

Annex C6: Noise Analysis, 11km vs 6.84km to 55 dB(A)

Source

Compiled from NRTG analysis, Phase 3 EIS/EIAR comparison, and ABP Relevant Action Submission (December 2024).

The Climb Efficiency Problem

When an aircraft departs straight ahead on the approved NPR (278 degrees magnetic heading), it climbs at maximum efficiency. The aircraft maintains wings-level flight with full engine thrust directed into climb. Under these conditions, the distance from the departure end of the runway to the point where noise diminishes to 55 dB(A) Lden is approximately 11km.

When the same aircraft is instead directed to turn at 650ft (400ft AGL), as the current RWY28R SID requires, several factors compress the noise footprint:

1. The banked turn reduces the vertical component of thrust, slowing the climb rate
2. The aircraft remains at lower altitude for longer over residential areas
3. The turn itself generates additional aerodynamic noise
4. Engine thrust settings may be maintained at higher levels for longer during the turn

Under these conditions, the 55 dB(A) contour is reached at approximately 6.84km from the departure end, a 38% reduction in distance.

What This Means

The reduction from 11km to 6.84km does not mean less noise. It means the same noise energy is compressed into a smaller geographic area, concentrating the impact on communities closer to the airport, specifically the communities of Tyrrelstown, Toberburr, Ratoath, and surrounding areas of East Meath.

These communities were never identified in the 2007 EIS as being within the significant noise impact zone because the EIS modelled the straight-ahead NPR departure. The noise contours in the EIS extended along the runway extended centreline over predominantly agricultural land.

Key Data from EIAR Chapter 13 (Bickerdike Allen Partners)

Night noise changes at representative locations under the deviated flight paths:

Location	2025 Lnight	Change from Permitted	2035 Change
Tyrrelstown/Toberburr	48 dB	+10 dB	+12 dB
Ridgewood	48 dB	+9 dB	+11 dB
Swords	39 dB	+3 dB	+5 dB

Population exposed to significant adverse effects (Lnight):

Year	Beneficial	Adverse	Ratio
2025	6,423	10,109	1.6:1 adverse

Annex C6 2035	185	9,456	51:1 adverse
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People at 55 dB Lnight or above (high impact): 315 (Permitted scenario) vs 1,463 (Proposed scenario), nearly a fivefold increase.

Aarhus Relevance

The noise impact on these communities was never assessed in any environmental impact statement that was subject to public participation. The communities were never consulted on the route change that caused this impact. The 2016 consultation (Annex E1) was conducted entirely within County Fingal and did not reach County Meath communities.