20 In-Combination and Cumulative Effects

20.1 Introduction

20.1.1 The assessment of in-combination and cumulative effects presented in this chapter draws together the findings of Chapters 6 to 19 and information available in the public domain relating to other known schemes within the study area (as described in Section 20.2.1). The study area for this assessment is informed by the topic-specific study areas defined in Chapters 6 to 19. This chapter does not undertake additional technical assessments; rather, it brings together the findings of the technical chapters to assess the interactions between identified residual effects and the effects of other existing, approved or reasonably foreseeable developments, and to determine the significance of any resulting in-combination or cumulative effects.

20.1.2 Section 13(2)(viii) of the Dublin Airport (Passenger Capacity) Act 2026 (the 2026 Act) requires that the EIAR for the Proposed Order shall contain:

"any additional information specified in Annex IV to the Environmental Impact Assessment Directive that is relevant to the specific characteristics of the proposal or type of proposal and to the environmental features likely to be affected"

20.1.3 Point 5(e) to Annex IV of the EIA Directive[1] states an Environmental Impact Assessment Report (EIAR) should contain:

> "*A description of the likely significant effects of the project on the environment resulting from…the cumulation of effects with other existing and/or approved projects, taking into account any existing environmental problems relating to areas of particular environmental importance likely to be affected or the use of natural resources*."

20.1.4 The Environmental Protection Agency's (EPA) 'Guidelines on the information to be contained in Environmental Impact Assessment Reports' (hereafter referred to as 'the EPA Guidelines') explains that cumulative effects are "the addition of many minor or significant effects, including the effects of other projects, to create larger, more significant effects".

20.1.5 The EIA Directive also requires *"the interaction between the [environmental] factors"* to be assessed. These interactions occur when a single receptor or group of receptors experience an impact from more than one environmental factor, for example a single receptor may be affected by noise, air quality, and visual impacts from a proposed development at the same time.

20.1.6 Chapter 5: Methodology sets out the overall approach to the EIA, including overarching legislation, policy and guidance.

20.1.7 In addition to the EPA Guidelines, there is further guidance from the European Commission which has published 'Guidelines for the Assessment of Indirect and Cumulative Impacts as well as Impact Interactions'[2].

20.1.8 Two types of effect are therefore assessed in this chapter:

- **In-Combination Effects** are effects arising from the interaction of two or more effects associated with the Proposed Order, where the combined effect may be greater than the sum of the individual effects.

[1] Directive 2011/92/EU of the European Parliament and of the Council of 13th December 2011 on the assessment of the effects of certain public and private projects on the environment (as amended by Directive 2014/52/EU)
[2] European Commission, Guidelines for the Assessment of Indirect and Cumulative Impacts as well as Impact Interactions, 1999. https://ec.europa.eu/environment/archives/eia/eia-studies-and-reports/pdf/guidel.pdf

- **Cumulative Effects** are effects arising from the interaction of the Proposed Order with other existing, approved or reasonably foreseeable developments, resulting in an increased overall effect on a receptor or environmental resource.

20.1.9 The cumulative effects assessment considers existing, approved and reasonably foreseeable developments with the potential to give rise to cumulative effects with the Proposed Order. This includes live planning applications and, where sufficient information is available, developments that have not yet entered the planning system but are identified through relevant statutory plans and programmes or are otherwise reasonably foreseeable.

20.1.10 As described in Chapter 6: Material Assets (Traffic and Transport), the traffic assessments account for operation of the surface access network within the study area with the Proposed Order in place, together with any committed or planned external transport schemes forecast to be operational by 2029. These assessments are inherently cumulative and are therefore not considered further in this chapter.

20.1.11 The assessment of in-combination and cumulative effects presented in this chapter draws together the findings of Chapters 6 to 19 and information available in the public domain relating to other known schemes within the study area (as described in Section **Error! Reference source not found.**). The study area for this assessment is informed by the topic-specific study areas defined in Chapters 6 to 19. This chapter does not undertake additional technical assessments; rather, it brings together the findings of the technical chapters to determine whether the identified residual effects interact with one another or with existing, approved or reasonably foreseeable developments so as to result in additional or different significant environmental effects.

20.1.12 This chapter was written by Daniel O'Kelly, a Technical Director with over 20 years' experience in Environmental Impact Assessment (EIA), specialising in the coordination and preparation of EIARs for major and complex infrastructure projects. He is a Fellow of the UK Institute of Sustainability and Environmental Professionals with an MSc in Environmental Management and Assessment and has extensive experience in defining EIA scope and assessment frameworks, including consideration of project definition, future development, cumulative effects and the relationships between related projects and consent processes. Daniel has led and coordinated multidisciplinary environmental assessments for major transport and infrastructure projects in Ireland and the UK.

20.2 Assessment Methodology

Study Area

20.2.1 The Study Area and Zone of Influence are defined within each technical chapter for the purposes of the topic-specific cumulative assessments. For the identification of nearby third-party developments for consideration in this chapter, a 1 km screening area around the Dublin Airport Site has been applied. This represents a proportionate initial search area, selected using professional judgement to identify developments in the immediate vicinity of the Airport Site where there is potential for spatial and temporal overlap of environmental effects. The approach is informed by UK Planning Inspectorate guidance on cumulative effects assessment, which supports the application of project-specific screening criteria and professional judgement, and is consistent with the approach adopted for the Heathrow Expansion Project, which used a 1 km buffer to identify local developments. The 1 km distance is not a prescribed threshold or a universal Zone of Influence. Developments beyond this distance have also been considered where there is potential for cumulative effects, having regard to the topic-specific study areas and Zones of Influence defined in Chapters 6 to 19.

20.2.2 The Proposed Order comprises operational changes only and does not include any construction works. Accordingly, there is no potential for in-combination effects associated with construction activities. However, cumulative effects may arise where operational effects of the Proposed Order coincide with the effects of other existing, permitted or reasonably foreseeable developments. For example, increases in traffic associated with the Proposed Order may combine with construction traffic generated by nearby developments. Where relevant, such interactions have been considered within the topic-specific cumulative assessments.

In-Combination Assessment - Methodology

20.2.3 The assessment of In-Combination Effects considers the potential for interactions between the residual environmental effects identified across the environmental topics assessed in Chapters 6 to 19. It

examines whether effects arising from different environmental factors may interact on the same receptor or resource to give rise to additional or different environmental effects.

20.2.4 The assessment draws on the findings of the technical assessments presented in Chapters 6 to 19. Each technical assessment has identified and evaluated the residual environmental effects of the Proposed Order using the topic-specific assessment methodology described in the relevant chapter, including consideration of the magnitude of change, receptor sensitivity and, where applicable, relevant legislation, standards and recognised guidance.

20.2.5 This assessment considers all residual environmental effects identified in Chapters 6 to 19, excluding those classified as Imperceptible (see Chapter 5: Methodology). Accordingly, the assessment includes residual effects that, whilst not significant when considered individually, could interact with residual effects from other environmental topics to give rise to a likely significant in-combination effect. As the assessment considers residual effects only, it takes account of any mitigation measures incorporated within the individual topic assessments. Table 20-1 identifies the residual effects considered and indicates whether there is potential for interaction with residual effects identified for other environmental factors.

20.2.6 The cumulative effects of future climate change are assessed separately in Appendix 13-4: In-combination Climate Change Impact (ICCI) Assessment. This approach is consistent with the EPA Guidelines[3], which identify climate as an environmental factor to be assessed and require relevant interactions between environmental factors to be addressed within the EIAR. The ICCI Assessment specifically considers the interaction between the Proposed Order and projected future climate conditions, rather than interactions with other existing, approved or reasonably foreseeable developments.

Cumulative Effects Assessment - Methodology

20.2.7 The cumulative assessment considers the potential for the environmental effects of the Proposed Order to interact with the effects of other existing, permitted and reasonably foreseeable developments. It focuses on developments that do not form part of either the Current Receiving Environment or the Future Receiving Environment and which therefore require separate consideration as part of the cumulative assessment.

20.2.8 The potential for cumulative effects depends on the location, nature, scale and timing of other developments, together with the characteristics, duration and spatial extent of their environmental effects. Accordingly, the assessment considers relevant third-party developments that are existing, permitted or reasonably foreseeable and have the potential to interact with the environmental effects of the Proposed Order.

Scope of the Assessment

20.2.9 Cumulative effects are only considered where the Proposed Order has the potential to contribute to a cumulative effect. Where the Proposed Order would result in no effect, or only an imperceptible effect, on a particular environmental factor there is no credible pathway for cumulative effects to arise and therefore that topic has not been considered further within the cumulative assessment.

20.2.10 A longlist of developments with the potential to give rise to cumulative effects with the Proposed Order was prepared by Coakley O'Neill Town Planning Ltd and is presented in Appendix 20-1. The longlist was informed by a review of existing and approved developments, live planning applications and other developments identified through the planning system, together with reasonably foreseeable major schemes identified in relevant statutory plans and programmes, including the National Planning Framework: Ireland 2040[4], the Eastern Midlands Regional Spatial and Economic Strategy 2019-2031[5],

3 Environmental Protection Agency (2022), Guidelines on the Information to be Contained in Environmental Impact Assessment Reports, Section 3.3.6 (Climate) and Section 3.7.6 (Interactions Between Effects on Different Factors).
[4] Project Ireland 2040 National Planning Framework: https://www.gov.ie/en/department-of-housing-local-government-and-heritage/publications/project-ireland-2040-national-planning-framework/
[5] RSES 2019-2031 - Eastern & Midland Regional Assembly: https://www.emra.ie/rses/

the Greater Dublin Area Transport Strategy 2022-42[6], the Fingal Development Plan 2023-2029[7] and the Dublin Airport Local Area Plan 2020[8].

20.2.11 The longlist was subject to an initial screening exercise. The screening criteria were developed having regard to the requirements of the EIA Directive, the EPA Guidelines on the Information to be Contained in Environmental Impact Assessment Reports (2022) and the European Commission Guidelines for the Assessment of Indirect and Cumulative Impacts as well as Impact Interactions (1999). The criteria also reflect the nature and scale of the Proposed Order and the potential for spatial and temporal overlap between its environmental effects and those of other developments. The criteria applied were as follows:

:

- Existing, approved, under-construction, live planning applications and other reasonably foreseeable developments with the potential to give rise to cumulative effects with the Proposed Order, having regard to their location, scale, nature, timing and the spatial extent of their likely environmental effects. As an initial screening aid, particular attention was given to developments within 1 km of the Dublin Airport Site and to larger developments consented or progressed within the preceding five years; however, these parameters were not applied as absolute limits where a development outside them had the potential to interact cumulatively with the Proposed Order;
- Existing major schemes that have planning permission within the last five years or a decision to grant consent, or are under construction within 1 km of the Dublin Airport Site;
- Consented schemes that result in an increase of more than 10,000 square metres (m²) gross external area in floor area, or over 150 residential units; and
- Key regional or national infrastructure schemes, including Strategic Infrastructure Development.

20.2.12 For developments that did not meet the above criteria, a further review was undertaken to determine whether there was nevertheless a credible potential for cumulative effects with the Proposed Order. That review considered the development's location relative to the relevant topic-specific Zones of Influence, the nature and scale of the development, its anticipated construction and operational timing, and the likely environmental effects identified in the available planning documentation.

20.2.13 Developments that met one or more of the stated criteria, or for which this further review identified a credible potential for cumulative effects with the Proposed Order, were taken forward to the shortlist for cumulative assessment. Developments were screened out only where the available information did not identify a credible spatial, temporal or environmental interaction with the effects of the Proposed Order.

20.2.14 Appendix 20-1 records, for each longlisted development, whether it has been taken forward to the shortlist and the justification for that screening decision. The developments taken forward to the shortlist are subsequently assessed in Table 20-2.

20.2.15 Further information was then collated for each shortlisted development to establish its characteristics, likely environmental effects and potential to interact cumulatively with the Proposed Order. This information was obtained primarily from documentation submitted in support of planning applications available through Fingal County Council's online planning application records and An Coimisiún Pleanála's online casework records[9,10] and included details of each development's design, location, anticipated programme and likely significant environmental effects.

Impact Assessment and Significance Criteria

20.2.16 The significance of in-combination and cumulative effects has been determined using the topic-specific assessment methodologies described within the relevant technical chapters of this EIAR. These assessments have been undertaken by competent experts, who have applied professional judgement where required in accordance with relevant legislation, policy and guidance.

20.2.17 The significance of cumulative effects has been determined using the same assessment methodologies and significance criteria applied in the relevant technical chapters. Cumulative effects have only been

[6] Greater Dublin Area Transport Strategy - National Transport: https://www.nationaltransport.ie/planning-and-investment/strategic-planning/greater-dublin-area-transport-strategy/
[7] Fingal Development Plan 2023-2029 | Fingal County Council: https://www.fingal.ie/development-plan
[8] Dublin Airport Local Area Plan 2020 | Fingal County Council: https://www.fingal.ie/dublin-airport-local-area-plan-2020
[9] Planning Portal - search applications, Available at: https://planning.agileapplications.ie/fingal/search-applications/
[10] Planning Inspectorate, Available at: https://acp.planninginspectorate.gov.uk/

considered where the Proposed Order gives rise to a residual effect that is greater than imperceptible, such that there is a credible pathway for cumulative effects to occur.

20.2.18 In determining the potential for significant cumulative effects, consideration has been given, where relevant, to the nature, scale, location and timing of the shortlisted developments, together with the characteristics of their likely environmental effects and the extent to which these may overlap spatially and temporally with those arising from the Proposed Order.

Limitations and Assumptions

20.2.19 The identification of third-party schemes included within the cumulative effects assessment has been informed by the extent (level of detail and adequacy) of the information in the public domain available at the time the assessment was undertaken. The assessment therefore represents a snapshot in time, and additional developments may emerge or progress during the period in which the Proposed Order is under consideration.

20.3 Assessment of Likely Significant Effects

20.3.1 The factors experiencing greater than imperceptible effects from the Proposed Order are:

- Material Assets (Traffic and Transport)
- Air Quality
- Non-Aircraft Noise and Vibration
- Aircraft Noise and Vibration
- Land and Soils
- Water
- Biodiversity
- Climate
- Population and Human Health

20.3.2 No other factors have been classified as having greater than 'imperceptible' effects, i.e., they would not be perceptible or would not occur and are excluded from the assessment of In-Combination Effects.

In-Combination Effects

20.3.3 Table 20-1 sets out the residual effects identified and their potential for interaction with one another.

Table 20-1: Potential for In-Combination Effects

EIAR Chapter	Greater than Imperceptible Residual Effects Due to Proposed Order	Potential for In-Combination Effects with Other Receptors?
6: Material Assets (Traffic and Transport)	Yes	Air Quality, Non-Aircraft Noise
7: Air Quality	Yes	Biodiversity, Aircraft Noise, Non-aircraft Noise
8: Non-Aircraft Noise and Vibration	Yes	Aircraft Noise, Air Quality
9: Aircraft Noise and Vibration	Yes	Non-Aircraft Noise
10: Land and Soils	Yes	Water
11: Water	Yes	Land and Soils, Biodiversity
12: Biodiversity	Yes	Air Quality, Water, Aircraft Noise, Non-Aircraft Noise
13: Climate	Yes	Considered separately within Chapter 13: Climate of the EIAR (see Appendix 13-4: In-Combination Climate Change Impact Assessment)
14: Cultural Heritage	No	No
15: Landscape and Visual	No	No

EIAR Chapter	Greater than Imperceptible Residual Effects Due to Proposed Order	Potential for In-Combination Effects with Other Receptors?
16: Material Assets (Waste)	No	No
17: Material Assets (Built Services)	No	No
18: Major Accidents and Disasters	No	No
19: Population and Human Health	Yes	Material Assets (Traffic and Transport), Air Quality, Non-Aircraft Noise and Vibration, Aircraft Noise & Vibration, Climate, Landscape and Visual, Major Accidents & Disasters

20.3.4 The following factors in Table 20-1 have greater than imperceptible effects:

- Material Assets (Traffic and Transport)
- Land and soils
- Air Quality
- Water
- Biodiversity
- Population and Human Health
- Aircraft Noise and Vibration
- Climate: non-significant effect of increased greenhouse gas (GHG) emissions

20.3.5 The nature of these effects determines whether there can be an In-Combination Effect as outlined below.

Material Assets (Traffic and Transport)

20.3.6 The effects of changes in road traffic associated with the Proposed Order have been assessed in Chapter 6: Material Assets (Traffic and Transport). The Principal Assessment concludes that although the additional surface demand associated with the Proposed Order can be accommodated in the 2029 transport network, there is potential for significant adverse effects on airport bus services and general traffic in the absence of mitigation. However, with the mitigation set out in Chapter 6: Material Assets (Traffic and Transport), these effects will be reduced such that there are no significant residual effects on traffic and transport.

20.3.7 The traffic forecasts developed for the traffic assessment also inform the assessments presented in Chapter 7: Air Quality and Chapter 8: Non-Aircraft Noise, which consider the effects of changes in road traffic on operational air quality and noise respectively. The effects associated with traffic generated by the Proposed Order are therefore already incorporated within these topic-specific assessments. As such, there is no potential for additional cumulative effects arising from road traffic beyond those already assessed and reported in Chapters 7 and 8.

Air Quality

20.3.8 Chapter 7: Air Quality concludes that the operation of the Proposed Order is predicted to result predominantly in neutral to slight adverse residual effects on air quality. A limited number of receptors in proximity to the airport are predicted to experience moderate to substantial adverse impacts in relation to annual mean NO_2 concentrations. These impacts are localised and, when considered in the context of the overall assessment, are not considered to result in a significant residual air quality effect.

20.3.9 The potential for In-Combination effects with other environmental topics is limited, as the assessments undertaken for those topics do not identify additional sources or pathways that would materially alter the air quality effects assessed in Chapter 7: Air Quality. Where the findings of the air quality assessment are relevant to another environmental topic, particularly Chapter 12: Biodiversity and Chapter 19: Population and Human Health, they have been taken into account within that topic-specific assessment. The consideration of these interactions does not identify any additional or materially different environmental effects beyond those already reported. Accordingly, no significant in-combination effects associated with air quality are identified.

Aircraft Noise and Vibration

20.3.10 Chapter 9: Aircraft Noise and Vibration concludes that although the Proposed Order would result in an increase in both aircraft air noise and aircraft ground noise compared to the Permitted Operation, these changes would not give rise to significant effects at residential or non-residential receptors. This conclusion takes account of the existing noise management measures at Dublin Airport and the continuing transition towards quieter aircraft within the fleet. No significant residual effects in relation to aircraft noise or vibration are therefore identified.

20.3.11 Consideration is also given to the combined noise from air noise, ground noise and road traffic noise (Chapter 8: Non-Aircraft Noise).

20.3.12 As set out in Chapters 8: Non-Aircraft Noise and 9: Aircraft Noise and Vibration, the different noise sources have different characteristics and are assessed using source-specific methodologies and criteria. There is no established methodology or guidance for combining the resulting noise levels into a single in-combination assessment. Information is therefore provided on the relative contribution of the different noise sources to the overall noise environment at representative locations. This does not identify any additional or materially different effects from those identified in the individual noise assessments, which conclude that no significant effects would arise.

20.3.13 In addition to Chapter 8: Non-Aircraft Noise, findings from Chapter 9: Aircraft Noise have also been taken into account in other topic-specific assessments where relevant (Chapter 12: Biodiversity and Chapter 19: Population and Human Health). The consideration of these interactions does not identify any additional or materially different environmental effects beyond those already assessed. Accordingly, no significant in-combination effects on biodiversity or population and human health associated with aircraft noise are identified.

Land and Soils

20.3.14 The greater-than-imperceptible effects identified in Chapter 10: Land and Soils relate primarily to the use of natural resources, for which the magnitude of effect is assessed as minor, and the resulting effect is not significant. Slight adverse effects are also identified in relation to the potential for accidental spills and leaks. These effects are also not significant.

20.3.15 These pathways overlap with those considered in Chapter 11: Water, as both assessments consider potential effects arising from the same activities and, where relevant, the same pollutant pathways. They do not therefore represent separate or additional sources of effect that would combine to increase the overall environmental effect. On this basis, no additional significant in-combination effects between Land and Soils and Water are identified.

Water

20.3.16 The effects identified in Chapter 10: Land and Soils in relation to accidental spills and leaks arise from the same sources and pathways as those considered in Chapter 11: Water. They therefore do not represent separate effects that could combine to result in an additional environmental effect. Accordingly, no additional in-combination effects are identified.

Biodiversity

20.3.17 Chapter 12: Biodiversity concludes that residual biodiversity effects are limited to negligible effects associated with aircraft bird strike risk, minor increases in noise and visual disturbance to birds, and negligible effects associated with air quality, water and soil pollution pathways. These pathways overlap with those considered in the Air Quality, Water, Aircraft Noise and Non-Aircraft Noise assessments; however, they reflect the same underlying environmental changes rather than separate or additional sources of effect. Their potential to act individually or in combination on ecological receptors has already been considered within the biodiversity assessment, which concludes that the resulting residual effects are negligible and not significant. Accordingly, no additional significant in-combination effects with other environmental topics are identified.

Climate

20.3.18 A range of climate effects were identified in the Climate Change assessment (see Chapter 13: Climate and Appendix 13-4: In-Combination Climate Change Impact Assessment). No significant effects were identified.

Population and Human Health

20.3.19 Potential population and human health effects associated with noise and vibration have been considered in Chapter 19: Population and Human Health having regard to both absolute noise exposure and changes relative to the baseline. No locations meet the criteria for significant aircraft noise effects, while changes in road traffic noise are less than 1 dB and are not significant. Minor increases in aircraft-related noise occur in the context of a longer-term reduction in noise exposure, while non-aircraft noise remains broadly unchanged. No dwellings exceed the applicable aircraft vibration threshold of 97 dB LCSmax and no significant vibration effects are identified. On this basis, the predicted changes in noise and vibration are not expected to result in significant effects on population health, amenity or communities.

20.3.20 The Proposed Order would enable passenger throughput to increase to 40 mppa within existing and permitted airport infrastructure, resulting in increased surface access demand and associated traffic flows. Changes across the wider transport network are generally modest, typically less than 10%, and no significant transport effects are identified. The scale of these changes is therefore not expected to materially affect accessibility, community connectivity or other transport-related determinants of population and human health.

20.3.21 Increased airport activity associated with the Proposed Order, principally from increased aviation activity and associated surface access, would also result in increased greenhouse gas emissions. When contextualised against projected national emissions trajectories, the change represents a relatively small proportion of Ireland's overall emissions, typically around 1–2%. The associated population and human health effect arising through the climate change pathway is assessed as Minor Adverse and Not Significant, reflecting the low likelihood of a material effect on population health.

20.3.22 Overall, the Population and Human Health assessment takes account of the relevant environmental changes identified within the Noise and Vibration, Traffic and Transport and Climate assessments. These represent pathways through which the Proposed Order could affect population and human health rather than separate effects that would combine independently. Their combined influence has therefore been considered within the Population and Human Health assessment, and no significant in-combination effects are identified.

Conclusion

20.3.23 The effects identified across the relevant environmental factors would not interact in a manner that would give rise to significant in-combination effects.

Cumulative Effects

20.3.24 The developments taken forward to the shortlist following the screening exercise described in Section 20.2 are assessed in Table 20-2. For each shortlisted development, the assessment considers the potential for its environmental effects to interact with those of the Proposed Order, having regard to the nature, scale, location and timing of the development and the extent to which relevant effects may overlap spatially or temporally. The assessment also takes account of the findings of the relevant topic-specific assessments presented in Chapters 6 to 19.

Table 20-2: Cumulative Effects Assessment of Shortlisted Developments

Applicant	Address	Application Reg. Ref.	Description	Decision	Reason For Shortlisting	Potential for Significant Cumulative Effects?	Justification
National Transport Authority	Swords to Dublin City Centre	HA06D.317121	BusConnects Swords to City Centre Bus Corridor Scheme.	Granted	Key regional/national infrastructure schemes	No	The scheme would alter public transport provision between Swords, Dublin Airport and Dublin City Centre and may therefore be used by airport passengers. The 2029 transport network assessed in Chapter 6: Material Assets (Traffic and Transport) takes account of planned and permitted transport schemes expected to be operational by 2029. The effects of the scheme on the transport network are therefore reflected in the assessment of surface access associated with the Proposed Order. No additional significant cumulative effects are identified.
Transport Infrastructure Ireland	Estuary through Swords, Dublin Airport, Ballymun, Glasnevin and City Centre to Charlemont, Co. Dublin (Metrolink)	NA29N.314724 (SID/02/22)	Railway (Metrolink - Estuary to Charlemont via Dublin Airport) Order [2022]. Scheme involves a 19 km metro rail line from Swords to Charlemont of which 2.3 km will be tunnelled beneath Dublin Airport.	Granted	Key regional/national infrastructure schemes under construction within 1km of the Dublin Airport Site	No	Construction of Metrolink, including works associated with the airport stations and tunnel, has the potential to give rise to temporary traffic disruption, noise and air quality effects where works coincide with increasing operational activity associated with the Proposed Order. The potential interaction is principally through surface access traffic, together with localised construction noise and emissions. Chapter 6: Material Assets (Traffic and Transport) takes account of the planned 2029 transport network and identifies mitigation for the effects of the Proposed Order on surface access. Construction effects associated with Metrolink would also be subject to project-specific mitigation. Having regard to the temporary and localised nature of the construction effects and the mitigation applicable to both schemes, no significant adverse cumulative effects are predicted. Once operational, Metrolink would provide additional public transport capacity serving Dublin Airport and would not give rise to a significant adverse cumulative effect with the Proposed Order.
Frylite (Dublin) Ltd	Frylite, ABP Meat Processing Plant, Ballystrun Lane,	F23A/0721	Continued operation of Frylite's non-hazardous waste transfer and	Granted	Existing major schemes that have planning permission within the last five years or a	No	This permission relates to the continued operation of an existing waste transfer and processing facility within an established industrial area. The principal

Applicant	Address	Application Reg. Ref.	Description	Decision	Reason For Shortlisting	Potential for Significant Cumulative Effects?	Justification
	Swords, Co. Dublin, K67 K5XO		processing facility at Ballystruan Lane, Swords.		decision to grant consent, or are under construction within 1km of the Dublin Airport Site.		potential interaction with the Proposed Order is through road traffic associated with the continuing operation of the facility. As the facility is already operational, its activity forms part of the receiving environment against which changes associated with the Proposed Order are assessed. No material additional interaction with aircraft activity, airport noise or other operational effects of the Proposed Order has been identified. No significant cumulative effects are therefore predicted.
HPREF Dublin Office DevCo 1 Limited	Horizon Logistics Park, off the R108, at the townlands of Merryfalls and Silloge, St. Margaret's, Swords, Co. Dublin	FW25A/0055E	Construction of a logistics and light industrial development comprising five warehouse units, one café/retail unit, associated offices, parking, infrastructure, landscaping, and ancillary Dublin Airport Site works.	Granted	Existing major schemes that have planning permission within the last five years or a decision to grant consent, or are under construction within 1km of the Dublin Airport Site.	No	Construction of the logistics and light industrial development may give rise to temporary localised construction traffic, noise and air quality effects. Once operational, the principal potential interaction with the Proposed Order would arise through additional traffic associated with the logistics and industrial uses. These effects may overlap with changes in airport surface access associated with increasing passenger throughput. The 2029 transport network assessed in Chapter 6: Material Assets (Traffic and Transport), takes account of planned and permitted development expected to be delivered by that year, while construction-related effects would be temporary and geographically localised. Having regard to the nature, scale and duration of the potential interaction, no significant cumulative effects are predicted.
HPREF Dublin Office DevCo 1 Limited	Horizon Logistics Park, off the R108, at the townlands of Merryfalls and Silloge, St. Margaret's, Swords, Co. Dublin	FW23A/0067	Construction of Unit F1, comprising one light industrial / warehouse / logistics building of approximately 14,561 m² GFA, including ancillary welfare, reception and office space, together with a driver's canteen, parking, loading areas and associated site works.	Granted	Existing major schemes that have planning permission within the last five years or a decision to grant consent, or are under construction within 1km of the Dublin Airport Site.	No	The development comprises a warehouse and logistics unit and therefore has the potential to generate temporary construction traffic, noise and air quality effects and, once operational, logistics-related traffic. The relevant interaction with the Proposed Order is principally through the surface access network. Planned and permitted development expected to be operational by 2029 is reflected in the transport network assessed in Chapter 6: Material Assets (Traffic and Transport). Construction effects would be temporary and localised and would not combine with the

Applicant	Address	Application Reg. Ref.	Description	Decision	Reason For Shortlisting	Potential for Significant Cumulative Effects?	Justification
							operational effects of the Proposed Order to result in a significant cumulative effect.
HPREF Dublin Office DevCo 1 Limited	Horizon Logistics Park, off the R108, at the townlands of Merryfalls and Silloge, St. Margaret's, Swords, Co. Dublin	FW23A/0278	Construction of Unit G1, comprising one light industrial / warehouse / logistics building of approximately 4,203 m² GFA, including ancillary welfare and office space over two levels, together with associated parking and site works.	Granted	Existing major schemes that have planning permission within the last five years or a decision to grant consent, or are under construction within 1km of the Dublin Airport Site.	No	The development comprises a separate warehouse and logistics unit within Horizon Logistics Park. Potential cumulative effects are principally associated with temporary construction traffic, noise and air quality and with operational logistics traffic using the surrounding road network. The operational traffic effects of planned and permitted development expected to be delivered by 2029 are reflected in the network assessed in Chapter 6: Material Assets (Traffic and Transport). Any construction effects would be temporary and localised. No significant cumulative effects with the Proposed Order are therefore predicted.
HPREF Dublin Office DevCo 1 Limited	Horizon Logistics Park, off the R108, at the townlands of Merryfalls and Silloge, St. Margaret's, Swords, Co. Dublin	FW21A/0180	Construction of Unit P1, comprising one light industrial / warehouse / logistics building of approximately 6,593 m² GFA, including ancillary office and reception space over two levels, together with car, van and HGV parking, service yards, loading areas and associated infrastructure.	Granted	Existing major schemes that have planning permission within the last five years or a decision to grant consent, or are under construction within 1km of the Dublin Airport Site.	No	The permission relates to a further warehouse and logistics unit with associated access roads, servicing areas and infrastructure. Potential interaction with the Proposed Order is principally through temporary construction traffic, noise and air quality and, once operational, logistics-related road traffic. The 2029 transport assessment takes account of planned and permitted development expected to be operational by that year. The temporary and localised construction effects would not combine with the operational effects of the Proposed Order in a manner that would result in a significant cumulative effect.
daa plc	Corballis Drive, Dublin Airport, Corballis, Swords, Co. Dublin	F16A/0155/E1	Extension of duration: Dublin Airport Central the construction of 4 No. office blocks, ranging in height from 6 to 7 storeys.	Granted	Existing major schemes that have planning permission within the last five years or a decision to grant consent, or are under construction within 1km of the Dublin Airport Site.	No	Construction of the permitted office development may result in temporary localised traffic, noise and air quality effects, while its operation would generate employee and visitor trips to and from Dublin Airport Central. The principal potential cumulative interaction with the Proposed Order is therefore through the surface access network. Planned and permitted development expected to be operational by 2029 is taken into account in Chapter 6: Material Assets (Traffic and Transport). Construction-related effects would be temporary

Applicant	Address	Application Reg. Ref.	Description	Decision	Reason For Shortlisting	Potential for Significant Cumulative Effects?	Justification
							and localised. No significant cumulative effects are predicted.
daa plc	Corballis Drive, Dublin Airport, Corballis, Swords, Co. Dublin	F20A/0668	North Runway Relevant Action (NRRA) Amendment of Dublin Airport's North Runway planning conditions to allow increased night-time flight operations and introduce a noise quota system with associated noise mitigation measures.	Granted	Existing major schemes that have planning permission within the last five years or a decision to grant consent, or are under construction within 1km of the Dublin Airport Site.	No	The Principal Assessment applies the defined operational assumptions relating to the North Runway Relevant Action consistently across the 2029 Permitted Operation and 2029 Proposed Operation, as set out in the relevant assessment chapters. The same NRRA-related assumptions therefore form part of both assessment scenarios and are already incorporated into the assessment of traffic, air quality, noise, climate and population and human health effects. The NRRA does not consequently give rise to a separate additional cumulative effect with the Proposed Order.
daa plc	Corballis Drive, Dublin Airport, Corballis, Swords, Co. Dublin	PL06F.320815 (F23A/0636)	Upgrades and expansion of Dublin Airport's surface water drainage infrastructure.	Granted	Existing major schemes that have planning permission within the last five years or a decision to grant consent, or are under construction within 1km of the Dublin Airport Site.	No	Chapter 11: Water takes account of the drainage infrastructure and operational drainage strategy forming part of the future receiving environment but does not rely upon delivery of the full Airfield Drainage Project in order to accommodate the Proposed Order. If the Airfield Drainage Project is implemented, its purpose is to upgrade and improve surface water drainage infrastructure at Dublin Airport. It would therefore not be expected to give rise to an adverse cumulative water effect with the Proposed Order and may provide a beneficial effect through improved drainage and water management. No significant adverse cumulative effects are identified.
daa plc	Corballis Drive, Dublin Airport, Corballis, Swords, Co. Dublin	PL06F.322859 (F24A/0512E)	Construction of aircraft observation facility with all associated Dublin Airport Site works.	Granted	Existing major schemes that have planning permission within the last five years or a decision to grant consent, or are under construction within 1km of the Dublin Airport Site.	No	Construction of the aircraft observation facility may give rise to temporary and localised traffic, noise and air quality effects. These could coincide with operational traffic and airport activity associated with the Proposed Order, but the scale and duration of the construction effects are limited. Once operational, the observation facility would not materially alter aircraft operations or passenger throughput and no substantive operational pathway has been identified through which it would combine with the Proposed Order to produce a

Applicant	Address	Application Reg. Ref.	Description	Decision	Reason For Shortlisting	Potential for Significant Cumulative Effects?	Justification
							significant environmental effect. No significant cumulative effects are predicted.
daa plc	Two landside Dublin Airport Sites, in the townlands of Collinstown, Co. Dublin Airport, Co. Dublin	F24A/0309E	Temporary 7-year permission for the installation of electric bus charging infrastructure at Dublin Airport.	Granted	Existing major schemes that have planning permission within the last five years or a decision to grant consent, or are under construction within 1km of the Dublin Airport Site.	No	The development relates to the temporary installation of electric bus charging infrastructure at two landside locations. Construction effects would be small-scale, temporary and localised. Once operational, the infrastructure would support existing or planned bus operations rather than introduce a material new source of airport-related environmental effects. The 2029 transport assessment takes account of planned and permitted transport infrastructure expected to be operational by that year. No significant cumulative effects are identified.
daa plc	Lands within and to the east of Dublin Airport to include part of the airfield in the area of the South Apron part of the Swords Road R132 and lands to the east of the Swords Road R132 in an area known as Eastlands in the townlands of Corballis, Co.	F25A/1210E	Development of Phase 1 of Dublin Airport's cargo relocation project	Decision still due	Existing major schemes that have planning permission within the last five years or a decision to grant consent, or are under construction within 1km of the Dublin Airport Site.	No	Construction of the Cargo Relocation Project may give rise to temporary localised construction traffic, noise and air quality effects which could coincide with increasing operational activity associated with the Proposed Order. Once operational, the cargo development may also generate service and freight traffic using the surrounding road network. The principal cumulative pathway is therefore through surface access traffic, together with localised construction noise and emissions. Planned development expected to be operational by 2029 is taken into account in Chapter 6: Material Assets (Traffic and Transport), while construction effects would be temporary and subject to project-specific mitigation. No significant cumulative effects with the Proposed Order are predicted.
daa plc	Corballis Drive, Dublin Airport, Corballis, Swords, Co. Dublin	F23A/0781	The Infrastructure Application (IA): Increase in passengers' numbers per annum and various project elements.	Registered	Existing major schemes that have planning permission within the last five years or a decision to grant consent, or are under construction within 1km of the Dublin Airport Site.	No	The Infrastructure Application and the Proposed Order would not operate concurrently. Under the Dublin Airport (Passenger Capacity) Act 2026, a subsequent decision on the Infrastructure Application which amends or revokes the relevant passenger throughput conditions would supersede the Proposed Order. There is therefore no scenario in which the operational effects of the Infrastructure Application and the Proposed Order

Applicant	Address	Application Reg. Ref.	Description	Decision	Reason For Shortlisting	Potential for Significant Cumulative Effects?	Justification
							would combine, and no cumulative effect is identified.
ESB (Electricity Supply Board)	Stockhole Lane, Clonshaugh, County Dublin	F24A/0974E	Undergrounding of a section of the Grange–Collinstown 38kV electricity line.	Granted	Existing major schemes that have planning permission within the last five years or a decision to grant consent, or are under construction within 1km of the Dublin Airport Site.	No	The principal potential interaction arises during construction of the underground cable works, which may generate temporary localised traffic disruption, noise and air quality effects. These effects could overlap with operational surface access traffic associated with the Proposed Order but would be temporary and confined to the construction corridor. Once completed, the underground electricity infrastructure would generate negligible operational traffic, noise or air quality effects. No significant cumulative effects are therefore predicted.
ESB	N/A	ACP - 317831	Construction of three 110kV electricity circuits.	Decision still due	Existing major schemes that have planning permission within the last five years or a decision to grant consent, or are under construction within 1km of the Dublin Airport Site.	No	Construction of the electricity circuits may result in temporary localised traffic, noise and air quality effects along the construction route. These could interact with operational traffic associated with the Proposed Order where works affect the same parts of the road network. The construction effects would, however, be temporary and geographically localised and would be subject to project-specific construction management and mitigation. Once operational, the underground electricity infrastructure would have very limited environmental interaction with airport operations. No significant cumulative effects are predicted.
Irish Water	N/A	PA06F.312131	Greater Dublin Drainage Project consisting of a new wastewater treatment plant, sludge hub centre, orbital sewer, outfall pipeline and regional biosolids storage facility.	Granted	Key regional/national infrastructure schemes	No	The Proposed Order would result in a relatively small incremental increase in wastewater demand, as assessed in Chapter 17: Material Assets (Built Services), and does not rely upon delivery of the Greater Dublin Drainage Project. If delivered, the Greater Dublin Drainage Project would provide additional regional wastewater treatment and conveyance infrastructure and would therefore be expected to increase network capacity and resilience rather than exacerbate the effects of the Proposed Order. The cumulative operational effect would therefore be neutral to beneficial and no

Applicant	Address	Application Reg. Ref.	Description	Decision	Reason For Shortlisting	Potential for Significant Cumulative Effects?	Justification
							significant adverse cumulative effects are predicted.
Home Farm Football Club	AUL Complex, Stockhole Lane, Cloghran, Co. Dublin, K67 EH32	F23A/0465	Upgrade of two existing football pitches at the AUL Complex.	Granted	Existing major schemes that have planning permission within the last five years or a decision to grant consent, or are under construction within 1km of the Dublin Airport Site.	No	The permission relates to upgrades to two existing football pitches rather than the creation of a new major recreational destination. Construction effects would be temporary and localised. The continued recreational use of the site would not materially alter the existing amenity context or create a substantive interaction with increased aircraft activity or passenger throughput associated with the Proposed Order. No significant cumulative effects on population and human health, including amenity, are therefore predicted.
Fingleton White	From the Athletic Union League/FAI sports grounds to the Dublin Airport terminal located within the townlands, Toberbunny and Stockhole, Dublin	F22A/0682	Amendment of the approved Dublin Port to Dublin Airport fuel pipeline route.	Granted	Existing major schemes that have planning permission within the last five years or a decision to grant consent, or are under construction within 1km of the Dublin Airport Site.	No	Construction of the amended pipeline route may generate temporary and localised traffic, noise and air quality effects along the works corridor. These could overlap with operational traffic associated with the Proposed Order where construction affects roads used for airport access. The construction effects would be temporary and subject to project-specific mitigation. Once operational, the buried pipeline would generate very limited traffic, noise or air quality effects and no material operational interaction with the Proposed Order is identified. No significant cumulative effects are predicted.
EirGrid	East Meath – North Dublin Grid Upgrade	VA06F.319422	Construction of a 400 kV underground cable.	Granted	Key regional/national infrastructure schemes	No	Construction of the underground 400 kV cable may result in temporary localised traffic disruption, noise and air quality effects along the construction corridor. These could coincide with operational surface access traffic associated with the Proposed Order where the same roads are affected. The effects would be temporary, geographically limited and subject to construction management and mitigation. Once operational, the underground cable would give rise to negligible traffic, noise or air quality interaction with airport operations. No significant cumulative effects are predicted.

Applicant	Address	Application Reg. Ref.	Description	Decision	Reason For Shortlisting	Potential for Significant Cumulative Effects?	Justification
Mainscourt Solar DAC	All in or in the vicinity of the townlands of Mainscourt, Roscall, Richardstown, Gracediew, Brownstown, Magillstown, Skidoo, Dollards, Balheary, Newtown, Broadmeadow, Balheary Demesne, Seatown West, Swords Demesne, Mantua, Greenfields, Seatown East.	F22A/0365	Development of grid connection infrastructure comprising approximately 9.5 km of underground 38kV electricity cabling and associated works to connect the approved Mainscourt solar farm to the ESB Mountgorry 38kV Substation in Swords.	Granted	Key regional/national infrastructure schemes	No	Construction of the approximately 9.5 km underground grid connection may give rise to temporary traffic disruption, noise and air quality effects along the cable route. These could interact with operational traffic associated with the Proposed Order where works affect the same parts of the road network. Such effects would be temporary and localised. Once installed, the underground cable would have minimal operational interaction with the environmental effects of the Proposed Order. No significant cumulative effects are predicted.
Degaemad Developments Ltd	McComish, Fosterstown South, Cloghran, Dublin	F22A/0422	Demolition and replacement of a storage warehouse and upgrades to existing industrial buildings.	Granted	Existing major schemes that have planning permission within the last five years or a decision to grant consent, or are under construction within 1km of the Dublin Airport Site.	No	The development principally involves replacement of an existing storage warehouse and upgrades to existing industrial buildings. Potential cumulative effects are therefore principally associated with temporary construction traffic, noise and air quality and with any change in operational traffic associated with the replacement development. Construction effects would be temporary and localised, while the operational land use remains industrial in character. No significant cumulative effects with the Proposed Order are predicted.
Keelings UC	Keelings Flowers, Food Central, St Margaret's, Co. Dublin	FW23A/0031	Retention permission for amendments to the approved Keelings Flowers warehouse and office facility.	Granted	Existing major schemes that have planning permission within the last five years or a decision to grant consent, or are under construction within 1km of the Dublin Airport Site.	No	This permission primarily relates to the retention of amendments to an existing warehouse and office facility. As the retained development already forms part of the existing operational environment, there is limited potential for additional future construction effects. Ongoing traffic and activity associated with the facility form part of the wider industrial and logistics environment surrounding the airport. No material additional pathway has been identified through which the retained development would combine with the Proposed Order to result in a significant cumulative effect.
Keelings UC	Food Central, St Margaret's, Co Dublin	FW21A/0187	Construction of a warehouse and distribution facility with	Granted	Existing major schemes that have planning permission within the last five years or a	No	Construction of the warehouse and distribution facility may give rise to temporary localised construction traffic, noise and air quality effects.

Applicant	Address	Application Reg. Ref.	Description	Decision	Reason For Shortlisting	Potential for Significant Cumulative Effects?	Justification
			ancillary office and staff accommodation, parking, service yards, landscaping, and associated Dublin Airport Site development works at Food Central, St. Margaret's.		decision to grant consent, or are under construction within 1km of the Dublin Airport Site.		Once operational, the principal potential interaction with the Proposed Order would arise from distribution and employee traffic using the surrounding road network. Planned and permitted development expected to be operational by 2029 is reflected in the transport network assessed in Chapter 6: Material Assets (Traffic and Transport). Having regard to the temporary nature of construction effects and the consideration of operational traffic within the future transport network, no significant cumulative effects are predicted.
Americold Dublin RE	Food Central, Kingstown, St Margaret's, Co. Dublin	FW22A/0179	Retention and modification of a permitted food processing warehouse facility.	Granted	Existing major schemes that have planning permission within the last five years or a decision to grant consent, or are under construction within 1km of the Dublin Airport Site.	No	The permission relates to retention and modification of an existing food processing warehouse facility. Potential future construction effects associated with the modifications would be localised and temporary, while the principal operational interaction with the Proposed Order would be through service, employee and freight traffic. The facility is located within an established industrial and logistics area and its continuing operation forms part of the wider receiving environment. No significant cumulative effects with the Proposed Order are predicted.
Energia Solar Holdings Ltd.	within the townlands of Fieldstown, Clonmethan Electoral District, Co.Dublin.	VA06F.318677	110kV Air Insulated Switchgear (AIS) tail-fed substation compound, combined with a 110kV underground cable connection to Finglas	Granted	Existing major schemes that have planning permission within the last five years or a decision to grant consent, or are under construction within 1km of the Dublin Airport Site.	No	Construction of the substation and underground cable connection may result in temporary localised traffic, noise and air quality effects. These could overlap with operational surface access traffic associated with the Proposed Order if construction occurs concurrently. The construction effects would be temporary and geographically limited and would be subject to project-specific mitigation. Once operational, the electricity infrastructure would generate minimal traffic, noise or air quality effects. No significant cumulative effects are predicted.
Rohan Project Management	Dublin Airport Logistics Park, Newtown, Kilshane Cross, Co. Dublin	FW24A/0373E	Construction of a central warehouse and logistics distribution centre	Granted	Consented schemes that result in an increase of more than 10,000 m^2 gross external	No	Construction of the warehouse and logistics distribution centre may generate temporary localised traffic, noise and air quality effects. Once operational, the principal potential interaction with

Applicant	Address	Application Reg. Ref.	Description	Decision	Reason For Shortlisting	Potential for Significant Cumulative Effects?	Justification
					area (GEA) in floor area (or over 150 residential units).		the Proposed Order would be through logistics and employee traffic using the surrounding road network. Planned and permitted development expected to be operational by 2029 is reflected in the transport network assessed in Chapter 6: Material Assets (Traffic and Transport). Construction effects would be temporary and localised and operational traffic is accounted for within the future network assumptions. No significant cumulative effects are predicted.
D.A. Terminal 3 Limited	Lands within the townland of Huntstown, Swords, Co. Dublin, The subject Dublin Airport Site fronts onto the R108 to the east.	FW25A/0480E	Construction of four aviation-related cargo handling and warehousing units	Appealing	Existing major schemes that have planning permission within the last five years or a decision to grant consent, or are under construction within 1km of the Dublin Airport Site.	No	Construction of the four aviation-related cargo handling and warehousing units may generate temporary localised traffic, noise and air quality effects. Once operational, the development would generate cargo, service and employee traffic and the principal potential cumulative interaction with the Proposed Order would therefore be through the surrounding surface access network. Planned development expected to be operational by 2029 is reflected, where applicable, in the transport assessment, while any construction effects would be temporary and subject to project-specific mitigation. No significant cumulative effects with the Proposed Order are predicted.
Carlen Glass Merchants Ltd	Feltrim Quarry, Swords, Co. Dublin, K67X0Y7	F25A/0008E	The development comprises the deepening of an existing permitted mineral extraction area using conventional drilling, blasting, crushing and screening operations, together with associated stockpiling and ancillary works, followed by restoration of the site to its original ground levels	Granted	Consented schemes that result in an increase of more than 10,000 m^2 gross external area (GEA) in floor area (or over 150 residential units).	No	The proposed deepening of the existing mineral extraction area has the potential to give rise to HGV traffic, noise, vibration and dust/air quality effects associated with drilling, blasting, crushing, screening and stockpiling. These effects could coincide with increased operational activity associated with the Proposed Order, principally through road traffic and localised noise and air quality pathways. However, the quarry activities would remain confined to the existing extraction site and no direct operational interaction with Dublin Airport has been identified. Having regard to the nature and spatial extent of the potential interactions, no significant cumulative effects with the Proposed Order are predicted.

20.4 Summary

20.4.1 There is potential for in-combination effects to arise through interactions between the environmental effects of the Proposed Order. However, no significant in-combination effects have been identified. In most cases, the effects assessed within the technical chapters are either independent of one another or represent the same underlying environmental change or pathway considered in relation to different receptors. Where interactions between environmental factors have been identified, their combined influence has been considered within the relevant topic-specific assessments and has not been found to give rise to additional significant effects.

20.4.2 The assessment has also considered the potential for cumulative effects between the operational effects of the Proposed Order and the other developments identified in Appendix 20-1, which records the outcome and justification of the screening exercise. The shortlisted developments are assessed in Table 20-2. Although the Proposed Order does not involve construction works or physical development, its operational effects, including changes in surface access traffic, may coincide with construction-related traffic, noise or air quality effects from other developments. These potential interactions have been considered in the assessment of the shortlisted schemes. Taking account of their nature, scale, timing and location, and the mitigation applicable to those developments, no significant adverse cumulative effects are predicted.

20.4.3 Taking account of the nature of the Proposed Order, the effects identified within the technical assessments and the mitigation applicable to the other schemes considered, no significant adverse cumulative effects are predicted. Where cumulative operational effects arise from planned transport infrastructure, these are expected to be beneficial through improvements to public transport connectivity and sustainable access to Dublin Airport.