Commission for Aviation Regulation
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# Preparation & Evaluation of

# Dublin Airport Traffic Forecasts

# Final Report

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## Issue and Revision Record

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# 1 Executive Summary

- Mott MacDonald (MM) was commissioned by the Commission for Aviation Regulation in April 2005 to review and evaluate the report entitled "Dublin Airport Passenger & Aircraft Movements Demand Forecast Report" produced by Dublin Airport Authority (DAA), issued March 2005. In addition MM was commissioned to produce an independent passenger and aircraft movements forecast for the period 2005 to 2030.

- The methodology used by the DAA to produce their air passenger traffic and commercial aircraft movement forecasts was considered to be appropriate for the purposes for which it was intended and represented the application of 'best practice'.

- The detailed knowledge and industry experience of DAA's internal forecasting group was evident from our meeting with representatives of the group during the course of this study.

- DAA update their forecast on an annual basis which gives two key advantages:
  - It allows for a review of actual performance in the previous year against what was expected in the forecast
  - Going forward, assumptions for the key demand drivers can be easily revised to reflect changed circumstances.

- The independent traffic forecasts produced by MM at both a macro and micro level indicate broad agreement with DAA on absolute passenger traffic numbers, although there is some divergence of opinion on the outcomes for certain route groups, notably for London, European and transatlantic routes.

- On transatlantic routes we have some reservations as to whether the Transatlantic Common Aviation Agreement (TCAA) will be signed and implemented at the time indicated by DAA and when it is, whether the traffic impact will be as significant as that forecast by DAA.

- The results from our Macro forecast through to 2030 are very close to the DAA forecast, with the total number of passengers forecast for 2030 by Mott MacDonald being just 4% less than those assumed by DAA.

- Overall, the MM forecast for 2010 is for 3% less passengers than those forecast by DAA, but for 4.5% more air transport movements, suggesting fewer passengers per flight and – on average – smaller aircraft. This suggests that runway congestion may occur one or two years earlier than forecast by DAA.

- At almost 70% of the notional capacity of a single runway, Dublin Airport will almost certainly be experiencing some turnaway in the peak. Commission for Aviation Regulation may wish to consider discussing possible options to increasing peak hour runway capacity, including possible innovative use of the existing supplementary runway 16/34.

# 2 Introduction

In this report, Mott MacDonald (MM) has provided commentary on the technical quality, methodology and produced a list of issues for the draft determination by the Commission for Aviation Regulation (CAR) arising from a review of the Dublin Airport Passenger & Aircraft Movements Demand Forecast Report – Issued March 2005, prepared by the Dublin Airport Authority (DAA).

MM has reviewed and evaluated the report, produced by the Group Strategy Department of the DAA. In addition, Mott MacDonald has discussed the forecasts and key assumptions with the DAA.

We have prepared an independent macro traffic forecast covering the period 2004 to 2030 and a micro passenger traffic forecast for the period 2003 to 2010 both of which were compared with the forecasts produced by DAA.

# 3 MM Review

At the outset it is acknowledged that forecasting the development of passenger traffic and associated aircraft movements is both difficult and complex. Developing models to "simulate" traffic will never be precise due to the large number of variables that can influence the outcome. At best a model will only help to narrow the potential uncertainty and, with the help of judgement and the experience of the forecasters, allow a range of the most likely future outcomes to be shown as a forecast.

By comparison with many forecasts reviewed by the Mott MacDonald Aviation team, those prepared by the DAA represent the application of "best practice". The forecasts have been prepared on the basis of a comprehensive review and analysis of the key economic, financial, commercial, operational and technical parameters that influence air passenger traffic and associated aircraft movements through a commercial airport.

Both the process adopted and the depth of thinking behind the development of the forecasts is impressive. Rigorous interrogation of the team that prepared the forecasts on the methods and parameters yielded well-reasoned and cogent arguments.

There are a number of issues that we consider might, in an ideal situation, be subject to more detailed analysis and consideration in the forecasts, and these are listed in the following sections as issues. However, subject only to some clarification of those issues, our overall conclusion is that the forecasts prepared by the DAA represent a fair and reasonable expectation of the likely development of passenger traffic and aircraft movements over the forecast period and particularly that covered by the CAR regulatory determination for Dublin Airport.

## 3.1 Possible issues to be covered in the draft determination in relation to the forecasts

### 3.1.1 Contacts with Airlines

In preparing the forecasts the DAA had various discussions with the major "home based carriers" Aer Lingus, Aer Arann and Ryanair to determine their strategic planning for traffic and service development. Although it is recognised that DAA attempted to contact other airlines to obtain their views on future market development in order to assist the forecasting process, this had not proved possible.

### 3.1.2 Base traffic data and market maturity

The DAA forecasts have not presented detailed historic traffic data. Although this would have been reviewed as part of the process, it would have been helpful to make more of this in their reports to show long term trends, key events and the impact of time series analysis to further substantiate the validity of the forecasts. It would be helpful if DAA provided some additional evidence for their assumptions on Market Maturity. A comparison of trips per capita versus GDP in the Irish Republic versus other Western European economies might be useful.

### 3.1.3 Elasticity assumptions

It would be helpful to provide comparisons of the DAA GDP elasticity assumptions with those produced by other groups such as Boeing and Airbus as they seem high at the moment (with an estimate of 1.7 for 1996-2000) and markedly lower in the period after 2011 (with an estimate of 1.0 on the markets to the UK). The fare elasticities used seem generally acceptable but it would be useful to see any evidence to support the assumption that, as fares keep falling ever lower, the elasticity reduces significantly, even though it is recognised that obtaining such data and evidence is very difficult.

On cross elasticity, it would be useful to know what proportion of the inbound tourism is composed of Irish nationals, or people with strong Irish links. These individuals would be less likely to look elsewhere for tourist breaks. Of the remainder, those most at risk are non-Irish visitors who are making leisure visits of less than say four days. There is already some anecdotal comment that Dublin is becoming expensive as a destination for short leisure breaks, compared with some new Eastern European alternatives for the UK market such as Prague.

### 3.1.4 Fares and yield data

Some additional information that shows DAA has been tracking changes in airline fares and yields would have been useful in view of the their critical impact on the forecasts. For the future it is recommended that they start an internet data series where they could track actual fare changes and measure those against market changes.

### 3.1.5 Air Transport Movement forecasts

The forecasts acknowledge that DAA has taken into account the known aircraft fleet plans and service development of Aer Lingus, Ryanair and Aer Arann, but there is some concern that they may have underestimated the introduction of smaller aircraft by new airlines serving Dublin. Airports sometimes forecast that there will be a significant increase in average aircraft size because it presents less urgency to provide future runway development. As an example, the BAA is forecasting that London Gatwick, with a single runway, will in future be able to handle 280,000 ATMs carrying 46 million passengers at an average of 165 passengers per movement, and an average aircraft capacity of some 220 seats. If achieved, these would be unprecedented figures for a single runway airport. Although the DAA forecasts are nowhere near as extreme, some additional justification that average loads per aircraft will rise as fast as forecast would be helpful.

### 3.1.6 Assumptions on capacity

#### (i) Dublin – Runway, terminal, ATC, access and other

It is accepted that this is an unconstrained forecast – indeed one of the main purposes of the forecast is to forewarn DAA of where and when bottlenecks may occur in the future. It is unusual for such a forecast to restrict itself to annual totals and not refer to forecasts of peak day and peak hour loadings, whether for runway, taxiway, apron or terminal. DAA would seem to assume that a given percentage increase in annual traffic will automatically lead to the same given percentage increase in peak traffic levels – normally, the increase in the peak periods will be less than the total.

### (ii) Major origin airport – UK / London area

Traffic to and from London is significant at Dublin. The assumption is that further growth in demand for London will be met by increased frequencies at Stansted and London Luton. However, each London airport caters for different markets, journey origins and destinations, and it is suspected that total London traffic will not grow as fast if the services to Heathrow and Gatwick are capped at the current frequencies. Some 'London' traffic could be diverted to the UK Provinces and others take direct flights to Europe, but there could be some loss if insufficient supply is provided for the Heathrow and Gatwick segments.

BAA issued a Press Release on 17th of May 2005 saying that increasing congestion will slow passenger growth. They went on "BAA has to find ways to improve the utilisation of take-off and landing slots at Heathrow, such as replacing short-haul with long haul services". This pressure and the very high value of Heathrow slots to Aer Lingus, may serve to constrain this element of the London Dublin market.

### (iii) Airline capacity and service development

There is some concern about the DAA view that, because Aer Lingus and Ryanair are currently increasing their aircraft size, that average passengers per air transport movement will keep growing. This does not take into account the potential for the development of new Embraer 145 / 135 and other Regional Jet services that might develop from other smaller European airports to Dublin. It does not acknowledge the fact that over the last 10 years the average passengers per air transport movement at un-constrained European airports has remained fairly constant at 100, reflecting increases in frequency and development of new non-stop services, in preference to constant frequencies and increasing aircraft size.

### (iv) Model calibration

The list of internal key performance indicators is good. However, DAA themselves point out that the strong 2004 results caught them off-guard, and it will be important to determine what caused this. It is possible that global and Irish GDP grew faster than predicted by ESRI and NIESR. It would be useful to include 'actual' GDP and average tariff histories to compare with the DAA predictions in their calibration.

### (v) Imposition of environmental taxes on aviation

The potential for this does not appear to have been taken into account anywhere in the forecasts, although it would impact on average tariffs so could be used in any tariff or yield variable. In addition it would be useful to know and assess the impact of any plans to impose an Irish Air Passenger Duty equivalent of the UK's APD, or the impact of any significant change in Dublin Airport tariffs over the forecast period.

### (vi) Airport competition

a) It would be helpful to have an assessment of the potential, albeit limited, impact of any planned reduction of transatlantic services at Shannon on passenger numbers at Dublin. It would also have been helpful to assess the potential, albeit limited, impact of some additional service development at Shannon for those currently travelling to Dublin from the West.

b) Similarly, it is understood that significant numbers of Dublin Airport passengers have an origin or destination in Northern Ireland. [This was identified as an issue for Northern Ireland in a recent House of Commons Northern Ireland Affairs Select Committee Report]. It would be useful to assess the impact on traffic at Dublin if, through a combination of concerted investment and marketing, coupled with the imposition of a zero rating for Air Passenger Duty in Northern Ireland (as in the Highlands and Islands of Scotland) which would lower effective fares, traffic was clawed back to Belfast Airports from Dublin. Similarly, a risk assessment could be made on the impact on Dublin traffic if Belfast City Airport were to be closed and all operations concentrated at Belfast International Airport – however unlikely such a scenario might be.

c) It would be helpful to have the DAA confirm that the one time prospect of Ryanair establishing an alternative operating base for Dublin at Baldonald has been finally ruled out; and that there is no likelihood of any other existing or planned airfield within 50 miles of Dublin Airport being made available for civil aviation.

### 3.1.7 Transatlantic Common Aviation Area

It is anticipated that the EU will sign a Transatlantic Common Aviation Area (TCAA) multilateral agreement and that this will boost traffic between Dublin and the USA. This boost will be caused by recapturing traffic currently routing via Heathrow and by generated traffic from the new services, destinations and frequencies that will be permitted. MM has some reservations as to whether the TCAA will be signed and implemented in the forecast period to 2010 and if it did, that the traffic impact will be as significant as forecast by the DAA.

### 3.1.8 Runway capacity

Both DAA and MM have produced unconstrained traffic forecasts. The latest traffic figures for 2004 show Dublin with around 170,000 ATMs. That suggests that based on the capacity of a single runway, even though Dublin could potentially use its two runways - 28/10 and 34/16 in dependent mode, Dublin is already at around 65% of the capacity for a single runway. It is generally recognised that once a single runway gets to 70% of its notional capacity, that it will be turning away traffic which will in turn reduce achievable growth rates. Although DAA has a protected alignment for a wide spaced parallel runway to the north of the airport site, the timing and availability of such a runway is yet to be determined. In the meantime, CAR may wish to discuss the feasibility of utilising the secondary runway on occasions to increase peak hour arrival and departure capacity.

# 4 Macro Passenger Traffic Forecast

## 4.1 Introduction

The MM macro passenger traffic forecast was produced through a combination of analysis of historic passenger traffic trends and the use of expert judgement (Delphi technique) to forecast future passenger traffic and the number of aircraft movements for the following five passenger route groups:

1. Domestic – Scheduled
2. UK London – Scheduled
3. UK Provinces – Scheduled
4. Europe
5. Transatlantic Routes – Scheduled

These route groups were the same as those used by DAA in their forecast since they represent the most logical segmentation of the passenger market at the macro level and enable ease of comparison between the MM forecast and that produced by DAA.

The macro traffic forecast was produced for the period 2004 to 2030 and was derived from assumptions of the following key demand drivers:

- GDP growth for Ireland, UK, Europe and USA;
- GDP elasticity (maturity factor);
- Changes in air fares
- Air fare elasticity

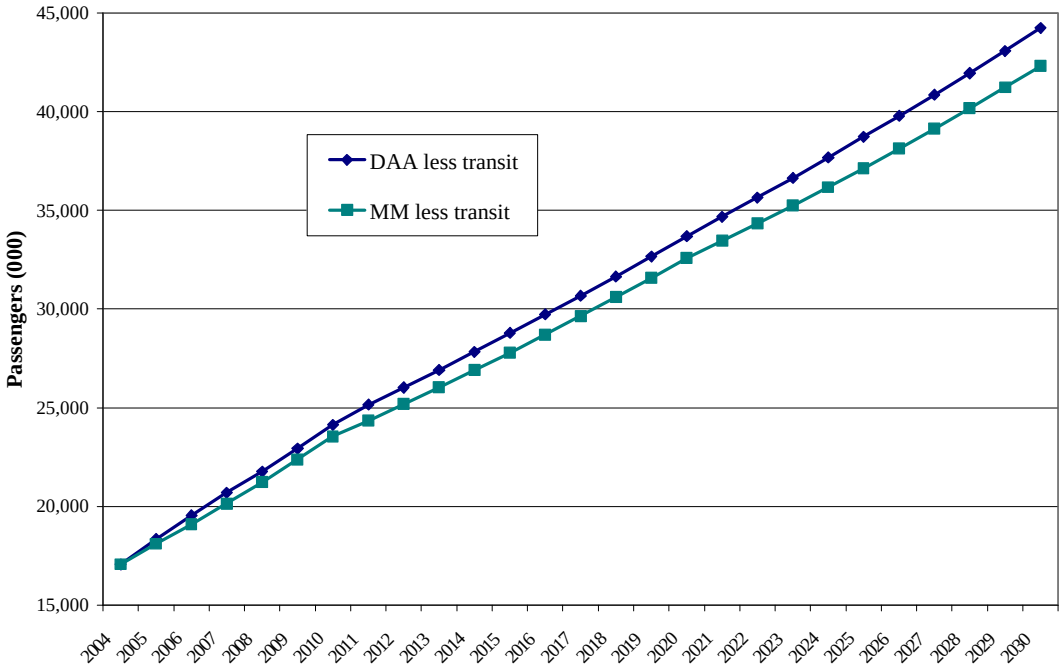
In addition, MM included a London airports capacity factor for the forecast of UK London routes, to reflect the fact that runway slots at the main London airports will become even scarcer throughout the forecast period.

The assumptions for each of the demand factors described above, for each of the five route groups are detailed in Appendix 1.

## 4.2 Macro traffic forecast results

Figure 1 below provides a comparison between total passenger traffic (not including transit passengers) from the macro traffic forecast produced by MM and those expected by DAA for the period from 2004 to 2030:

**Figure 1: Comparison of MM & DAA Macro Passenger Traffic Forecasts**




The figure shows that the results from the MM macro passenger traffic forecast are consistently less than those of the DAA throughout the forecast period. By 2030, MM expects around 42.3mn passengers (excluding transit) compared with 44.2mn (excluding transit) passengers from the DAA forecast. This represents a difference in total passenger traffic of just 4% over a period of 26 years, which is considered negligible.