



**An tÚdarás Inniúil um
Thorann Aerárthaí**

**Aircraft Noise
Competent Authority**

Draft Regulatory Decision

Appendix E

Forecasts, Runway Use & Restrictions Scenarios
and Noise Exposure Contours

1.1 Forecasts

- 1.1.1 The Application principally seeks to amend Condition 3(d) and replace Condition 5 of the North Runway Consent. The consequence of this change is to enable the Airport to recover back to its current 32 MPPA Terminal Passenger Capacity Limit quicker than otherwise would be the case if the conditions remained in place. Whilst this is the focus of the Application, there are several forecasts which have been prepared, including those which have been prepared in response to the Direction to Provide Information and Assessments.
- 1.1.2 The forecasts prepared by the Applicant have considered passenger numbers, aircraft movements and fleet mixes out to 2040 under a range of different forecast scenarios having regard for whether or not the North Runway would be in use at night and in what form, whether Condition 5 remains in place, and whether the Airport was operating with or without its current 32 MPPA Terminal Passenger Capacity Limit.
- 1.1.3 These forecasts are summarised in Table E1 below.

Table E1 – Overview of Forecast Scenarios

Forecast Scenario	Condition 3(d) Single Runway Use	Condition 5	32MPPATerminal Passenger Capacity Limit	Description
A	n/a	None	No	daa input schedule
B	2300-0700	65/night	No	Night Limit Constraints
C	2300-0600	None	No	Unconstrained (runway capacity only)
D	2300-0600	None	Yes	32 MPPA Terminal Passenger Capacity Limit Only
E	2300-0700	65/night	Yes	Night limits + 32 MPPA Terminal Passenger Capacity Limit
F	2300-0700	None	No	Single runway 2300-0700 only

Source: Dublin Airport North Runway Relevant Action Application, Environmental Impact Assessment Report, Volume 4 – Appendices, Appendix 1A, September 2021

- 1.1.1 Under Forecast Scenario B, Conditions 3(d) and 5 remain in place, but passenger numbers go beyond the 32mppaTerminal Passenger Capacity Limit, as part of policy directed growth as discussed in Section 3.
- 1.1.2 Under Forecast Scenario C, relevant action is taken with respect to Conditions 3(d) and 5 and but passenger numbers go beyond the 32 MPPA Terminal Passenger Capacity Limit, as part of policy directed growth as discussed in Section 3.

1.1.3 Forecast Scenario D reflects the Application. In this forecast scenario the 32 MPPA Terminal Passenger Capacity Limit remains in place however relevant action is taken with respect to Condition 3(d) and 5.

1.1.4 Forecast Scenario E reflects a 'forecast situation', i.e. without relevant action as sought by the Application or any growth beyond the existing 32 MPPA Terminal Passenger Capacity Limit. The forecast situation therefore allows insight as to how the noise climate would evolve in the absence of the relevant action sought under the Application or an increase in passenger capacity.

1.1.5 Scenario F describes represents a forecast where Condition 3(d) remains in place however Condition 5 is revised and the 32 MPPA Terminal Passenger Capacity Limit is lifted.

1.1.6 **Table E2** presents the passenger forecast numbers for the above forecast scenarios.

Table E2 – Annual Passengers (mppa) for 2019-2040 under different Forecast Scenarios

Year	Scenario A/C	Scenario B	Scenario D	Scenario E	Scenario F
2019	32.9	32.9	32.9	32.9	32.9
2020	7.4	7.4	7.4	7.4	7.4
2021	7.9	7.9	7.9	7.9	7.9
2022	21.0	19.6	21.0	19.6	20.6
2023	26.7	24.9	26.7	24.9	26.2
2024	31.2	29.3	30.8	29.3	30.8
2025	32.3	30.4	32.0	30.4	31.9
2026	34.0	31.6	32.0	31.2	33.3
2027	35.6	32.8	32.0	32.0	34.7
2028	37.0	33.9	32.0	32.0	36.2
2029	38.4	35.1	32.0	32.0	37.6
2030	39.6	36.3	32.0	32.0	39.0
2031	40.5	37.0	32.0	32.0	39.7
2032	41.3	37.6	32.0	32.0	40.4
2033	42.1	38.2	32.0	32.0	41.0
2034	42.7	38.9	32.0	32.0	41.7
2035	43.4	39.5	32.0	32.0	42.4
2036	44.0	40.0	32.0	32.0	43.0
2037	44.7	40.5	32.0	32.0	43.6
2038	45.3	41.0	32.0	32.0	44.2
2039	46.0	41.5	32.0	32.0	44.7
2040	46.6	42.0	32.0	32.0	45.3

Source: Dublin Airport North Runway Relevant Action Application, Environmental Impact Assessment Report, Volume 4 – Appendices, Appendix 1A, September 2021

1.2 Modelled Runway Use and Restriction Scenarios

- 1.1.4 The Applicant has prepared a series of noise forecasts for 2022, 2025, 2030, 2035 and 2040. To support the assessment of new measures under the relevant action, a range of runway use, and restriction scenarios have been considered. These are described below as ‘patterns’ and are illustrated in the following sections. These scenarios are described as ‘patterns’ as they influence the distribution and pattern of noise exposure around Dublin Airport at night.
- 1.1.5 For all patterns considered, the same form of runway use during daytime hours of 0700-2300 has been modelled consistent with Condition 3(a)-(c) of the North Runway Consent. This entails using Runway 10R and Runway 28R preferred for departures, and Runway 10L and Runway 28L preferred for arrivals with the cross runway (16-34) only used when wind dictates. For this reason, **Table E3** presents runway use and restriction scenarios with respect to the night-time period (23:00-07:00) only. To support the reading of the **Table E3**, Runway 10L-28R is referred to as the North Runway, with Runway 10R-28L referred to as the South Runway.

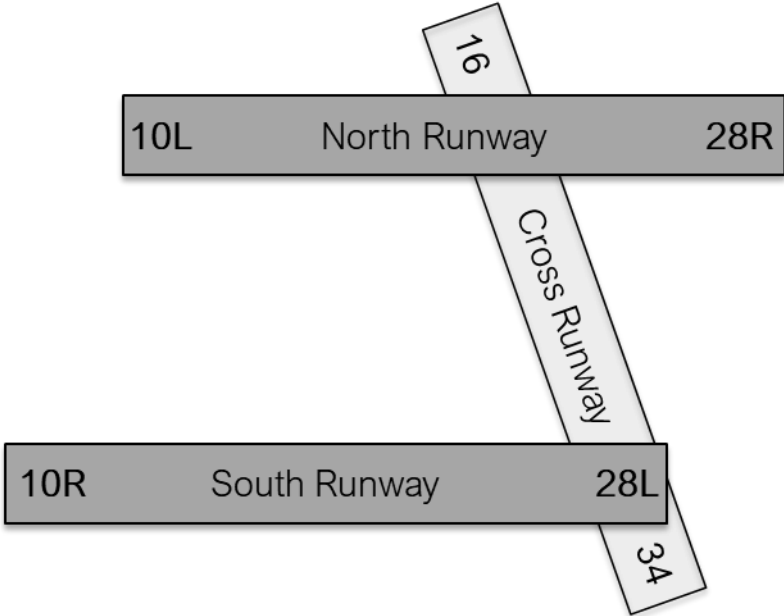


Table E3 – Night-time Runway Use and Restriction Patterns Considered

Runway Use and Restriction Scenario	Forecast Type	Night-Time Runway Use and Restrictions	Requires Restriction?
P01	Situation	South Runway Operations Only	Yes
P02	Forecast with New Measures	South Runway preferred 00:00-06:00. Otherwise as per Condition 3(a)-(c)	Yes – North Runway restricted between 00:00 and 06:00
P03	Forecast with New Measures	As per Condition 3(a)-(c)	No – however pattern effectively extends Condition 3(a-c) of the North Runway Consent to apply irrespective of time of day
P04	Forecast with New Measures	Reverse of Condition 3(a)-(c) i.e. Runway 10L and Runway 28L preferred for departures, Runway 10R and Runway 28R preferred for arrivals	No
P05	Forecast with New Measures	Alternation between Patterns P03 and P04	No
P06	Forecast without new Measures	No restrictions. Departures operate from the north or south runway depending on destination. Arrivals operate as a 50/50 split between runways unless runway capacity exceeded	No
P07	Forecast with New Measures	Departures operate from the north or south runway depending on destination. Arrivals operate as per Condition 3(b) and Condition 3(c) unless runway capacity exceeded	No
P08	Forecast with New Measures	Departures modelled as per Conditions 3(b) and 3(c). Arrivals modelled as 50/50 split between runways unless runway capacity exceeded	No

P09	Forecast with New Measures	North Runway preferred 00:00-05:59. Otherwise as per Condition 3(b) and 3(c).	Yes – South Runway restricted between 00:00 and 05:59
P10	Forecast with New Measures	Alternate between Patterns P02 and P09	No
P11	South Runway Only as per P01		
P12	Forecast with New Measures	South Runway preferred 23:00-05:59. Otherwise as per Condition 3(a)-(c)	Yes – North Runway restricted between 23:00 and 05:59
P13	Forecast with New Measures	South Runway preferred 23:30-04:59. Otherwise as per Condition 3(a)-(c).	Yes – North Runway restricted between 23:30 and 04:00

1.3 Overview of Modelling Scenarios

The Applicant has provided a series of noise forecasts. These have each been given a scenario number to reflect the runway use and restriction scenario which is reflected in the figures found in Section E.5.

ANCA’s assessment has used noise exposure forecasts provided by the Applicant in the file 'CA434_5.0 ANCA Reporting Template 2021 Update' which is available on the ANCA website.

Table E4 summarises the modelled scenarios by the ScenarioID reported in 'CA434_5.0 ANCA Reporting Template 2021 Update' having regard for the runway use and restriction scenarios illustrated in Section E.4. This table can be used by interested parties to the following information associated with the Applicant’s forecasts for 2022 and beyond as stored within 'CA434_5.0 ANCA Reporting Template 2021 Update':

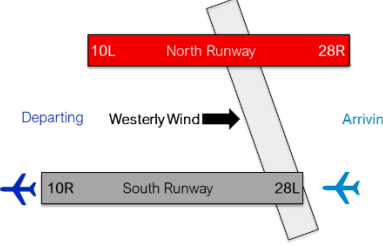
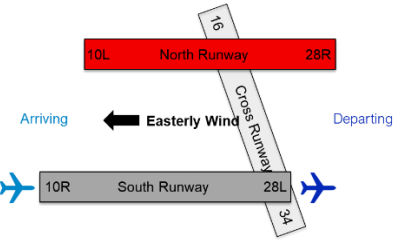
- Forecast aircraft movements;
- Forecast fleet mix;
- Forecast diurnal pattern of movements;
- Noise management measures assumed in each forecast;
- Exposure statistics with respect to area, dwellings, population and health metrics

Table E4 – Scenario ID provided in 'CA434_5.0 ANCA Reporting Template 2021 Update' mapped against

Pattern	Forecast Year	2022		2025		2030			2035			2040					
		Passengers (mppa)															
	Forecast	B/E	A/C/D	B/E	D	D/E	B	F	A/C	D/E	B	F	A/C	D/E	B	F	A/C
P01		0016		0025		0038	0047	0053		0056	0065	0071		0074	0083	0089	
P02			0017		0026	0039			0048	0057			0066	0075			0084
P03			0018		0027	0040			0049	0058			0067	0076			0085
P04					0028												
P05					0029												
P06			0019		0030	0041			0050	0059			0068	0077			0086
P07			0020		0031	0042			0051	0060			0069	0078			0087
P08			0021		0032	0043			0052	0061			0070	0079			0088
P09					0033												
P10					0034												
P11			0022		0035	0044				0062				0080			
P12			0023		0036	0045			0054	0063			0072	0081			0090
P13			0024		0037	0046			0055	0064			0073	0082			0091

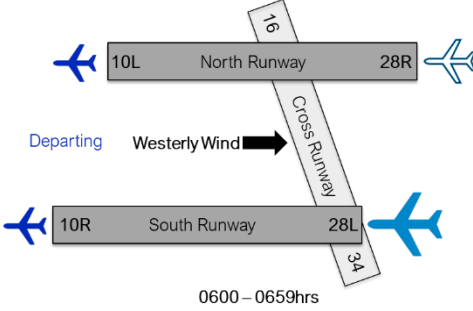
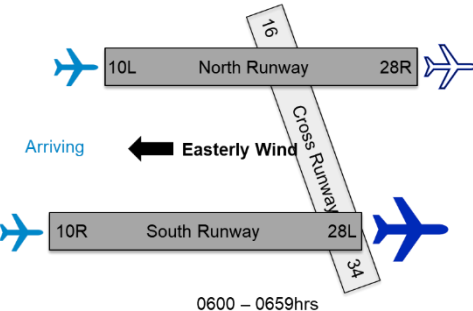
1.4 **Illustration of Runway Use and Restriction Scenarios Considered**

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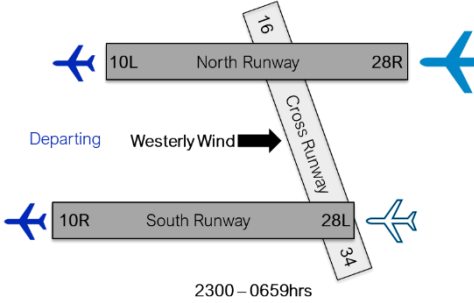
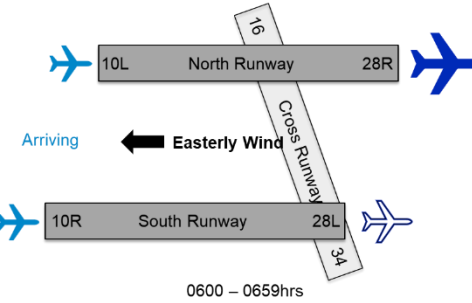
Pattern	Description	Night – Westerly Winds	Night – Easterly Winds
1	<p>Situation</p> <p>23:00 to 05:59 South Runway Only</p>		

Scenario	Description	Night – Westerly Winds	Night – Easterly Winds
<p>P02</p>	<p>Forecast with New Measures</p> <p>23:00 to 23:59 When winds are westerly, Runway 28L shall be preferred for arriving aircraft. Either Runway 28L or 28R shall be used for departing aircraft as determined by air traffic control. When winds are easterly, either Runway 10L or 10R as determined by air traffic control shall be preferred for arriving aircraft. Runway 10R shall be preferred for departing aircraft.</p> <p>00:00 to 05:59 Movements preferred on the South Runway only (single runway).</p> <p>06:00 to 06:59 When winds are westerly, Runway 28L shall be preferred for arriving aircraft. Either Runway 28L or 28R shall be used for departing aircraft as determined by air traffic control. When winds are easterly, either Runway 10L or 10R as determined by air traffic control shall be preferred for arriving aircraft. Runway 10R shall be preferred for departing aircraft</p>		

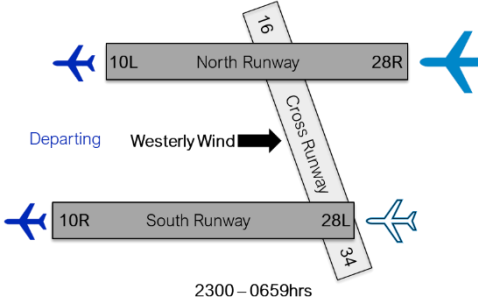
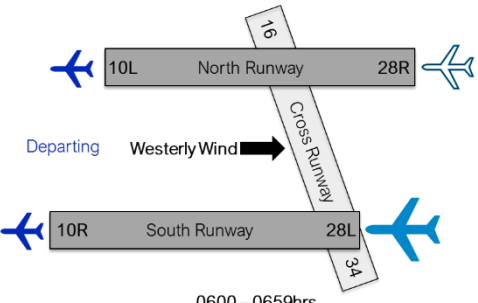
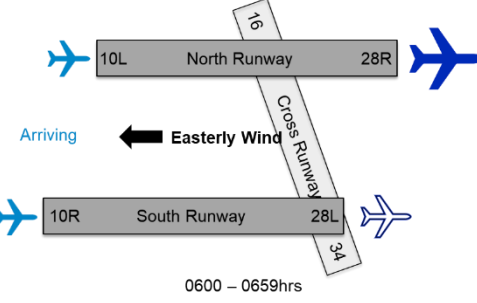
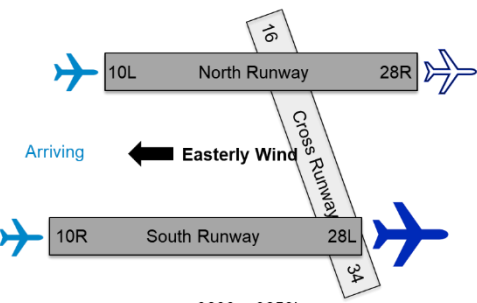
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Scenario	Description	Night – Westerly Winds	Night – Easterly Winds
<p>P03</p>	<p>Forecast with New Measures</p> <p>23:00 to 06:59 At all times when winds are westerly, Runway 28L shall be preferred for arriving aircraft. Either Runway 28L or 28R shall be used for departing aircraft as determined by air traffic control.</p> <p>At all times winds are easterly, either Runway 10L or 10R as determined by air traffic control shall be preferred for arriving aircraft. Runway 10R shall be preferred for departing aircraft.</p>	 <p>0600 – 0659hrs</p>	 <p>0600 – 0659hrs</p>

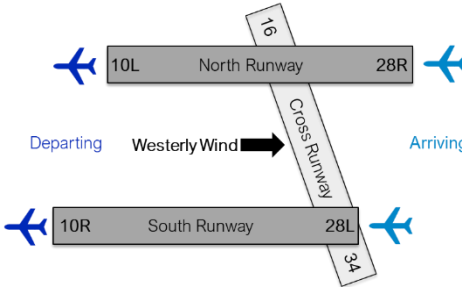
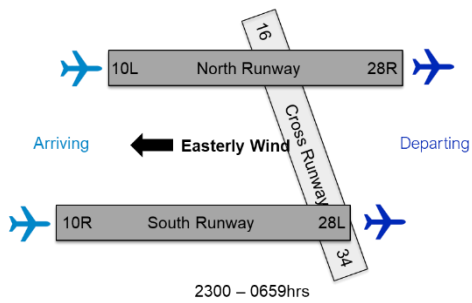
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Scenario	Description	Night – Westerly Winds	Night – Easterly Winds
<p>P04</p>	<p>Forecast with New Measures</p> <p>When winds are westerly, Runway 28R shall be preferred for arriving aircraft. Either Runway 28L or 28R shall be used for departing aircraft as determined by air traffic control.</p> <p>When winds are easterly, either Runway 10L or 10R as determined by air traffic control shall be preferred for arriving aircraft. Runway 10L shall be preferred for departing aircraft.</p>	 <p>2300 – 0659hrs</p>	 <p>0600 – 0659hrs</p>

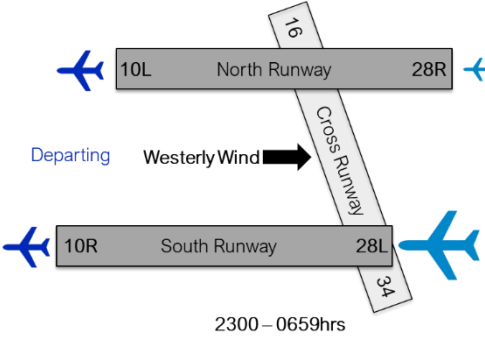
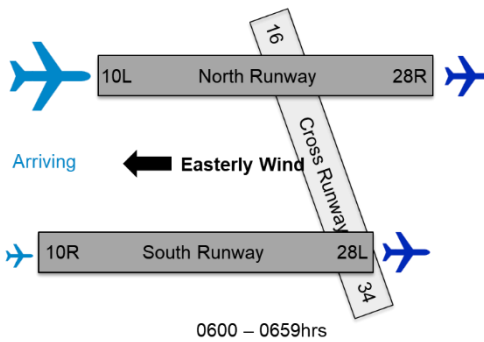
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Scenario	Description	Night – Westerly Winds	Night – Easterly Winds
<p>P05</p>	<p>Forecast with New Measures</p> <p>23:00 to 06:59 Preferred arrival runway will alternate between North and South Runways while either Runway 28L or 28R shall be used for departing aircraft as determined by air traffic control in westerly and preferred departure runway will alternate between North and South Runways while either Runway 10L or 10R as determined by air traffic control shall be preferred for arriving aircraft in easterly wind conditions each day.</p>	<p>Alternation between:</p>  <p>2300 – 0659hrs</p> <p>And</p>  <p>0600 – 0659hrs</p>	<p>Alternating between:</p>  <p>0600 – 0659hrs</p> <p>And</p>  <p>0600 – 0659hrs</p>

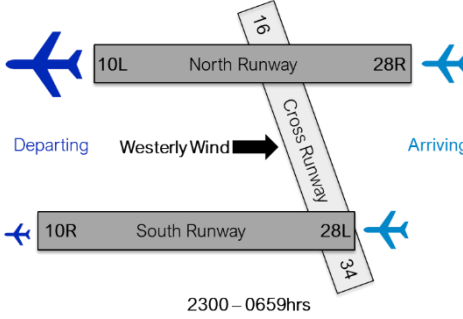
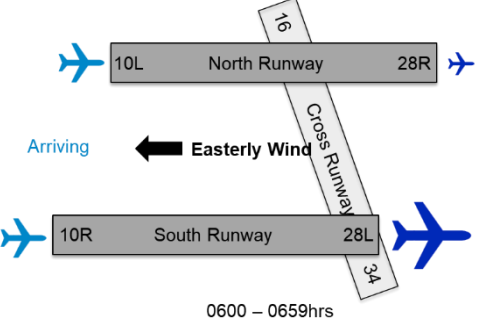
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Scenario	Description	Night – Westerly Winds	Night – Easterly Winds
<p>P06</p>	<p>Forecast without New Measures</p> <p>23:00 to 06:59 Departures use north or south runway depending on destination. Arrivals occur as 50/50 split between runways unless runway capacity exceeded.</p>		

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Scenario	Description	Night – Westerly Winds	Night – Easterly Winds
<p>P07</p>	<p>Forecast with New Measures</p> <p>23:00 to 06:59 Both North and South Runways available for departures (runway used depends on whether turn to the north or south is required based on destination); prefer arrivals landing on the South Runway in westerly conditions and the North Runway in easterly conditions unless this exceeds the single-runway capacity for a given hour. If single-runway capacity is exceeded, then arrivals are moved to the other runway.</p>	 <p>2300 – 0659hrs</p>	 <p>0600 – 0659hrs</p>

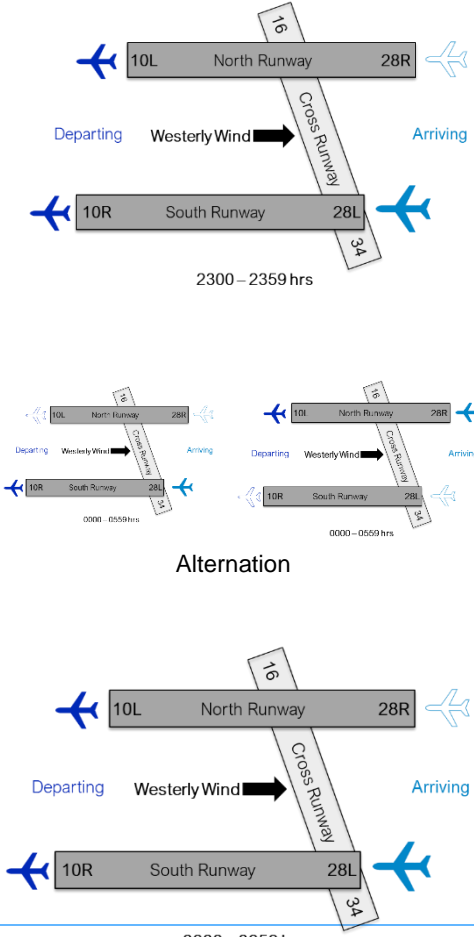
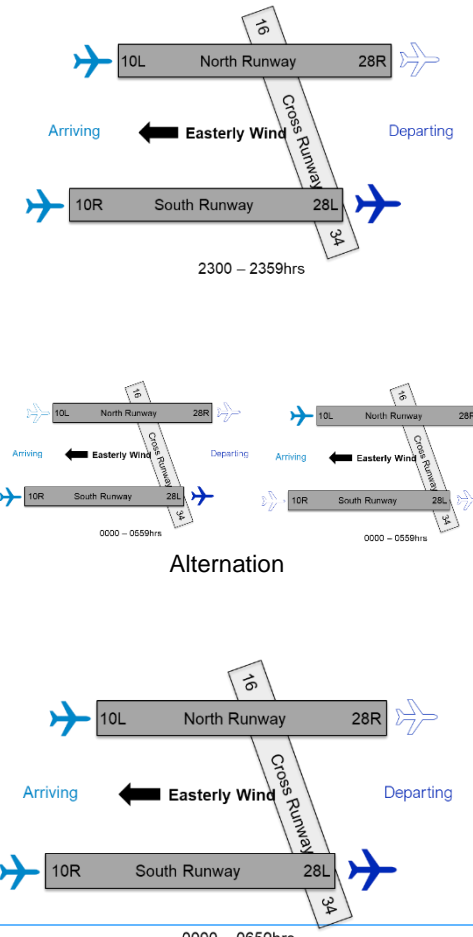
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Scenario	Description	Night – Westerly Winds	Night – Easterly Winds
<p>P08</p>	<p>Forecast with New Measures</p> <p>Both North and South Runways available for arrivals (assumed 50/50 split); prefer departures take off on the North Runway in westerly conditions and the South Runway in easterly conditions.</p>	 <p>2300 – 0659hrs</p>	 <p>0600 – 0659hrs</p>

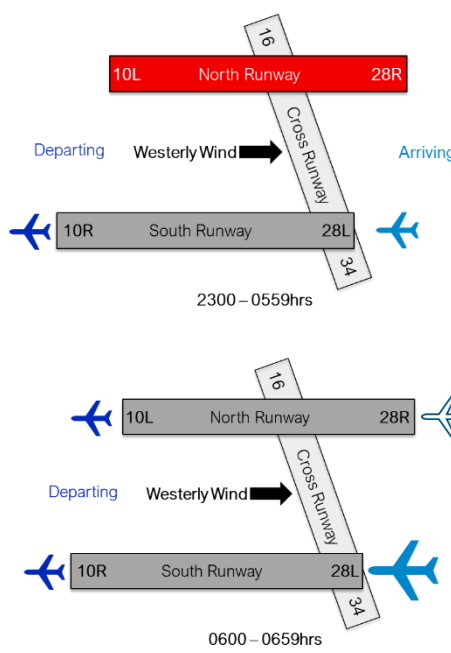
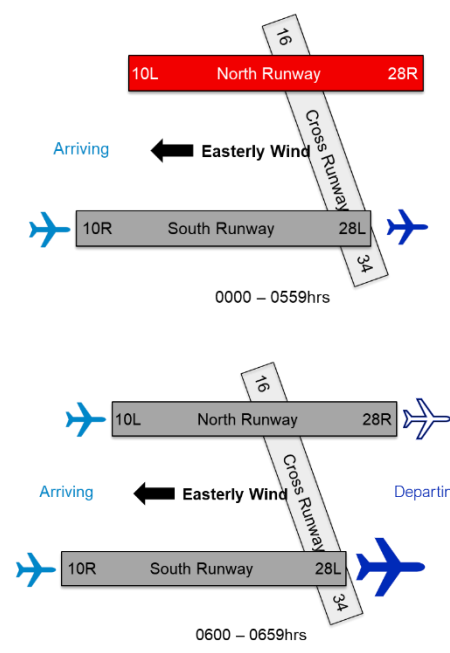
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Scenario	Description	Night – Westerly Winds	Night – Easterly Winds
<p>P09</p>	<p>Forecast with New Measures</p> <p>23:00 to 23:59 When winds are westerly, Runway 28L shall be preferred for arriving aircraft. Either Runway 28L or 28R shall be used for departing aircraft as determined by air traffic control. When winds are easterly, either Runway 10L or 10R as determined by air traffic control shall be preferred for arriving aircraft. Runway 10R shall be preferred for departing aircraft.</p> <p>00:00 to 05:59 Movements preferred on the North Runway only (single runway).</p> <p>06:00 to 06:59 When winds are westerly, Runway 28L shall be preferred for arriving aircraft. Either Runway 28L or 28R shall be used for departing aircraft as determined by air traffic control. When winds are easterly, either Runway 10L or 10R as determined by air traffic control shall be preferred for arriving aircraft. Runway 10R shall be preferred for departing aircraft</p>		

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Scenario	Description	Night – Westerly Winds	Night – Easterly Winds
<p>P10</p>	<p>Forecast with New Measures</p> <p>23:00 to 23:59 When winds are westerly, Runway 28L shall be preferred for arriving aircraft. Either Runway 28L or 28R shall be used for departing aircraft as determined by air traffic control. When winds are easterly, either Runway 10L or 10R as determined by air traffic control shall be preferred for arriving aircraft. Runway 10R shall be preferred for departing aircraft.</p> <p>00:00 to 05:59 Alternate each night between movements on the North Runway only and the South Runway only.</p> <p>06:00 to 06:59 When winds are westerly, Runway 28L shall be preferred for arriving aircraft. Either Runway 28L or 28R shall be used for departing aircraft as determined by air traffic control. When winds are easterly, either Runway 10L or 10R as determined by air traffic control shall be preferred for arriving aircraft. Runway 10R shall be preferred for departing aircraft</p>	 <p>2300 – 2359 hrs</p> <p>0000 – 0559 hrs</p> <p>Alternation</p> <p>0600 – 0659 hrs</p>	 <p>2300 – 2359 hrs</p> <p>0000 – 0559 hrs</p> <p>Alternation</p> <p>0000 – 0659 hrs</p>

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Scenario	Description	Night – Westerly Winds	Night – Easterly Winds
<p>P12</p>	<p>Forecast with New Measures</p> <p>23:00 to 05:59 South runway preferred</p> <p>06:00 to 06:59 When winds are westerly, Runway 28L shall be preferred for arriving aircraft. Either Runway 28L or 28R shall be used for departing aircraft as determined by air traffic control. When winds are easterly, either Runway 10L or 10R as determined by air traffic control shall be preferred for arriving aircraft. Runway 10R shall be preferred for departing aircraft</p>		

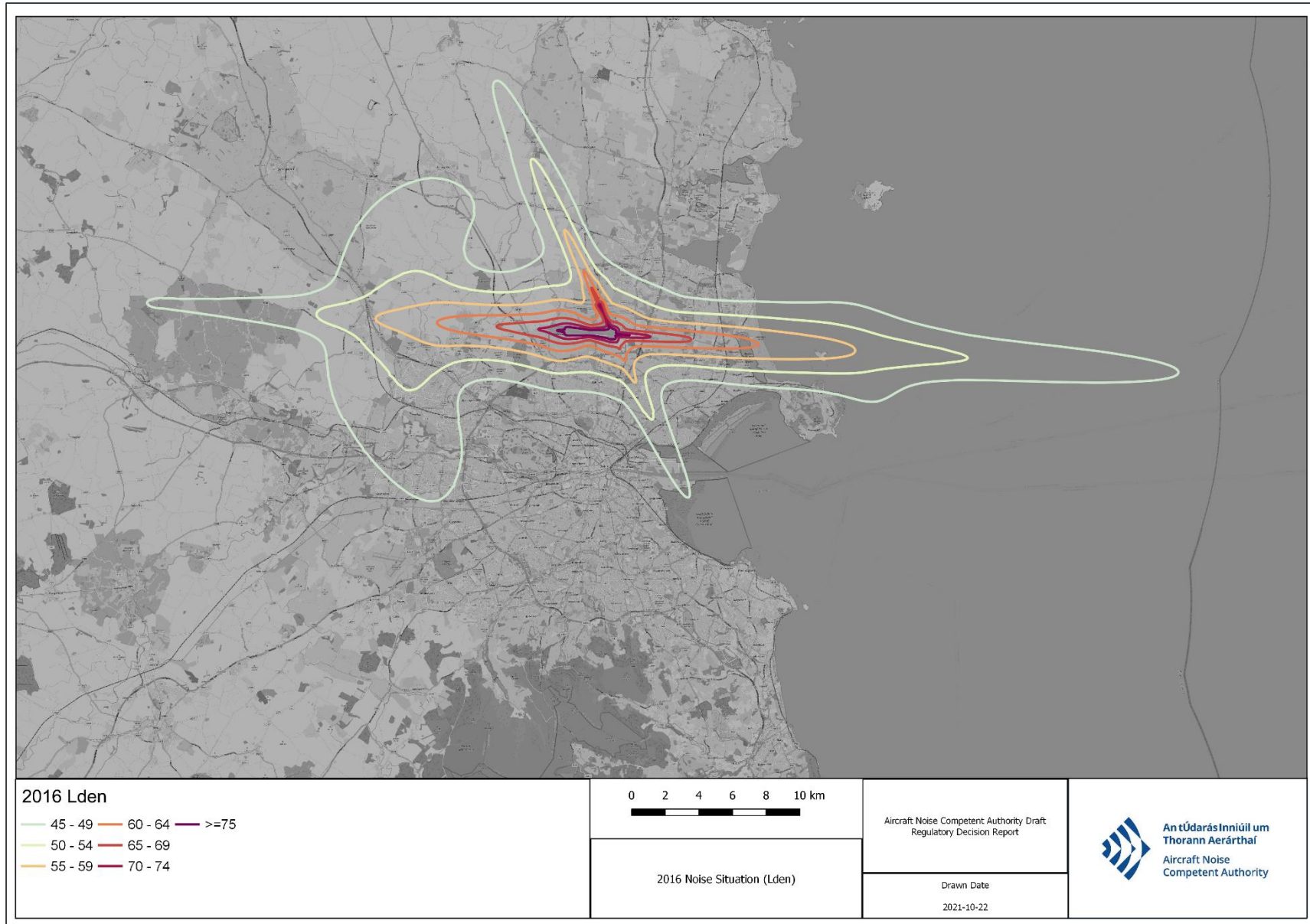
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Scenario	Description	Night – Westerly Winds	Night – Easterly Winds
<p>P13</p>	<p>Forecast with New Measures</p> <p>23:00 to 23:29 When winds are westerly, Runway 28L shall be preferred for arriving aircraft. Either Runway 28L or 28R shall be used for departing aircraft as determined by air traffic control. When winds are easterly, either Runway 10L or 10R as determined by air traffic control shall be preferred for arriving aircraft. Runway 10R shall be preferred for departing aircraft</p> <p>23:30 to 05:59 South runway preferred</p> <p>06:00 to 06:59 When winds are westerly, Runway 28L shall be preferred for arriving aircraft. Either Runway 28L or 28R shall be used for departing aircraft as determined by air traffic control. When winds are easterly, either Runway 10L or 10R as determined by air traffic control shall be preferred for arriving aircraft. Runway 10R shall be preferred for departing aircraft</p>		

Scenario	Description	Night – Westerly Winds	Night – Easterly Winds
<p>P13</p>	<p>Forecast with New Measures</p> <p>23:00 to 23:59 When winds are westerly, Runway 28L shall be preferred for arriving aircraft. Either Runway 28L or 28R shall be used for departing aircraft as determined by air traffic control. When winds are easterly, either Runway 10L or 10R as determined by air traffic control shall be preferred for arriving aircraft. Runway 10R shall be preferred for departing aircraft.</p> <p>00:00 to 05:59 Movements preferred on the South Runway only (single runway).</p> <p>06:00 to 06:59 When winds are westerly, Runway 28L shall be preferred for arriving aircraft. Either Runway 28L or 28R shall be used for departing aircraft as determined by air traffic control. When winds are easterly, either Runway 10L or 10R as determined by air traffic control shall be preferred for arriving aircraft. Runway 10R shall be preferred for departing aircraft</p>		

1.5 Selected Noise Exposure Forecast and Change Figures

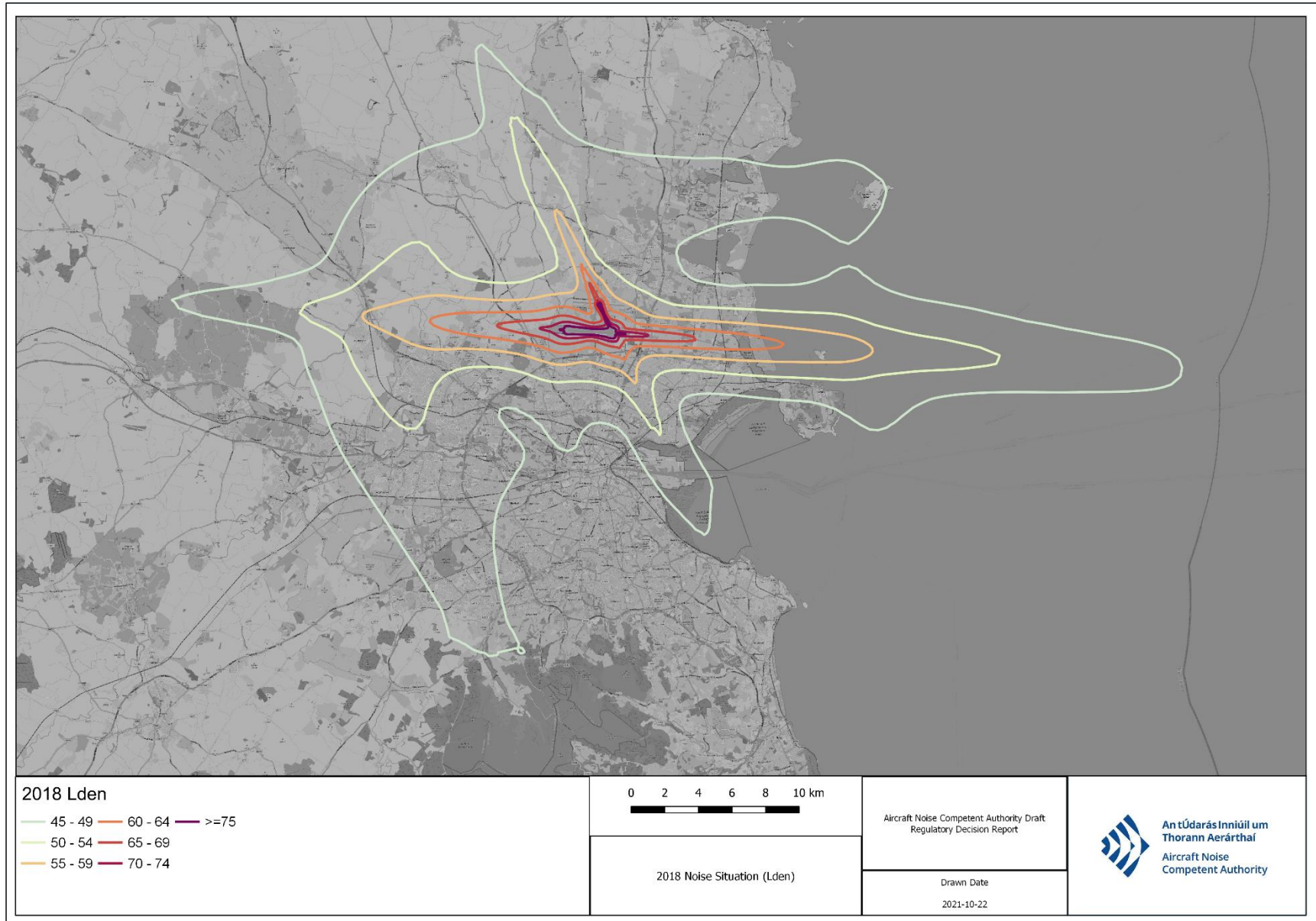
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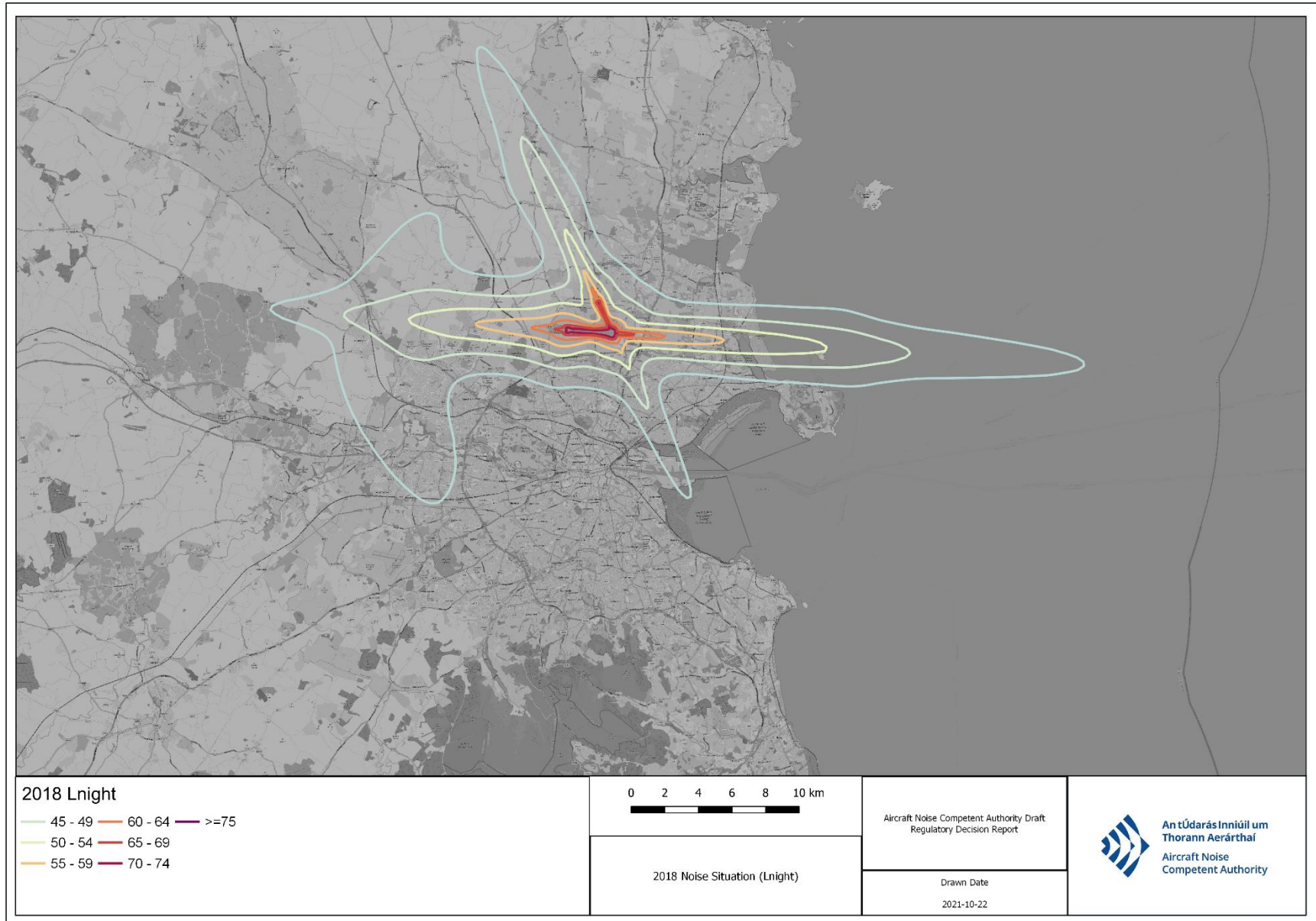
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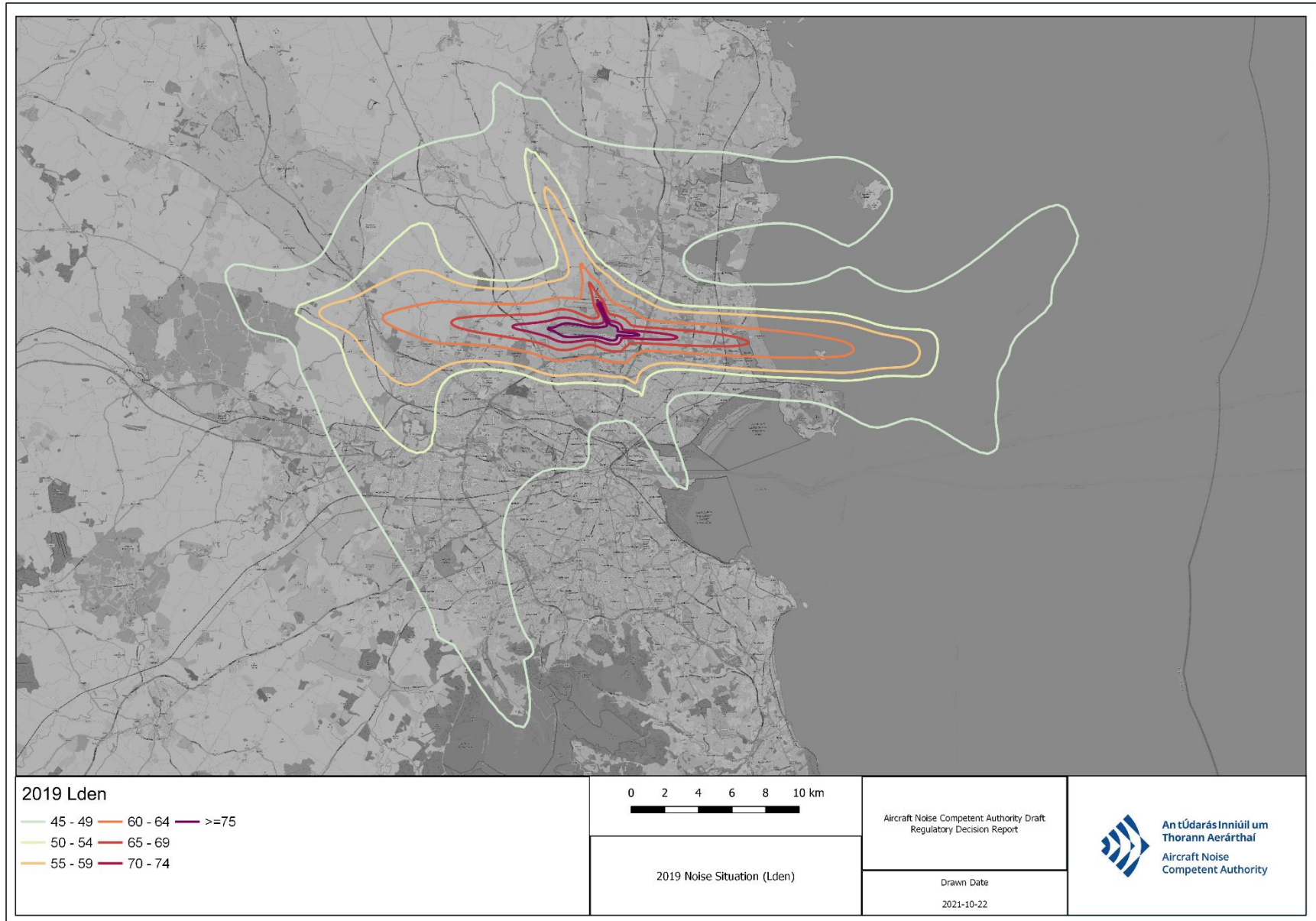
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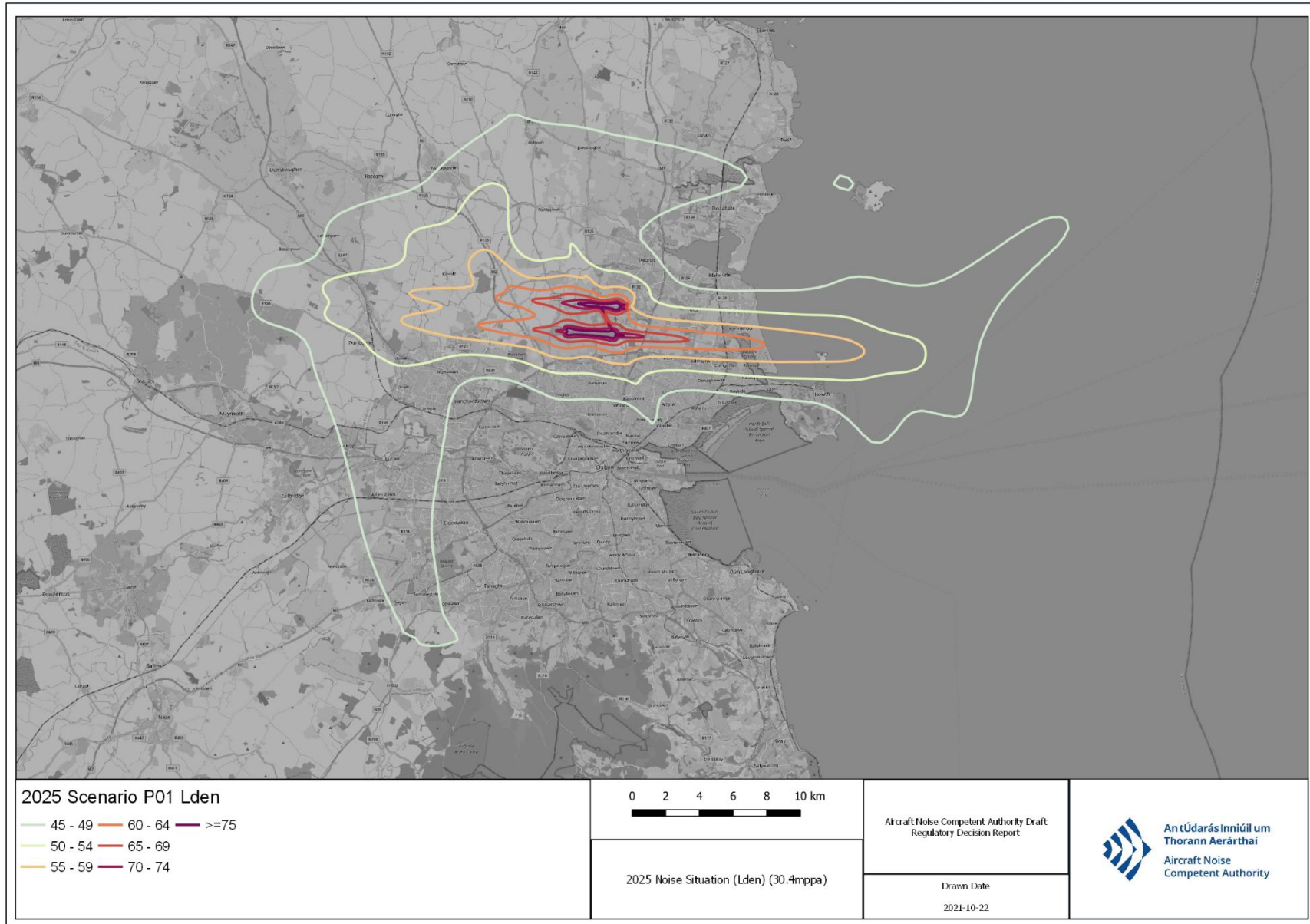
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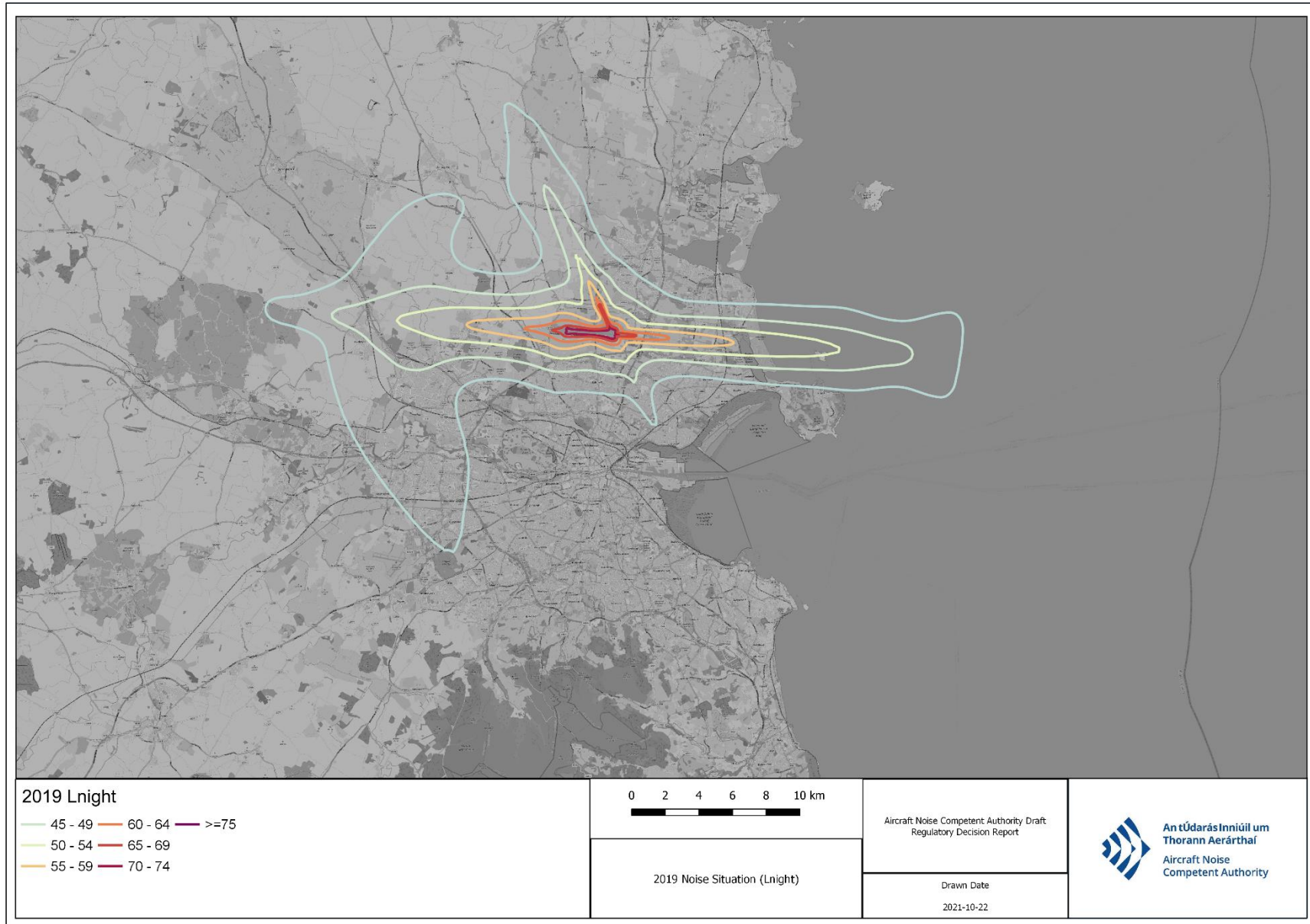
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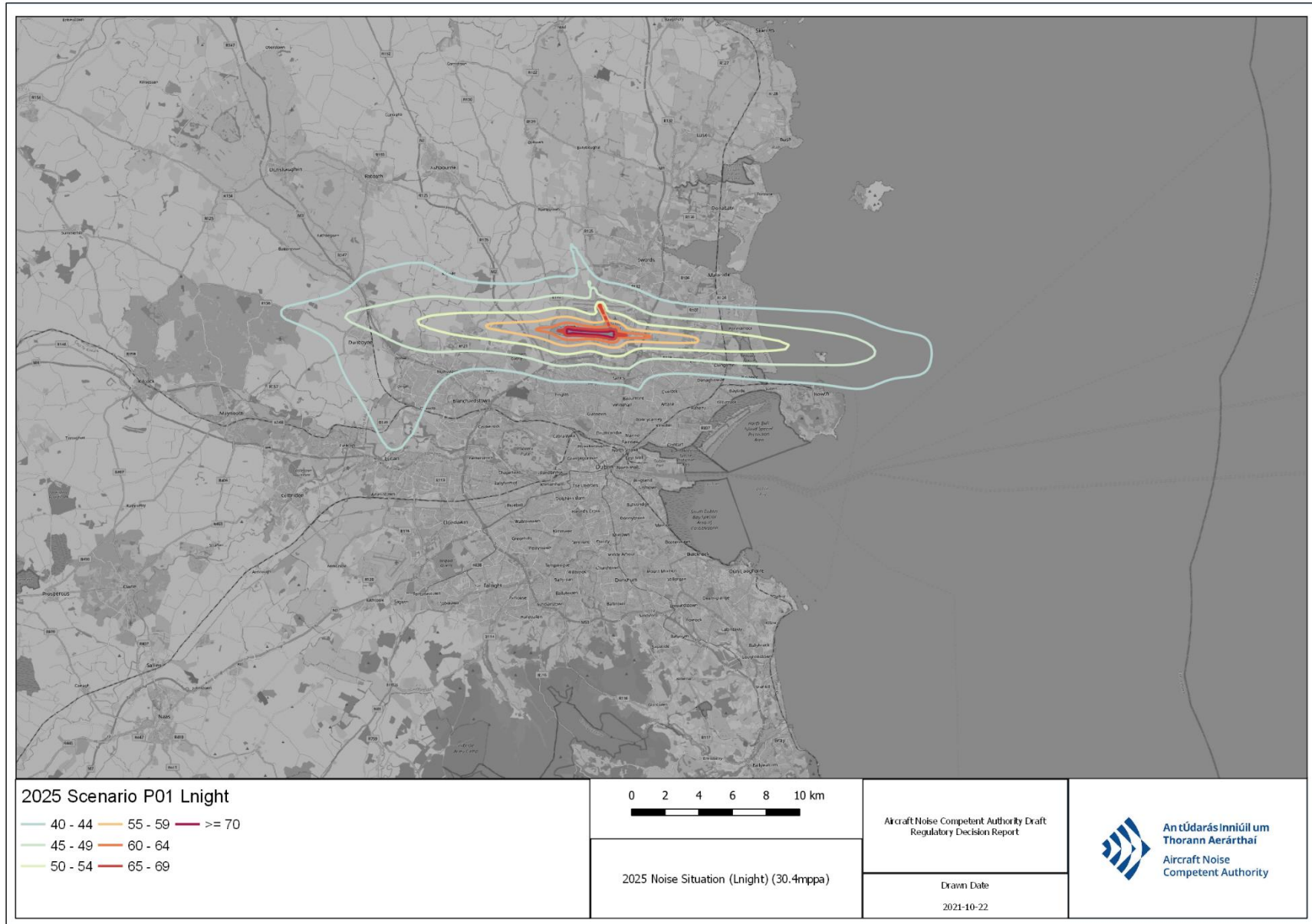
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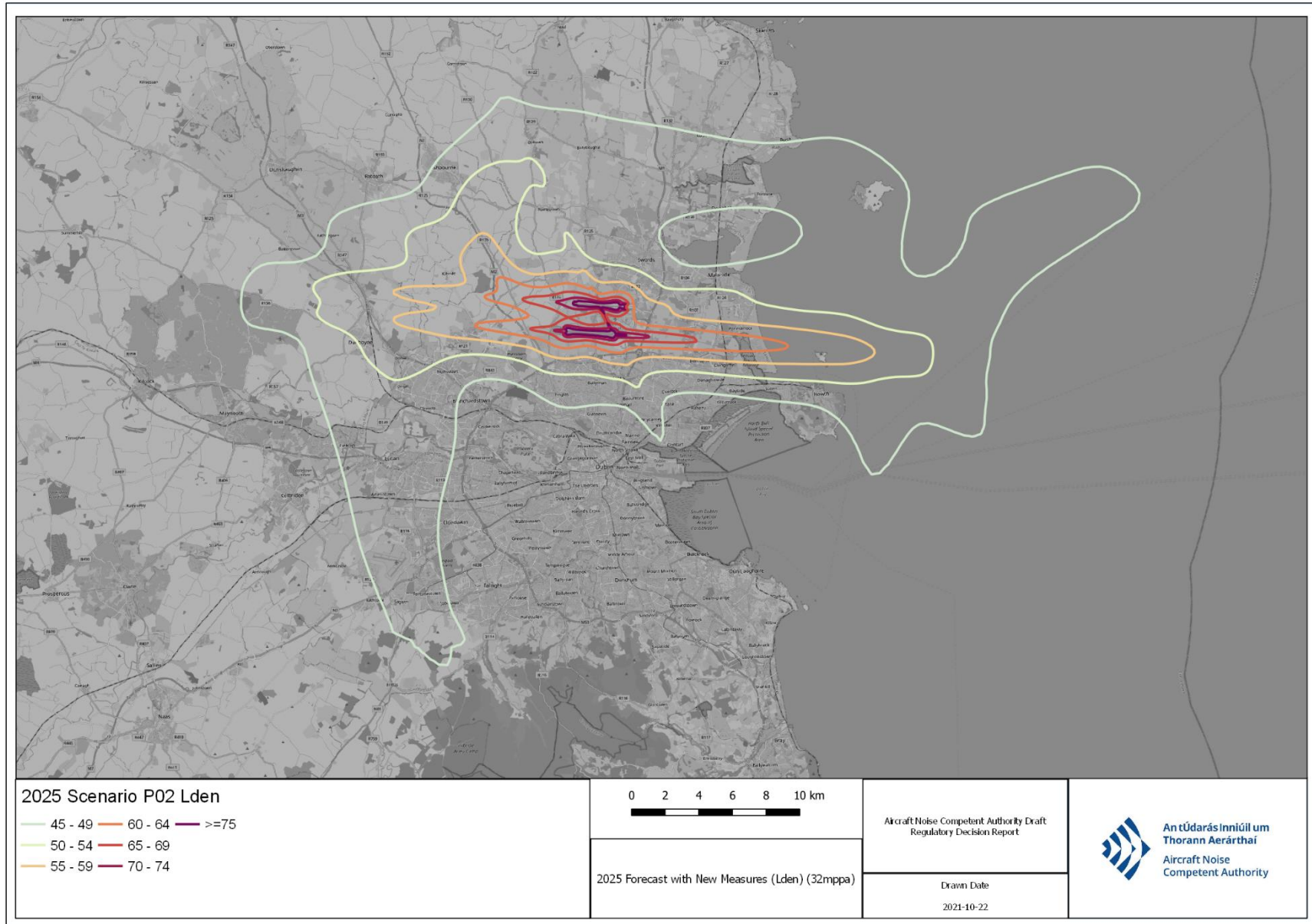
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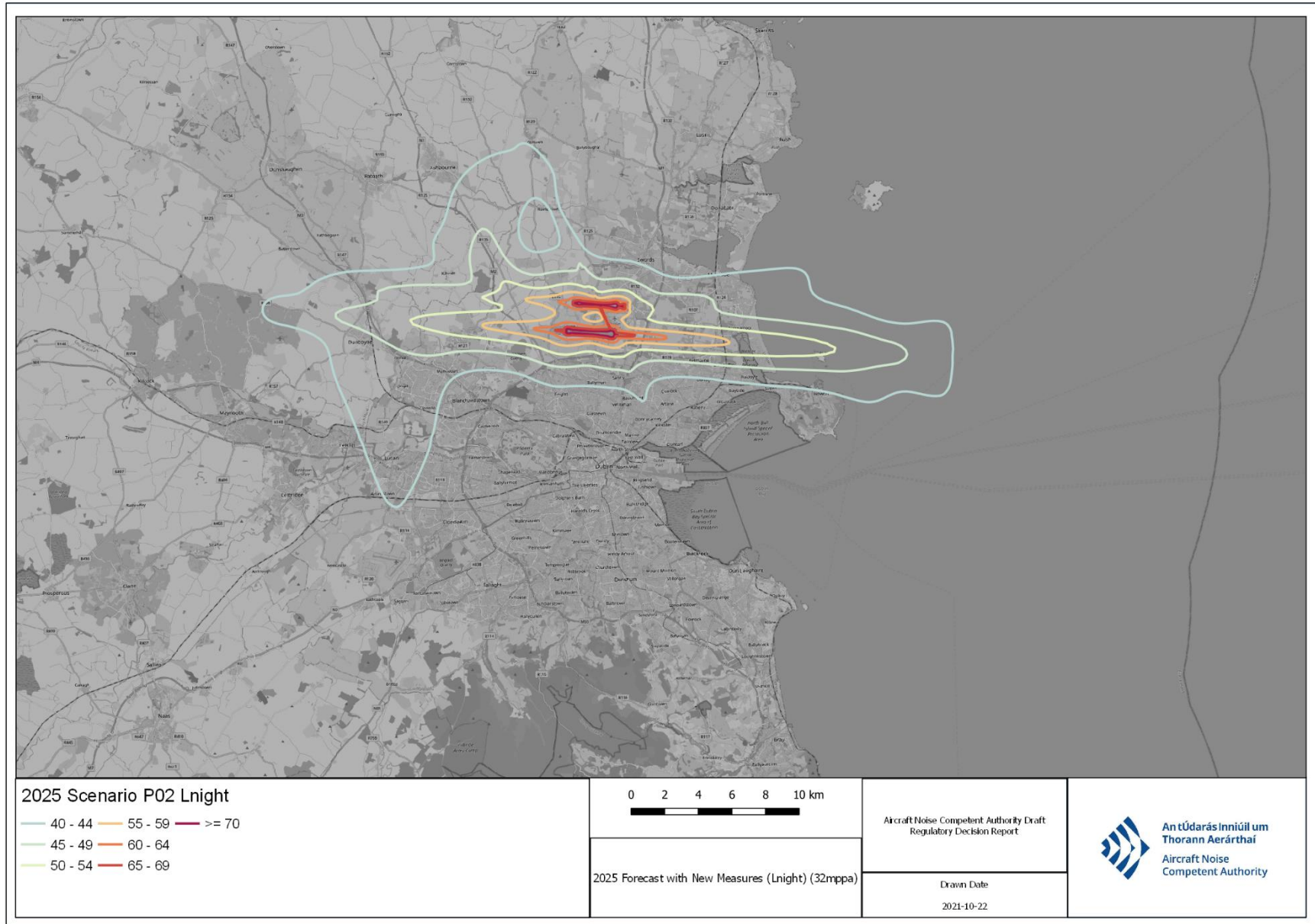
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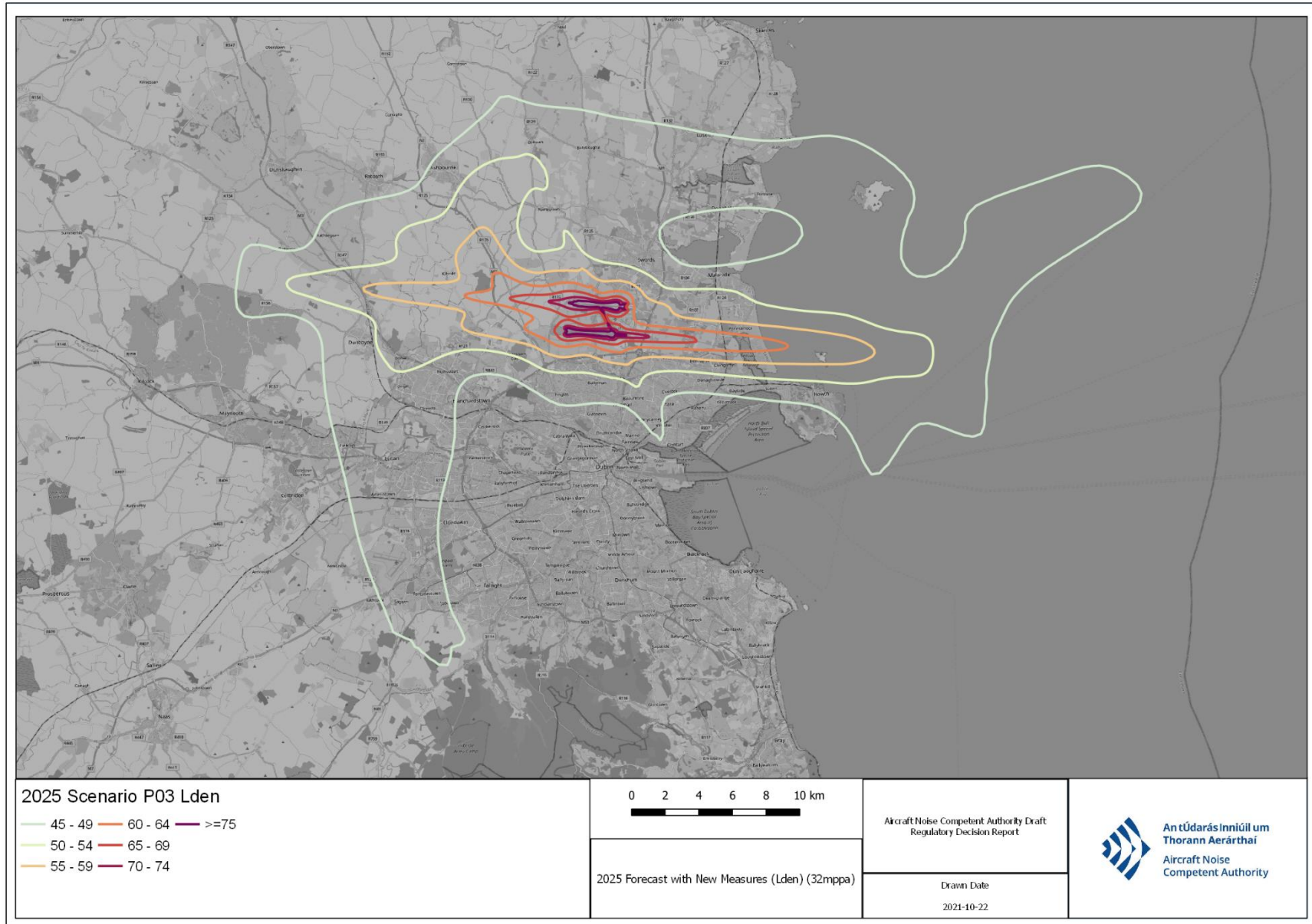
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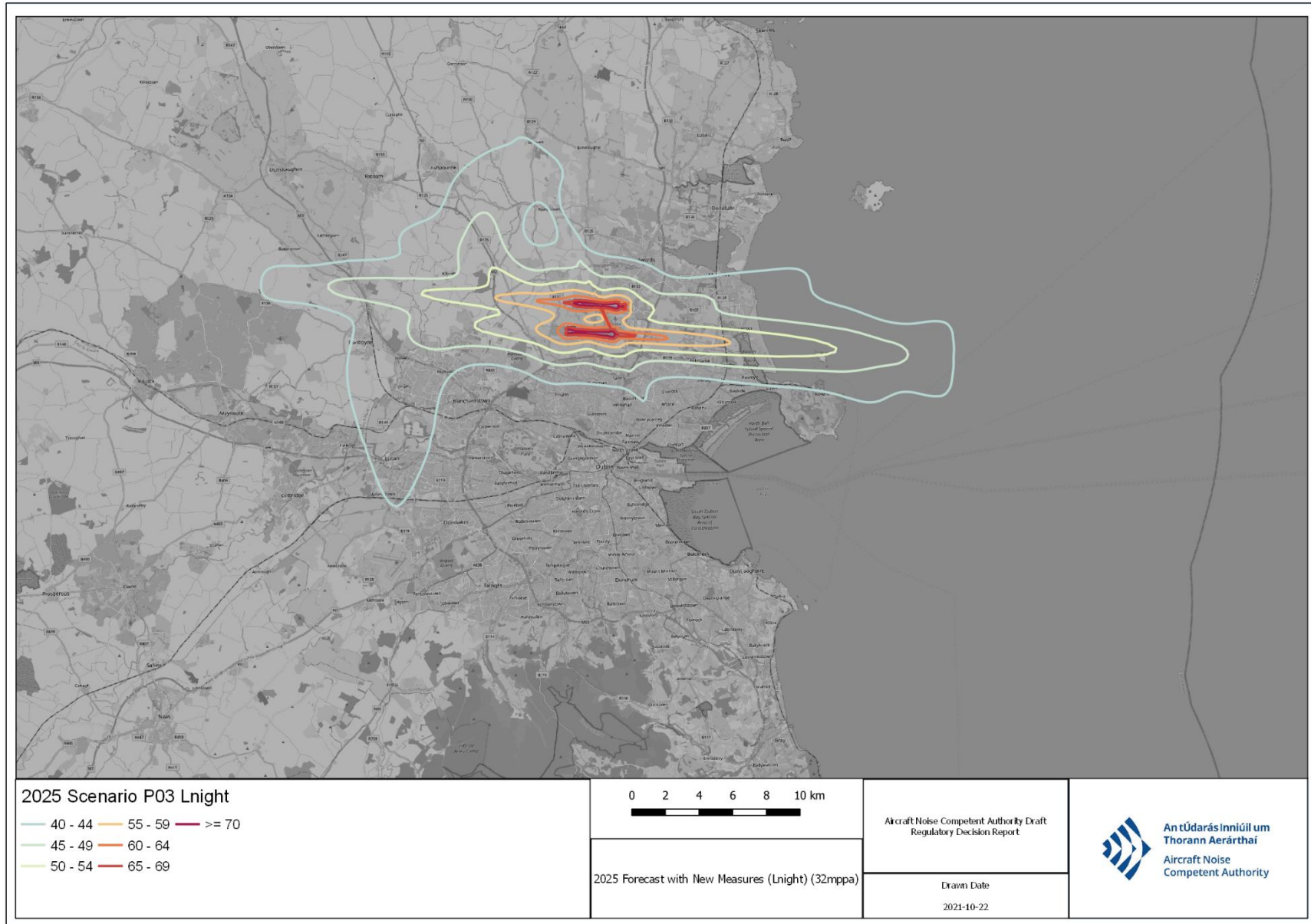
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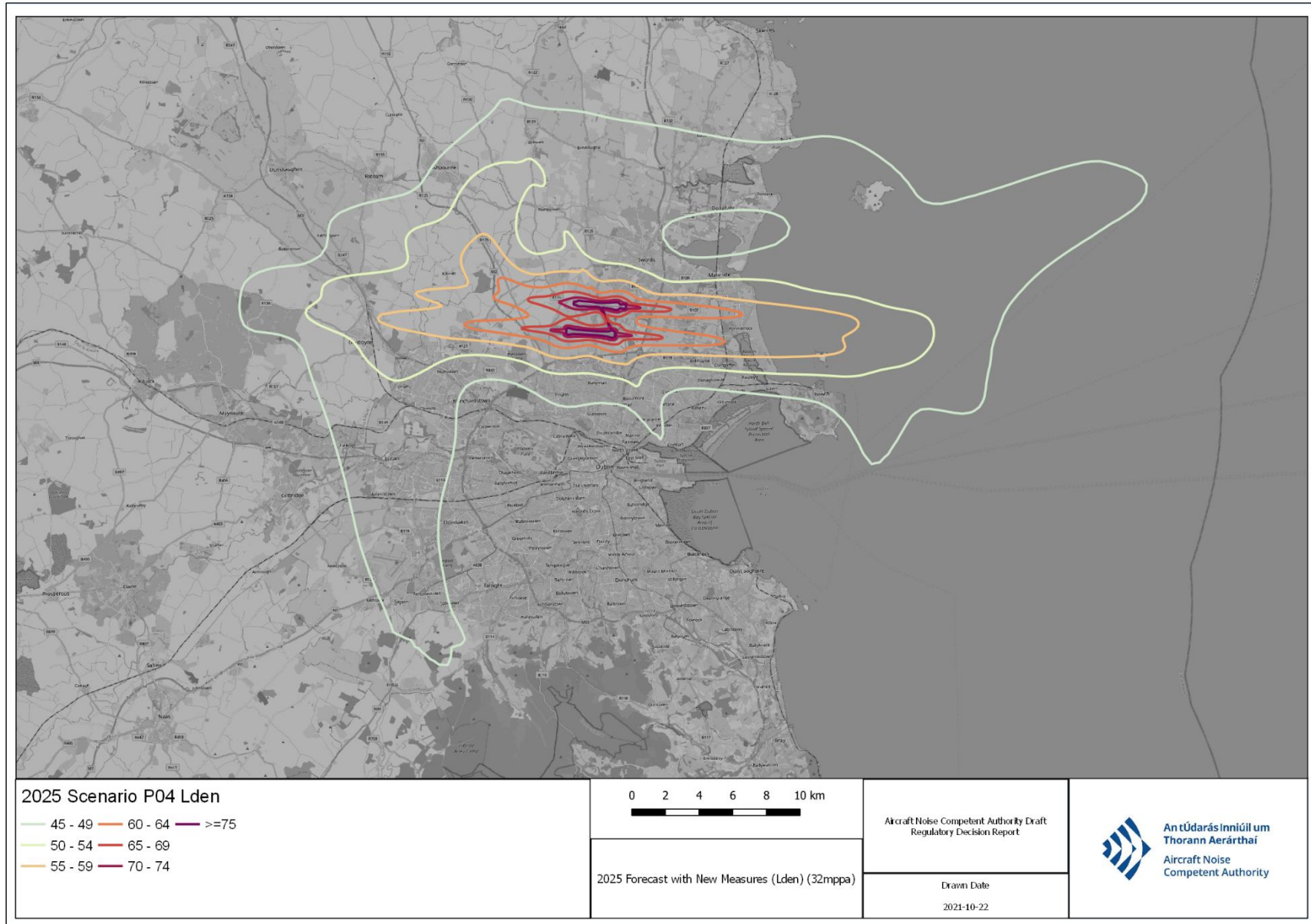
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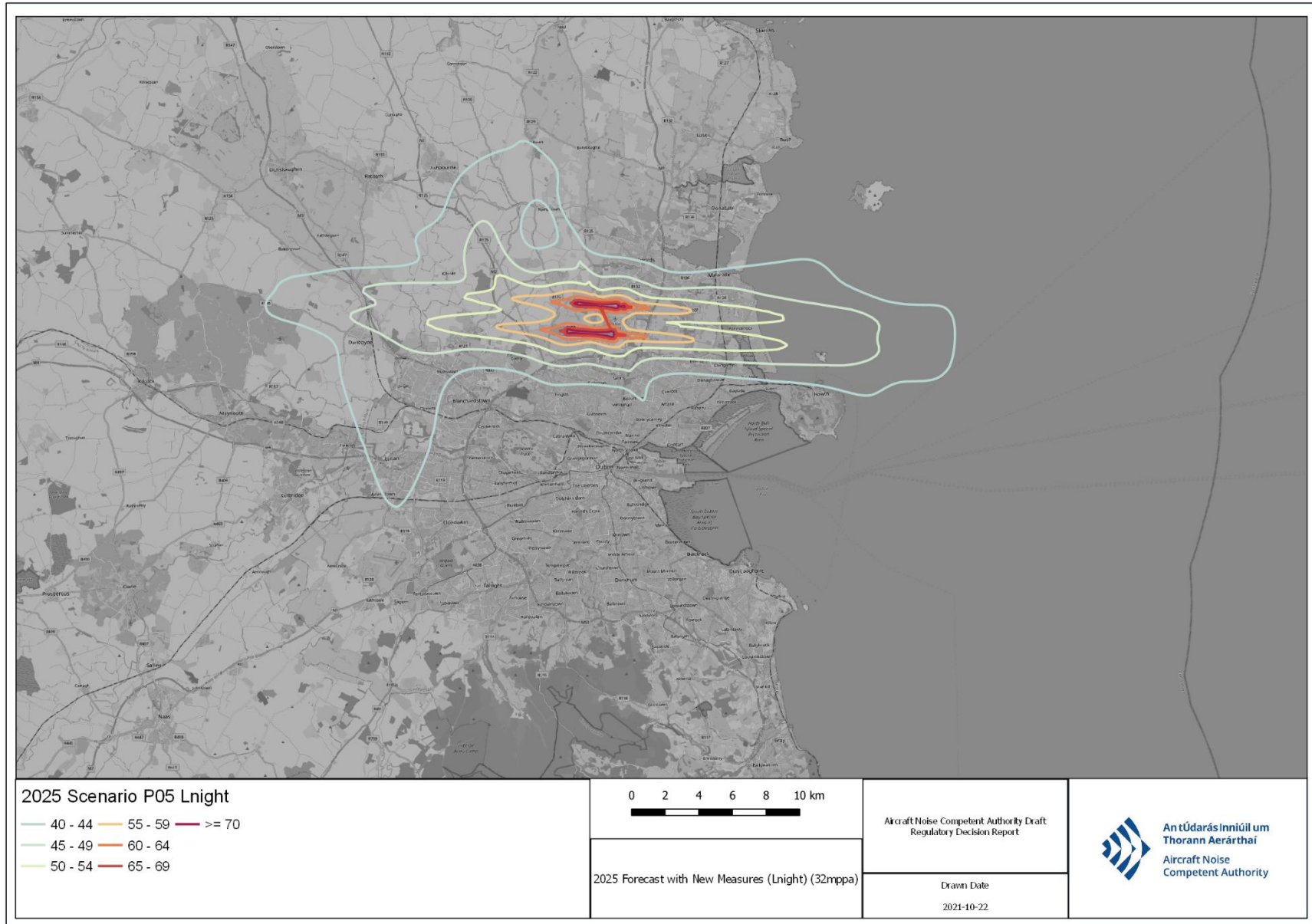
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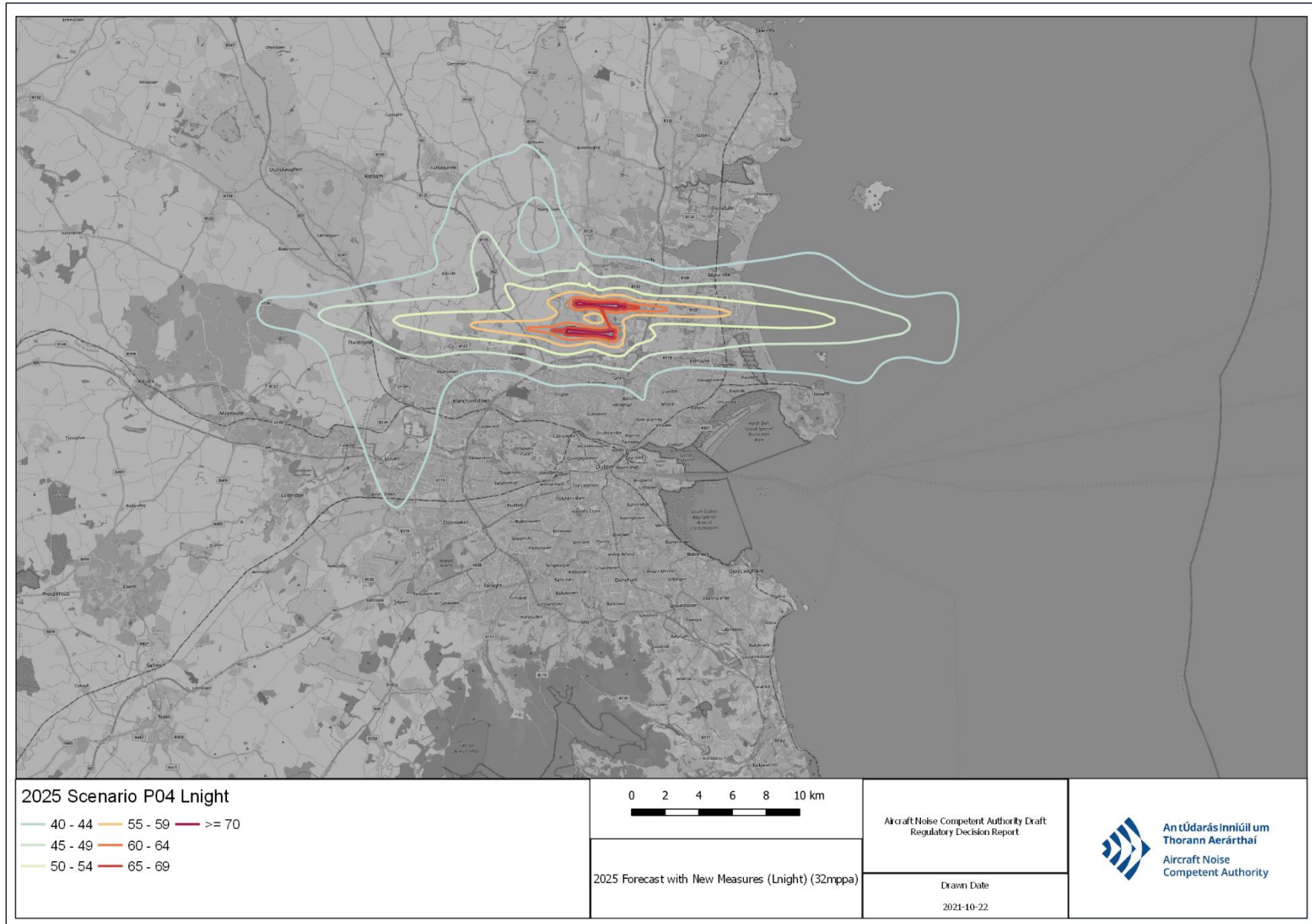
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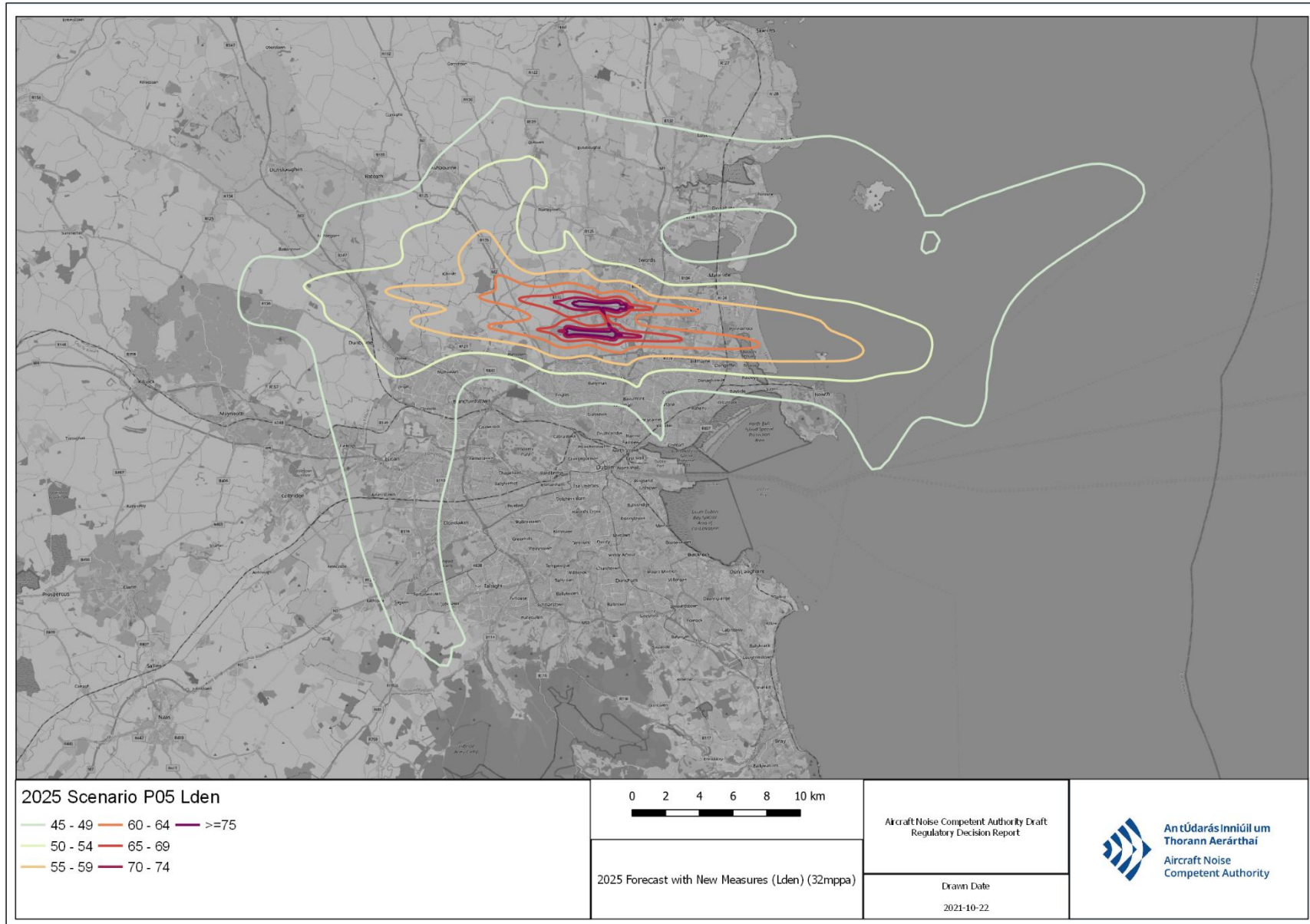
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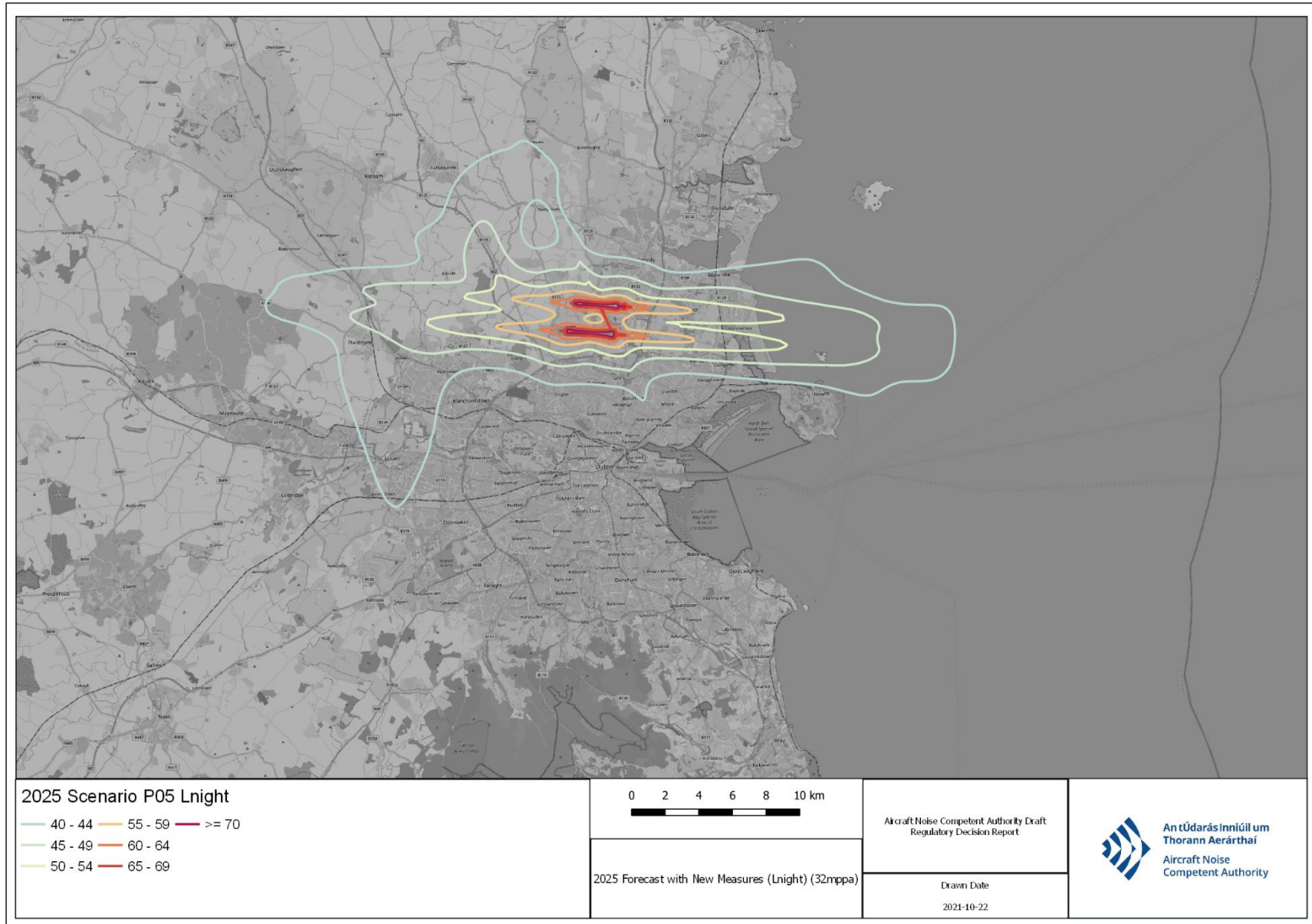
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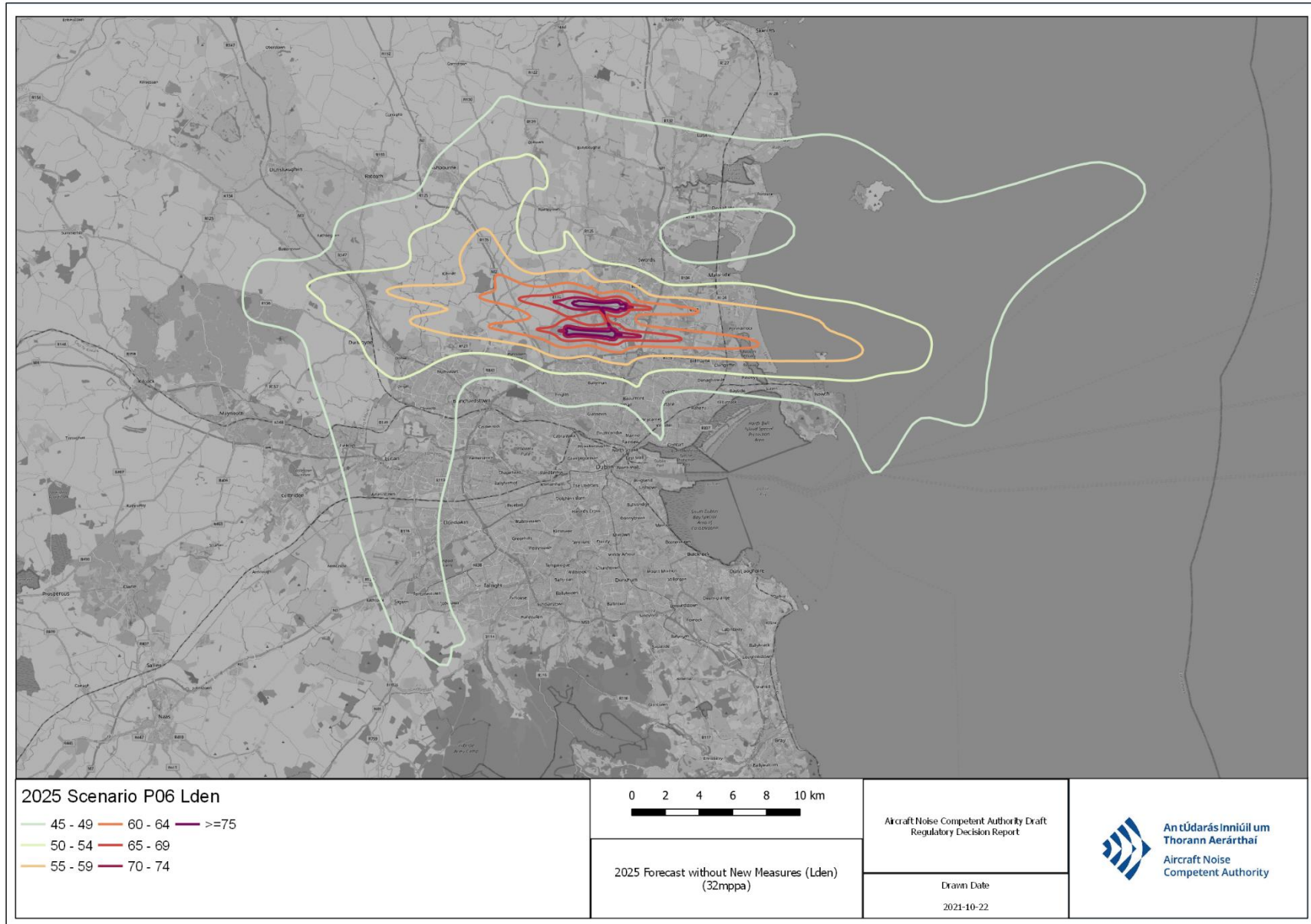
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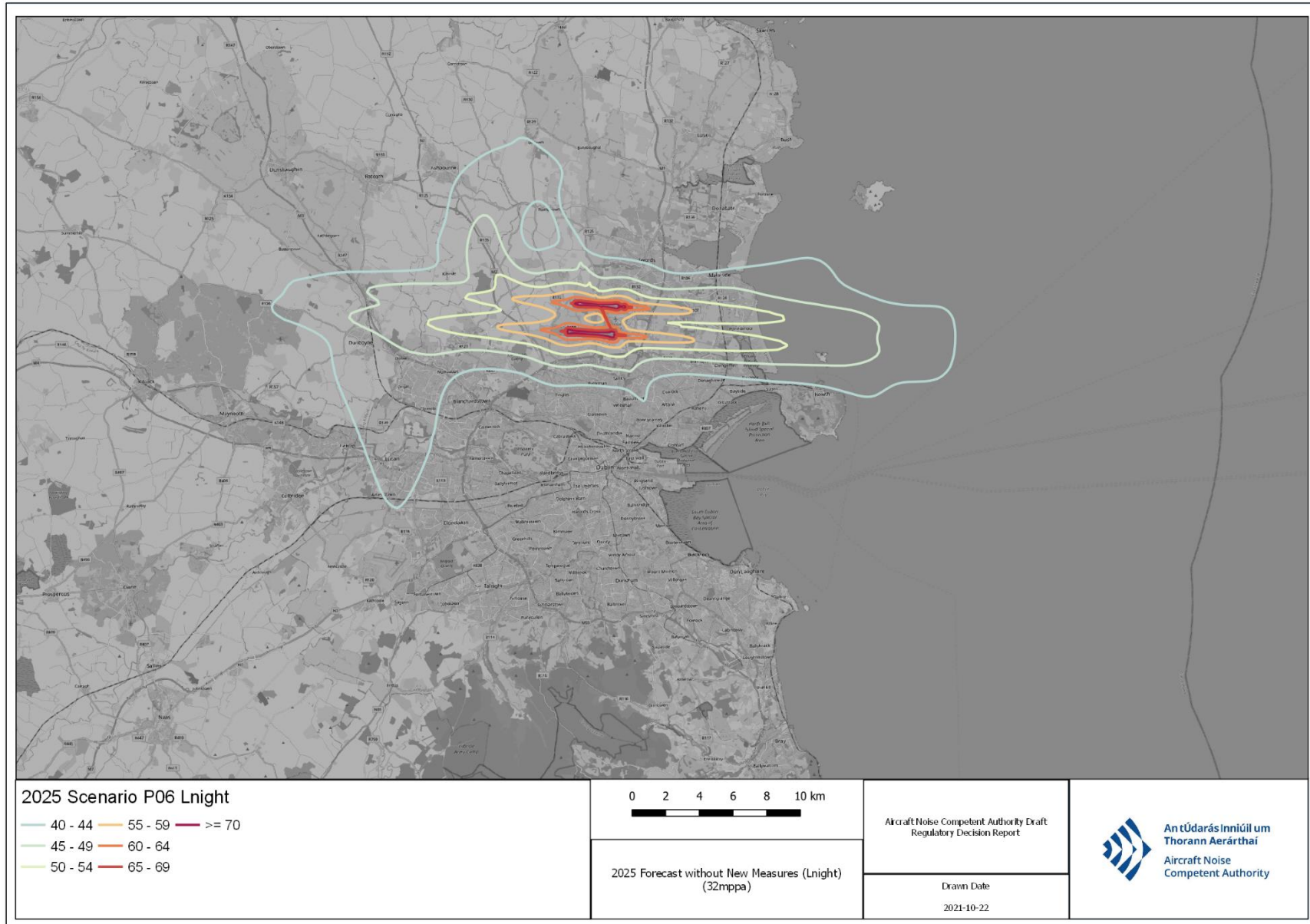


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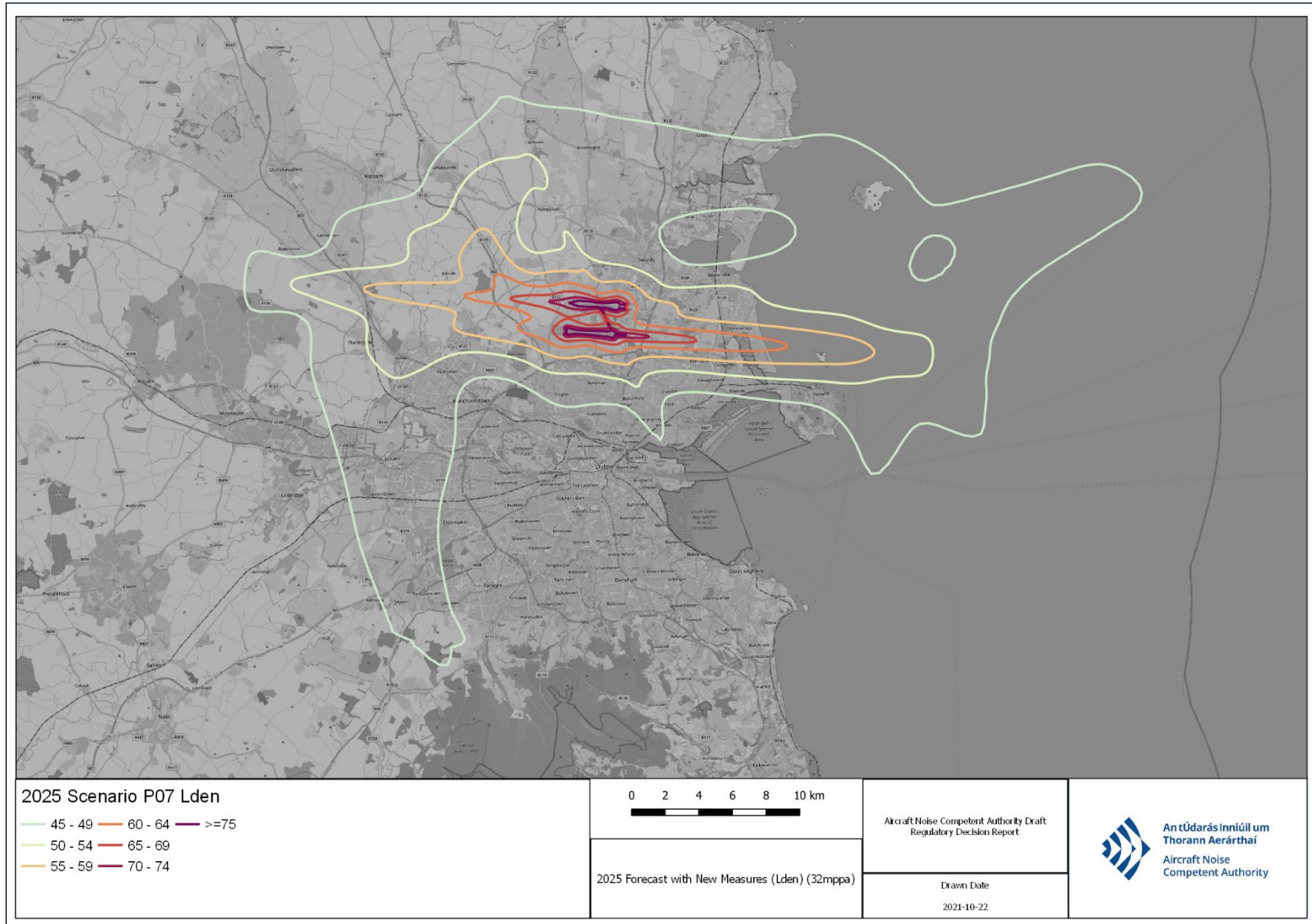


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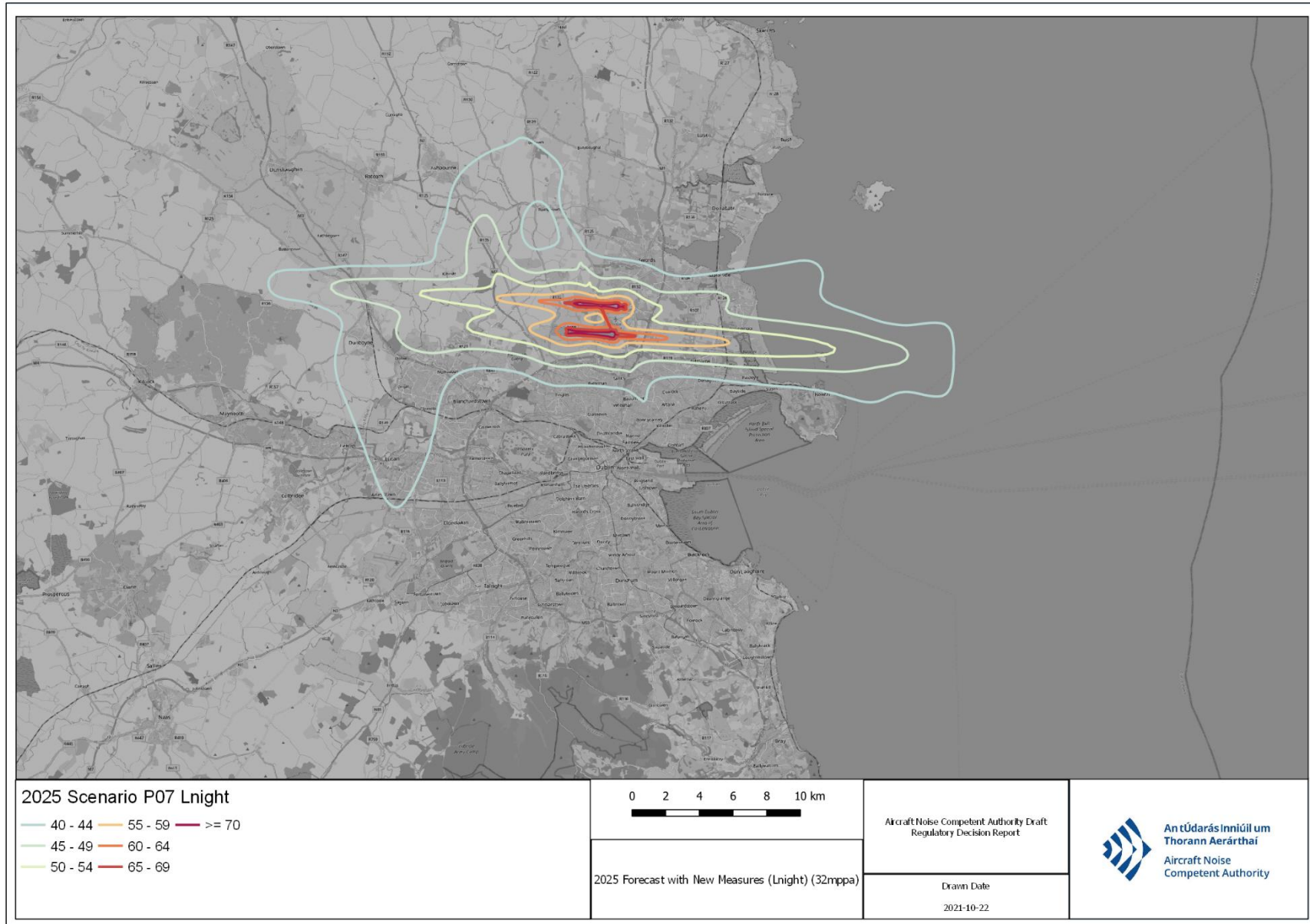
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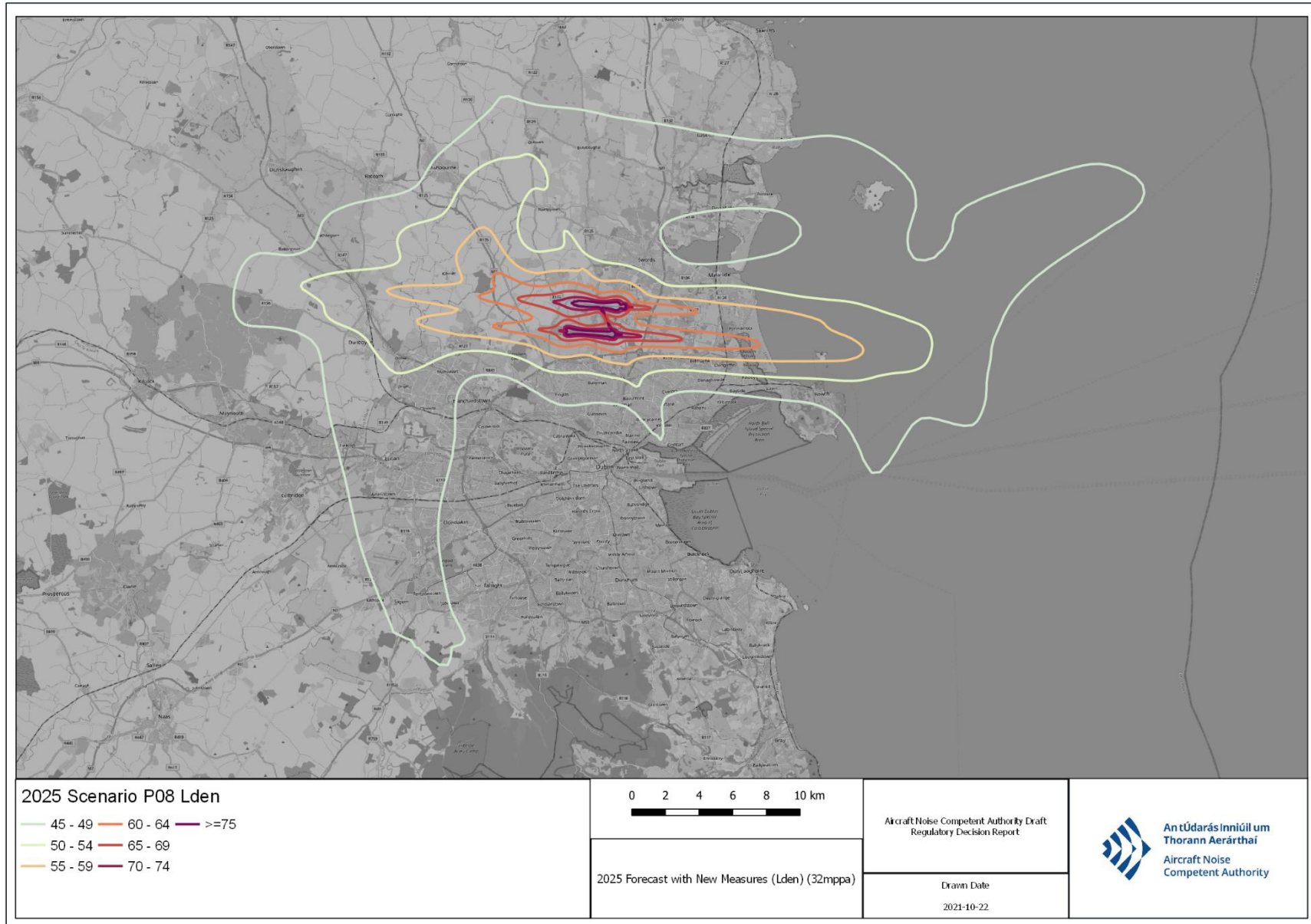
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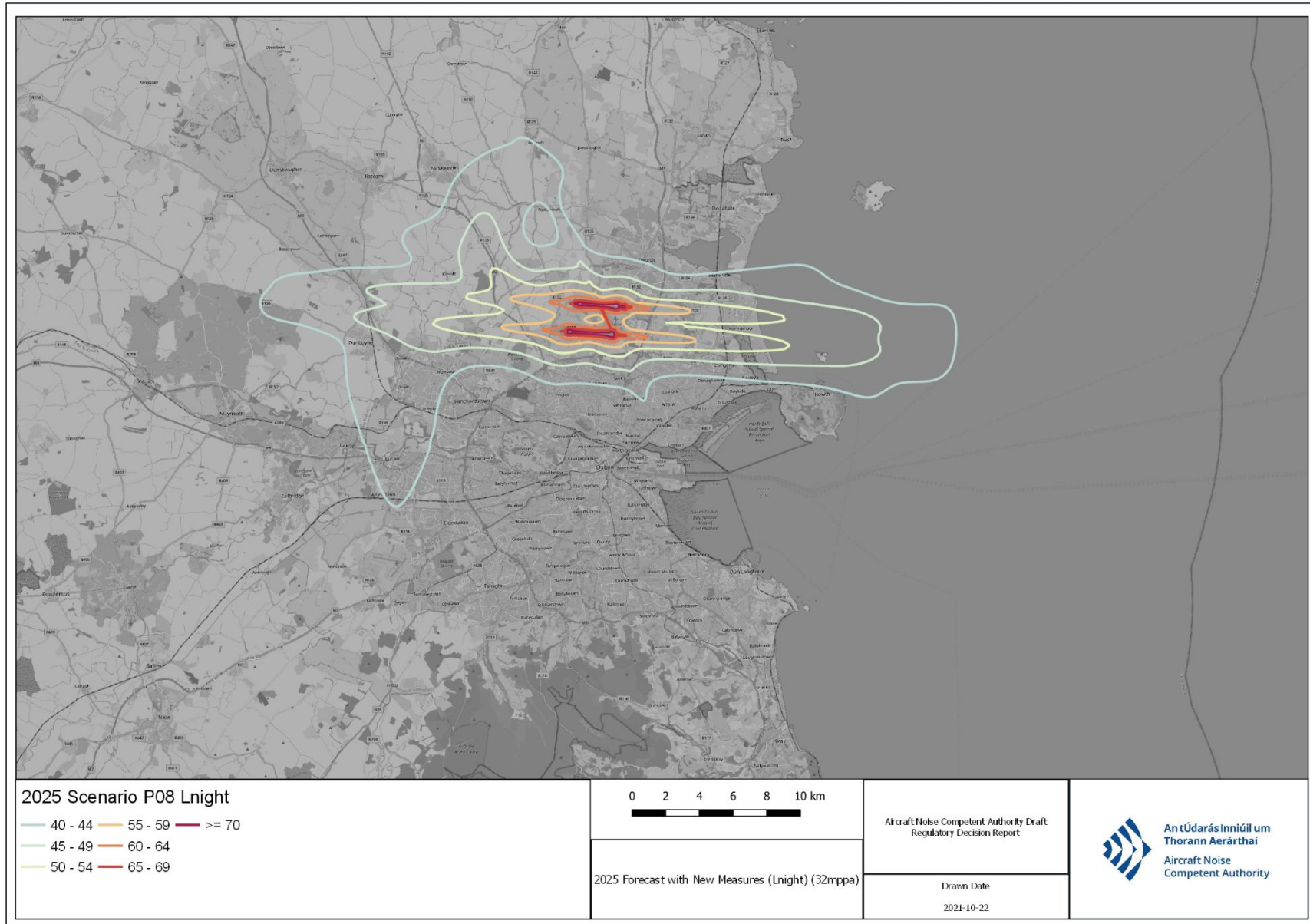
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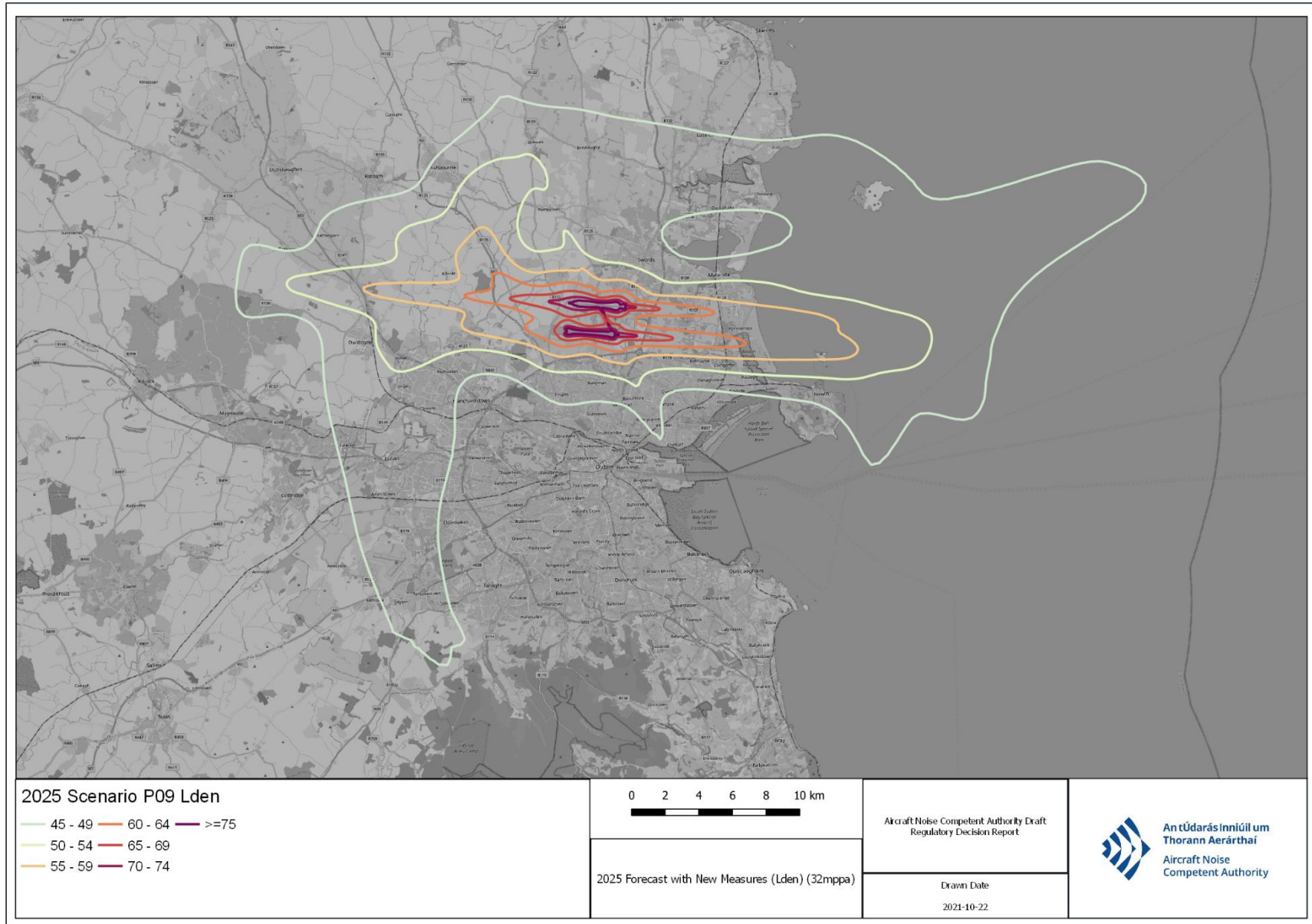
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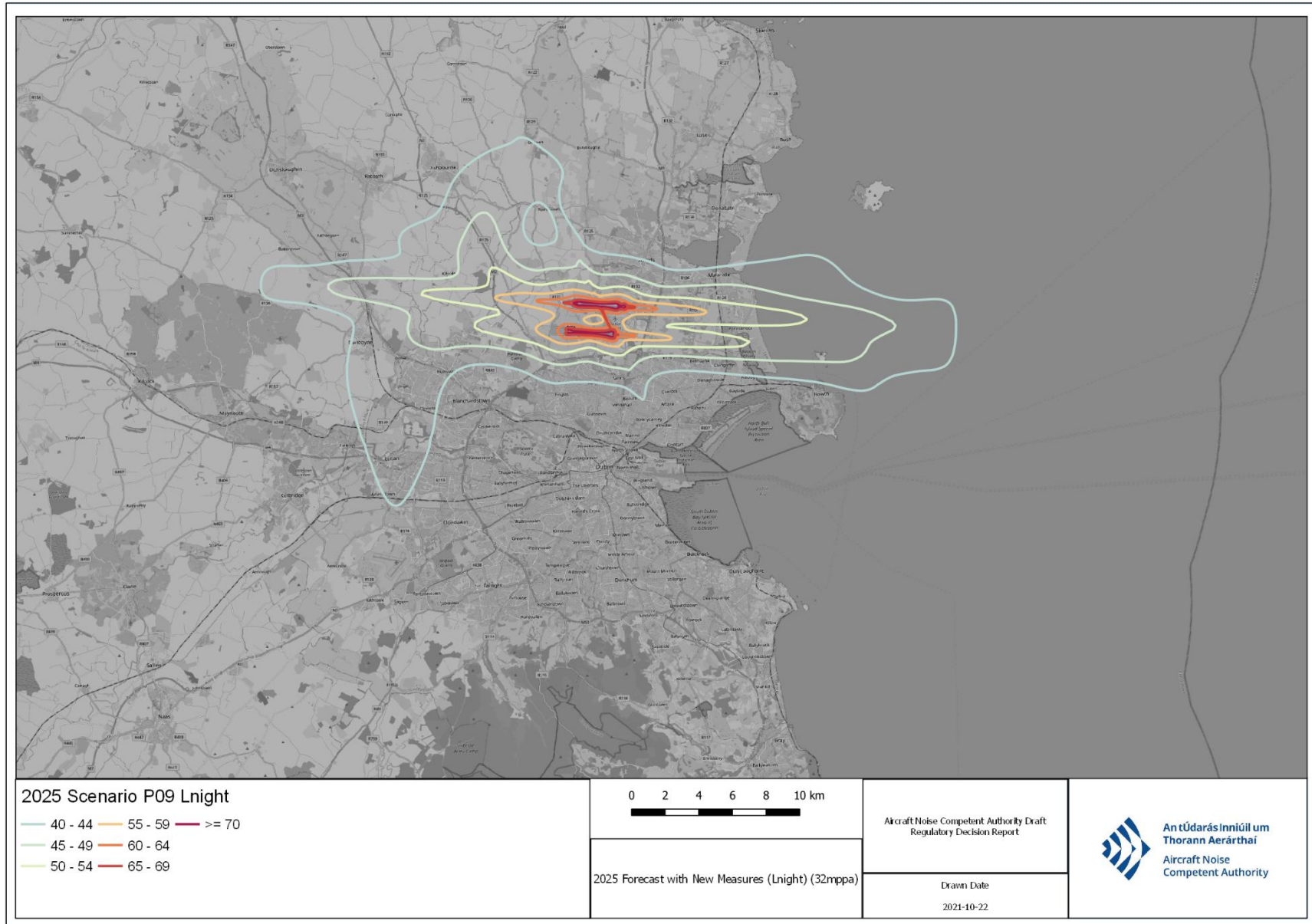
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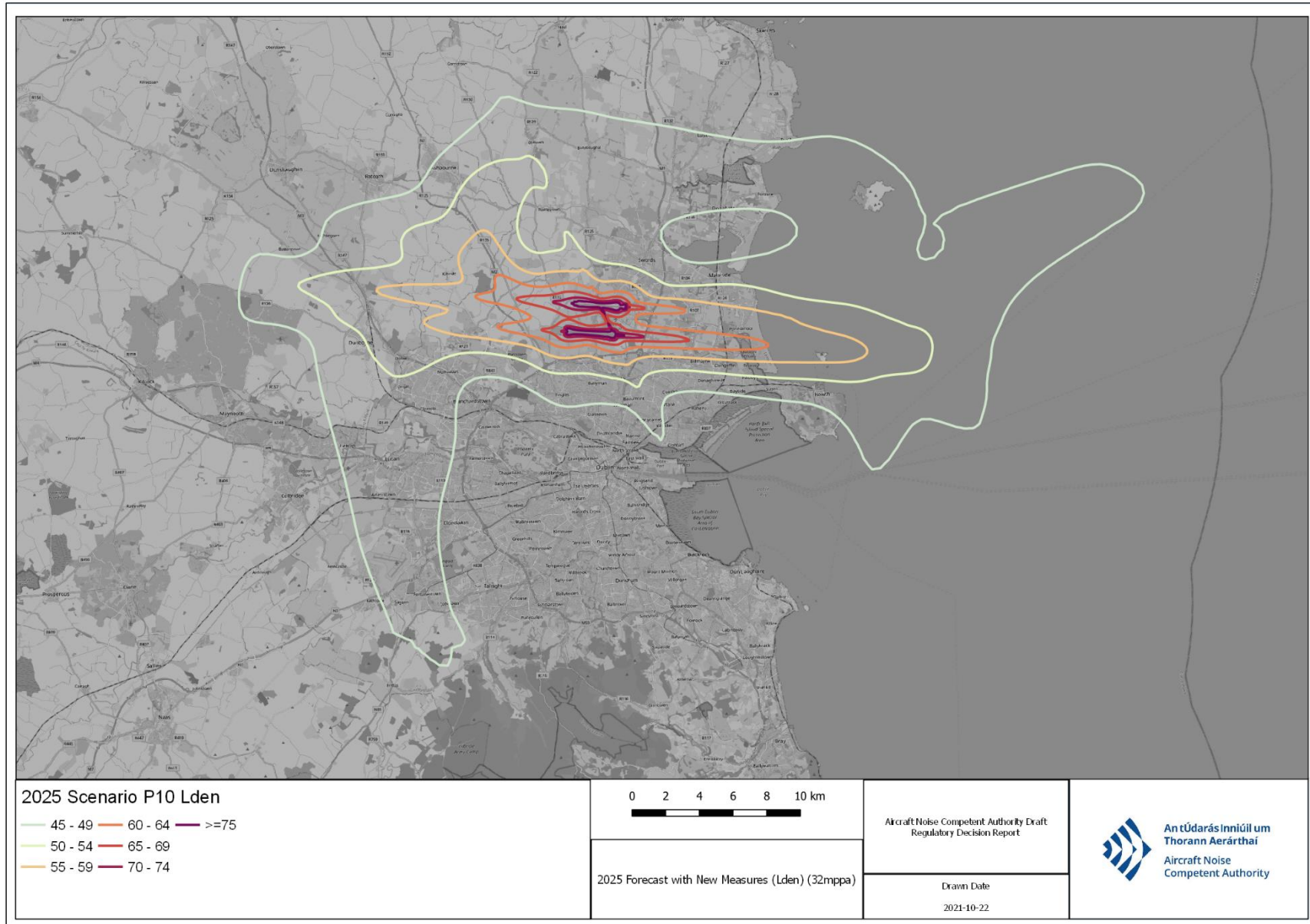
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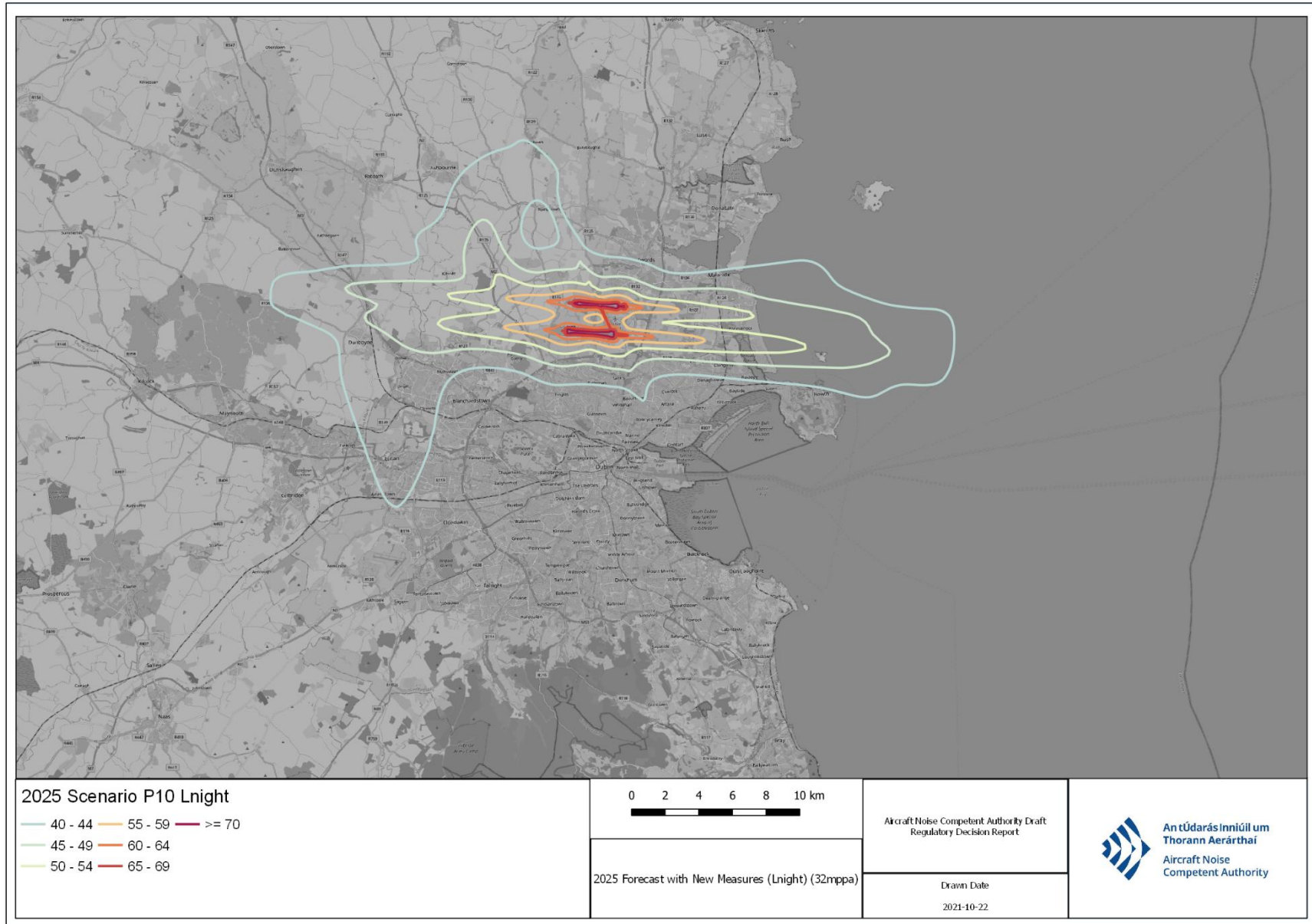
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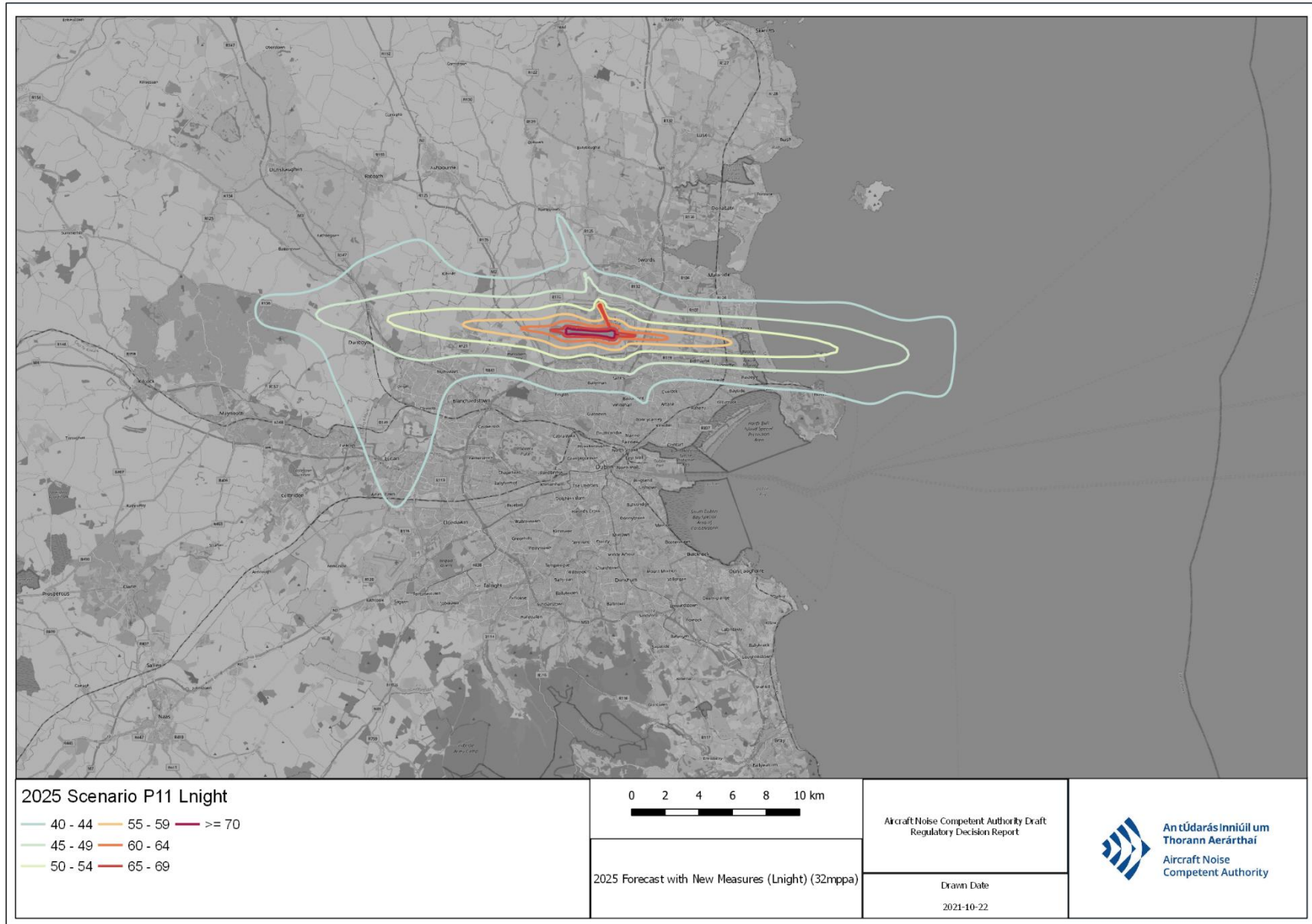
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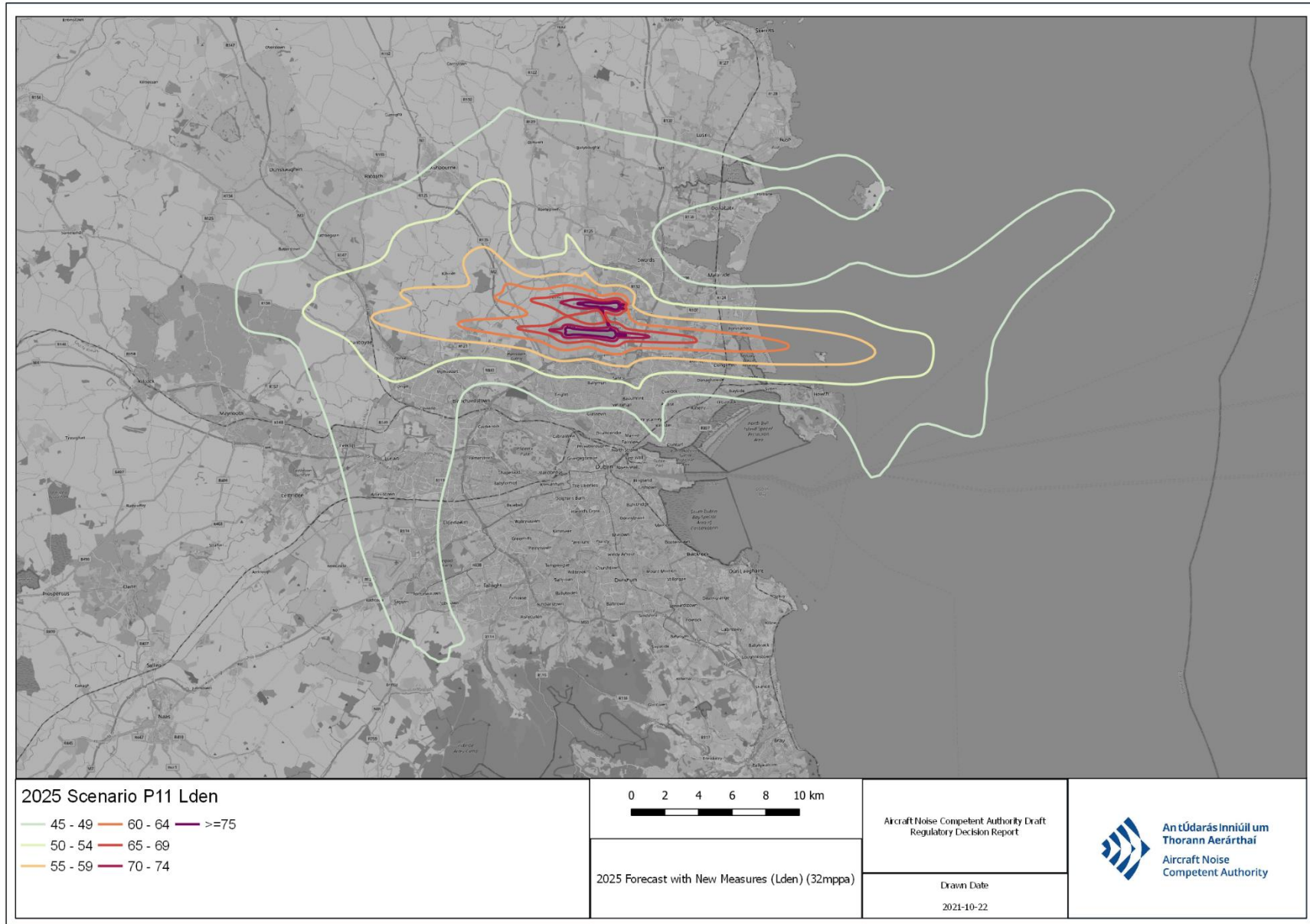
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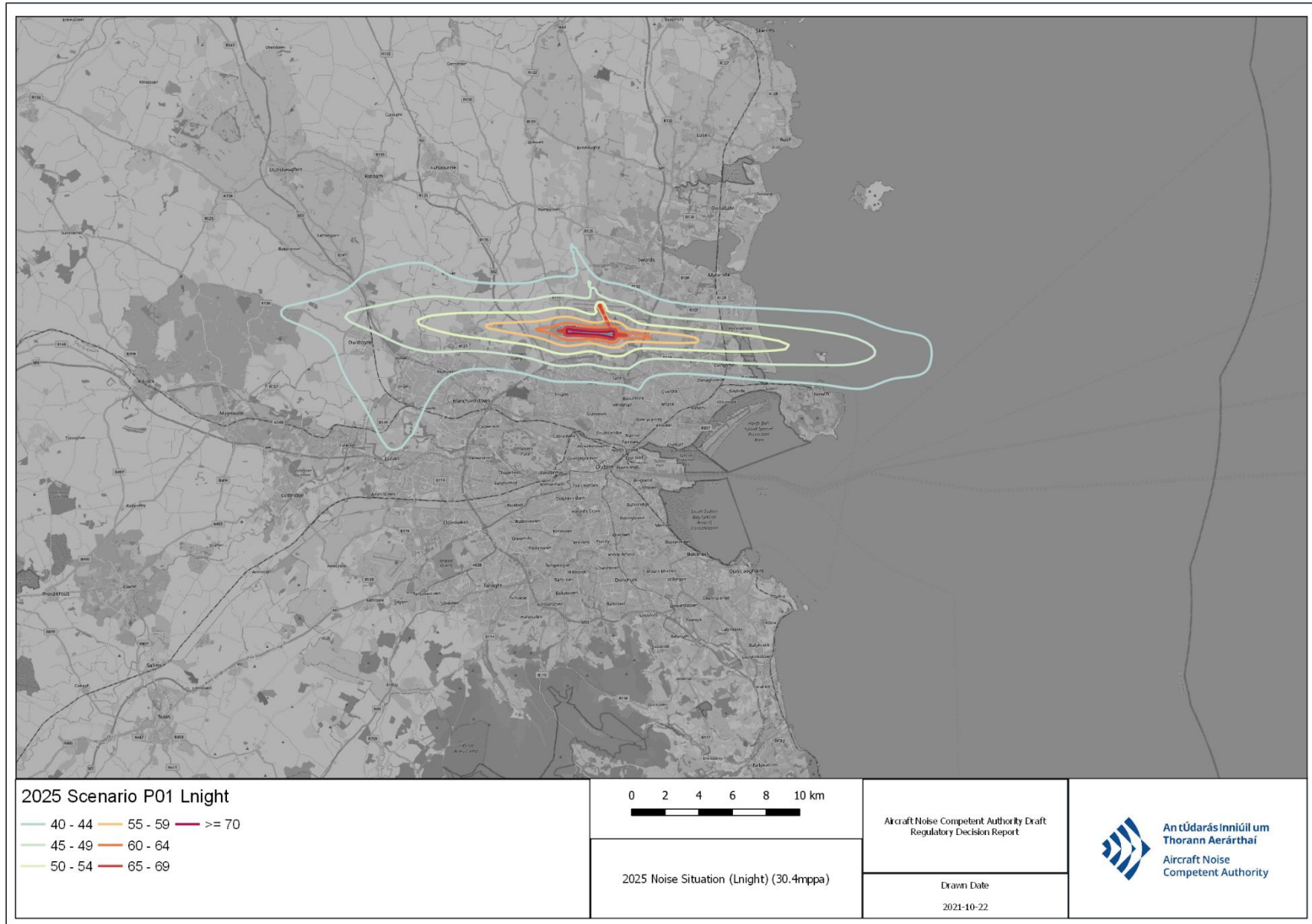
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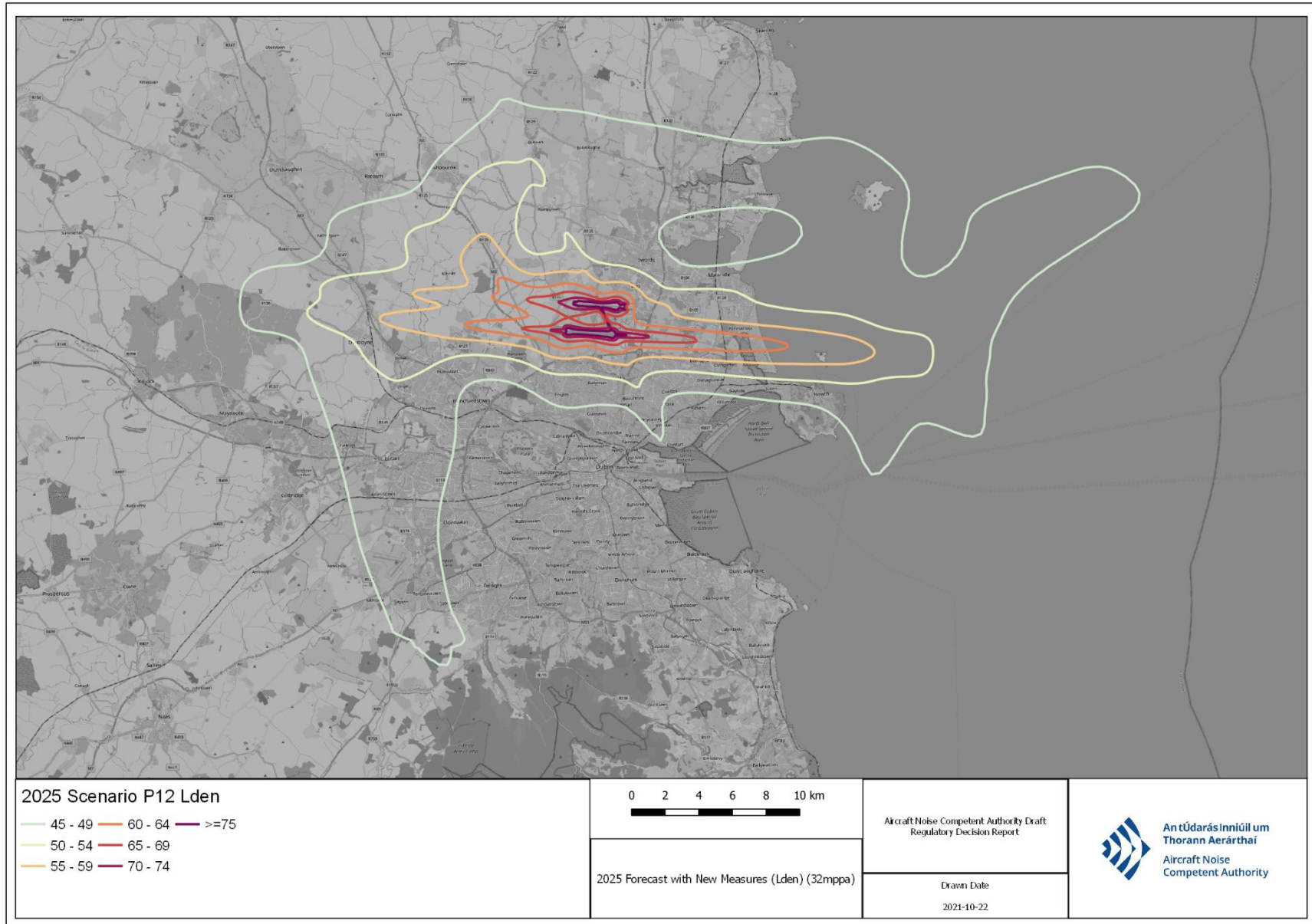
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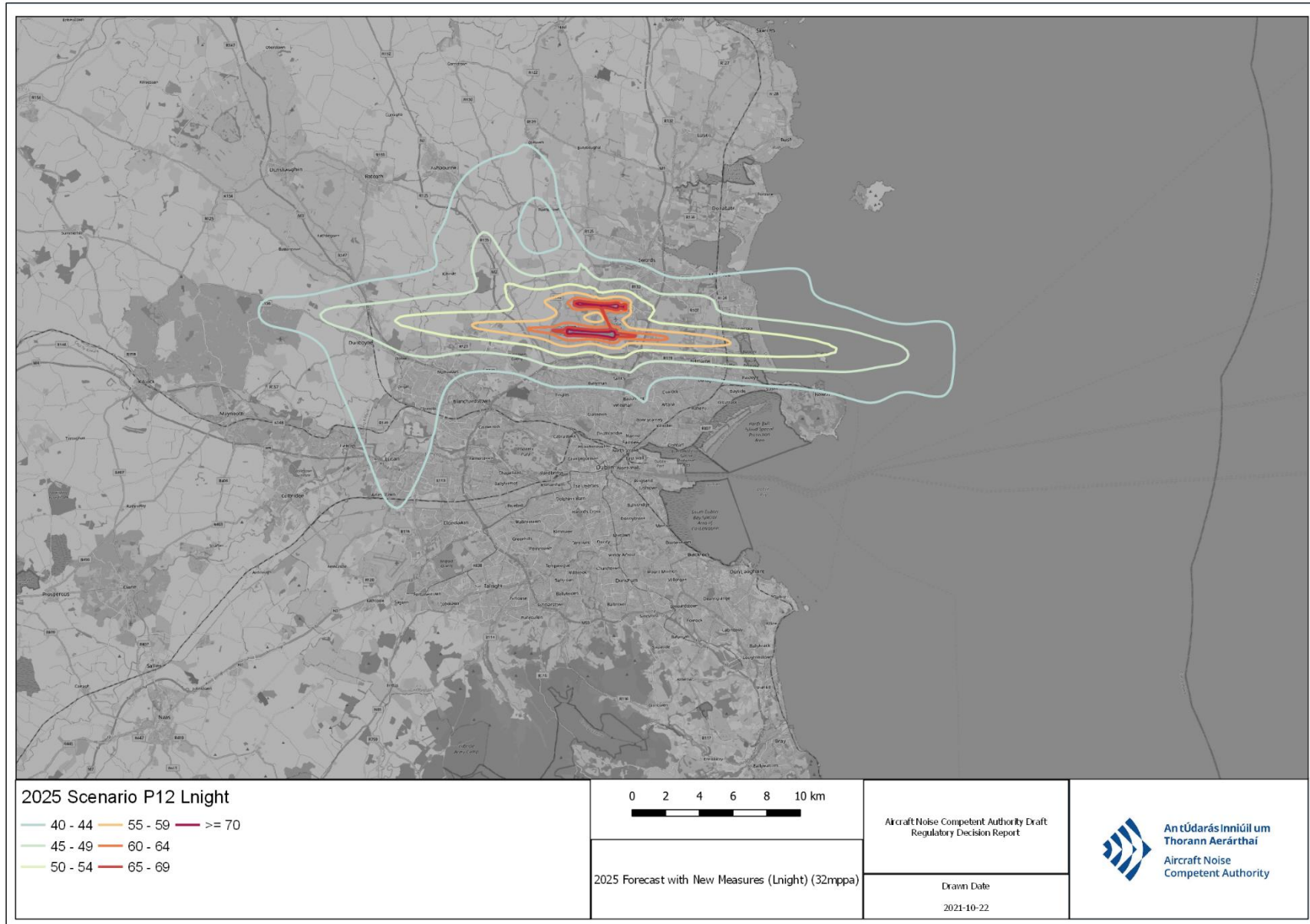
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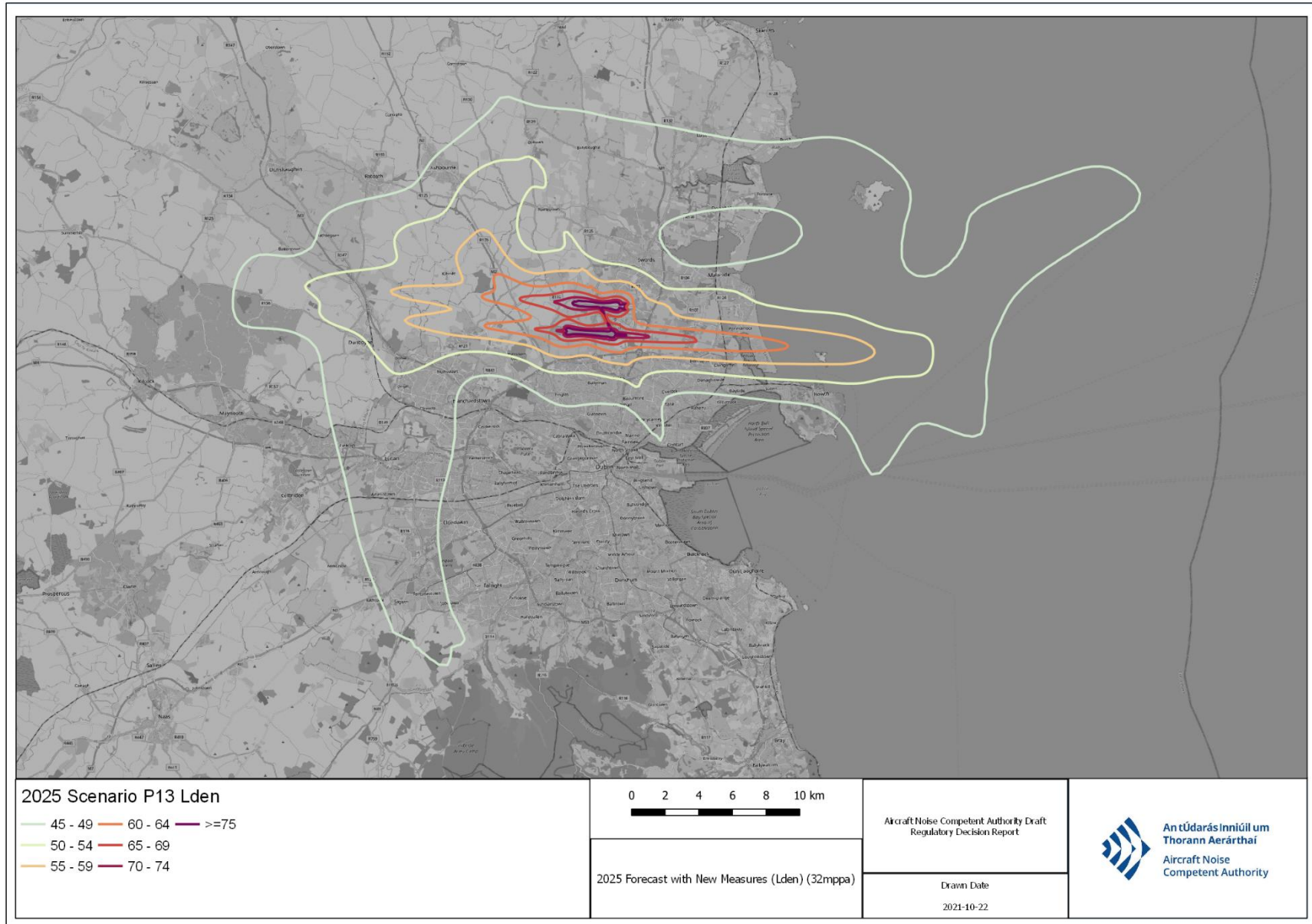
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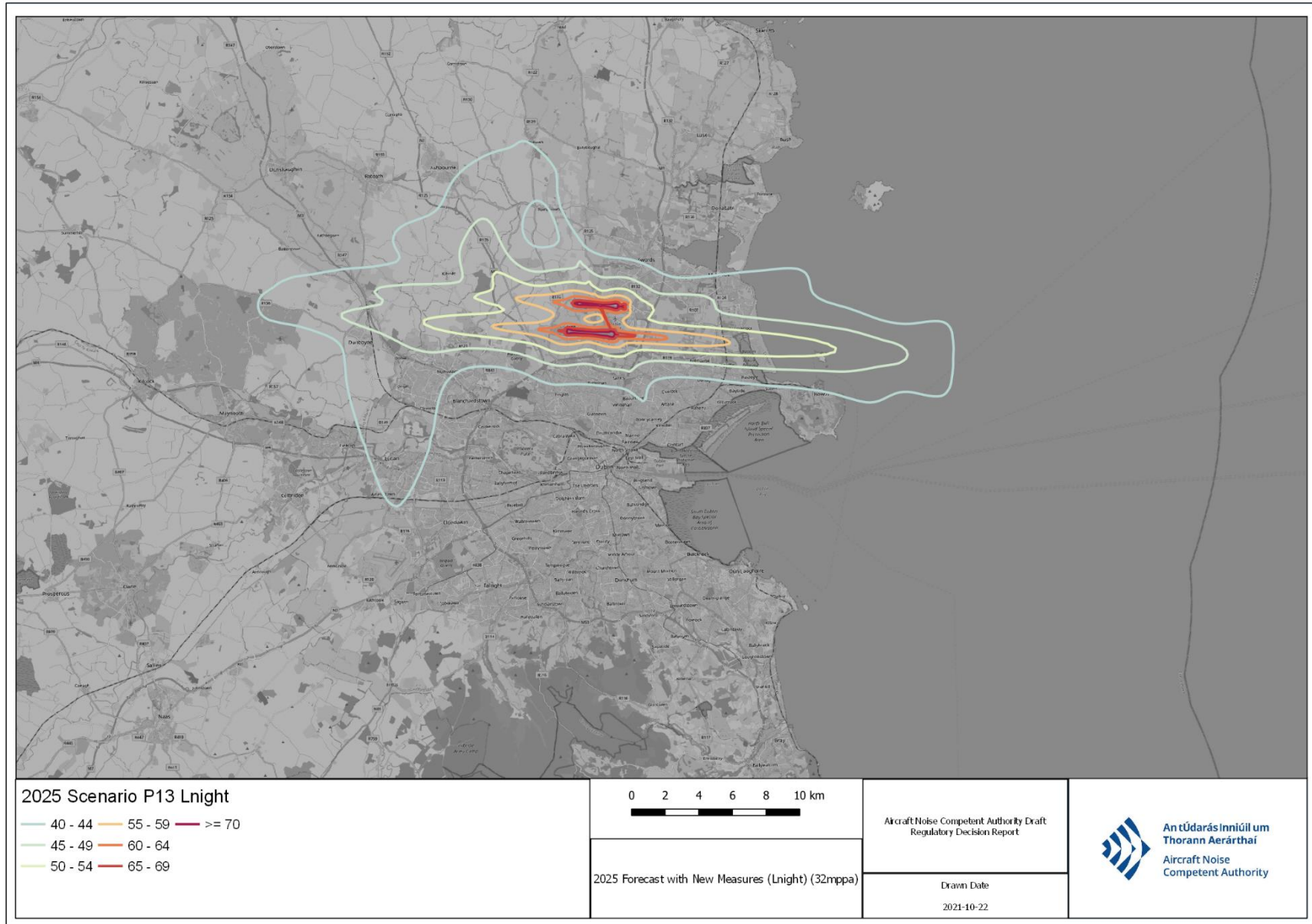
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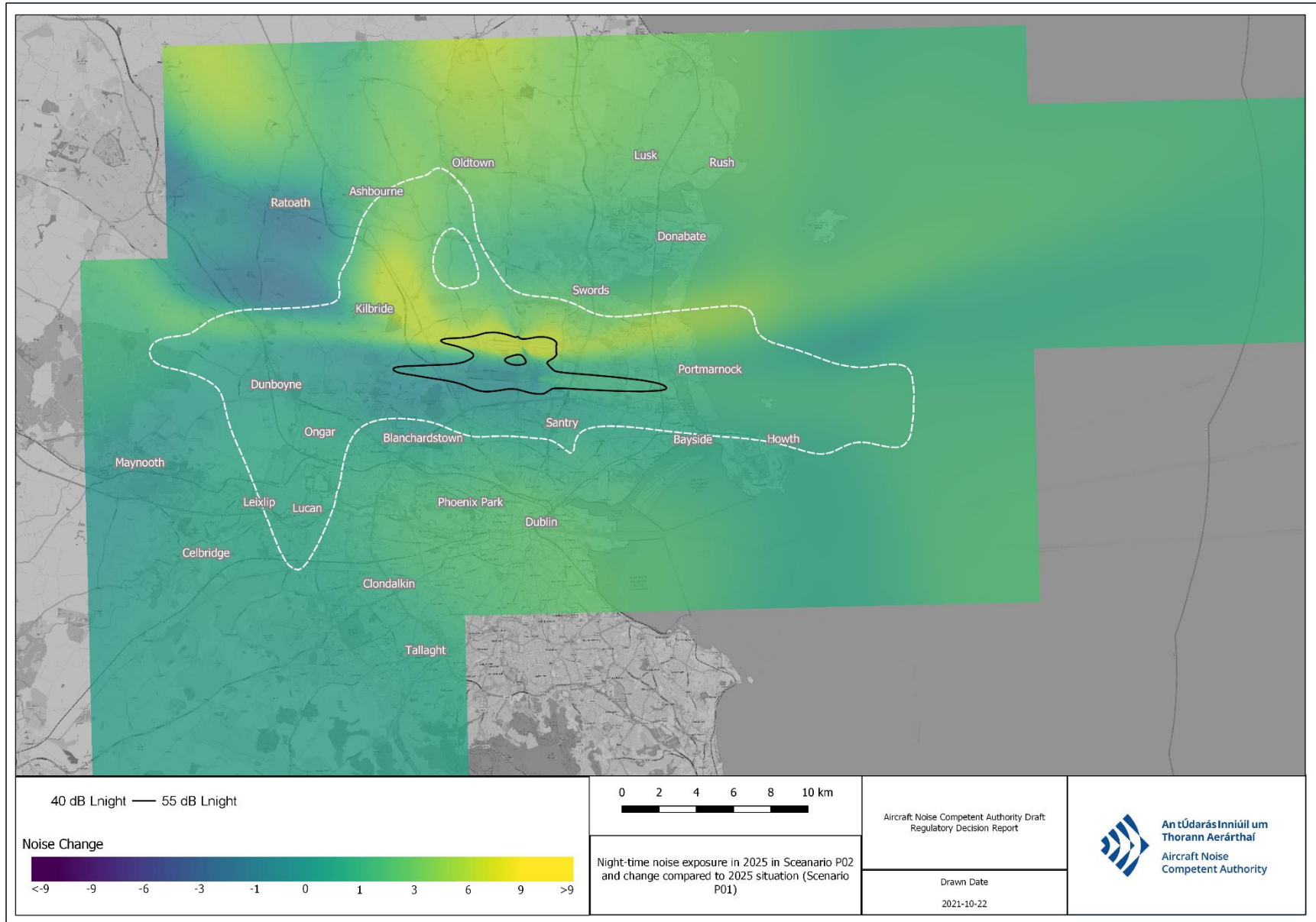
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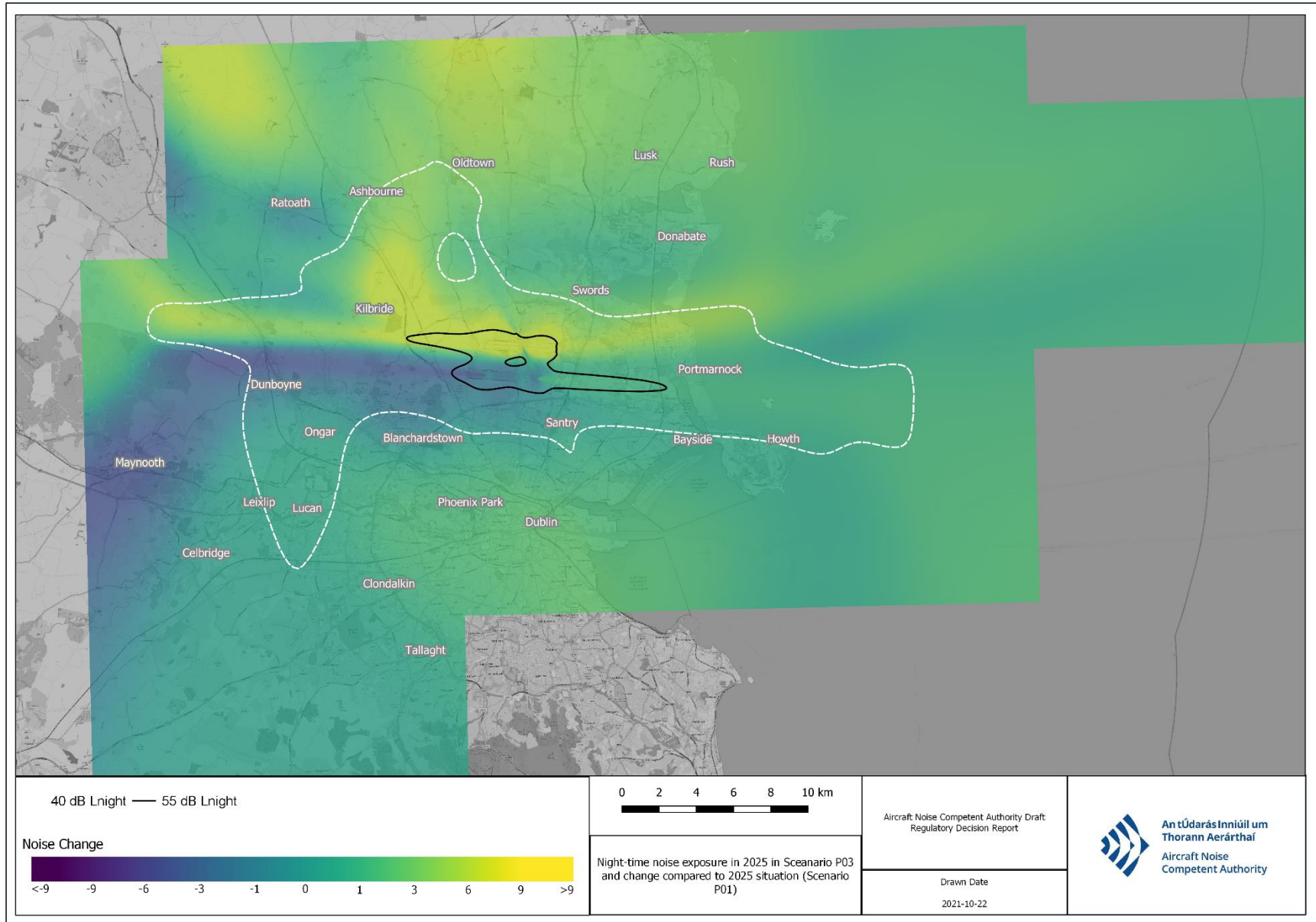
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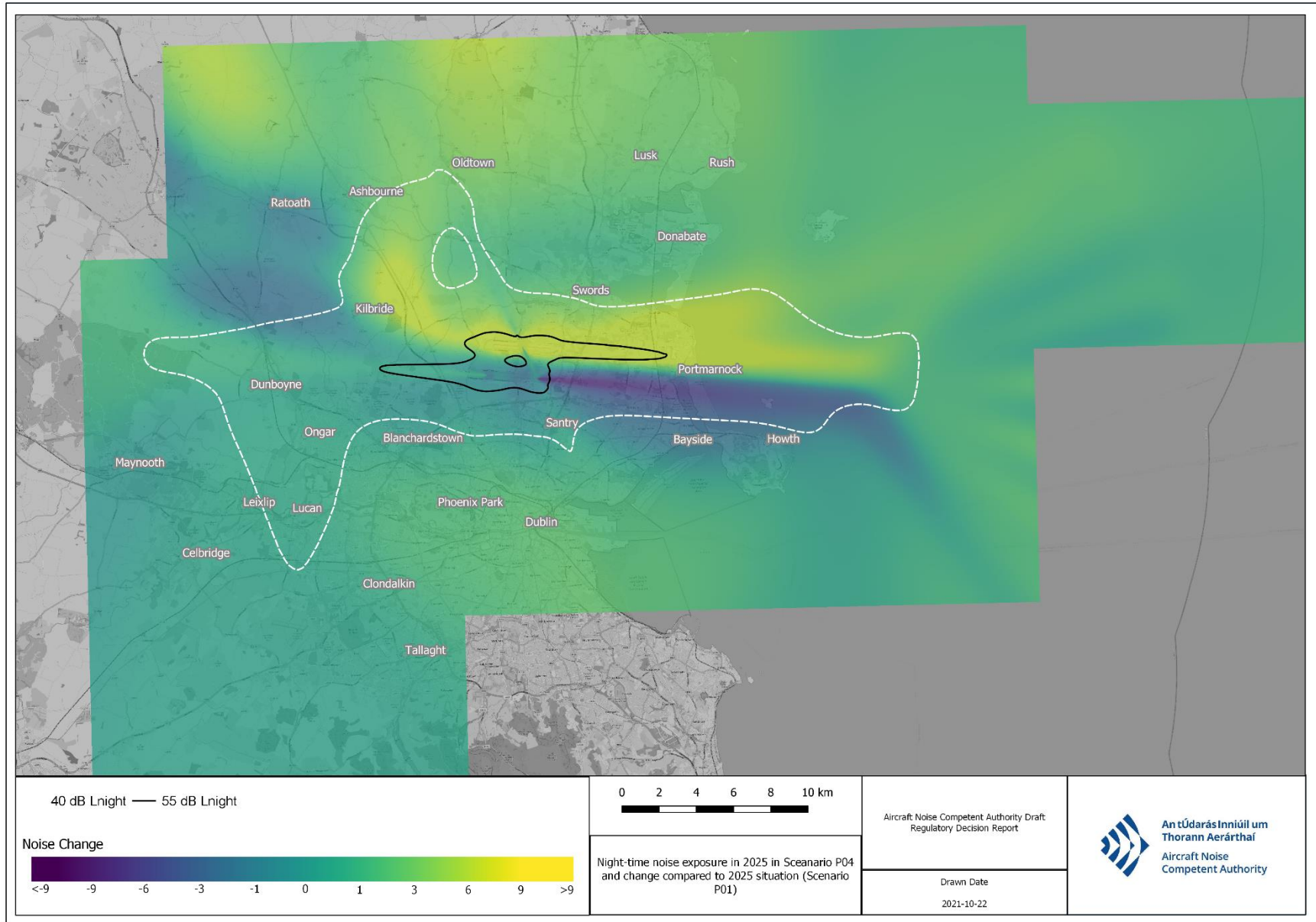
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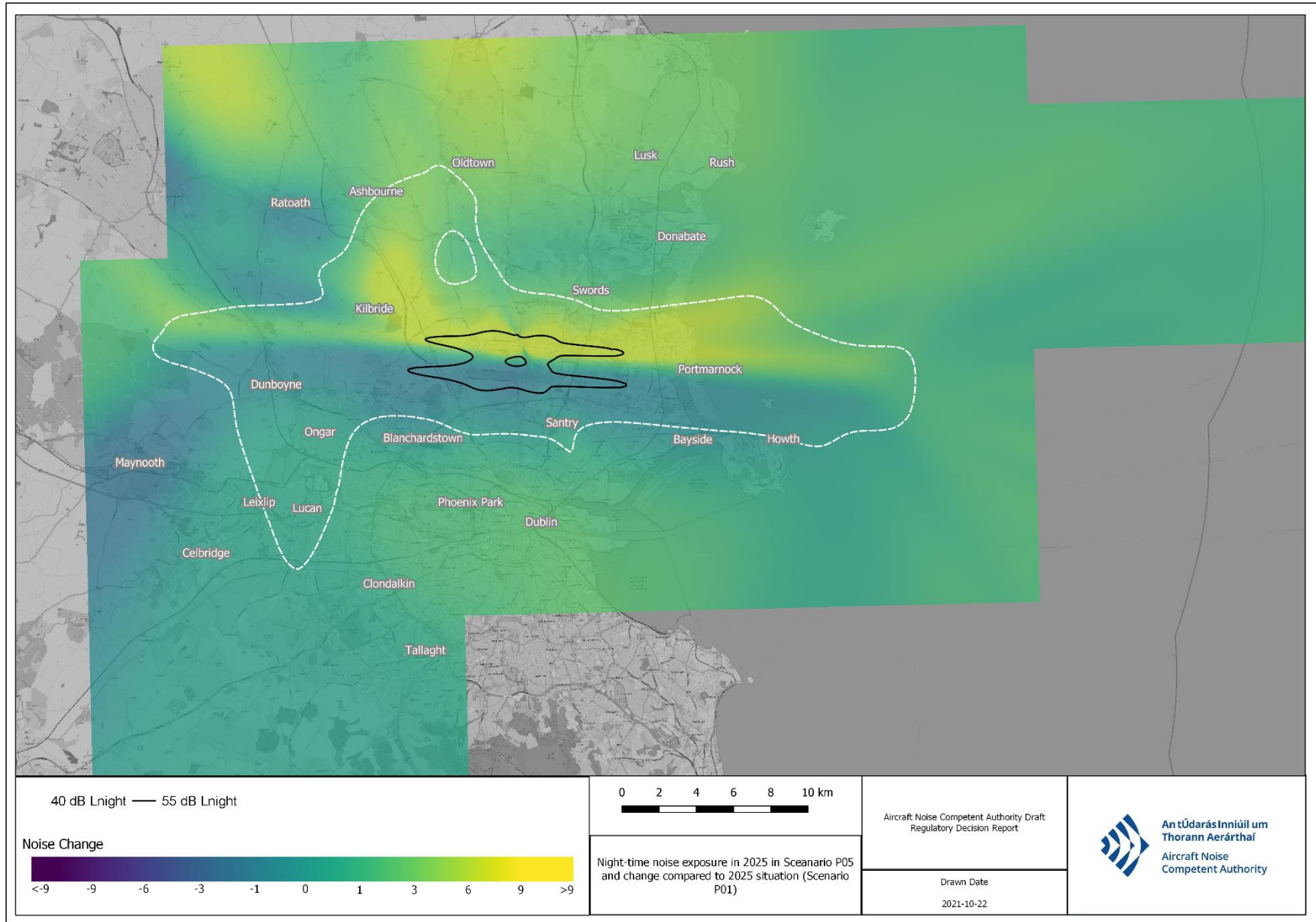
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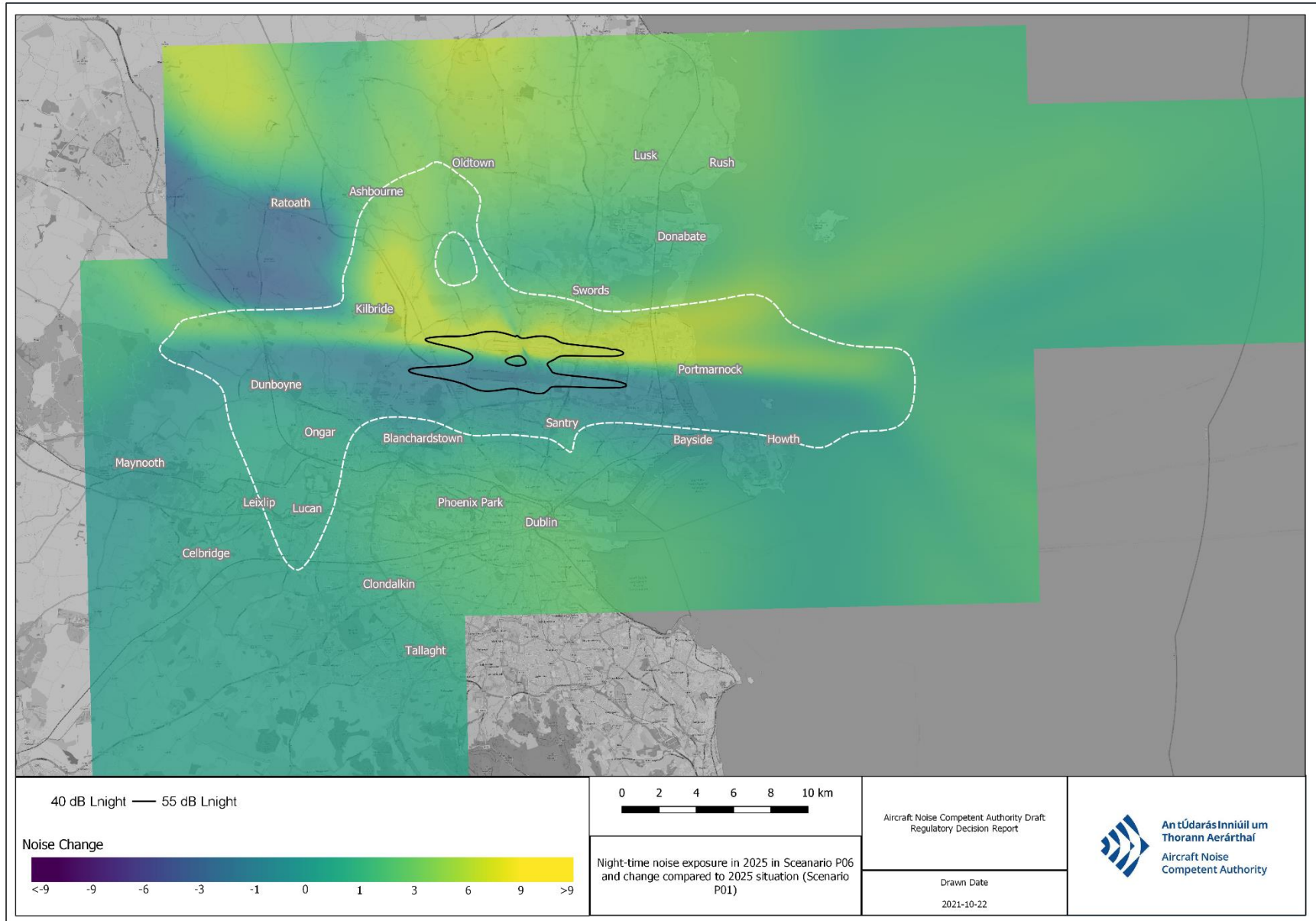
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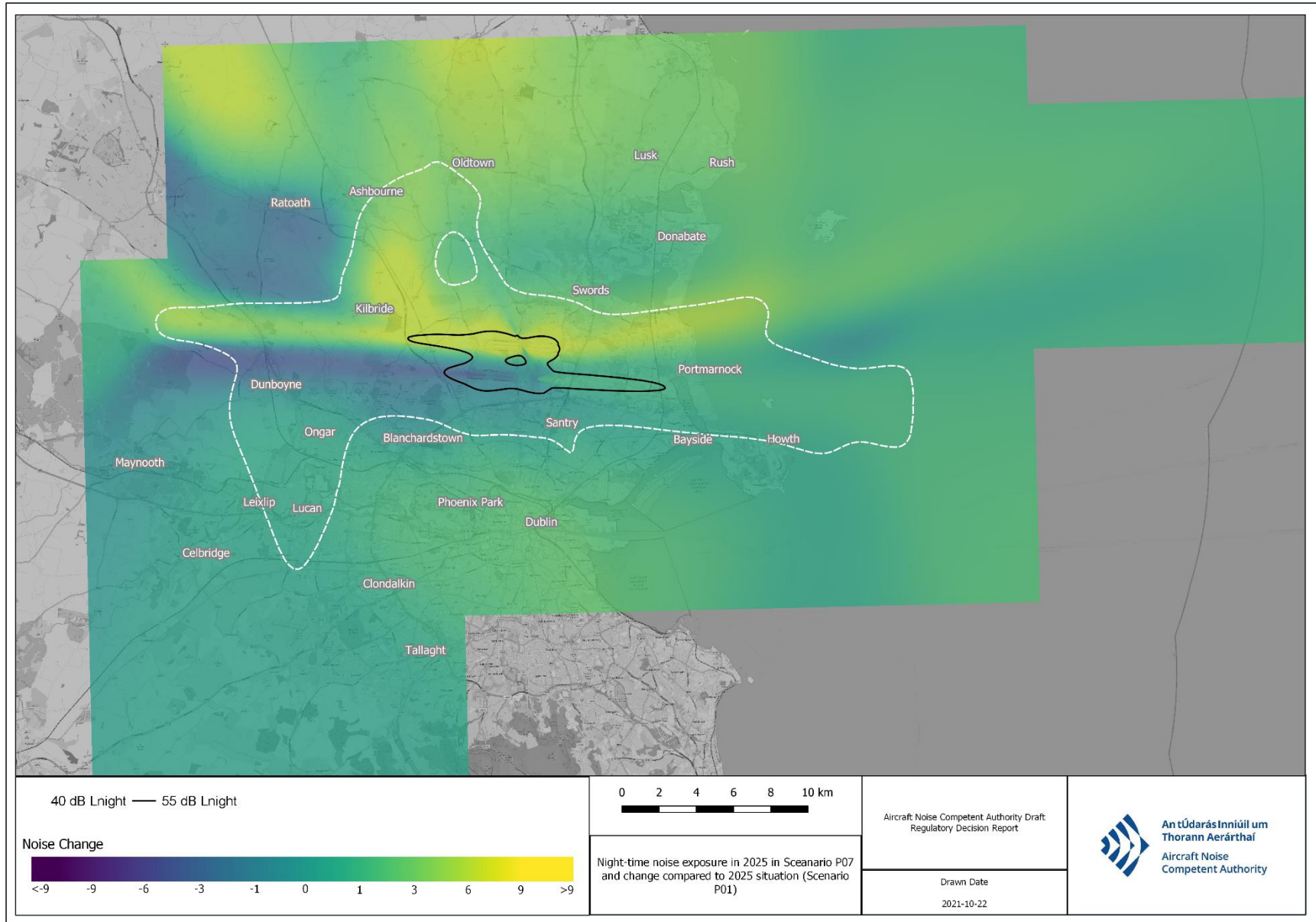
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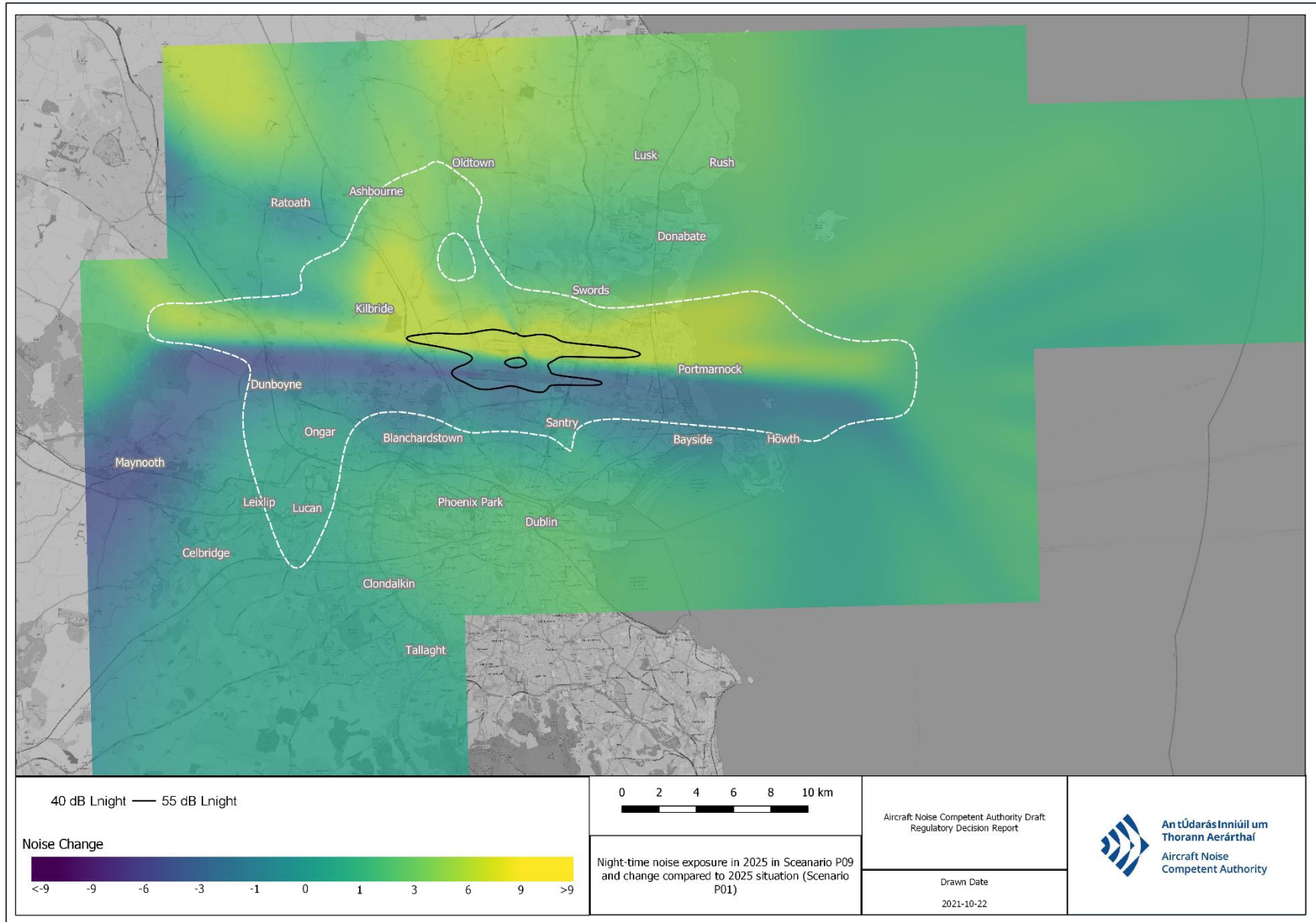
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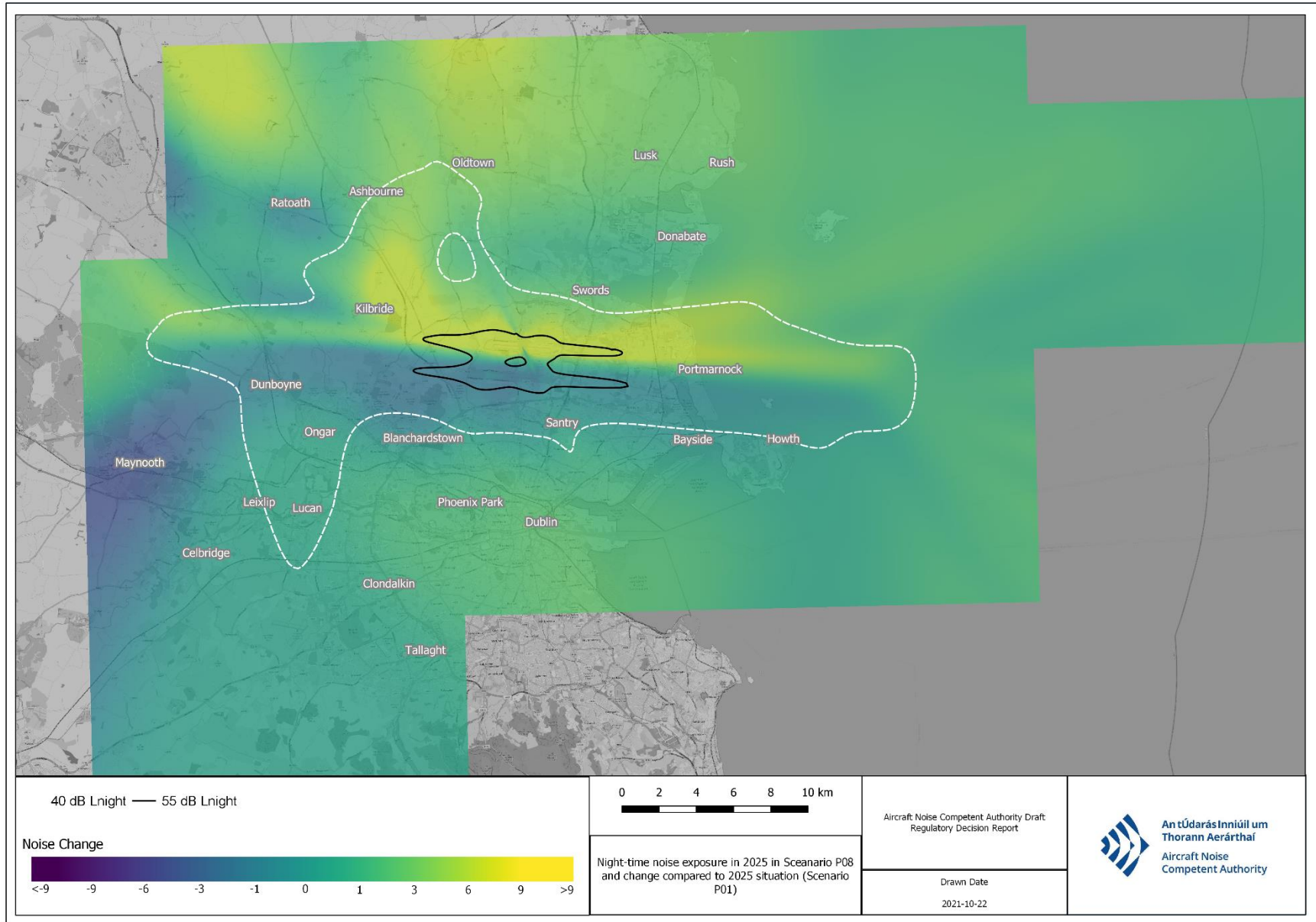
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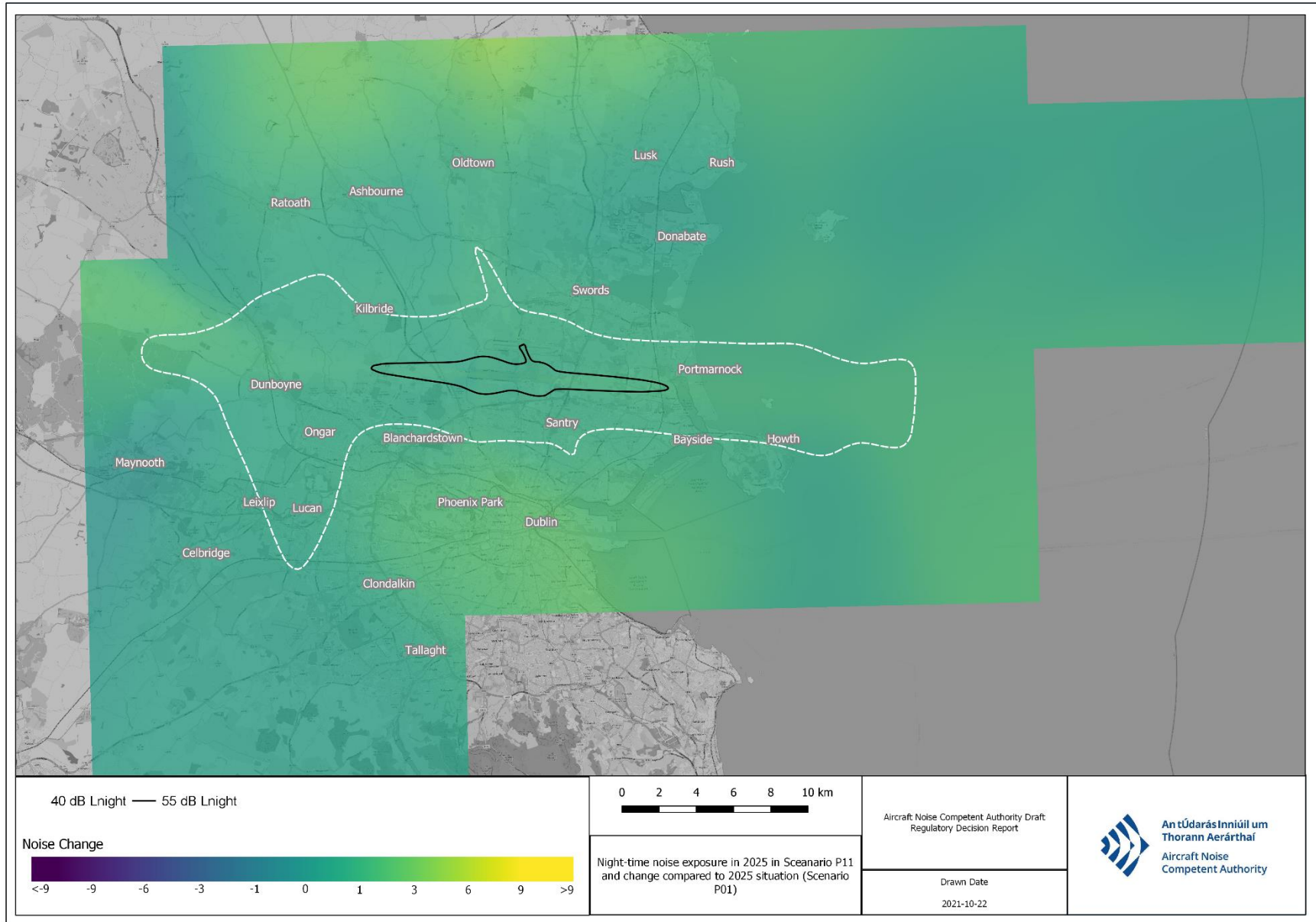
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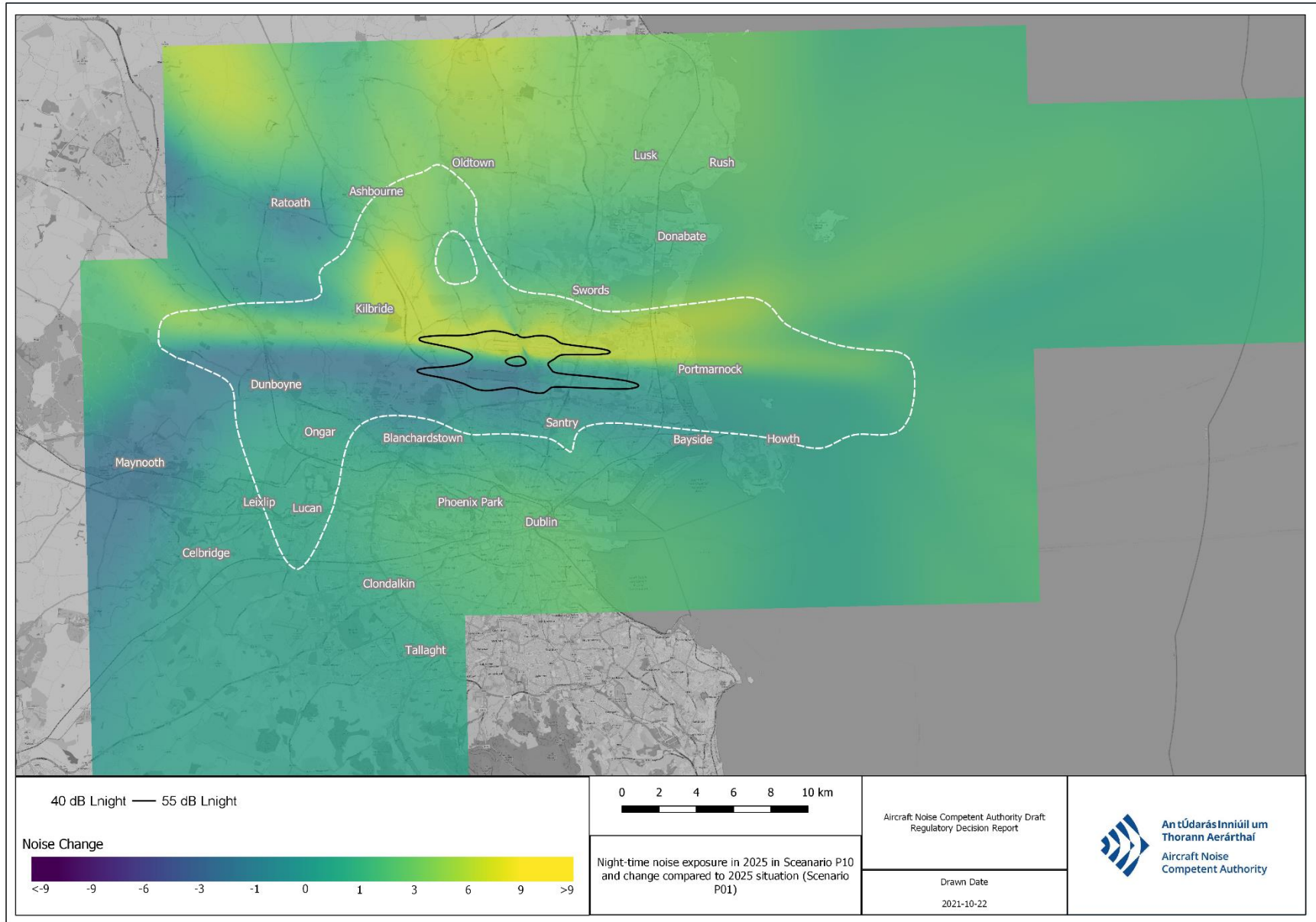
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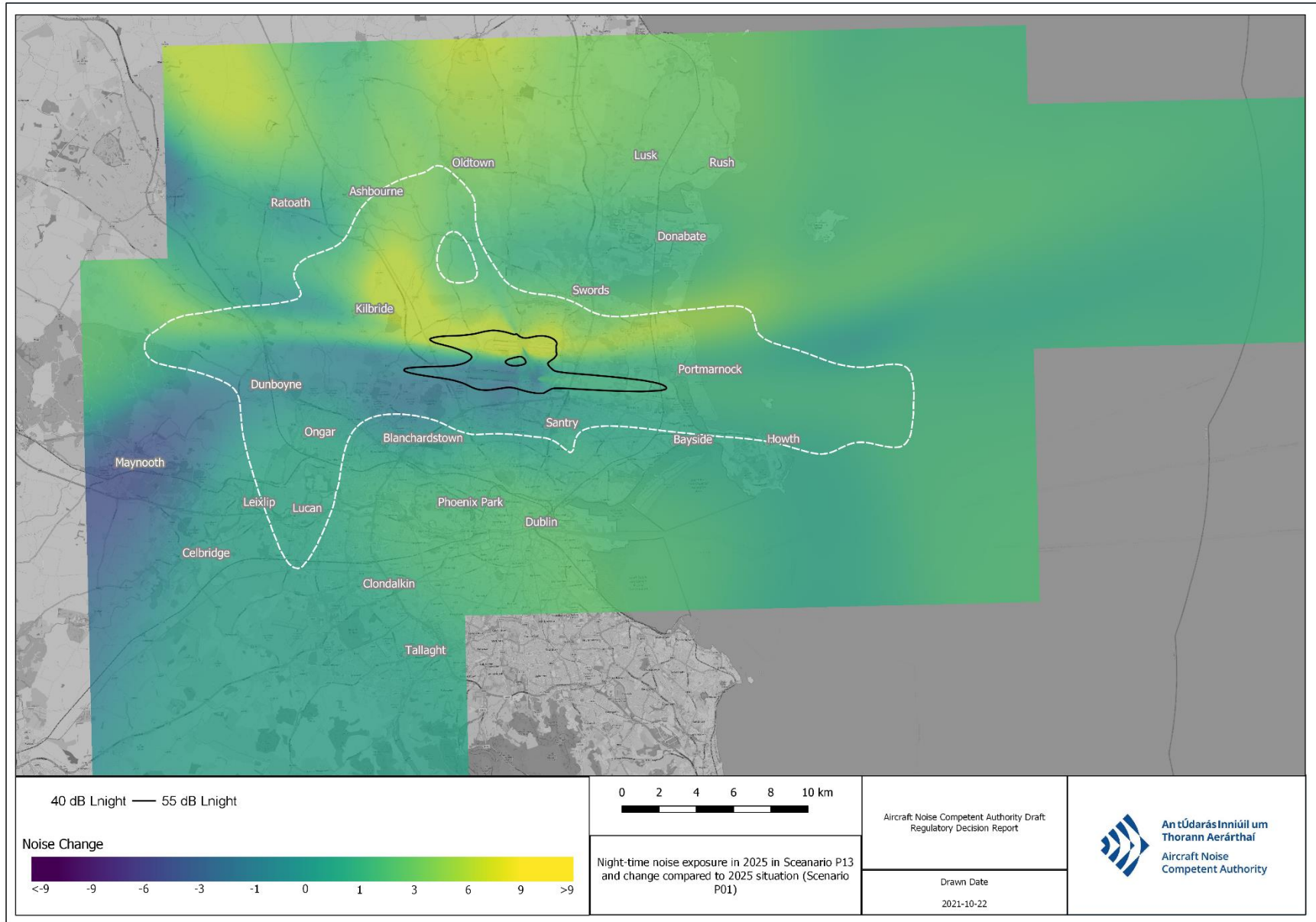
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