



Dublin Airport

Quarterly Noise and Flight Track Monitoring Report

October - December (Q4) 2024

- This report presents data and information from Dublin Airport's Noise Monitoring Terminals (NMT's) and flight track monitoring system.
- The publication of this quarterly report is a requirement under Condition 10 of the North Runway's planning permission.
- The report is split into three parts:
 - Part 1: Noise Monitoring – Permanent monitors
 - Part 2: Noise Monitoring – Temporary monitors
 - Part 3: Flight Track Monitoring
- Noise data is presented in this report in five different metrics - Lden, Lnight, Leq16h, Lmax and SEL.
- Environmental noise from transport systems – airports, road and rail - is regulated by the EU Environmental Noise Directive (END).
- The END refers to the Lden and Lnight metrics to assess noise impact and to measure longer term improvements and goals.
- These two metrics are also used by the World Health Organization (WHO).
- Lmax and SEL are single event metrics and are not generally used on their own to assess noise impact by authorities. By including the number or frequency of events, they can provide a different way of representing the noise situation.
- This report demonstrates good correlation between the noise measurements obtained from NMT's and the modelled noise contours - this provides confidence in the accuracy of the contours. Noise contours cover the entire study area whereas noise monitors only report noise at the actual monitoring locations.

Part 1: Noise Monitoring Data Permanent NMT

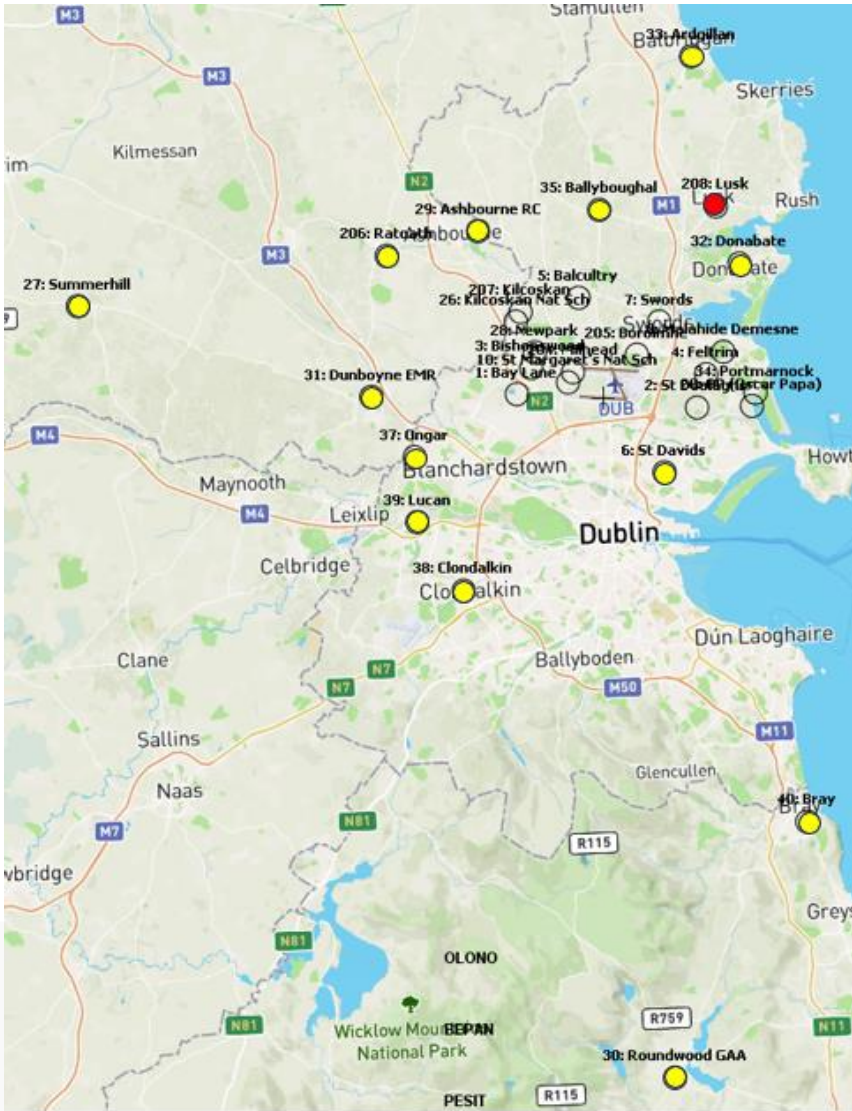


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7	Locations of Noise Monitoring Terminals (NMTs)	<ul style="list-style-type: none"> • Maps indicating locations of active Dublin Airport NMTs • Installation dates of NMTs
8	Modelled Lden Noise Contour Levels at NMT Locations	<ul style="list-style-type: none"> • Map of 2023 Lden Annual Aircraft Noise Contours • 2023 and 2024 Lden noise levels at each NMT as indicated in the Noise Contour map.
9	NMT Operational Data and Number of Correlated Noise Events	<p>For each month in the quarter:</p> <ul style="list-style-type: none"> • Downtime (minutes) for each NMT • The number of correlated aircraft noise events at each NMT per month and in the quarter.
10	NMT – Q4 Monthly and Quarterly Lden, Lnight and Leq16hr Data	<p>For each month and over the quarter:</p> <ul style="list-style-type: none"> • Measured Aircraft Noise at each NMT displayed in Lden, Lnight and Leq16hr metrics.
11	NMT – Q4 Aircraft Noise Event and Measured Lden/ Lnight Data	Chart showing Q4 correlated aircraft noise events and the measured Lden and Lnight data at each NMT
12	NMT – 2023 and 2024 Measured Lden, Lnight and Leq16hr Data	<ul style="list-style-type: none"> • 2023 Lden and Lnight Modelled Contour levels at each NMT location • 2023 annual measured aircraft noise levels in Lden and Lnight metrics at each NMT • 2024 measured aircraft noise levels in Lden, Lnight and Leq16hr metrics at each NMT
13	NMT – Total Noise vs Aircraft Noise Q1, Q2, Q3 and Q4 2024	<p>For each quarter this year:</p> <ul style="list-style-type: none"> • Measured Total and the Aircraft Lden levels at each NMT.
14	NMT – Q4 2024 Lmax and SEL (NA) Number Above (Daily Average)	<p>Measured Single Event data at each NMT:</p> <ul style="list-style-type: none"> • Daily Average of the Number of Aircraft Events over each Lmax value 60 to 85 [N60 to N85]. • Daily Average of the Number of Aircraft Events over each SEL value 70 to 95 [N(SEL)70 to N(SEL)95]
15	NMT – Q4 2024 Lmax and SEL Percentages (3 months)	<p>Measured Single Event data at each NMT:</p> <ul style="list-style-type: none"> • The distribution (%) of events over the quarter in each 5-decibel Lmax band (e.g. Lmax 60 - 65 dBA) and each SEL band (e.g. SEL 75 - 80 dBA).
16 - 18	Data from Temporary NMT installations	

Term	Definition
Aircraft Noise	The noise generated by aircraft operating to or from Dublin Airport. For our noise monitors, this excludes aircraft not travelling to or from Dublin Airport and noise from local activity such as road traffic, wind, birds, dogs and community activity. (These other noise sources are included in the measured Total Noise.)
(Correlated) Aircraft Noise Event	This is a noise event that is matched to an aircraft flight near the location of the NMT and the time of the noise event. Only correlated aircraft noise events are used to calculate the measured aircraft noise (e.g. Lden, Lnight, Leq16) at the NMT location.
Downtime (minutes)	The number of minutes during the period that each monitor was not operational.
Lden	Lden is the day-evening-night level. It is a descriptor of noise level based on energy equivalent noise level (Leq) over a whole day or longer, with a penalty of 5 dBA for evening noise (19:00-23:00h or 7-11pm) and a penalty of 10 dBA for night-time noise (23:00-7:00h or 11pm-7am). The 5-decibel penalty means that an evening flight is treated as the equivalent of three daytime flights. The 10-decibel penalty means that a night flight is the equivalent of 10 daytime flights.
Leq	Leq is the Equivalent Continuous Sound Level and is the average sound level, over the given period, that has the same total energy as the actual time-varying noise.
Leq16(hr)	Leq16h is the Leq over the 16-hour day-time period (7am-11pm). The Summer Leq16hr covers the 92 days from mid-June to mid-September and, at Dublin airport, is used for assessing the Residential Noise Insulation Scheme.
Leq8(hr)	Leq8h is the Leq over the 8-hour night-time period (11pm-7am). The Summer Leq16hr covers the 92 days from mid-June to mid-September. Leq8h and Lnight cover the same period, so monthly and quarterly values are identical. If the summer period is busier, the Summer Leq8h would be higher than the Annual Lnight.
Lmax	Lmax is the maximum instantaneous noise level recorded at an NMT during a noise event. Leq1sec (close to Lmax) is displayed at each NMT on the Dublin Airport WebTrak site however, it also <u>includes</u> non-aircraft noise.
Lnight	Lnight is the night-time (11pm-7am) Leq average noise indicator. Like Lden, in this document, Lnight is reported monthly, quarterly and annually.
Measured noise levels	This is the assessment of the noise level at an NMT derived from data from the NMT. Each measured noise level is only at the NMT point location.
Modelled noise levels	This is calculated using computer software which takes into account all Dublin Airport flight operational activity. It calculates the noise levels at thousands of points across the study area and is used to produce Noise Contours. The Modelled noise level can also be calculated at each NMT point location.
(Notes: Comparing Measured and Modelled Noise Levels)	Measured noise levels at each NMT location should be the same, or close to, the Modelled noise levels. Measured data may miss some less noisy aircraft noise events, especially if the NMT is far from the airport (the aircraft is higher) or if the aircraft track is far from the NMT. Modelled data includes all aircraft activity in the entire study area. This means that Measured data should be equal to, or slightly lower than, the Modelled data. Good agreement between the Measured and Modelled data gives confidence that the Modelled Noise Contours provide good information on actual noise levels, including at locations that do not have an NMT.

Term	Definition
NMT	NMT means Noise Monitoring Terminal. They are generally located in community areas. An NMT includes a high-quality, calibrated microphone and provides continuous noise level data at the location of the NMT.
Noise Contours	Contours are lines that join points of the same modelled noise level covering a study area. All noise contours are modelled. Each year Dublin Airport publishes Annual Lden and Lnight contours and Summer Leq16h and Leq8h contours.
Noise Event	A noise event is detected at an NMT location when the noise level rises above and then falls below a pre-set threshold level. This can be caused by many different sources including aircraft, vehicles on a road, dogs barking, wind, sirens etc.
Number Above	Number Above is a single event metric unlike Lden or Lnight which are time-averaged noise metrics. N60 is the number of (aircraft noise) events with $L_{max} \geq 60$ dBA. N(SEL)70 is the number of (aircraft noise) events with $SEL \geq 70$ dBA. Note that N60 value includes the events in N65, N70 and higher.
SEL	SEL or Sound Exposure Level represents the total noise energy contained in a noise event, as if the same noise energy were compressed into a single second. For a short event (like a single dog bark) the SEL is approximately the same value as the L_{max} . For an aircraft noise event, usually 10 to 30 seconds, the SEL value is typically about 10 decibels higher than the L_{max} . The SEL values of the Correlated Aircraft Noise Events are added up and used to calculate average noise level metrics over longer periods, including annual or monthly Lden & Lnight, or monthly or summer Leq16 & Leq8.
Single Event noise metrics	Including L_{max} and SEL, these measure the noise of individual events. Along with the (daily or hourly) number of events at each noise level, these metrics provide a different perspective attempting to quantify the various experiences of individuals near flight paths.
Time-Averaged noise levels	Including Annual Lden and Lnight and Summer Leq16/8h, averaged noise levels allow the comparison of different locations around an airport, (and also other airports) where aircraft types, power settings, overflight frequency, operational time of day, and tracks heights vary. The EU and WHO uses Lden and Lnight to assess the total impact on communities for road, rail and air transport noise.
Total Noise	Total Noise is a measure of noise from all noise sources (including aircraft and non-aircraft activity) during the period. This means that Aircraft Noise cannot exceed Total Noise.
YTD	Year to date

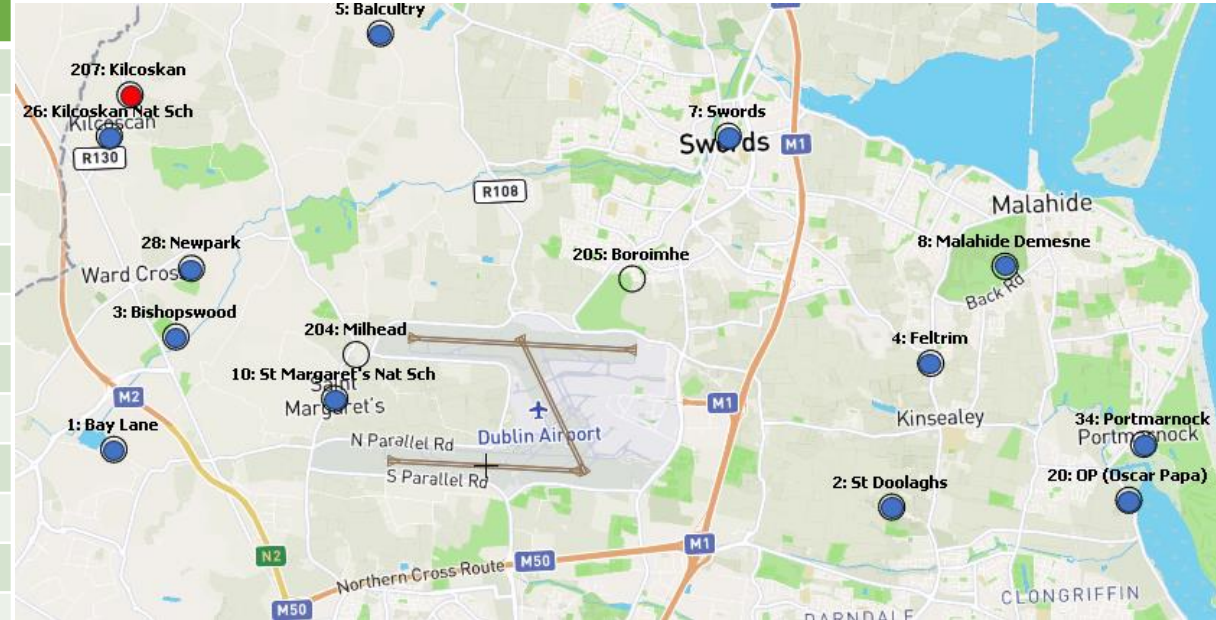
Noise Monitoring Terminal (NMT) Locations Q4 2024



● = Permanent NMTs located further out from Dublin Airport

● = Temporary NMT located further out from Dublin Airport

#	NMT Name	Since
1	Bay Lane	2015
2	St. Doolaghs	2015
3	Bishopswood	2015
4	Feltrim	2015
5	Balcultry	2015
6	St.Davids	2015
7	Swords	07/2022
8	Malahide	07/2022
10	St.Margarets NS	07/2022
20	Coast Rd (OP)	2015
26	Kilcoskan NS	12/2022
27	Summerhill	09/2023
28	Newpark	09/2023
29	Ashbourne	09/2023
30	Roundwood	09/2023
31	Dunboyne	09/2023
32	Donabate	09/2023
33	Ardgillan	01/2024
34	Portmarnock	06/2024
35	Ballyboughal	06/2024
37	Ongar	08/2024
38	Clondalkin	08/2024
39	Lucan	08/2024
40	Bray	08/2024
206	Ratoath	03/2024



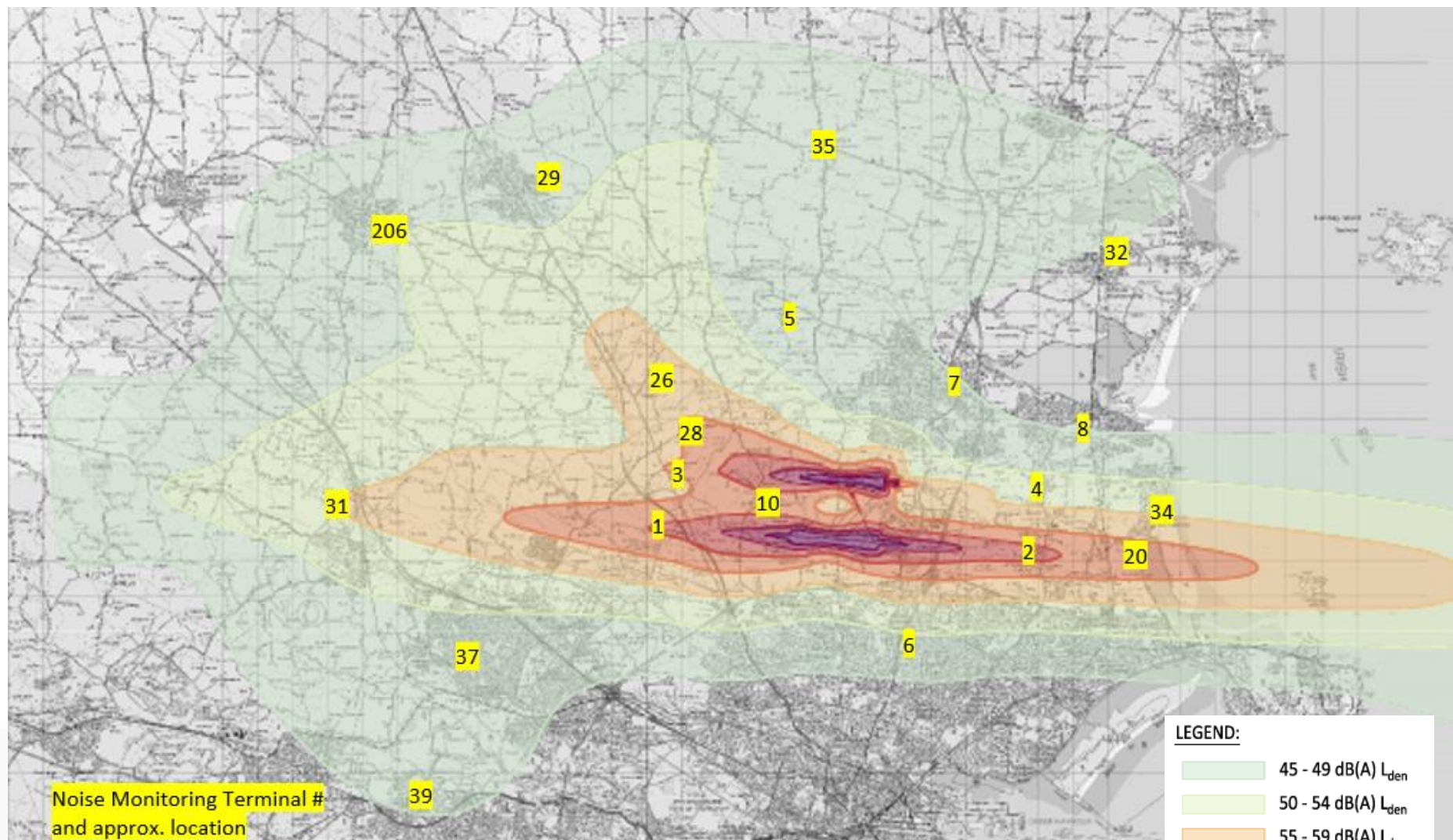
● = Permanent NMTs located near Dublin Airport

● = Temporary NMT located near Dublin Airport

#	Portable NMT	From	Until
204	Milhead	Oct 2023	Jun 2024
205	Boroimhe	Mar 2024	July 2024
207	Kilcoskan	Jul 2024	
208	Lusk	Aug 2024	

Modelled Lden Noise Contour Levels at NMT Locations

#	NMT Name	Lden 2023
1	Bay Lane	65
2	St. Doolaghs	65
3	Bishopswood	60
4	Feltrim	54
5	Balcultry	49
6	St.Davids	44
7	Swords	45
8	Malahide	46
10	St.Margarets NS	63
20	Coast Rd (OP)	63
26	Kilcoskan NS	58
27	Summerhill	38
28	Newpark	60
29	Ashbourne	49
30	Roundwood	36
31	Dunboyne	54
32	Donabate	45
33	Ardgillan	33
34	Portmarnock	54
35	Ballyboughal	47
37	Ongar	49
38	Clondalkin	
39	Lucan	46
40	Bray	
206	Ratoath	47



Map of 2023 Lden Annual Noise contours

3 NMT (27, 30, 33, 38, 40) are located outside this map's boundaries

Including Permanent NMT installations

NMT – Operational Downtime and Number of Correlated Aircraft Noise Events

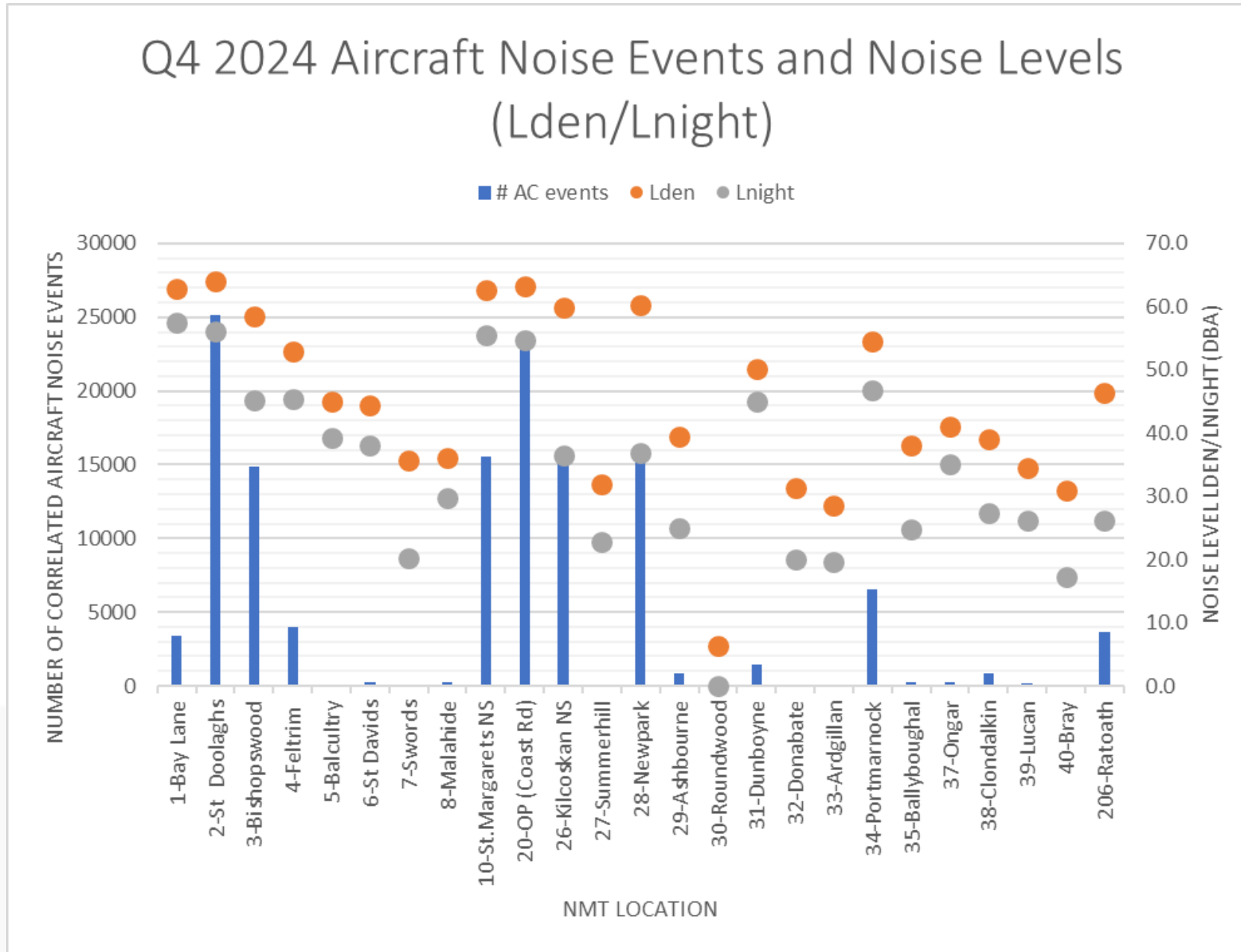
NMT	Location	October		November		December		Q4 2024
		Downtime (mins)	# Aircraft Events	Downtime (mins)	# Aircraft Events	Downtime (mins)	# Aircraft Events	# Aircraft Events
1	Bay Lane	23	1483	5	971	65	923	3377
2	St. Doolaghs	4512 (3d)	9124	501	8060	65	7931	25115
3	Bishopswood	24	6506	18	4748	70	3624	14878
4	Feltrim	436 (7h)	2099	12	1071	86	865	4035
5	Balcultry	93	38	1006	14	102	23	75
6	St.Davids	27	124	2	61	62	31	216
7	Swords	16	32	17	18	16	24	74
8	Malahide	67	148	48	41	18	32	221
10	St.Margarets NS	17	5672	45	4576	35	5280	15528
20	Coast Rd (OP)	33	7624	0	7837	60	7775	23236
26	Kilcoskan NS	32	5223	0	4517	60	5478	15218
27	Summerhill	17	40	34	23	82	19	82
28	Newpark	16	5572	16	4734	18	5407	15713
29	Ashbourne	48	294	16	252	77	326	872
30	Roundwood	48	0	17	0	1804	0	0
31	Dunboyne	17	800	16	396	49	249	1445
32	Donabate	48	14	69	11	115	7	32
33	Ardgillan	18	13	17	10	78	8	31
34	Portmarnock	49	3179	71	1834	18	1530	6543
35	Ballyboughal	121	87	66	70	444	67	224
37	Ongar	136	97	67	68	67	82	247
38	Clondalkin	67	273	127	319	67	274	866
39	Lucan	315	75	569	50	17	55	180
40	Bray	2430	19	358	6	69	17	42
206	Ratoath	17	1529	17	1100	16	1006	3635

Including Permanent NMT installations only

NMT – Q4 Monthly and Quarterly Lden, Lnight and Leq16hr



NMT	Location	# Correlated Aircraft Noise Events				Lden (dBA)				Lnight (=Leq 8h) (dBA)				Leq16h (dBA)			
		Oct	Nov	Dec	Q4	Oct	Nov	Dec	Q4	Oct	Nov	Dec	Q4	Oct	Nov	Dec	Q4
1	Bay Lane	1483	971	923	3377	64.1	62.4	61.3	62.8	58.8	57.2	56.1	57.5	46.0	40.7	39.0	43.0
2	St. Doolaghs	9124	8060	7931	25115	64.2	63.6	64.2	64.0	56.1	55.7	56.6	56.1	61.3	60.4	60.7	60.8
3	Bishopswood	6506	4748	3624	14878	59.9	58.1	56.5	58.4	46.0	43.6	45.4	45.1	59.9	58.1	56.2	58.3
4	Feltrim	2099	1071	865	4035	55.1	52.7	49.7	53.0	48.4	43.6	40.9	45.4	50.1	50.5	47.3	49.5
5	Balcultry	38	14	23	75	49.0	40.3	33.9	44.9	43.4	34.4	24.8	39.2	38.0	33.3	33.3	35.5
6	St.Davids	124	61	31	216	47.7	41.4	39.5	44.4	41.7	34.7	31.8	38.1	41.0	36.9	35.1	38.4
7	Swords	32	18	24	74	36.0	36.5	34.4	35.7	23.5	0.0	19.2	20.2	35.8	37.6	35.4	36.4
8	Malahide	148	41	32	221	39.4	32.4	31.3	36.0	33.9	22.9	18.9	29.6	28.5	31.3	31.9	30.8
10	St.Margarets NS	5672	4576	5280	15528	62.7	62.0	63.2	62.7	55.4	54.9	56.2	55.5	59.1	58.3	59.2	58.9
20	Coast Rd (OP)	7624	7837	7775	23236	62.5	63.0	63.9	63.2	53.8	54.7	55.7	54.8	60.2	60.4	61.0	60.5
26	Kilcoskan NS	5223	4517	5478	15218	60.3	59.5	59.7	59.9	40.2	30.1	32.0	36.4	61.0	60.4	60.4	60.6
27	Summerhill	40	23	19	82	32.7	32.7	29.8	31.9	25.1	21.4	19.8	22.7	30.8	33.3	29.2	31.4
28	Newpark	5572	4734	5407	15713	60.9	59.9	60.1	60.3	41.0	29.3	31.1	36.9	61.5	60.8	60.8	61.0
29	Ashbourne	294	252	326	872	39.9	38.9	39.7	39.5	28.3	18.0	22.8	25.0	39.8	39.6	40.5	40.0
30	Roundwood	0	0	0	0	6.4	6.4	6.4	6.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
31	Dunboyne	800	396	249	1445	52.1	50.1	47.2	50.2	46.8	44.8	41.9	44.9	34.3	28.7	27.4	31.3
32	Donabate	14	11	7	32	30.5	32.1	30.9	31.2	14.2	20.3	22.3	20.1	30.7	32.5	30.0	31.2
33	Ardgillan	13	10	8	31	28.0	30.1	26.9	28.5	21.9	17.5	17.8	19.6	21.4	30.9	26.4	27.8
34	Portmarnock	3179	1834	1530	6543	56.0	53.9	53.3	54.6	47.4	46.4	46.2	46.7	53.8	50.6	49.6	51.7
35	Ballyboughal	87	70	67	224	38.7	37.6	37.6	38.0	28.4	20.7	20.2	24.9	38.6	38.2	38.3	38.3
37	Ongar	97	68	82	247	42.1	40.1	40.6	41.0	36.1	33.9	34.8	35.0	32.8	34.9	32.0	33.4
38	Clondalkin	273	319	274	866	40.0	39.3	37.8	39.1	29.6	26.0	24.5	27.3	39.9	39.1	38.6	39.2
39	Lucan	75	50	55	180	35.4	34.3	33.8	34.5	26.9	26.3	25.3	26.2	34.3	32.6	32.6	33.3
40	Bray	19	6	17	42	30.0	27.1	33.4	30.9	20.4	8.8	16.4	17.3	29.9	28.6	34.0	31.5
206	Ratoath	1529	1100	1006	3635	47.6	45.7	45.3	46.3	26.7	25.4	26.0	26.1	48.4	47.0	46.4	47.4



NMT – 2023 and 2024 (YTD) Quarterly Measured Lden, Lnight & Leq16hr



NMT	Location	Lden (dBA) [Modelled Contour and Measured Noise]							Lnight (=Leq 8h) (dBA) [Modelled Contour and Measured]							Leq16h (dBA)				
		'23 Cont	'23 NMT	Q1 2024	Q2 2024	Q3 2024	Q4 2024	2024	'23 Cont	'23 NMT	Q1 2024	Q2 2024	Q3 2024	Q4 2024	2024	Q1 2024	Q2 2024	Q3 2024	Q4 2024	2024
1	Bay Lane	65	64.3	63.8	63.6	63.3	62.8	63.4	58	56.8	57.9	57.9	58.0	57.5	57.8	54.9	52.6	48.1	43.0	51.6
2	St. Doolaghs	65	64.5	63.9	64.6	64.7	64.0	64.3	57	56.9	55.9	56.9	57.1	56.1	56.5	60.7	61.3	61.2	60.8	61.0
3	Bishopswood	60	57.5	58.0	58.8	58.5	58.4	58.4	49	46.1	46.6	44.6	43.5	45.1	45.1	57.5	58.8	58.6	58.3	58.4
4	Feltrim	54	51.1	51.8	52.5	52.4	53.0	52.4	46	43.7	44.5	46.7	44.3	45.4	45.3	47.8	44.4	50.2	49.5	48.5
5	Balcultry	49	46.6	39.2	45.9	44.0	44.9	44.1	39	18.8	27.1	37.1	38.4	39.2	37.2	37.1	41.2	33.7	35.5	37.8
6	St.Davids	44	38.5	37.9	45.2	39.8	44.4	42.8	36	25.0	25.7	36.8	28.1	38.1	34.8	38.3	41.0	39.0	38.4	39.3
7	Swords	45	44.7	37.1	39.8	40.5	35.7	38.7	37	17.7	18.5	30.2	28.3	20.2	26.8	36.8	36.6	38.6	36.4	37.2
8	Malahide	46	38.4	39.6	39.3	39.7	36.0	38.9	38	26.2	32.8	32.7	32.4	29.6	32.0	33.8	31.7	33.5	30.8	32.6
10	St.Margarets NS	63	63.5	63.2	63.8	63.7	62.7	63.4	55	56.5	56.2	56.4	56.4	55.5	56.1	59.0	60.2	59.9	58.9	59.6
20	Coast Rd (OP)	63	62.5	62.0	62.6	62.9	63.2	62.6	55	54.9	53.7	54.7	55.3	54.8	54.5	59.3	59.5	59.4	60.5	59.6
26	Kilcoskan NS	58	59.1	59.5	61.2	61.0	59.9	60.4	40	35.8	33.1	38.3	34.5	36.4	36.0	60.3	61.7	61.6	60.6	61.1
27	Summerhill	38	31.7	33.1	36.5	31.8	31.9	33.8	31	24.9	22.7	24.8	22.4	22.7	23.3	32.9	36.6	29.7	31.4	33.5
28	Newpark	60	61.9	60.5	62.1	62.1	60.3	61.3	45	34.5	34.2	38.9	35.1	36.9	36.7	61.2	62.6	62.6	61.0	61.9
29	Ashbourne	49	45.9	38.6	40.1	40.3	39.5	39.7	39	23.9	22.6	23.6	21.6	25.0	23.4	39.1	40.6	41.5	40.0	40.4
30	Roundwood	36	12.8	15.1	19.0	20.8	6.4	17.7	28	0.0	0.0	0.0	0.0	0.0	0.0	16.4	20.6	22.4	0.0	19.2
31	Dunboyne	54	50.5	49.8	50.9	50.7	50.2	50.4	47	43.0	43.9	45.4	45.3	44.9	44.9	41.1	39.3	36.2	31.3	38.3
32	Donabate	45	0.0	33.4	28.2	35.1	31.2	32.7	37	0.0	11.8	12.4	26.5	20.1	21.6	32.6	27.8	31.6	31.2	31.1
33	Ardgillan	33	26.5	30.6	30.6	30.4	28.5	30.1	24	19.3	17.9	21.2	23.1	19.6	20.9	29.0	27.5	26.5	27.8	27.8
34	Portmarnock	54			55.4	54.5	54.6	54.8	49			47.4	46.7	46.7	46.9		52.8	51.6	51.7	52.1
35	Ballyboughal	47			38.6	38.4	38.0	38.3				26.4	14.3	24.9	24.1		38.3	39.4	38.3	38.7
37	Ongar	49					40.6		41					34.8						32.0
38	Clondalkin						37.8							24.5						38.6
39	Lucan	46					33.8							25.3						32.6
40	Bray						33.4							16.4						34.0
206	Ratoath	47				48.0	46.3						27.9	26.1				48.7	47.4	

Total Noise versus Aircraft Noise Q2, Q3 and Q4 2024

NMT	Location	Lden Q2 2024			Lden Q3 2024			Lden Q4 2024		
		Total Noise (dBA)	Aircraft Noise (dBA)	# Aircraft Noise Events	Total Noise (dBA)	Aircraft Noise (dBA)	# Aircraft Noise Events	Total Noise (dBA)	Aircraft Noise (dBA)	# Aircraft Noise Events
1	Bay Lane	65.2	63.6	5123	64.6	63.3	4703	66.1	62.8	3377
2	St. Doolaghs	65.4	64.6	31316	65.3	64.7	33442	65.5	64.0	25115
3	Bishopswood	63.9	58.8	18204	63.4	58.5	18407	65.0	58.4	14878
4	Feltrim	59.7	52.5	2880	60.4	52.4	4003	66.5	53.0	4035
5	Balcultry	59.4	45.9	154	57.3	44.0	105	63.6	44.9	75
6	St.Davids	60.1	45.2	280	64.0	39.8	256	64.5	44.4	216
7	Swords	65.0	39.8	91	63.0	40.5	131	69.8	35.7	74
8	Malahide	60.0	39.3	507	59.8	39.7	285	61.9	36.0	221
10	St.Margarets NS	66.8	63.8	19632	66.5	63.7	20643	66.9	62.7	15528
20	Coast Rd (OP)	65.6	62.6	29235	65.4	62.9	12906 (37d)	69.2	63.2	23236
26	Kilcoskan NS	63.7	61.2	18948	62.8	61.0	21092	63.7	59.9	15218
27	Summerhill	58.5	36.5	217	56.5	31.8	95	58.0	31.9	82
28	Newpark	64.0	62.1	19287	63.4	62.1	20949	65.3	60.3	15713
29	Ashbourne	59.1	40.1	934	54.6	40.3	870	61.8	39.5	872
30	Roundwood	57.7	19.0	1	56.4	20.8	6	64.0	6.4	0
31	Dunboyne	59.6	50.9	2223	59.0	50.7	1917	63.0	50.2	1445
32	Donabate	55.7	28.2	28	54.6	35.1	46	57.9	31.2	32
33	Ardgillan	54.3	30.6	33	53.9	30.4	29	56.4	28.5	31
34	Portmarnock				59.1	54.5	7131	60.3	54.6	6543
35	Ballyboughal				60.9	38.4	277	62.4	38.0	224
37	Ongar							62.4	41.0	247
38	Clondalkin							62.0	39.1	866
39	Lucan							56.1	34.5	180
40	Bray							60.3	30.9	42
206	Ratoath	58.6	48.0	5447	55.9	48.0	5975	59.6	46.3	3635

- **Total Noise** includes all noise sources detected at the NMT.
- **Aircraft Noise** only includes noise events that are correlated with the flight radar and time of aircraft operational events – i.e. arrivals and departures at Dublin Airport.

Q4 2024 Lmax and SEL Number Above (NA) data (Daily Average)



NMT	Location	Average Number of Aircraft Noise Events per DAY Above Lmax (dBA) [e.g. N60 = Number of events above Lmax 60dBA]						# Aircraft N Events / DAY	Average Number of Aircraft Noise Events per DAY Above SEL [e.g. N(SEL)70 = Number of events above SEL 70dBA]						# Aircraft N Events
		N60	N65	N70	N75	N80	N85		(Av day Q4)	N(SEL)70	N(SEL)75	N(SEL)80	N(SEL)85	N(SEL)90	
1	Bay Lane	36.7	36.7	35.5	25.6	5.7	0.1	36.7	36.7	36.5	34.7	25.4	2.0	0.0	3377
2	St. Doolaghs	273.1	273.1	257.5	129.9	4.4	0.3	273	273.1	271.5	251.1	84.2	3.6	0.0	25115
3	Bishopswood	161.8	161.8	123.3	53.5	2.3	0.2	162	161.8	158.8	117.3	38.4	3.2	0.3	14878
4	Feltrim	43.9	36.7	13.7	5.0	1.1	0.3	44	43.7	30.8	11.2	3.4	0.8	0.2	4035
5	Balcultry	0.8	0.7	0.6	0.4	0.3	0.0	0.8	0.8	0.7	0.5	0.4	0.1	0.0	75
6	St.Davids	2.1	2.0	1.3	0.5	0.1	0.0	2.3	2.1	2.0	1.0	0.5	0.1		216
7	Swords	0.7	0.7	0.5	0.2	0.1		0.8	0.7	0.6	0.4	0.2	0.1		74
8	Malahide	1.3	0.7	0.3	0.1			2.4	1.5	0.6	0.2	0.1			221
10	St.Margarets NS	168.5	162.9	157.0	84.7	9.3	0.2	169	167.8	162.8	147.5	68.5	5.8	0.0	15528
20	Coast Rd (OP)	252.7	252.7	239.6	56.4	2.5	0.1	253	252.7	252.7	240.9	73.6	3.5	0.1	23236
26	Kilcoskan NS	165.5	162.0	149.6	81.1	8.7	0.1	165	165.1	162.5	153.4	88.5	11.2	0.1	15218
27	Summerhill	0.6	0.4	0.1				0.9	0.5	0.2	0.0				82
28	Newpark	170.8	170.1	143.3	91.6	12.7	0.8	171	170.8	160.0	142.3	100.4	11.6	0.3	15713
29	Ashbourne	9.5	8.7	2.0	0.1			9.5	9.4	5.9	1.6	0.1			872
30	Roundwood							0.0							0
31	Dunboyne	15.6	12.3	2.2	0.1			16	15.4	11.1	2.4	0.1			1445
32	Donabate	0.3	0.3	0.2	0.1	0.0		0.3	0.3	0.2	0.2	0.0	0.0		32
33	Ardgillan	0.2	0.2	0.0	0.0	0.0		0.3	0.2	0.1	0.0	0.0	0.0		31
34	Portmarnock	71.2	65.1	39.9	4.2	0.2	0.1	71	71.0	65.7	40.6	4.8	0.3	0.1	6543
35	Ballyboughal	2.3	2.3	2.3	0.3	0.0	0.0	2.4	2.3	2.3	1.4	0.2	0.0		224
37	Ongar	2.2	1.4	0.1	0.0			2.7	2.2	1.9	0.3	0.0			247
38	Clondalkin	0.1	0.0	0.0				9.4	0.1	0.0	0.0				866
39	Lucan	0.5	0.1					2.0	0.5	0.2	0.0				180
40	Bray	0.1	0.0					0.5	0.1	0.0					42
206	Ratoath (March)	39.5	28.2	6.8	0.9	0.1	0.0	40	38.2	29.1	7.6	1.2	0.1		3635

Q4 2024 Lmax and SEL Percentages in 5-decibel bands (3 months)



NMT	Location	Percentage of Aircraft Noise Events in each Lmax Range (dBA)						# Aircraft N Events /DAY	Percentage of Aircraft Noise Events in each SEL Range (dBA)						# Aircraft N Events
		60-64.9	65-69.9	70-74.9	75-79.9	80-84.9	85-89.9	(Av day Q4)	70-74.9	75-79.9	80-84.9	85-89.9	90-94.9	95-99.9	(Total in Q4)
1	Bay Lane		3%	27%	54%	15%	0%	36.7	1%	5%	25%	64%	5.4%	0.0%	3377
2	St. Doolaghs	0%	6%	47%	46%	2%	0%	273	1%	7%	61%	30%	1.3%	0.0%	25115
3	Bishopswood		24%	43%	32%	1%	0%	162	2%	26%	49%	22%	1.8%	0.1%	14878
4	Feltrim	16%	52%	20%	9%	2%	1%	44	29%	45%	18%	6%	1.4%	0.5%	4035
5	Balcultry	4%	22%	16%	19%	36%	3%	0.8	7%	23%	12%	45%	11.6%	1.4%	75
6	St.Davids	2%	36%	37%	20%	5%	1%	2.3	5%	45%	24%	21%	5.3%		216
7	Swords	3%	27%	37%	18%	15%		0.8	13%	23%	34%	21%	9.7%		74
8	Malahide	26%	19%	8%	3%			2.4	37%	16%	6%	2%			221
10	St.Margarets NS	3%	4%	43%	45%	5%	0%	169	3%	9%	47%	37%	3.4%	0.0%	15528
20	Coast Rd (OP)		5%	72%	21%	1%	0%	253		5%	66%	28%	1.3%	0.0%	23236
26	Kilcoskan NS	2%	7%	41%	44%	5%	0%	165	2%	5%	39%	47%	6.7%	0.1%	15218
27	Summerhill	28%	55%	15%				0.9	55%	32%	8%				82
28	Newpark	0%	16%	30%	46%	7%	0%	171	6%	10%	25%	52%	6.6%	0.2%	15713
29	Ashbourne	8%	71%	20%	1%			9.5	37%	45%	16%	1%			872
30	Roundwood							0.0							0
31	Dunboyne	21%	64%	13%	1%			16	28%	55%	15%	1%			1445
32	Donabate	8%	31%	38%	19%	4%		0.3	19%	23%	46%	8%	3.8%		32
33	Ardgillan	5%	77%	5%	9%	5%		0.3	55%	27%	5%	9%	4.5%		31
34	Portmarnock	9%	35%	50%	6%	0%	0%	71	7%	35%	50%	6%	0.4%	0.1%	6543
35	Ballyboughal			86%	13%	1%	0%	2.4		39%	52%	8%	0.9%		224
37	Ongar	34%	58%	5%	0%			2.7	13%	72%	12%	0%			247
38	Clondalkin	50%	10%	5%				9.4	30%	15%	5%				866
39	Lucan	79%	21%					2.0	53%	37%	7%				180
40	Bray	63%	38%					0.5	50%	38%					42
206	Ratoath (March)	28%	54%	15%	2%	0%	0%	40	23%	54%	16%	3%	0.1%		3635

Including Permanent NMT installations only



Part 2: Noise Monitoring Data Temporary NMT



Part 2: Portable Temporary NMT

- Mobile Noise Monitoring Terminals (NMT) are installed at locations around Dublin Airport based on requests from the two community forums – St. Margaret's Community Liaison Group and Dublin Airport Environmental Working Group.
- Locations can be seen on Page 7
- Data from the NMT at Milhead and Boroimhe are reported in the Q2 2024 Noise and Flight Track Monitoring Report.

#	Mobile NMT	From	Until	Quarterly Report
204	Milhead	Oct 2023	Jun 2024	Q2 2024
205	Boroimhe	Mar 2024	July 2024	Q2 2024
207	Kilcoskan	Jul 2024		Q4 2024 (this report)
208	Lusk	Aug 2024	Sept 2024	Q3 2024

Portable Temporary NMT - #207 Kilcoskan

		Kilcoskan Aug 2024	Kilcoskan Sep 2024	Kilcoskan Oct 2024	Kilcoskan Nov 2024	Kilcoskan Dec 2024	Kilcoskan 5 Month Average
	Correlated Aircraft Noise Events	5259	3021	3493	2978	3238	
NMT Noise Levels	Total Lden (dBA)	60.7	58.5	59.5	59.1	61.7	60.1
	Aircraft Lden (dBA)	57.6	55.1	56.0	55.3	56.3	56.2
	Aircraft Lnight (dBA)	35.4	24.9	37.4	23.3	27.4	33.1
	Aircraft Leq16h (dBA)	57.8	55.4	56.2	55.8	57.0	56.5
Daily Number of Aircraft Noise Events Above Lmax values	NA Lmax 60	170	101	113	100	104	
	NA Lmax 65	170	101	113	100	104	
	NA Lmax 70	163	96	109	96	101	
	NA Lmax 75	45	18	26	26	27	
	NA Lmax 80	1.0	0.2	0.5	0.7	0.7	
	NA Lmax 85	0.0	0.0	0.0	0.0	0.0	
Daily Number of Aircraft Noise Events Above SEL values	NA SEL 65	170	101	113	100	104	
	NA SEL 70	170	101	113	100	104	
	NA SEL 75	169	100	112	100	104	
	NA SEL 80	142	83	95	85	86	
	NA SEL 85	22	12	17	19	17	
	NA SEL 90	0.2	0.0	0.1	0.2	0.1	
	NA SEL 95	0.0	0.0	0.0	0.0	0.0	



Part 3: Flight Track Monitoring



Page	Page Heading	Page Content
21	Explanation of Terms	
22	Standard Instrument Departures (SID) North Runway	<ul style="list-style-type: none">• AirNav Ireland maps displaying the departure SIDs from North Runway towards the West and the East.
23	Standard Instrument Departures (SID) South Runway	<ul style="list-style-type: none">• AirNav Ireland maps displaying the departure SIDs from South Runway towards the West and the East.
24	Busy day Flight Tracks - Westerly and Easterly Operations	Examples of a typical 'busy day' flight pattern
25	Noise Contour Modelling (1) – Core Flight Tracks	Explanation of how noise contours are modelled using core flight tracks
26	Noise Contour Modelling (2) – Dispersed Flight Tracks	Explanation of how noise contours are modelled using dispersed flight tracks
27	Conclusion	

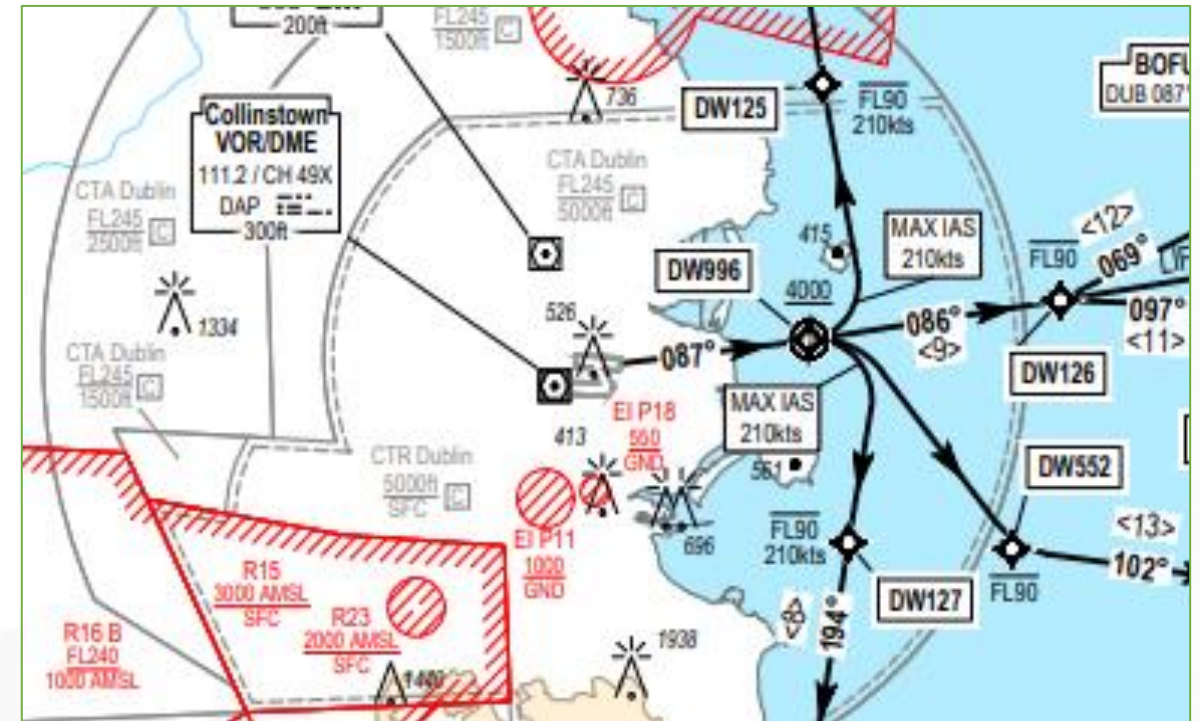
Term	Definition/ Explanation
Arrival Tracks	Arriving aircraft must fly in a straight line for at least the final 11km of their approach before landing on the runway. Aircraft approach the airport at a precise downward angle of 3 degrees, which means that they are at a height of 1,800ft when they join the final approach at the 11km point.
Departure Tracks	Departing jet aircraft are required to follow procedures defined by the SID and to stay within the Environmental Corridor, also called the Noise Preferential Route (NPR), below 3000ft for the South Runway and below 4000ft for the North Runway, unless directed by Air Traffic Control.
Easterly vs Westerly Operations	<p>In general, aircraft land and take-off facing into the wind.</p> <p>If the wind is easterly (blowing from the east), aircraft land from the west and take-off towards the east.</p> <p>If the wind is westerly (blowing from the west), aircraft land from the east (over the Irish Sea) and take-off towards the west.</p> <p>A moderate cross-wind component can be tolerated, but a strong north or south wind will require the use of the Crosswind Runway.</p>
Standard Instrument Departure (SID)	Depending on the departure runway and final destination, departing aircraft follow routes called Standard Instrument Departures (SID). SIDs allow aircraft to safely depart an airspace following pre-defined routes. (See Pages 20 and 21)
Flight Track	A flight track is the actual path flown by an aircraft (as opposed to a route or SID which indicate where an aircraft should go.) Flight track monitoring is based on flight radar data that is incorporated into the Noise and Flight Track Monitoring System.
Noise Modelling	A computer program is used to model airport operations and calculate the noise contours. Input data include all aircraft operations, aircraft types, runway use, time of day and flight tracks.
Modelled Flight Track	<p>Arrival noise is dominated by the straight final approach which is relatively easy to model for the noise contour calculations.</p> <p>Departing aircraft generally follow the SID</p>
Track Dispersion	In practice there is a spread or dispersion of actual tracks flown to either side of a main central track. This is modelled using a central flight track and secondary (dispersed) flight tracks to either side and the operations area divided between these tracks using a normal distribution.

Standard Instrument Departures (SID) North Runway

- Jet aircraft departures are required to follow these Standard Instrument Departures (SID).
- SID's are developed taking into account various safety, operational and environmental considerations amongst others.



SID for North Runway (28R) departures to the west (westerly operations in westerly winds)



SID for North Runway (10L) departures to the east (easterly operations in easterly winds)

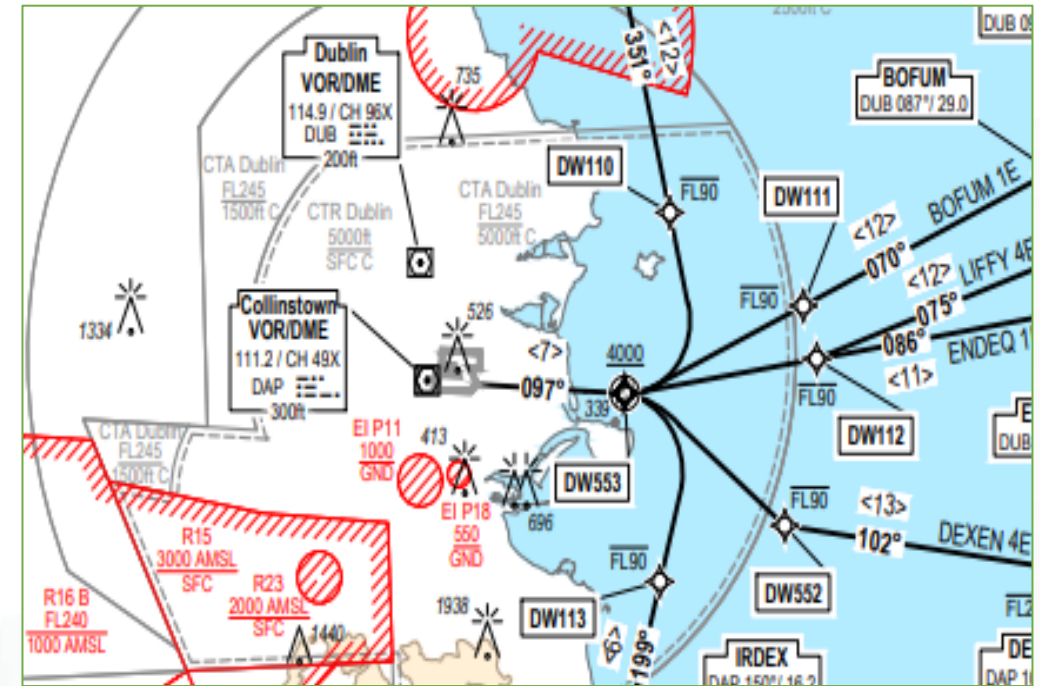
Note: This is only used during periods when the South Runway is closed.

Standard Instrument Departures (SID) South Runway

- Jet aircraft departures are required to follow Standard Instrument Departures (SID)

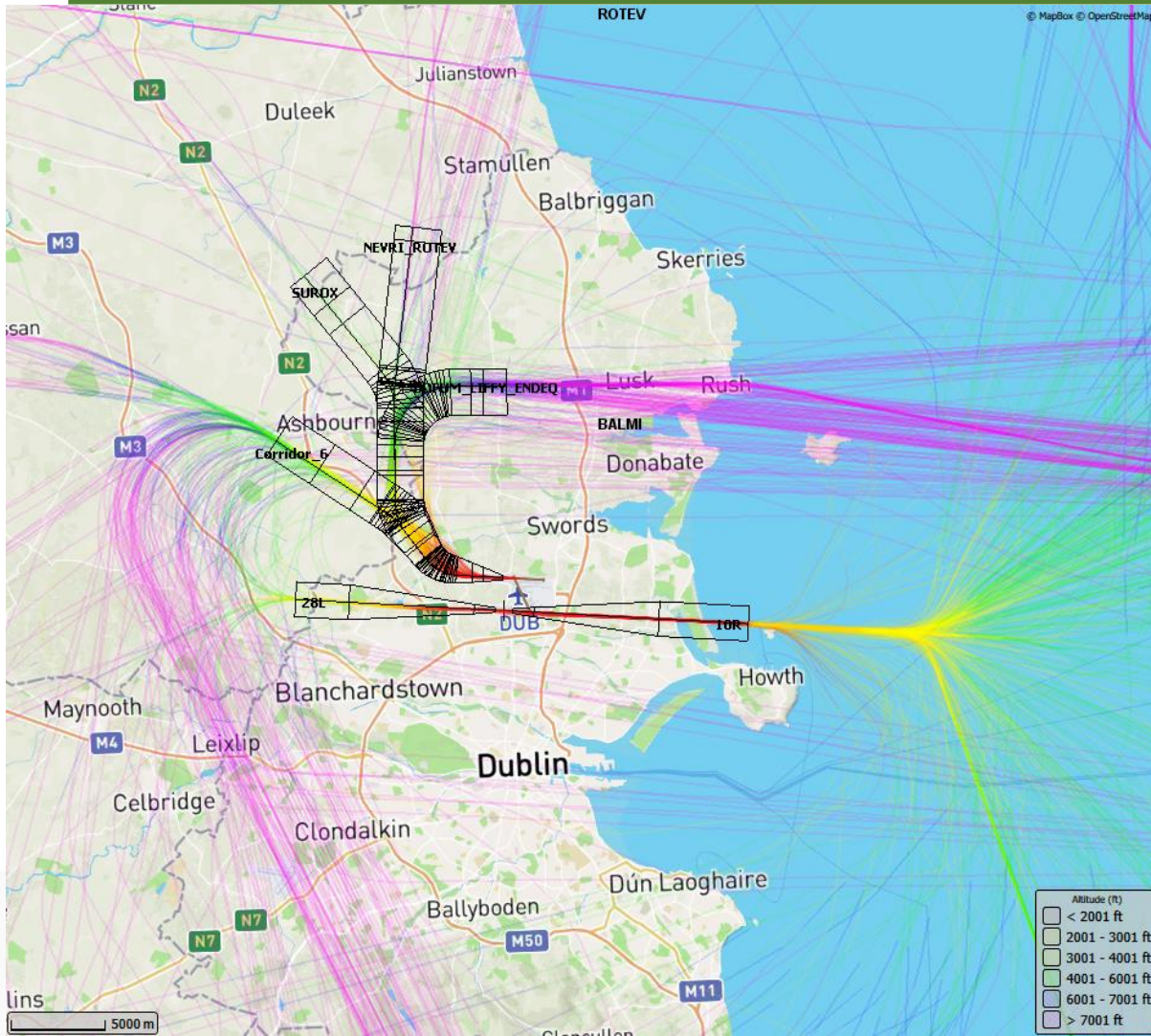


SID for South Runway (28L) Departures to the west (Westerly operations in westerly winds)



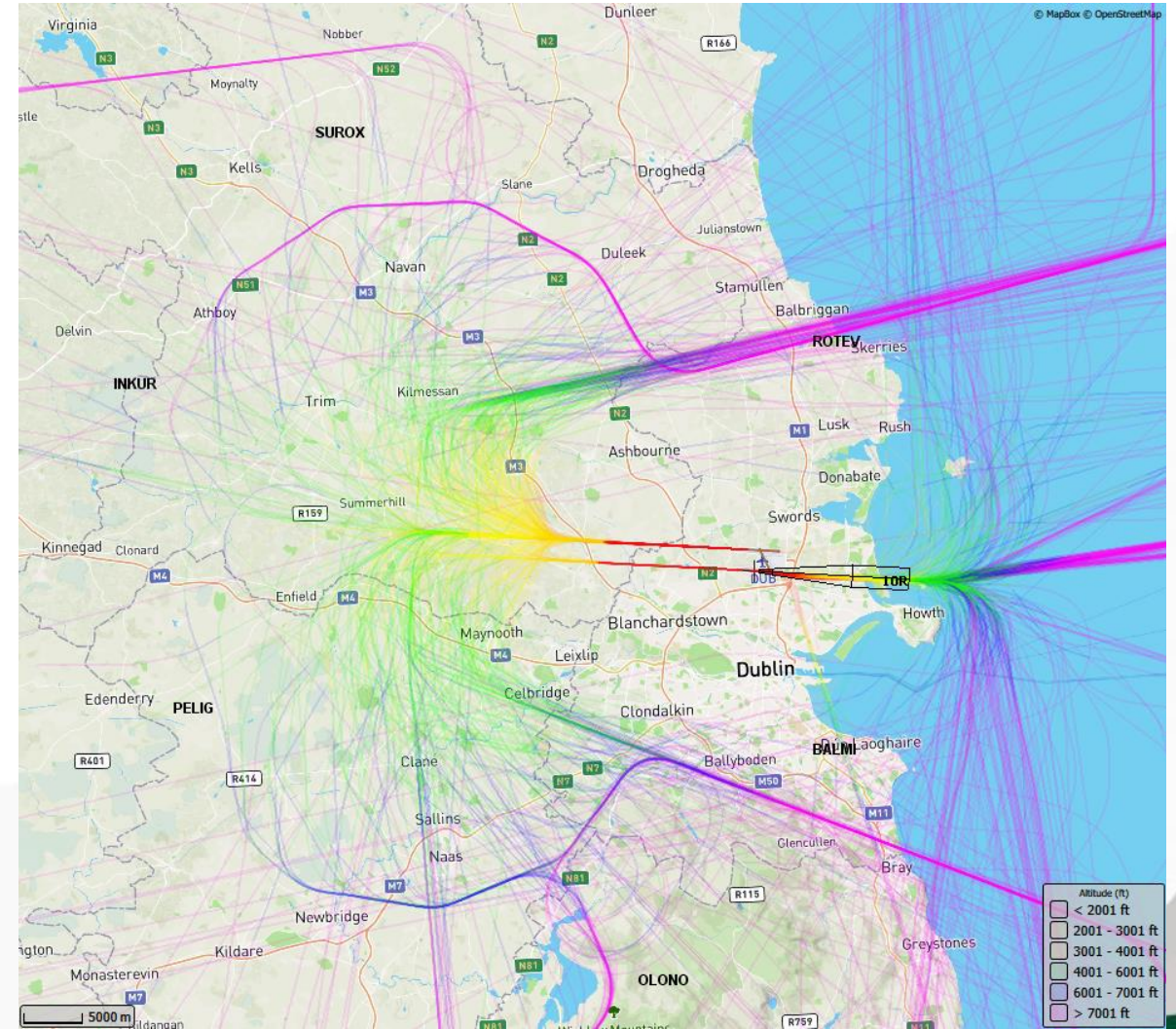
SID for South Runway (10R) Departures to the east (Easterly operations in easterly winds)

Busy Day Flight Tracks



Operations on 1 October 2024

- 755 movements, westerly conditions
- Colours indicate aircraft height

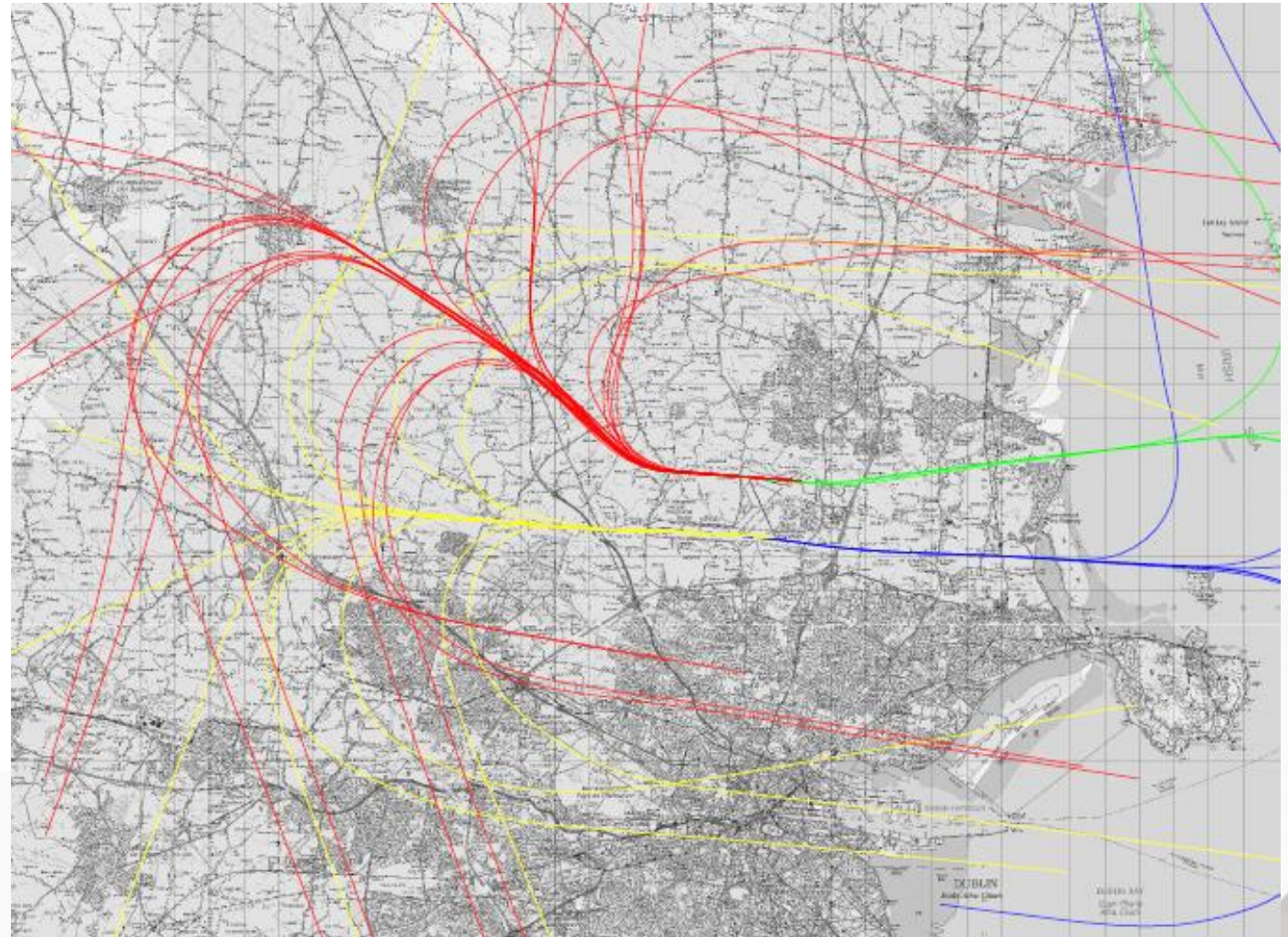


Operations on 24 October 2024

- 754 movements, easterly conditions
- Colours indicate aircraft height

Noise contours are calculated by a computer model based on input of the aircraft operations at the airport. This process includes certain steps including:

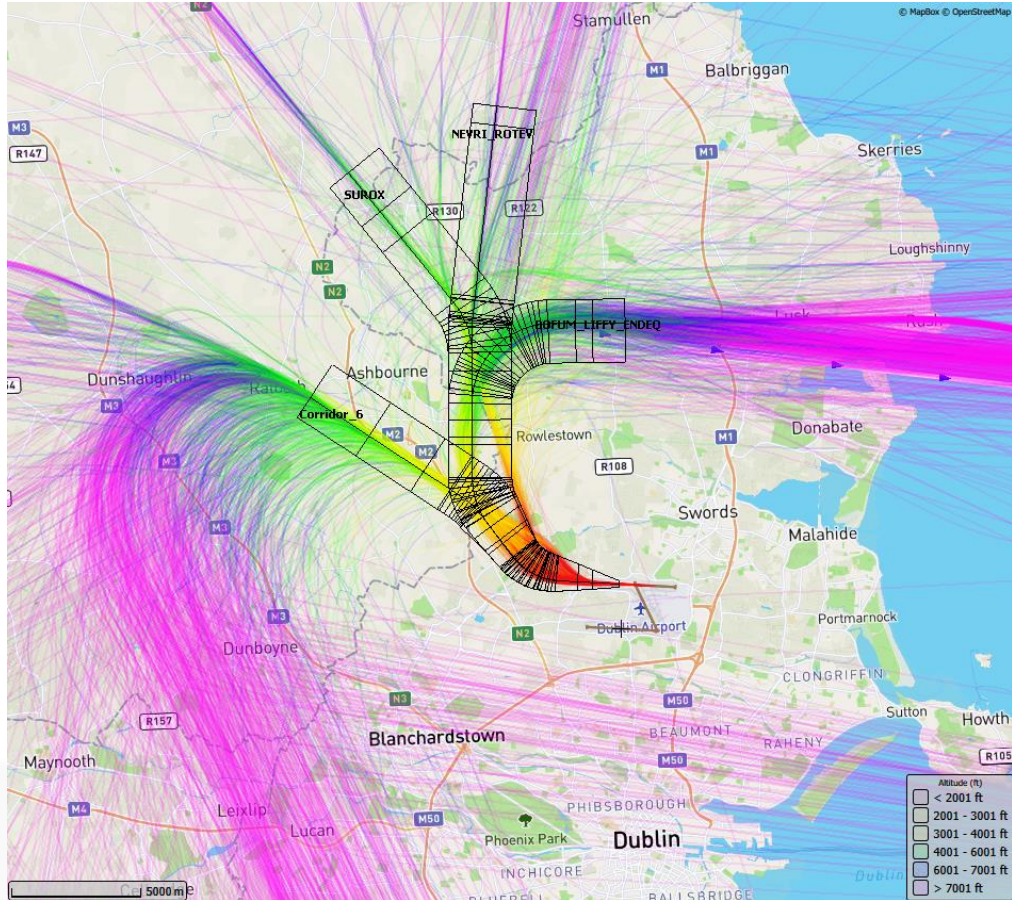
- Flight track data is extracted from the airport's Noise and Flight Track Monitoring system.
- Typical flight tracks are identified for each of the runways (as depicted here)
- Dispersed tracks are then created either side of the central lines to reflect actual operations (as depicted in the next page)



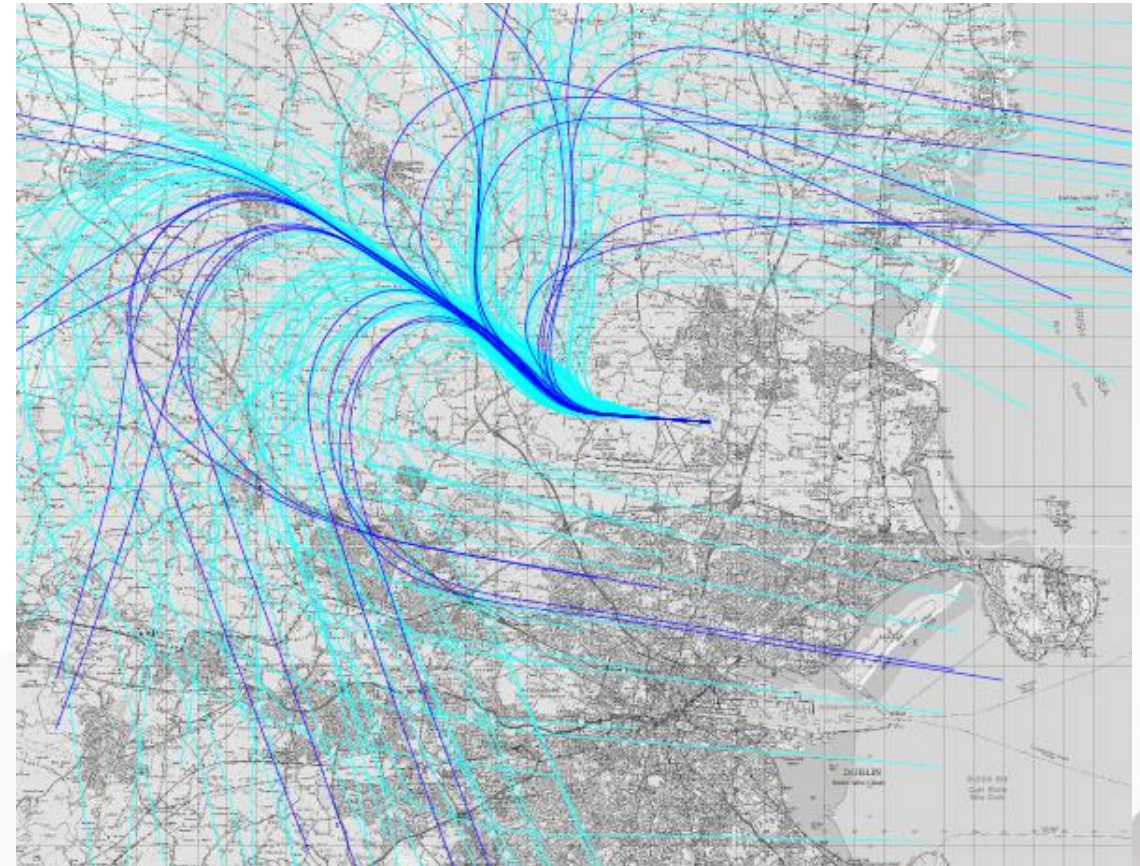
Main departure flight paths in calculation model for the 2 main runways – easterly and westerly departures

Noise Contour Modelling (2) – Dispersed Flight Tracks

In practice, the spread or scatter of actual flight tracks is modelled by creating dispersed tracks either side of the central or main track as shown.



Actual (Monitored) Flight Paths:
North Runway (28R) – westerly departures
1-14 October 2024



Modelled Departure Flight Paths:
North Runway (28R) – westerly operations
Dark blue = centreline flight paths
Light blue = dispersion flight paths

Noise Monitoring

- By the end of Q3 Dublin Airport had a network of 25 permanent and 2 mobile Noise Monitoring Terminals (NMT) covering the entire Q4 period, at locations ranging from less than 1 km to over 30 km from the runways.
- NMT locations are selected across a wide area to cover the region including the nearest, most-impacted residences, heavily populated areas and less-impacted, further-out locations.
- Measured aircraft noise data is presented in both time-averaged and single-event noise metrics.
- Monthly data is provided for the mobile NMT at Kilcoscan, in place for 5 months.

Flight Track Monitoring

- Flight track data is used to positively identify aircraft noise from the NMT data and filter out non-aircraft noise.
- Monitored flight tracks are also used to ensure that the operations in the noise contour model are representative of actual airport activity.
- Airline track adherence is reported in Dublin Airport's monthly operations reports.

Noise Contour Validation

- There is good correlation between the Measured and Modelled aircraft noise levels.
- This demonstrates that the noise modelling is sufficiently representative of the totality of aircraft operations at Dublin Airport and thus that the Modelled noise levels accurately represent community noise exposure levels.
- This means that the contours can be used to assess the noise at locations which do not have an NMT in the immediate vicinity.
- In general, noise impact assessment and mitigations at the airport including Noise Insulation and Dwelling Purchase Schemes are based on the modelled noise contours, so the Noise and Flight Track Monitoring, presented herein, provides support to the assessment and mitigation work at the airport.

End

**For further information, please visit
our website:**

www.dublinairport.com