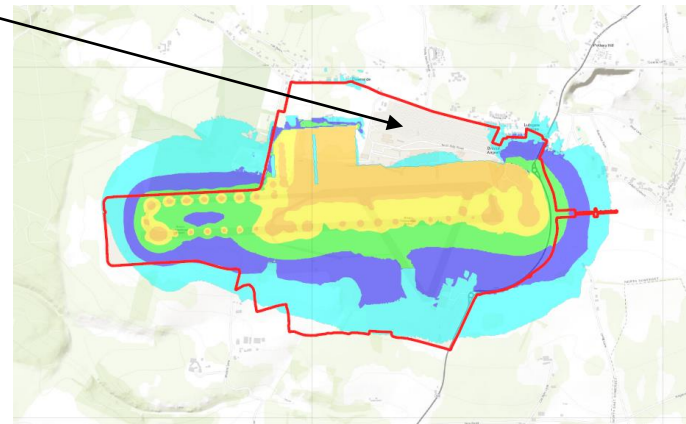
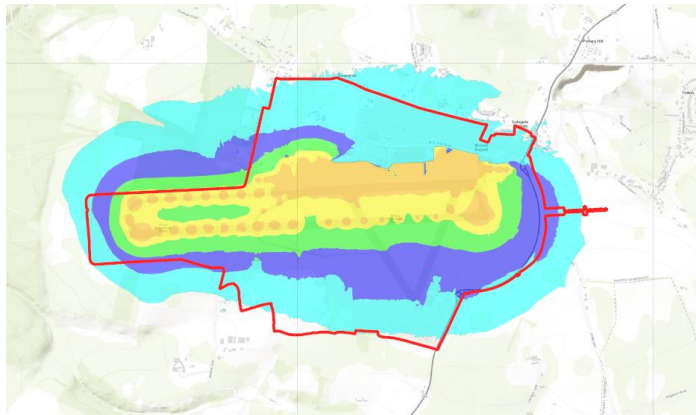
12mppa



15mppa



Effect of screening



General Sustainability Update

Hannah

General sustainability update 2026

- Energy centre installation happening this week!
- Ground noise management plan approved by North Somerset Council. Noise Control Scheme to follow.
- 87% recycling Year to Date



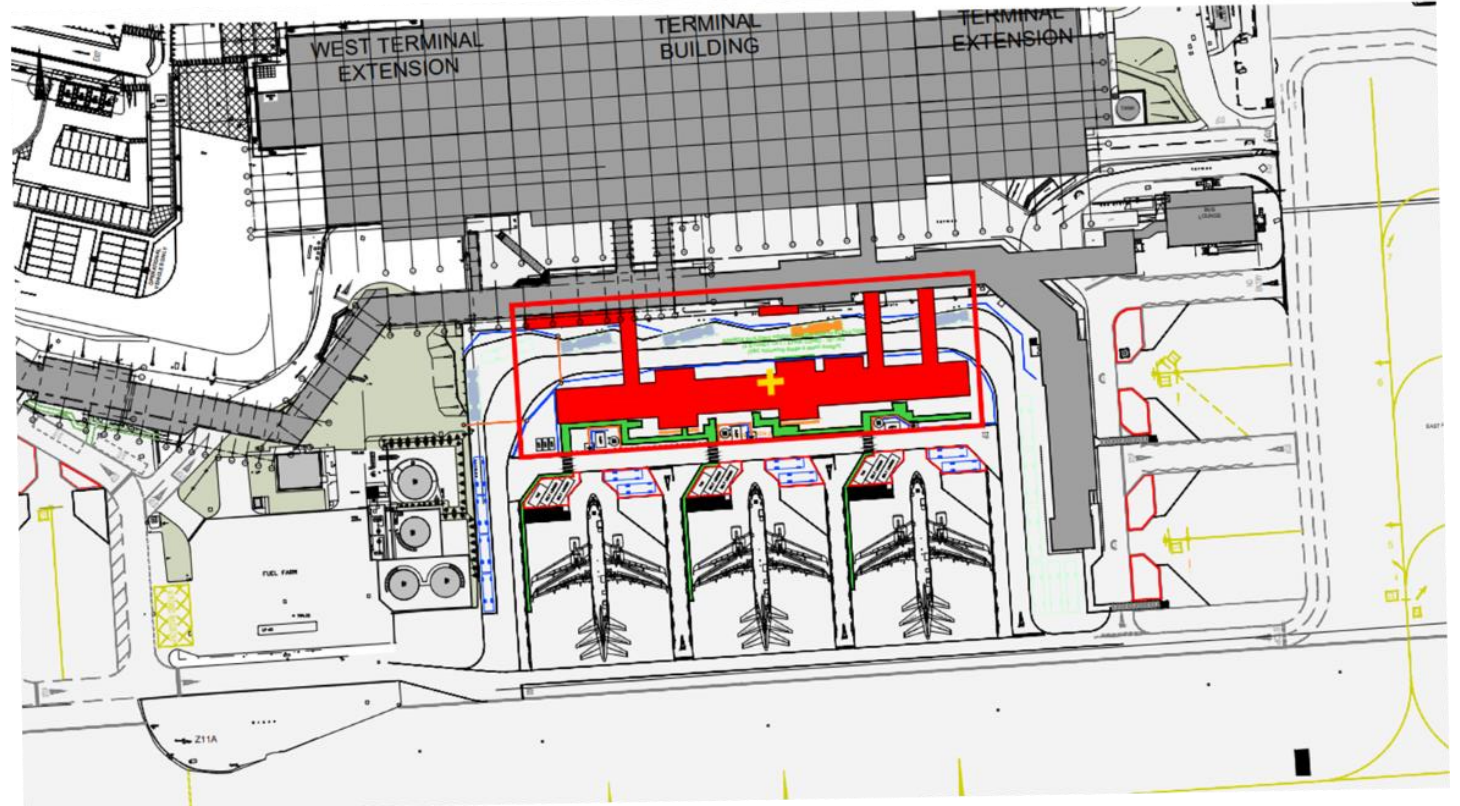
Ground noise monitor

The monitor will be located on the South Gates on the Northside, by aircraft stands 1,2 and 3 and is on the main apron. It is the optimum location for picking up ground noise from aircraft operations, engine runs and other equipment and operations, as it is one of the most frequently used sections of the apron with key stands at the airport.

This location is away from the road, to avoid the extraneous variables of traffic.

Next steps:

Calibrate monitor to ensure it's only picking up ground noise and link to ANOMS system.



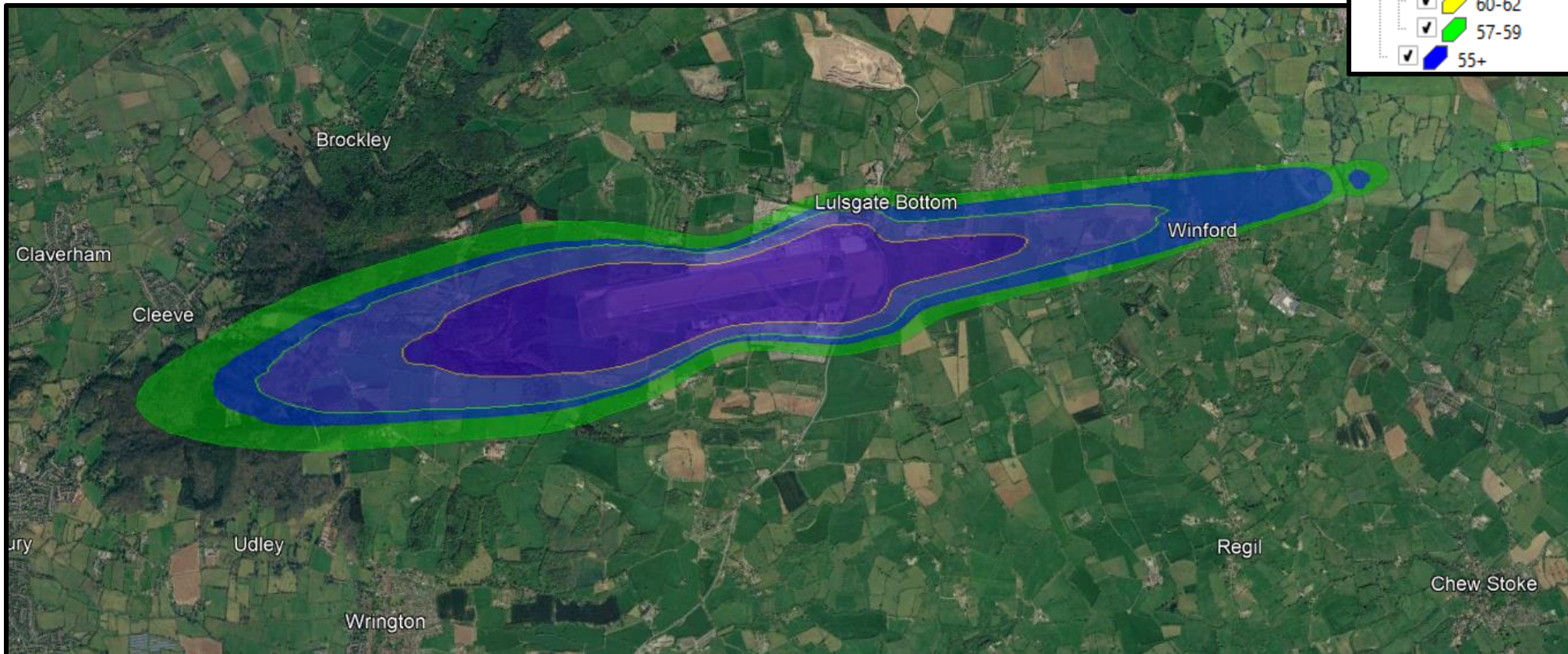
Environmental Update

Beth Wingfield

Environmental Compliance - Noise Mitigation Scheme

bristolairport.co.uk/corporate/community/noise-mitigation-grants/

- 53 application in application window 1
 - High number of applications compared to previous years
- Window 2 – Opened for July/Aug



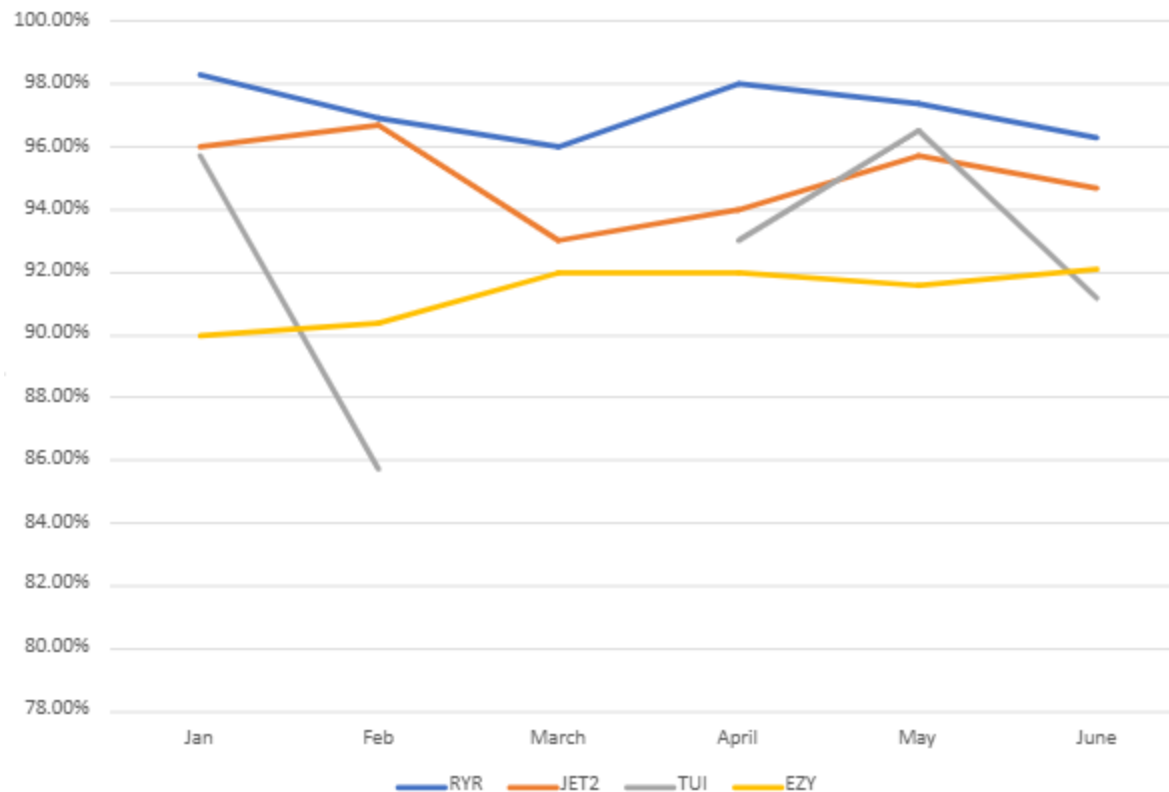
Continuous Descent Approaches



Track Keeping- within Departure Noise Preferential Routes

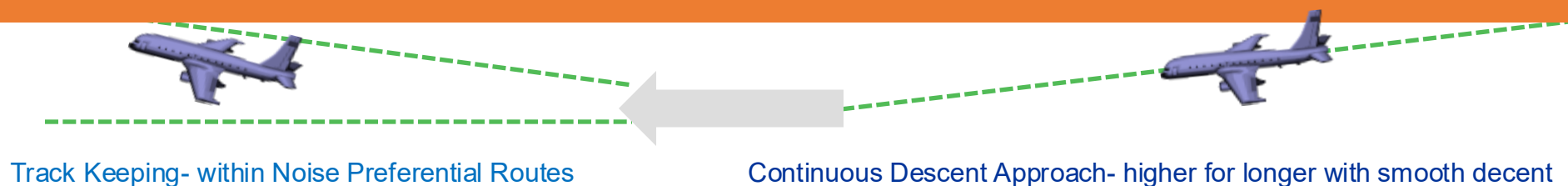
Continuous Descent Approach- higher for longer with smooth decent

2026 CDA's for Main Airline's



Airlines - CDA %	June
RYR	96.30%
JET2	94.70%
TUI	91.20%
EZY	92.10%
Total for Main Airlines	93.58%

Airspace Activity- Approach and Departure – All Airlines



2026	Departures	Violations	% on track
April	3183	32	98.99%
May	3807	43	98.97%
June	3818	39	98.98%
		Average YTD:	99.18%

Data only inclusive of movements of Aircraft over 5700kg in 2025/6

Track keeping – up to 4,000ft

Noise Preferential Routes



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LEGEND:

- Bristol Airport Runway
- Departure Route Corridor

Rev	Date	Description	Initials

REVISIONS

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Bristol Airport
Noise Action Plan

Departure Route Corridors

DRAWN: JC

CHECKED: NW

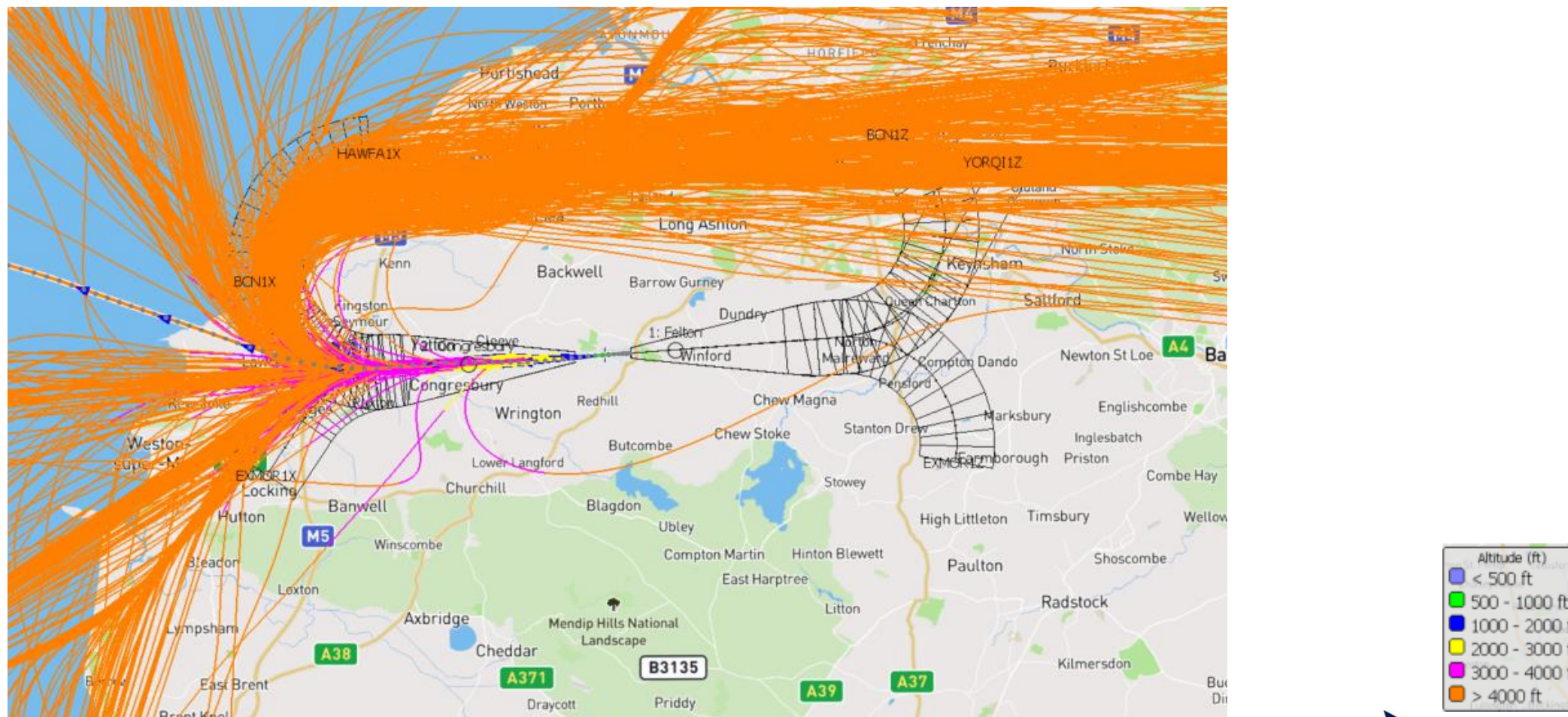
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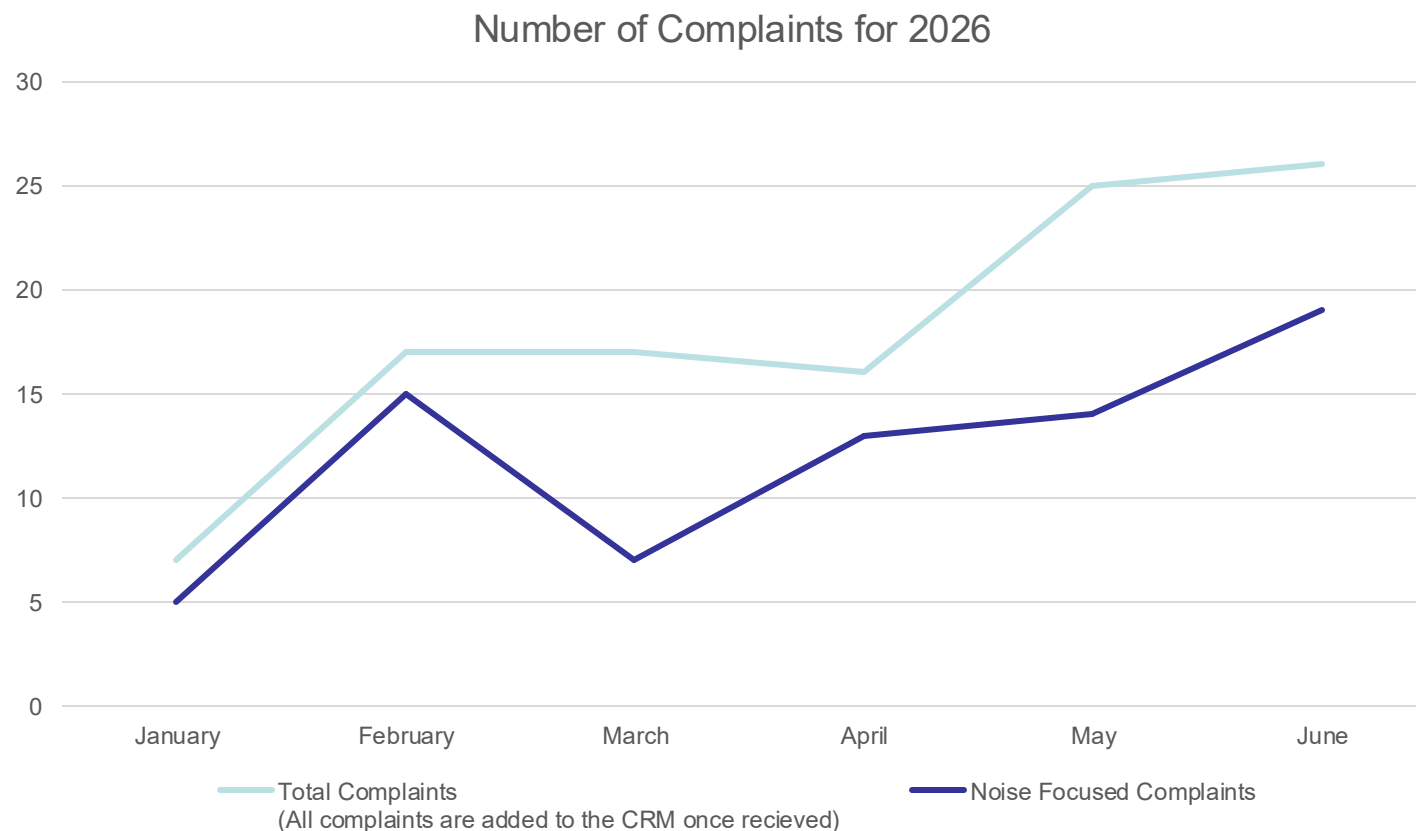
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Departure Tracks by Altitude – WC 29/06 (7 days)



Environmental Complaints – 2026 Q1&2 (Jan-June)

Category	Count of Category
Noise Insulation Scheme	1
Air Quality	1
Aircraft Day Noise	19
Aircraft Night Noise	29
Flightpaths	11
Ground Noise	2
Ground Noise	3
Ground Noise (On Site)	5
Helicopter	1
Helicopter Movement	2
Local Air Quality	1
Low Flying Aircraft	12
Noise Mitigation Scheme	1
Odour	11
Off site vehicle parking	1
Parking	1
Pollution	1
Vortex	1
Waste	3
Water/Flooding	3
(blank)	
Grand Total	109



The background of the slide is a vibrant blue with a repeating pattern of colorful speech bubbles. Each bubble is a different color (red, yellow, pink, white) and contains a large, dark blue question mark. The bubbles are scattered across the entire background, creating a sense of inquiry and discussion.

To discuss:

Next dates:

17th September (10-11.30am)