# Appendix 4-1: Dublin Airport Operating Scenarios

MOTT MACDONALD




# Dublin Airport Operating Scenarios

## Current State and Forecast Operating Schedules: developed in support of the Dublin Airport (Passenger Capacity) Act 2026

October 2026

daa

Version 1.2

# Revision Record and Disclaimer

*This document has been prepared for the titled project or named part thereof and should not be relied upon or used for any other project without an independent check being carried out as to its suitability and prior written authority of Mott MacDonald being obtained. Mott MacDonald accepts no responsibility or liability for the consequence of this document being used for a purpose other than the purposes for which it was commissioned. Any person using or relying on the document for such other purposes agrees, and will by such use or reliance be taken to confirm his agreement to indemnify Mott MacDonald for all loss or damage resulting therefrom.*

*Mott MacDonald accepts no responsibility or liability for this document to any other party other than the person by whom it was commissioned.*

*To the extent that this report is based on information supplied by other parties, Mott MacDonald accepts no liability for any loss or damage suffered by the client, whether contractual or tortuous, stemming from any conclusions based on data supplied by parties other than Mott MacDonald and used by Mott MacDonald in preparing this report.*

| Version | Date | Originator | Checker | Approver |
|---|---|---|---|---|
| **1.0** | 08/07/2026 | Various | NR | JC |
| **1.1** | 09/09/2026 | Various | NR | JC |
| **1.2** | 12/10/2026 | Various | NR | JC |
| **1.2.1** | 26/10/2026 | Various | NB | JC |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |

- Version 1.2 based on schedules “MM DAA Forecast Schedules 32m, 40m cases v3.1 delivery.xls”
- Version 1.2.1 includes minor text changes only from v1.2

# Abbreviations

| | |
|---|---|
| **ATM** | Air Transport Management |
| **DDFS** | Design Day Flight Schedule |
| **DUB** | Dublin Airport |
| **EIA** | Environmental Impact Assessment |
| **IAA** | Irish Aviation Authority |
| **LCC** | Low Cost Carrier |
| **mppa** | millions of passengers per annum |
| **Pax** | Passenger |

# Contents


| | Page |
|---|---|
| Executive summary | 4 |
| 1. Introduction | 9 |
| 2. Operating Schedules | 14 |
| 3. Fleet Modernisation | 23 |
| 4. Annual Traffic Outputs | 26 |

# Executive summary

## Introduction

Dublin Airport (DUB) is currently subject to a planning condition related to the development of Terminal 2 (which opened in 2010) that caps DUB's terminal passenger throughput at 32 million passengers per annum (mppa). This study is in support of an Environmental Impact Assessment Report (EIAR) being prepared in relation to the making of the Proposed Order on the direction of the Minister pursuant to the Dublin Airport (Passenger Capacity) Act 2026.

This report describes the development of operating schedules for Dublin Airport (DUB) representing the existing permitted capacity of 32 mppa, current state of operations (2025) and future operating scenarios up to 40 mppa.

These operating schedules translate the assumed operating conditions of Dublin Airport into defined datasets that can be applied consistently across the environmental assessments being undertaken as part of the Environmental Impact Assessment.

The operating schedules represent the planned operations on a representative busy day at the airport. The schedules contain full flight-by-flight details – airline, arrival/departure time, aircraft type, route (origin/destination airport), service type (scheduled passenger, charter passenger, cargo, etc), aircraft turnaround links, and assumed number of passengers. The schedules reflect the operating assumptions for each scenario – runway operating arrangements and capacity, night flying restrictions and other relevant operational parameters.

The aircraft fleet mix reflects the assumed year of the operating schedule, taking account of airline fleet modernisation based on expected aircraft retirement and deliveries.

**Operating Schedule Scenarios – Annual and Busy Day Traffic Parameters**

| Schedule | Annual Pax (m) | Annual ATMs (000s) | Busy Day ATMs (24h) | Scheduled Night Flights (2300-0700) |
|---|---|---|---|---|
| 1. Existing Permitted Capacity (2023, 32 mppa) | 32 | 239.8 | 761 | 130 |
| 2. Current State (2025, 36.4 mppa) | 36.4 | 255.6 | 798 | 115 |
| 3. Future Operating Scenario (2029, 40 mppa) | 40 | 279.0 | 884 | 148 |
| 4. Do Nothing Future State (2029, 32 mppa) | 32 | 239.8 | 761 | 130 |

# Executive summary

## Summary of Operating Schedules

The tables below summarise the scenarios and key operational assumptions adopted for the suite of operating schedules developed for this study.

**Scenarios**

| Schedule | Operational Assumptions |
|---|---|
| **Schedule 1** | Existing Permitted Capacity (2023)<br>• Based on a busy day schedule in Summer 2023, equivalent to 32 mppa<br>• North Runway operating hours 07:00–22:59<br>• Represents the permitted operational baseline |
| **Schedule 2** | Current State (2025)<br>• Based on actual busy day operations in Summer 2025, equivalent to 36.4 mppa<br>• North Runway operating hours 07:00–22:59<br>• Represents current operations in the most recent year |
| **Schedule 3** | Future Operating Scenario (2029)<br>• Growth of Schedule 1 to represent the equivalent of 40 mppa, forecast to occur in 2029<br>• Airline fleet modernisation to represent expected aircraft in service in 2029<br>• North Runway operating hours 06:00–23:59<br>• Annual Noise Quota System (NQS) system with a limit of 16,260 between the hours of 23:00-06:59<br>• Represents the future operational scenario associated with the adoption of the Proposed Order |
| **Schedule 4** | Do Nothing Future State (2029)<br>• Based on Schedule 1 with no growth, equivalent to 32 mppa<br>• Airline fleet modernisation to represent expected aircraft in service in 2029<br>• North Runway operating hours 06:00–23:59<br>• Annual Noise Quota System (NQS) system with a limit of 16,260 between the hours of 23:00-06:59<br>• Provides a constrained future comparator in the absence of the Proposed Order |

# Annual Passenger Outputs

## Impact of Operating Scenarios

This study has developed operating schedules based on the operational assumptions and scenarios described above. The table opposite compares the annualised number of passengers for each scenario with the unconstrained demand forecast provided by daa (Centreline scenario, 2026).

- **Unconstrained Forecast (Base)** – The unconstrained demand forecasts are daa forecasts developed in 2026 (issued April 2026).

  Unconstrained demand is based on the daa's Centreline growth case. Demand is expected to reach 40 mppa by 2029 and 55 mppa by 2046.

- **Do Nothing – Existing Permitted Capacity (Schedule 1) and Do Nothing Future State (Schedule 4) – 32 mppa cap**
  - Schedule 1 Existing Permitted Capacity (32 mppa, 2023) is the baseline 2023 flight schedule, representing a typical busy day (Friday) in the peak summer month (August). Although DUB handled 33.5 mppa in the 2023 calendar year, it reached 32 mppa on a 12-month rolling basis during 2023, and the Schedule 1 baseline is representative of the airport operating at 32 mppa.
  - Schedule 4 Do Nothing Future State (32 mppa, 2029) has the same number of passengers and flights as Schedule 1, representing a future 32 mppa capped scenario, but includes airline fleet modernisation based on expected aircraft retirement and deliveries by 2029. The Schedule 4 fleet is, on average, quieter and more fuel efficient than the 2023 baseline fleet.
- **Future Operating Scenario (Schedule 3) – 40 mppa**
  - Schedule 3 Future Operating Scenario (40 mppa, 2029) represents growth in the busy day schedule up to the equivalent of 40 mppa, as well as airline fleet modernisation to 2029.
  - The operating restrictions assumed are: (1) an annual Night Quota System with 16,260 noise points and (2) the single runway operations 00:00-05:59 – based on ANCA Regulatory Decision (Ref F20A/0668, 22 June 2022)
  - With these operating restrictions, our modelling indicates that DUB is able to grow in line with the unconstrained demand forecast up to 40 mppa in 2029.

**Annual Passengers (millions)**

| Scenarios | Unconstrained Forecast | Do Nothing Future State 32 mppa (Schedules 1 and 4) | Future Operating Scenario 40 mppa (Schedule 3) |
|---|---|---|---|
| 2015 | 25.0 | | |
| 2016 | 27.9 | | |
| 2017 | 29.6 | | |
| 2018 | 31.5 | | |
| 2019 | 32.9 | 32.9 | 32.9 |
| 2020 | 7.4 | 7.4 | 7.4 |
| 2021 | 8.5 | 8.5 | 8.5 |
| 2022 | 28.1 | 28.1 | 28.1 |
| 2023 | 33.5 | **32** | 33.5 |
| 2024 | 34.6 | 32 | 34.6 |
| 2025 | 36.4 | 32 | 36.4 |
| 2026 | 37.5 | 32 | 37.5 |
| 2027 | 38.6 | 32 | 38.6 |
| 2028 | 39.6 | 32 | 39.6 |
| 2029 | 40.5 | 32 | **40** |
| 2030 | 41.5 | 32 | 40 |
| 2031 | 42.3 | 32 | 40 |
| 2032 | 43.8 | 32 | 40 |
| 2033 | 45.0 | 32 | 40 |
| 2034 | 46.2 | 32 | 40 |
| 2035 | 47.1 | 32 | 40 |
| 2036 | 47.9 | 32 | 40 |
| 2037 | 48.7 | 32 | 40 |
| 2038 | 49.4 | 32 | 40 |
| 2039 | 50.1 | 32 | 40 |
| 2040 | 50.9 | 32 | 40 |
| 2041 | 51.6 | 32 | 40 |
| 2042 | 52.3 | 32 | 40 |
| 2043 | 53.0 | 32 | 40 |
| 2044 | 53.7 | 32 | 40 |
| 2045 | 54.4 | 32 | 40 |
| 2046 | 55.1 | 32 | 40 |

*Source: Mott MacDonald analysis, based on daa* Centreline *forecast scenario (2026)*

# Annual Air Transport Movement Outputs

## Impact of Operating Scenarios

The table opposite summarises the impacts on annual air transport movements (ATMs), equivalent to the annual passenger impacts discussed above.

- **Unconstrained Forecast (Base)** – The unconstrained demand forecasts are daa forecasts developed in 2026 (issued April 2026).

  Unconstrained demand is based on the daa's Centreline growth case. Demand is expected to reach 279,000 ATMs by 2029 (equivalent to 40 mppa) and around 379,000 ATMs by 2046 (equivalent to 55 mppa).

- **Do Nothing – Existing Permitted Capacity (Schedule 1) and Do Nothing Future State (Schedule 4) – 32 mppa cap**
  - The Existing Permitted Capacity (Schedule 1, 2023 baseline) and Do Nothing Future State (Schedule 4, 2029) are constrained at about 239,800 annual ATMs, equivalent to 32 mppa.
  - The Do Nothing Future State (Schedule 4) incorporates airline fleet modernisation to 2029.

- **Future Operating Scenario (Schedule 3) – 40 mppa**
  - Schedule 3 Future Operating Scenario (40 mppa, 2029) is constrained at about 279,000 annual ATMs by 2029, equivalent to 40 mppa, and incorporates airline fleet modernisation to 2029.

**Annual Air Transport Movements (thousands)**

| Scenarios | Unconstrained Forecast | Do Nothing Future State 32 mppa (Schedules 1 and 4) | Future Operating Scenario 40 mppa (Schedule 3) |
|---|---|---|---|
| 2015 | 198 | | |
| 2016 | 215 | | |
| 2017 | 223 | | |
| 2018 | 233 | | |
| 2019 | 239 | 239 | 239 |
| 2020 | 93 | 93 | 93 |
| 2021 | 133 | 133 | 133 |
| 2022 | 212 | 212 | 212 |
| 2023 | 242 | **240** | 242 |
| 2024 | 245 | 240 | 245 |
| 2025 | 256 | 240 | 256 |
| 2026 | 261 | 240 | 261 |
| 2027 | 264 | 240 | 264 |
| 2028 | 272 | 240 | 272 |
| 2029 | 279 | 240 | **279** |
| 2030 | 285 | 240 | 279 |
| 2031 | 291 | 240 | 279 |
| 2032 | 301 | 240 | 279 |
| 2033 | 310 | 240 | 279 |
| 2034 | 317 | 240 | 279 |
| 2035 | 324 | 240 | 279 |
| 2036 | 329 | 240 | 279 |
| 2037 | 335 | 240 | 279 |
| 2038 | 340 | 240 | 279 |
| 2039 | 345 | 240 | 279 |
| 2040 | 350 | 240 | 279 |
| 2041 | 355 | 240 | 279 |
| 2042 | 360 | 240 | 279 |
| 2043 | 365 | 240 | 279 |
| 2044 | 369 | 240 | 279 |
| 2045 | 374 | 240 | 279 |
| 2046 | 379 | 240 | 279 |

*Source: Mott MacDonald analysis, based on daa* Centreline *forecast scenario (2026)*

# Introduction


Executive summary

1. Introduction
2. Operating Schedules
3. Fleet Modernisation
4. Annual Traffic Outputs

# Introduction

## Introduction

Dublin Airport (DUB) is currently subject to a planning condition related to the development of Terminal 2 (which opened in 2010) that caps DUB's terminal passenger throughput at 32 million passengers per annum (mppa). This study is in support of an Environmental Impact Assessment Report (EIAR) being prepared in relation to the making of the Proposed Order on the direction of the Minister pursuant to the Dublin Airport (Passenger Capacity) Act 2026.

This report describes the development of operating schedules for Dublin Airport (DUB) representing the existing permitted capacity of 32 mppa, current state of operations (2025) and future operating scenarios up to 40 mppa.

These operating schedules translate the assumed operating conditions of Dublin Airport into defined datasets that can be applied consistently across the environmental assessments being undertaken as part of the Environmental Impact Assessment.

The operating schedules represent the planned operations on a representative busy day at the airport. The schedules contain full flight-by-flight details – airline, arrival/departure time, aircraft type, route (origin/destination airport), service type (scheduled passenger, charter passenger, cargo, etc), aircraft turnaround links, and assumed number of passengers. The schedules reflect the operating assumptions for each scenario – runway operating arrangements and capacity, night flying restrictions and other relevant operational parameters.

The aircraft fleet mix reflects the assumed year of the operating schedule, taking account of airline fleet modernisation based on expected aircraft retirement and deliveries.

*Dublin Airport Terminal 2*




*New North Runway Layout*



*Source: daa*

# Introduction

## Irish National Aviation Policy

The Department of Transport, Tourism and Sport published a National Aviation Policy (NAP) for Ireland in August 2015. The goals of the NAP are:

- to enhance Ireland's connectivity by ensuring safe, secure and competitive access responsive to the needs of business, tourism and consumers;
- to foster the growth of aviation enterprise in Ireland to support job creation and position Ireland as a recognised global leader in aviation; and
- to maximise the contribution of the aviation sector to Ireland's economic growth and development.



The NAP identified the opportunity to develop Dublin Airport as a secondary hub, competing effectively with the UK and other European airports for the expanding global aviation services market. This is seen as an important means of maximising air access for the Irish economy. The NAP also identified importance of ensuring that Dublin Airport has sufficient capacity, including a second, parallel runway, to facilitate its development as a hub.

The commitments of the NAP include:

- Creating conditions to encourage the development of new routes and services, particularly to new and emerging markets;
- Ensuring a high level of competition among airlines operating in the Irish market;
- Optimising the operation of the Irish airport network to ensure maximum connectivity to the rest of the world;
- Ensuring that the regulatory framework for aviation reflects best international practice and that economic regulation facilitates continued investment in aviation infrastructure at Irish airports to support traffic growth

The proposed night restrictions at DUB run counter to these policy objectives in that they limit growth at the airport, reduce potential new routes and services (especially to emerging markets), and do not serve to maximise connectivity.

# Traffic Mix

## Passenger Traffic

The Dublin schedule is mainly made up of short haul services to the UK and other parts of Europe (87% of flights), operated primarily by the based-carriers: Ryanair, Aer Lingus, and Emerald Airlines. Together these carriers make up 76% of operations.

Long-haul operations accounted for approximately 17% of total seat capacity offered out of DUB, primarily on Transatlantic routes and the Middle East.

## Cargo Flights

Cargo flights represent about 3% of movements at DUB, mainly operated by package integrators such as DHL, FedEx and UPS.

## Aer Lingus

In 2025, Aer Lingus' short-haul fleet consisted of 34 Airbus A320/A320neo aircraft. Its long-haul fleet consisted of 13 Airbus A330s and 11 Airbus A321LR/XLRs(1). Aer Lingus operates a hybrid business model, blending aspects of full service and low cost carrier strategies. In particular, it seeks to maximise aircraft utilisation from its DUB based fleet.

Aer Lingus has been growing its transatlantic services and developing DUB as a gateway Transatlantic-European hub.

## Ryanair

Ryanair operated 36 DUB-based aircraft in Summer 2025 out of a group-wide fleet of 618 aircraft(2). Of these 618 aircraft, 181 (29%) are B737 Max 8200s (out of a total order of 210 aircraft). Ryanair also has an order and options for 300 B737 Max-10 aircraft with planned deliveries in the 2027 to 2034 period.

In additional to DUB-based flying, Ryanair also serves DUB from its other European bases, with away-based flights representing about 25% of its DUB operations. Ryanair operates from 93 bases throughout Europe and serves 233 airports. DUB is its second largest base after London Stansted. The Ryanair LCC business model is built on achieving high aircraft utilisation, with long operating days and quick aircraft turnarounds.

**Market share & capacity summary table by main DUB carrier**

| Airline | ATMs | Seats | Seats/ATM |
|---|---|---|---|
| Ryanair | 40% | 43% | 192 |
| Aer Lingus | 26% | 28% | 194 |
| Emerald Airlines | 10% | 4% | 72 |
| British Airways | 2% | 2% | 150 |
| Lufthansa | 2% | 2% | 180 |
| KLM | 2% | 1% | 134 |
| Others | 19% | 21% | 199 |
| Total | 100% | 100% | 180 |

**Market share & capacity summary table by main DUB market segment**

| Airline | ATMs | Seats | Seats/ATM |
|---|---|---|---|
| 1. UK London | 10% | 10% | 179 |
| 2. UK Provincial | 21% | 16% | 135 |
| 3. Eastern Europe | 6% | 6% | 190 |
| 4. Western Europe | 25% | 24% | 177 |
| 5. Southern Europe | 24% | 25% | 188 |
| 6. North America | 11% | 14% | 240 |
| 7. Other Regions | 2% | 3% | 291 |
| 8. Domestic | 1% | 1% | 130 |
| Total | 100% | 100% | 180 |

*Source: Mott MacDonald analysis of Schedule 2 Current State (2025)*

*(1) CAPA Fleet Database as at 28 August 2025*
*(2) Ryanair Investors' presentation (July 2025) (https://investor.ryanair.com/wp-content/uploads/2025/07/Q1-FY26-Ryanair-Presentation.pdf)*

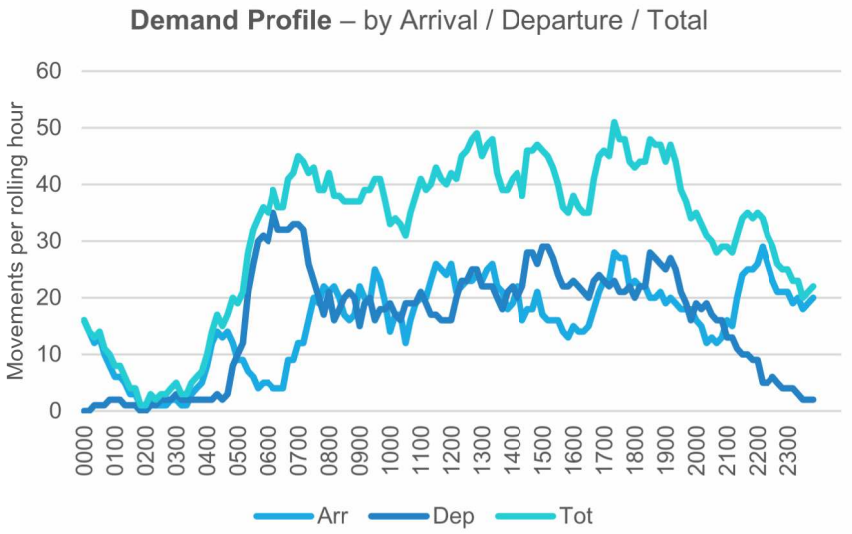
# Patterns of Demand

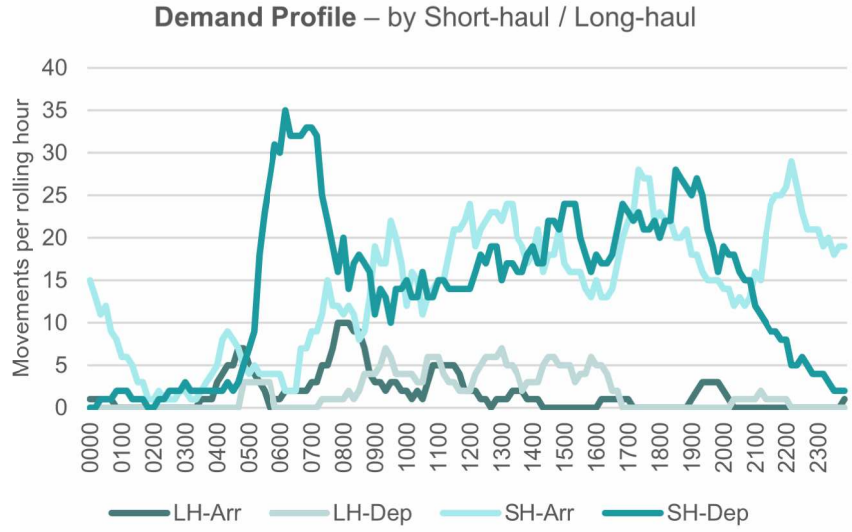
## Patterns of Demand

- The schedule structure at DUB reflects the business models of both Aer Lingus and Ryanair, with a high proportion of DUB based aircraft operating high utilisation short haul services.
- There is a sharp departures peak in the 06:00 hour and an arrivals peak around 22:00 and 23:00 hours associated with the first departures and last arrivals of DUB based aircraft.
- Long-haul arrivals are concentrated in the morning period, with an early peak in the 05:00 hour and a broader peak around 08:00. Departures are spread from the mid-morning to early afternoon. This pattern of demand is typical of transatlantic services, where evening departures from North America fly overnight to arrive in DUB in the morning. Arrival times in DUB tend to be earlier than at other European airports due to Ireland's close proximity to North America and its time zone being 1h earlier than Central European Time.
- Between 01:30 and 04:30 there are few regularly scheduled flights – only a small number of freighter flights and some ad hoc passenger charter flights.

## Flight Connections

- Development of DUB as a transatlantic hub requires efficient flight connections. The early morning long haul arrivals connect with a large number of first-wave short haul departures operated by DUB based aircraft. These short haul aircraft return to DUB from around 09:00 and connect with the transatlantic departures, departing between 10:00 and 17:00.
- Maintaining this hub connectivity requires early morning transatlantic arrivals from 05:00 local time to facilitate Eastbound connections with short haul services departing from around 06:00. Early first-wave short haul departures are required to ensure that the returning inbound arriving flight can provide Westbound connections with the long-haul departures in the mid to late morning.




*Source: Mott MacDonald analysis; based on Schedule 1 Existing Permitted Capacity (2023)*

# Operating Schedules


Executive summary

1. Introduction
2. Operating Schedules
3. Fleet Modernisation
4. Annual Traffic Outputs

# Methodology

## Annual Forecasts

Unconstrained forecast of annual passenger demand and air transport movements (ATMs) were provided to Mott MacDonald by daa (reference DUB-FC-04-2026, issued April 2026). These forecasts expect that the 40 mppa traffic level will be reached in 2029.

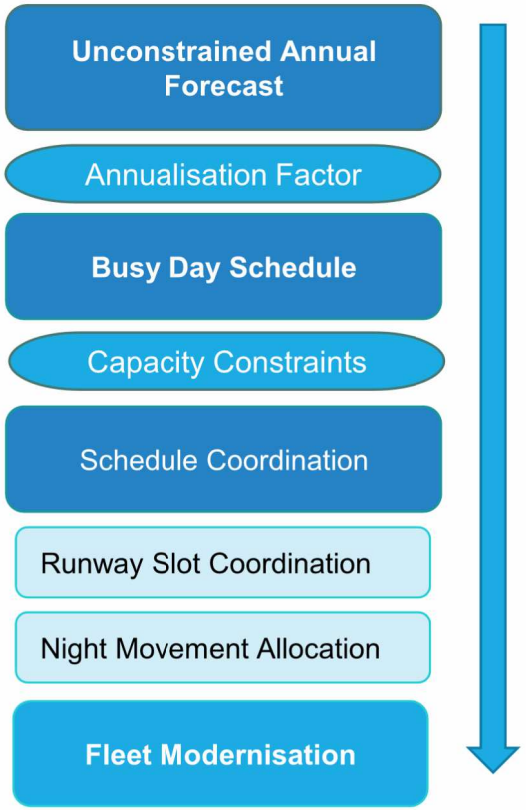
## Busy Day Operating Schedules - Baseline

The baseline schedule is derived from operational data for the busy day in DUB in 2023, including schedules, fleet mix, route structures and overall activity. While recorded passenger throughput for the 2023 calendar year reached approximately 33.5 mppa, the underlying busy day schedule reflects a level of activity broadly consistent with the airport operating at circa 32 mppa(1).

## Annualisation Factor

The busy day schedule is related to annual traffic by the annual-to-busy-day ratio (or *annualisation factor*). The annualisation factor is a function of the seasonality of traffic at the airport. It is typically taken as an average over a number of recent years of activity, excluding abnormal years such as the COVID-19 period.

The table below summarises the annual traffic, busy day number of flights (24h and during the night period), and the annualisation factors for each scenario schedule.




**Operating Schedule Scenarios – Annual and Busy Day Traffic Parameters**

| Schedule | Annual Pax (m) | Annual ATMs (000s) | Busy Day ATMs (24h) | Scheduled Night Flights (2300-0700) | Busy Day Annualisation Factor | Night Annualisation Factor (2300-0700) |
|---|---|---|---|---|---|---|
| 1. Existing Permitted Capacity (2023, 32 mppa) | 32 | 239.8 | 761 | 130 | 315 | 253 |
| 2. Current State (2025, 36.4 mppa) | 36.4 | 255.6 | 798 | 115 | 320 | 253 |
| 3. Future Operating Scenario (2029, 40 mppa) | 40 | 279.0 | 884 | 148 | 315 | 253 |
| 4. Do Nothing Future State (2029, 32 mppa) | 32 | 239.8 | 761 | 130 | 315 | 253 |

(1) The operating schedules for this study build upon the forecasting work previously undertaken for the Infrastructure Application (IA), which adopted a baseline year of 2023.

# Methodology

## Future Operating Scenario Schedules

The Future Operating Scenarios schedules add flights to the 2023 baseline busy day, equivalent to growth from 32 mppa to 40 mppa (+25%) by 2029.

Between 2023 and 2029, average passengers per ATM is forecast to grow from 133.4 to 143.4 (+7.4%) due mainly to airline fleet changes. This means that the +25% passenger growth to 40 mppa is equivalent to +16% ATM growth between 2023 and 2029. Therefore, the 2023 baseline operating schedule with 761 ATMs on the busy day is grown to 884 ATMs (+16%) by 2029.

The additional flights are added to the schedule in line with market demand by world region, shared proportionately by airline (between the main DUB-based carriers and other airlines). The timings of flights are based on commercially and operationally feasible timings, dependent on the airline and route, taking account of airline operating patterns and aircraft utilisation.

Scheduled night flights grow slightly more slowly than total ATMs – from 130 in 2023 to 148 in 2029 (+14%).

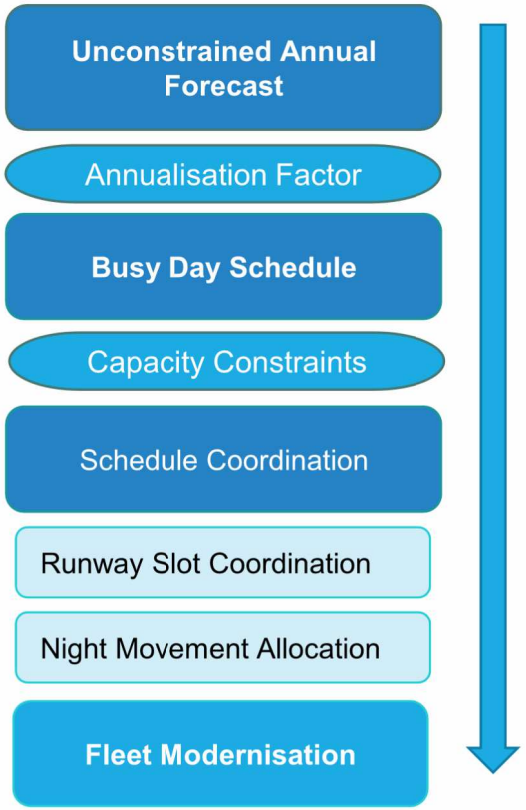
## Schedule Coordination

The timing of flights are adjusted to fit within assumed runway capacities for 2029 in a process which simulates the seasonal slot allocation process administered by DUB's slot coordinator(1). These runway capacities depend on the operational hours of the North Runway.

For night flying, the 2029 demand for 148 busy day night flights can be accommodated in Future Operating Scenarios with an Annual Noise Quota System (NQS) with a limit of 16,260 noise points (based on previous analysis undertaken for the Infrastructure Application).

## Fleet Modernisation

The aircraft types used for future-year operating schedules is based on modelling of airline current (baseline) fleets, aircraft retirements and expected aircraft deliveries. See Section 3 – Fleet Modernisation for details.




(1) The IAA has appointed Airport Coordination Limited (ACL) as the slot coordinator for DUB. ACL allocates slot in accordance with the airport's declared operational capacities and with the EU Slot Regulation No. 95/93

# Night Movement Demand (23:00 – 06:59 period)

## Current Night Movements

In Schedule 1 Existing Permitted Capacity, representing 32 mppa in 2023, there were 130 regularly scheduled flights during the 23:00-06:59 night period on the busy day. This decreased to 115 in Schedule 2 Current State (2025), principally because Ethiopian Airlines ceased its transatlantic technical stop flights(1) at DUB and there were fewer night cargo flights than in 2023.

Short-haul scheduled services make up the bulk of DUB night flights, with pre-07:00 departures and arrivals after 23:00. There are also some long-haul early morning arrivals (before 07:00).

The night cargo operations are primarily flights operated by package integrators such as DHL, FedEx and UPS to their main sortation hubs. These operations are very time-critical in order to connect at these hubs and to achieve an overnight package delivery service.

## Future Night Movement Demand

In the 40 mppa Future Operating Scenario Schedule 3, night flight demand is forecast at 148 night flights on the busy day, with night movements increasing in proportion to overall ATMs growth at DUB compared with the 32 mppa baseline.

The 32 mppa future Schedule 4 has the same night movements as the 2023 baseline Schedule 1 (130/night).

**DUB Night Movement Demand** – 23:00-06:59
(based on busy day operating schedules)

| Schedule | Pax | Cargo | Other | Total |
|---|---|---|---|---|
| 1. Existing Permitted Capacity (2023, 32 mppa) | 96 | 25 | 9 | 130 |
| 2. Current State (2025, 36.4 mppa) | 99 | 15 | 1 | 115 |
| 3. Future Operating Scenario (2029, 40 mppa) | 114 | 25 | 9 | 148 |
| 4. Do Nothing Future State (2029, 32 mppa) | 96 | 25 | 9 | 130 |

*Source: Mott MacDonald analysis; daa schedule data*

## Night Slot Periods

The flight timings in the operating schedules are based on the on/off block times (ie, the times that the aircraft is schedule to arrive or depart from the gate). Night movements are defined based on the landing and takeoff times (ie, runway times).

Therefore, for a 23:00-06:59 night period, taking account of taxi times and a buffer for delayed flights, scheduled night flights are defined as flights with arrival and departure times in the following bands:

- Arrivals 22:45 to 07:10 on blocks time (inclusive)
- Departures 22:30 to 06:45 off blocks time (inclusive)

(1) A “technical stop” is a flight that stops at the airport for refuelling purposes only, without embarking or disembarking passengers

# Drivers of Night Movement Demand

There are a number of reasons why airlines need to schedule services during the 23:00-06:59 night period:

### *Aircraft Utilisation*

- A key driver of airline cost efficiency and competiveness is the ability to achieve high levels of utilisation of their aircraft assets. The chart below illustrates the lines-of-flying (flights throughout the day) for representative DUB based aircraft.
- If airlines were restricted to a 16h operating day (07:00-23:00) then the necessary level of utilisation would not be achievable, impacting on the economic viability of aircraft based at DUB. Ryanair, for example, has operating bases at a number of airports and if it could not operate profitably at DUB then it would likely choose to base more of its aircraft at other airports.
- In this case, the traffic lost is not just the night period flights but also the daytime flights that the based aircraft would have operated throughout the day.
- If high aircraft utilisation cannot be achieved due to the reduced operating day resulting from the night restrictions, then the consequence is also likely to be higher fares for passengers on remaining services.

### *Time Zone Differences and Geographical location*

- The 1h time difference between Ireland and mainland Europe means that flights need to leave early (before 07:00) to arrive in time for business passengers to have full working day at their destination.
- The geographical position of DUB means that there are longer sector distances to many European destinations than from other competing hub airports. This means that DUB requires longer operating days than competing European hubs. Similarly, DUB's proximity to North America compared to the rest of Europe means that transatlantic flights arrive earlier in DUB than at other European airports.

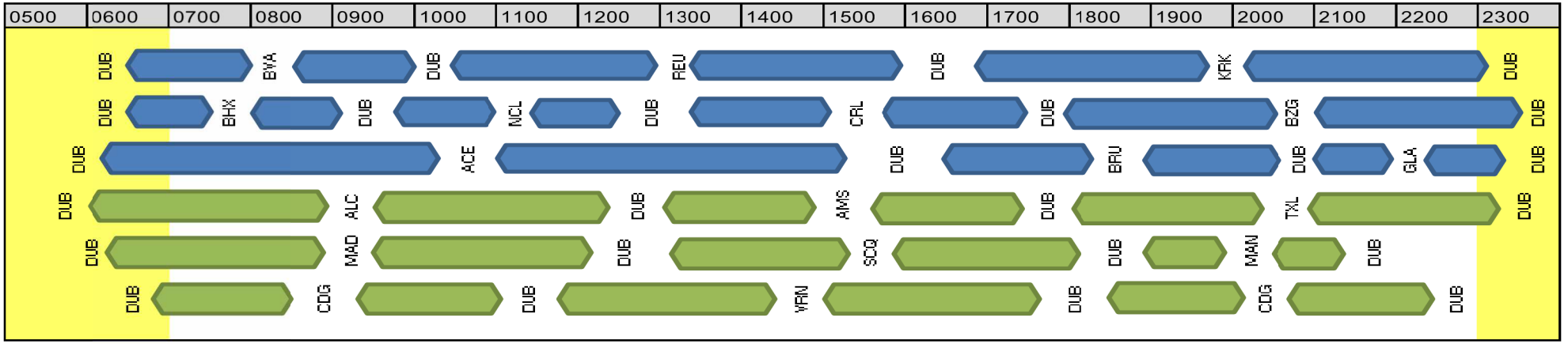
### *Hub Connections*

- The DUB hub connecting model is predicated on early morning long-haul arrivals and early short haul departures able to return to connect with the long-haul departures. Without this connecting traffic, the Irish point-to-point market would be too small on its own to support many transatlantic services.

### *Punctuality and Resilience*

- If aircraft lines-of-flying are squeezed into a shorter operating day there will be less flexibility in the schedule to cope with delays and disruption.

**Illustration of Airline Airrcaft Utilisation**



# Capacity Constraints

## Runway Capacities

The operating schedules are built to comply with DUB's runway operating limits, which depend on the hours of operation of the North Runway.

The baseline schedules Schedule 1 (2023) and Schedule 2 (2025) use the actual flight timings allocated by the DUB slot coordinator, compliant with the declared capacities for Summer 2023 and 2025 respectively. Schedule 4 Do Nothing Future State, capped at 32 mppa, has the same flights and flight timings as the 2023 baseline (Schedule 1).

The Future Operating Scenarios, equivalent to 40 mppa in 2029, assume the future runway capacities shown in the tables opposite. These capacities are benchmarked against the Summer 2026 limits declared by the IAA(1).

The North Runway operating hour assumptions are as follows:

- Schedule 1 Existing Permitted Capacity (2023, 32 mppa) 07:00-22:59
- Schedule 2 Current State (2025, 36.4 mppa) 07:00-22:59
- Schedule 3 Future Operating Scenario (2029, 40 mppa) 06:00-23:59
- Schedule 4 Do Nothing Future State (2029, 32 mppa) 07:00-22:59

## Hourly Runway Capacity Assumptions

**North Runway Operating 06:00-23:59**

| Hours | Arr | Dep | Tot |
|---|---|---|---|
| 00:00-05:59 | 23 | 25 | 32 |
| 06:00 | 22 | 41 | 54 |
| 07:00 | 22 | 36 | 54 |
| 08:00 | 28 | 29 | 54 |
| 09:00 | 28 | 29 | 54 |
| 10:00 | 28 | 29 | 54 |
| 11:00 | 28 | 29 | 54 |
| 12:00 | 30 | 30 | 57 |
| 13:00 | 30 | 30 | 57 |
| 14:00 | 28 | 29 | 54 |
| 15:00 | 23 | 33 | 54 |
| 16:00 | 28 | 29 | 54 |
| 17:00 | 28 | 29 | 54 |
| 18:00 | 28 | 29 | 54 |
| 19:00 | 28 | 29 | 54 |
| 20:00 | 28 | 29 | 54 |
| 21:00 | 28 | 29 | 54 |
| 22:00 | 28 | 29 | 54 |
| 23:00 | 28 | 29 | 54 |

**North Runway Operating 07:00-22:59**

| Hours | Arr | Dep | Tot |
|---|---|---|---|
| 00:00-05:59 | 23 | 25 | 32 |
| 06:00 | 23 | 36 | 40 |
| 07:00 | 22 | 36 | 54 |
| 08:00 | 28 | 29 | 54 |
| 09:00 | 28 | 29 | 54 |
| 10:00 | 28 | 29 | 54 |
| 11:00 | 28 | 29 | 54 |
| 12:00 | 30 | 30 | 57 |
| 13:00 | 30 | 30 | 57 |
| 14:00 | 28 | 29 | 54 |
| 15:00 | 23 | 33 | 54 |
| 16:00 | 28 | 29 | 54 |
| 17:00 | 28 | 29 | 54 |
| 18:00 | 28 | 29 | 54 |
| 19:00 | 28 | 29 | 54 |
| 20:00 | 28 | 29 | 54 |
| 21:00 | 28 | 29 | 54 |
| 22:00 | 28 | 29 | 54 |
| 23:00 | 28 | 25 | 32 |

Single runway hours

## 10-minute Limits

| Hours | Arr | Dep | Tot |
|---|---|---|---|
| Single runway hours | 6 | 6* | 9 |
| Dual runway hours | 6 | 7 | 13 |

(*) 7 departures per 10-minutes during the 06:00 hour

(1) S26-final-parameters.pdf (https://www.iaa.ie/docs/default-source/1c-economic-regulation/s26-final-parameters.pdf?sfvrsn=98324345_1)

# Schedule Scenarios

## Summary of Operating Schedules

The tables below summarise the scenarios and key operational assumptions adopted for the suite of operating schedules developed for this study.

**Scenarios**

| Schedule | Operational Assumptions |
|---|---|
| **Schedule 1** | Existing Permitted Capacity (2023)<br>• Based on a busy day schedule in Summer 2023, equivalent to 32 mppa<br>• North Runway operating hours 07:00–22:59<br>• Represents the permitted operational baseline |
| **Schedule 2** | Current State (2025)<br>• Based on actual busy day operations in Summer 2025, equivalent to 36.4 mppa<br>• North Runway operating hours 07:00–22:59<br>• Represents current operations in the most recent year |
| **Schedule 3** | Future Operating Scenario (2029)<br>• Growth of Schedule 1 to represent the equivalent of 40 mppa, forecast to occur in 2029<br>• Airline fleet modernisation to represent expected aircraft in service in 2029<br>• North Runway operating hours 06:00–23:59<br>• Annual Noise Quota System (NQS) system with a limit of 16,260 between the hours of 23:00-06:59<br>• Represents the future operational scenario associated with the Proposed Order |
| **Schedule 4** | Do Nothing Future State (2029)<br>• Based on Schedule 1 with no growth, equivalent to 32 mppa<br>• Airline fleet modernisation to represent expected aircraft in service in 2029<br>• North Runway operating hours 06:00–23:59<br>• Annual Noise Quota System (NQS) system with a limit of 16,260 between the hours of 23:00-06:59<br>• Provides a constrained future comparator in the absence of the Proposed Order |

# Schedule Scenarios

### Schedule 1 Existing Permitted Capacity (2023, 32 mppa)

- Based on a busy day schedule in Summer 2023, equivalent to 32 mppa
- North Runway operating hours 07:00–22:59
- Represents the permitted operational baseline

► The baseline 2023 schedule structure at DUB reflects the business models of both Aer Lingus and Ryanair, with a high proportion of DUB based aircraft operating high utilisation short haul services.

► There is a sharp departures peak in the 06:00 hour and an arrivals peak around 22:00 and 23:00 hours associated with the first departures and last arrivals of DUB based aircraft.

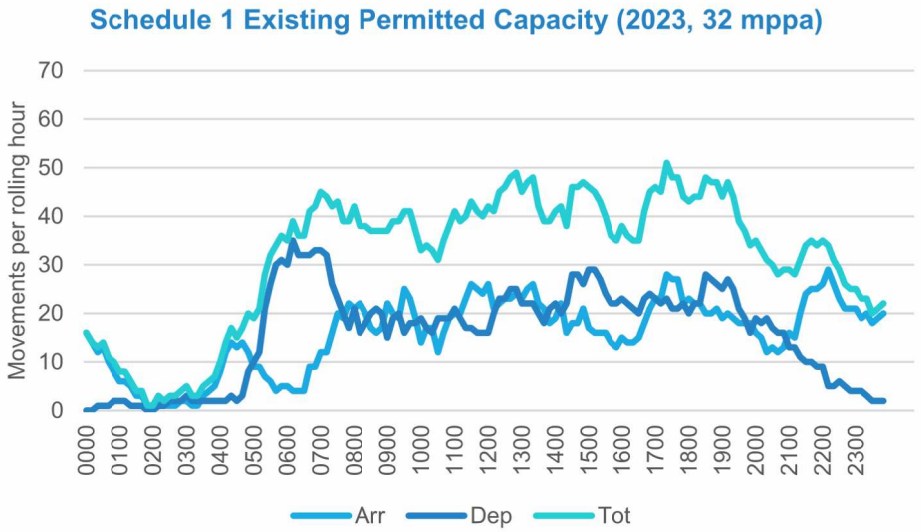
► 2023 was the first full year of North Runway operations at DUB.

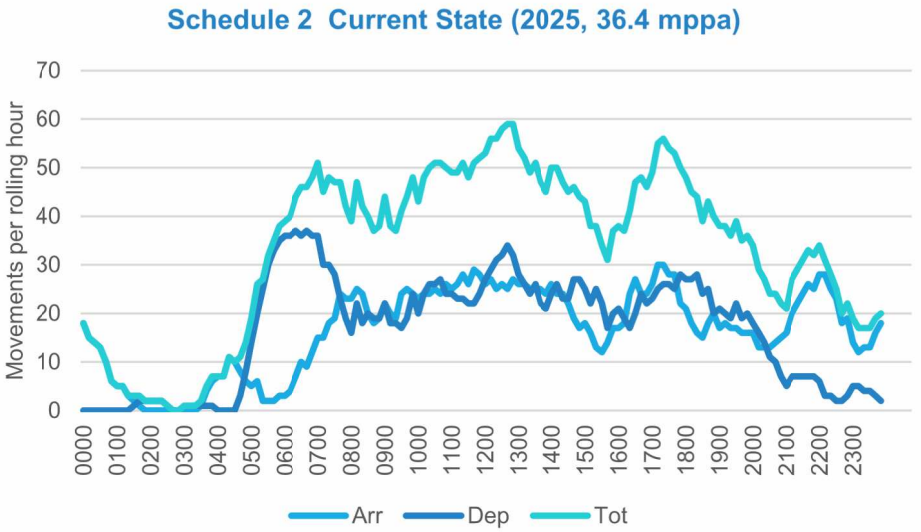
### Schedule 2 Current State (2025, 36.4 mppa)

- Based on actual busy day operations in Summer 2025, equivalent to 36.4 mppa
- North Runway operating hours 07:00–22:59
- Represents current operations in the most recent year

► The 2025 busy day schedule has 5% more ATMs than 2023 and a similar overall structure with a departures peak in the 06:00 hour and an arrivals peak around 22:00 and 23:00 hours associated with the first departures and last arrivals of DUB based aircraft.

► The 2025 schedule has a sharper midday peak than seen in 2023.



# Schedule Scenarios

### Schedule 3 Future Operating Scenario (2029, 40 mppa)

- Growth of Schedule 1 to represent the equivalent of 40 mppa, forecast to occur in 2029
- Airline fleet modernisation to represent expected aircraft in service in 2029
- North Runway operating hours 06:00–23:59
- Annual Noise Quota System (NQS) system with a limit of 16,260 between the hours of 23:00-06:59
- Represents the future operational scenario associated with the Proposed Order

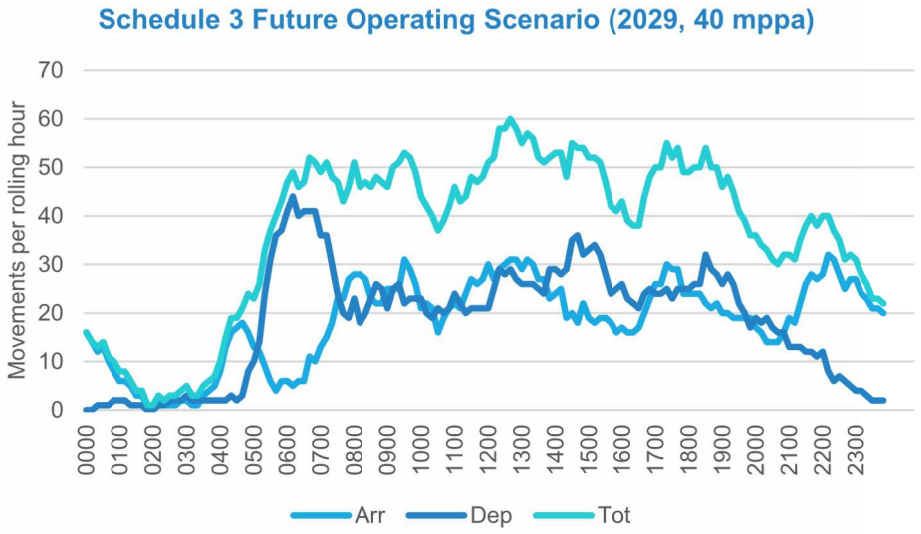
► The 2029 forecast busy day schedule has 16% more ATMs than the 2023 baseline, but a similar overall structure with a departures peak in the 06:00 hour and an arrivals peak around 22:00 and 23:00 hours associated with the first departures and last arrivals of DUB based aircraft.

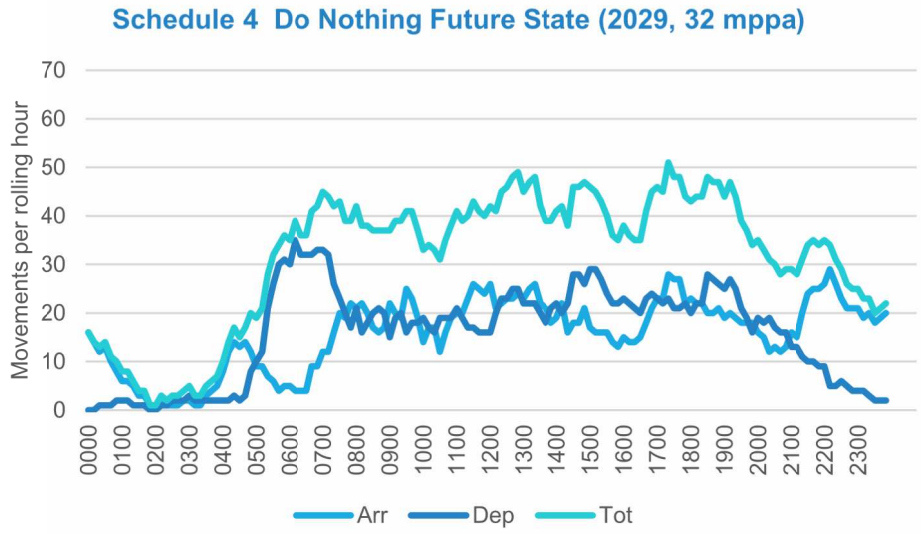
► The peak in total movements occurs around midday, as seen in the 2025 actual schedule.

### Schedule 4 Do Nothing Future State (2029, 32 mppa)

- Based on Schedule 1 with no growth, equivalent to 32 mppa
- Airline fleet modernisation to represent expected aircraft in service in 2029
- North Runway operating hours 06:00–23:59
- Annual Noise Quota System (NQS) system with a limit of 16,260 between the hours of 23:00-06:59
- Provides a constrained future comparator in the absence of the Proposed Order

► This 32 mppa Do Nothing Future State schedule has the same number of flights and pattern of demand as the 2023 baseline Schedule 1.



# Introduction


Executive summary

1. Introduction
2. Operating Schedules
3. Fleet Modernisation
4. Annual Traffic Outputs

# Aircraft Manufacturers' Development and Production Cycle

## Aircraft development cycle

The development of commercial transport aircraft represents large capital investments for the aircraft manufacturers, typically following a 20 to 30 year cycle between generations.

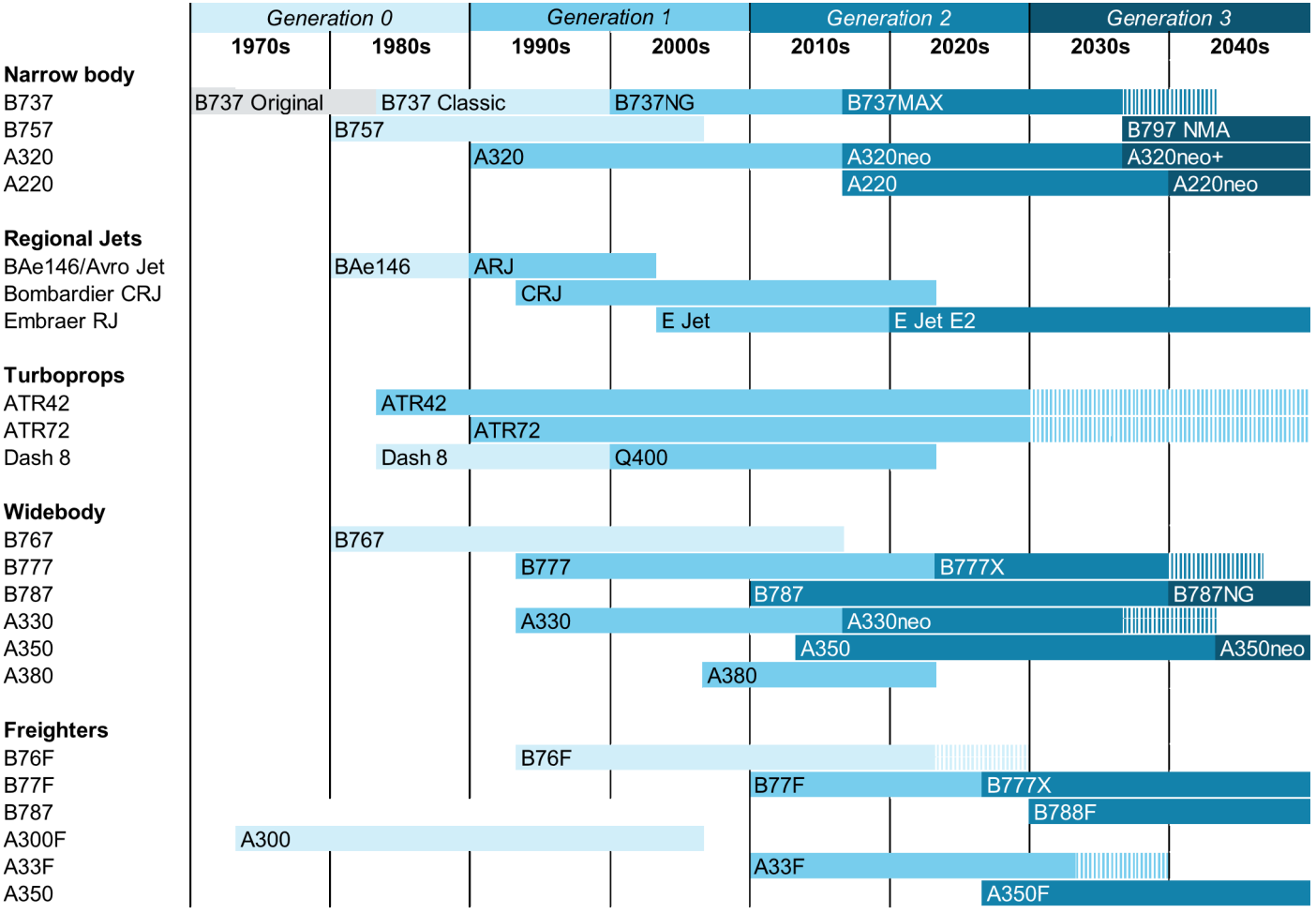
The pace of aircraft development depends on the rate of improvement in technology (eg, engine efficiency), with new types typically seeking to achieve a 20% improvement in seat-kilometre costs over previous generation competitors, improved fuel efficiency and reduced noise.

Another factor which influences manufactures' commitment to new aircraft development is competition between OEMs. For example, Airbus developed the A350 as a response to the sales success of Boeing's B787. Similarly, Boeing launched the B737MAX as a response to Airbus' A320neo programme.

Once in service, aircraft have an operational lifespan of around 25 years in mainline service, and longer as freighter conversions and as niche charter aircraft. As a consequence, an aircraft type may be in active service over 50 years after its initial development. For example, the A320 first went into service in 1988, and was in production until 2020. A newly-manufactured A320 entering airline service in 2020 is likely to still be flying until the mid 2040s.

Manufacturers are expected to develop Generation 3 (G3) aircraft types for entry into service from the late 2030's. These aircraft are expected to be a further generation of ultraefficient aircraft using conventional fossil jet fuel and Sustainable Aviation Fuels(SAF). Potential zero carbon emissions commercial aircraft (battery-electric or hydrogen powered) are not expected to enter service before 2050 and are beyond the scope of this study.

**Commercial Aircraft Production Cycle**
Dates of aircraft types in production by generation




*Source: Mott MacDonald analysis, select aircraft types relevant to DUB*

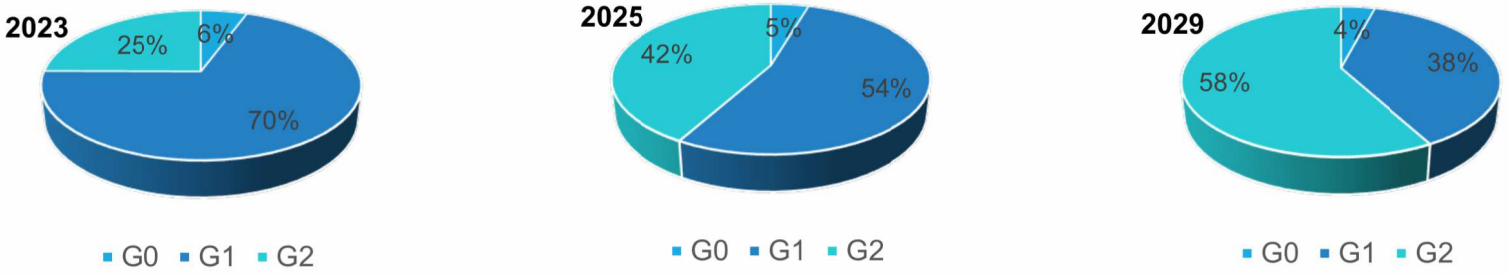
# Fleet Modernisation

## Introduction

In 2023, around 70% of DUB operations use the previous generation (G1) aircraft types, with 6% of movements operated by older aircraft (G0) and 25% of movements operated by the most modern (G2) types.

By 2025, the G1 share fell to 54% and the most modern G2 types grew to 42%. Our study predicts that the current G1 aircraft types will continue to be replaced on a phased basis by next generation G2 types. By 2029, when DUB is forecast to reach 40 mppa, the G1 share will decrease to about 38% and the G2 share increase to 58%

**DUB Fleet Evolution 2023 - 2029**




*Source: Mott MacDonald analysis of daa data and schedules (2023, 2025), Mott MacDonald projections (2029)*

***Note on Aircraft Generation Categorisation***

For the purposes of these analyses, aircraft have been categorised into generations of aircraft technology:

- **Generation 0 (G0) –** Older aircraft types, typically developed in the 1970s or 1980s and now generally out of production, eg, B737 Classic (300/400/500), B757, B767, A300, A310
- **Generation 1 (G1)** – Aircraft types typically developed in the 1990s or 2000s, eg, B737NG (700/800/900), B777, A320ceo, A330ceo, A340, A380, Bombardier CRJ, Embraer EJets, Avro RJ, Bombardier Q400, ATR42/72
- **Generation 2 (G2)** – Latest aircraft types recently entering production or under development, eg, B737MAX, B787, B777X, A220, A320neo, A330neo, A350, Embraer Ejet-E2
- **Generation 3 (G3)** – Further new-generation aircraft types not yet in development, expected to enter service from the late 2030s

# Introduction


Executive summary

1. Introduction
2. Operating Schedules
3. Fleet Modernisation
4. Annual Traffic Outputs

# Annual Passenger Outputs

## Impact of Operating Scenarios

This study has developed operating schedules based on the operational assumptions and scenarios described above. The table opposite compares the annualised number of passengers for each scenario with the unconstrained demand forecast provided by daa (Centreline scenario, 2026).

- **Unconstrained Forecast (Base)** – The unconstrained demand forecasts are daa forecasts developed in 2026 (issued April 2026).

  Unconstrained demand is based on the daa's Centreline growth case. Demand is expected to reach 40 mppa by 2029 and 55 mppa by 2046.

- **Do Nothing – Existing Permitted Capacity (Schedule 1) and Do Nothing Future State (Schedule 4) – 32 mppa cap**
  - Schedule 1 Existing Permitted Capacity (32 mppa, 2023) is the baseline 2023 flight schedule, representing a typical busy day (Friday) in the peak summer month (August). Although DUB handled 33.5 mppa in the 2023 calendar year, it reached 32 mppa on a 12-month rolling basis during 2023, and the Schedule 1 baseline is representative of the airport operating at 32 mppa.
  - Schedule 4 Do Nothing Future State (32 mppa, 2029) has the same number of passengers and flights as Schedule 1, representing a future 32 mppa capped scenario, but includes airline fleet modernisation based on expected aircraft retirement and deliveries by 2029. The Schedule 4 fleet is, on average, quieter and more fuel efficient than the 2023 baseline fleet.
- **Future Operating Scenario (Schedule 3) – 40 mppa**
  - Schedule 3 Future Operating Scenario (40 mppa, 2029) represents growth in the busy day schedule up to the equivalent of 40 mppa, as well as airline fleet modernisation to 2029.
  - The operating restrictions assumed are: (1) an annual Night Quota System with 16,260 noise points and (2) the single runway operations 00:00-05:59 – based on ANCA Regulatory Decision (Ref F20A/0668, 22 June 2022)
  - With these operating restrictions, our modelling indicates that DUB is able to grow in line with the unconstrained demand forecast up to 40 mppa in 2029.

**Annual Passengers (millions)**

| Scenarios | Unconstrained Forecast | Do Nothing Future State 32 mppa (Schedules 1 and 4) | Future Operating Scenario 40 mppa (Schedule 3) |
|---|---|---|---|
| 2015 | 25.0 | | |
| 2016 | 27.9 | | |
| 2017 | 29.6 | | |
| 2018 | 31.5 | | |
| 2019 | 32.9 | 32.9 | 32.9 |
| 2020 | 7.4 | 7.4 | 7.4 |
| 2021 | 8.5 | 8.5 | 8.5 |
| 2022 | 28.1 | 28.1 | 28.1 |
| 2023 | 33.5 | **32** | 33.5 |
| 2024 | 34.6 | 32 | 34.6 |
| 2025 | 36.4 | 32 | 36.4 |
| 2026 | 37.5 | 32 | 37.5 |
| 2027 | 38.6 | 32 | 38.6 |
| 2028 | 39.6 | 32 | 39.6 |
| 2029 | 40.5 | 32 | **40** |
| 2030 | 41.5 | 32 | 40 |
| 2031 | 42.3 | 32 | 40 |
| 2032 | 43.8 | 32 | 40 |
| 2033 | 45.0 | 32 | 40 |
| 2034 | 46.2 | 32 | 40 |
| 2035 | 47.1 | 32 | 40 |
| 2036 | 47.9 | 32 | 40 |
| 2037 | 48.7 | 32 | 40 |
| 2038 | 49.4 | 32 | 40 |
| 2039 | 50.1 | 32 | 40 |
| 2040 | 50.9 | 32 | 40 |
| 2041 | 51.6 | 32 | 40 |
| 2042 | 52.3 | 32 | 40 |
| 2043 | 53.0 | 32 | 40 |
| 2044 | 53.7 | 32 | 40 |
| 2045 | 54.4 | 32 | 40 |
| 2046 | 55.1 | 32 | 40 |

*Source: Mott MacDonald analysis, unconstrained demand based on daa* Centreline *forecast scenario (2026)*

# Annual Air Transport Movement Outputs

## Impact of Operating Scenarios

The table opposite summarises the impacts on annual air transport movements (ATMs), equivalent to the annual passenger impacts discussed above.

- **Unconstrained Forecast (Base)** – The unconstrained demand forecasts are daa forecasts developed in 2026 (issued April 2026).

  Unconstrained demand is based on the daa's Centreline growth case. Demand is expected to reach 279,000 ATMs by 2029 (equivalent to 40 mppa) and around 379,000 ATMs by 2046 (equivalent to 55 mppa).

- **Do Nothing – Existing Permitted Capacity (Schedule 1) and Do Nothing Future State (Schedule 4) – 32 mppa cap**
  - The Existing Permitted Capacity (Schedule 1, 2023 baseline) and Do Nothing Future State (Schedule 4, 2029) are constrained at about 239,800 annual ATMs, equivalent to 32 mppa.
  - The Do Nothing Future State (Schedule 4) incorporates airline fleet modernisation to 2029.

- **Future Operating Scenario (Schedule 3) – 40 mppa**
  - Schedule 3 Future Operating Scenario (40 mppa, 2029) is constrained at about 279,000 annual ATMs by 2029, equivalent to 40 mppa, and incorporates airline fleet modernisation to 2029.

**Annual Air Transport Movements (thousands)**

| Scenarios | Unconstrained Forecast | Do Nothing Future State 32 mppa (Schedules 1 and 4) | Future Operating Scenario 40 mppa (Schedule 3) |
|---|---|---|---|
| 2015 | 198 | | |
| 2016 | 215 | | |
| 2017 | 223 | | |
| 2018 | 233 | | |
| 2019 | 239 | 239 | 239 |
| 2020 | 93 | 93 | 93 |
| 2021 | 133 | 133 | 133 |
| 2022 | 212 | 212 | 212 |
| 2023 | 242 | **240** | 242 |
| 2024 | 245 | 240 | 245 |
| 2025 | 256 | 240 | 256 |
| 2026 | 261 | 240 | 261 |
| 2027 | 264 | 240 | 264 |
| 2028 | 272 | 240 | 272 |
| 2029 | 279 | 240 | **279** |
| 2030 | 285 | 240 | 279 |
| 2031 | 291 | 240 | 279 |
| 2032 | 301 | 240 | 279 |
| 2033 | 310 | 240 | 279 |
| 2034 | 317 | 240 | 279 |
| 2035 | 324 | 240 | 279 |
| 2036 | 329 | 240 | 279 |
| 2037 | 335 | 240 | 279 |
| 2038 | 340 | 240 | 279 |
| 2039 | 345 | 240 | 279 |
| 2040 | 350 | 240 | 279 |
| 2041 | 355 | 240 | 279 |
| 2042 | 360 | 240 | 279 |
| 2043 | 365 | 240 | 279 |
| 2044 | 369 | 240 | 279 |
| 2045 | 374 | 240 | 279 |
| 2046 | 379 | 240 | 279 |

*Source: Mott MacDonald analysis, unconstrained demand based on daa* Centreline *forecast scenario (2026)*

MOTT MACDONALD



www.mottmac.com/transport/aviation