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# **IRELAND/WALES INTERREG IIIA COMMUNITY INITIATIVE PROGRAMME**

## **North West Wales - Eastern Ireland Air Bridge**

**July 2004 - March 2006**



## **Joining Wales and Ireland in Europe**

*Cysylltu Cymru ac Iwerddon yn Ewrop  
Ag nascadh An Bheag agus Eire san Eoraip*

## **Final Report**

**March 2006**

**Brian Jones, Luke Davies, and Jeni Roberts - University of Wales at Bangor  
and  
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# Table of Contents

Section	Page
<b>Executive Summary</b>	<b>5</b>
<b>1. Introduction</b>	<b>9</b>
<b>2. Hinterland Analysis</b>	<b>11</b>
2.1 Overview	
2.2 Methodology	
2.3 Results	
2.4 Conclusion	
<b>3. Social &amp; Economic Impacts of the Air Bridge</b>	<b>23</b>
3.1 Overview	
3.2 Welfare foundations of Cost Benefit Analysis	
3.3 Results of Cost Benefit Analysis	
3.4 Employment Impact	
3.5 Conclusion	
<b>4. Accessibility Analysis</b>	<b>30</b>
4.1 Overview	
4.2 Methodology	
4.2.1 New Accessibility Measure	
4.2.2 Temporal Accessibility	
4.3 Results	
4.3.1 Weightings	
4.3.2 Accessibility Measures	
4.3.2.1 UK and Irish Airports	
4.3.2.2 Western European Airports	
4.3.3 Temporal Accessibility	
4.4 Conclusion	
<b>5. Perceptions of the Business Community</b>	<b>46</b>
5.1 Background	
5.2 Methodology	
5.3 Survey Results	
5.4 Summary	
<b>6. Stakeholder Consultation</b>	<b>50</b>
6.1 Transport Infrastructure	
6.2 Labour Market	
6.3 Tourism	
6.4 Making Connections	

<b>7. Conclusion</b>	<b>55</b>
7.1 Findings	
<b>8. Beyond the Project</b>	<b>57</b>
8.1 Suggestions for Further Research	
<b>Appendix 1. Survey and Consultation Details</b>	<b>60</b>
<b>Appendix 2. OAG Regional Groupings</b>	<b>61</b>
<b>Appendix 3. IATA Airport Codes</b>	<b>62</b>
<b>References/Bibliography</b>	<b>65</b>

# **Executive Summary**

When Andrew Davies, Minister for Economic Development and Transport for the Welsh Assembly Government, announced in 2004 that an air link would be created between Cardiff and RAF Valley, on Anglesey, this marked the beginning of an exciting phase that will transform the transport infrastructure of North Wales and make possible an Air Bridge to Dublin.

This report by the INTERREG-funded project team, at University of Wales at Bangor and University College Dublin, has estimated the likely economic and social impacts, and effect upon regional transport dynamics, including accessibility, of an air link or “Air Bridge” between RAF Valley and Dublin Airport. The findings, which are set out fully in the Final Report, are summarised below.

## **Economic and Social Impacts**

An analysis of the hinterlands of Dublin and Valley Airports reveals populations of 1.9 and 0.5 millions respectively. At present the principal link is via ferry from Holyhead Port or if by air, via Liverpool or Manchester. The availability of the Air Bridge would reduce the transit time by up to 70 minutes each way. However this must also be set in the context of the ferry sailing times which do not provide for a 6 hour working day in either direction. The reduction in transit time effectively increases the population on both sides of the Irish Sea that can be reached within a journey time of four hours and enables the communities of rural North West Wales to collaborate more closely and more easily with those of Ireland.

The time savings equate to an improvement in the economic welfare of travellers between North Wales and Ireland by the equivalent of up to £1.9 million in its first year of operation on account of savings in travel time and that the annual welfare improvement is likely to increase over time as the service attracts further passengers.

There will be an estimated 21 new jobs at the new civilian terminal at Valley and in the wider North West Wales economy, due to induced and indirect effects. There will be further employment due to catalytic effects. The extent of this will depend on the entrepreneurial

response of local enterprises and public sector organisations, and the degree to which firms, including Irish firms, for whom airport services are important, choose to set up operations in North West Wales. There may also be a number of jobs created at Dublin airport through increased passenger numbers.

## **Accessibility**

Accessibility to and from North West Wales will be considerably enhanced by the Air Bridge. An analysis of global passenger movements since 2000 reveals that Dublin Airport is an attractive destination for services to and from RAF Valley, due to the excellent access opportunities that the airport provides to onward destinations in the UK, Europe and North America. It is considered that this accessibility will extend the appeal of the route to passengers living, or visiting, beyond the catchment area of RAF Valley.

Specifically, Dublin and Manchester airports are the two most attractive airports for passengers to and from North West Wales that seek access to the international air services network, and under certain conditions such passengers can be expected to fly from RAF Valley to Dublin Airport for this purpose, in preference to undertaking a surface journey to Manchester Airport. It should be noted that routing through Dublin confers the benefit that US immigration can be cleared before boarding in Ireland.

Dublin's North Atlantic traffic is expected to increase in the next two years due to new policy agreements between the Irish and US governments. The gradual phasing out of the existing requirement for a percentage of flights between the US and Dublin to stop en route in Shannon is expected to contribute to this expansion. This trend will further enhance the attractiveness of the Air Bridge

## **Perceptions of the Business Community and other Stakeholders**

A survey of business communities on both sides of the Irish Sea confirmed the importance of inter-regional trade and that the opportunity exists to build on the existing base of business activity between North West Wales and Ireland.

Consideration of the Valley-Dublin route produced a positive response and was seen as attractive in the context of further routes, such as Valley-London and Valley-Cardiff, providing onward links to capital cities. Around 50% of the businesses surveyed in North Wales would revise their business plans to take advantage of the opportunities presented by the airport.

Inter-regional relations between North West Wales and Ireland are well established in terms of goods, services and tourism. There are also a number of cultural links based around Holyhead and Llandudno. An airlink to Dublin was seen as a positive development for businesses and their customer and supplier relationships.

A series of consultations took place with Agencies, Public Bodies and other key stakeholders all of whom were broadly supportive of the Air Bridge. A main theme emerging from the consultations was the need for closer working among the agencies, echoing the Wales Assembly Government's "Delivering the Connections" initiative and the view was expressed that a formal group be created to monitor and progress the initiative.

### **Beyond the project**

The establishment of a civilian airport at RAF Valley will not of itself provide more than modest advantages unless it forms part of a series of initiatives to leverage the benefits. The study shows that the Air Bridge will provide a significant opportunity to attract additional business and tourist traffic by facilitating travel between the regions and enhancing accessibility.

The survey of business, the public sector and other stakeholders revealed an enthusiasm for the establishment of an Air Bridge to the extent that the creation of a formal group has been proposed to maintain the momentum behind the initiative. Rather than sector specific strategies or traditional large scale inward investment patterns, a new inter-regional spatial model is suggested, acknowledging the already strong historic and cultural commitments, building sustainable links and specifically focusing on:

- micro, small, and medium sized enterprises, family owned businesses and associated networks;

- knowledge-based enterprises and networks, especially in peripheral and scattered communities; and
- integrated inter-regional tourism, including tourism for heritage, culture and leisure purposes.

## **In Conclusion**

The core benefits of the project will be realised over time and will come from an improvement in inter-regional social and economic interaction made possible by the strategic enhancement of the inter-regional transport network and infrastructure. This will in turn, will result in improved prosperity for communities across the two regions.

# 1. Introduction

This report follows on from our earlier Interim Report (UWB/UCD, 2005) which provided a background to the Air Bridge project. The Interim Report described the economy, transport, spatial and environmental policies of the respective regions, as well as international trends in air transport, and outlined the methodologies to be used in preparing this Final Report.

As we stated in the Interim Report, although no suitable commercial airport currently exists in North West Wales, one is planned at the RAF Valley military airbase on the island of Anglesey. On 7 December 2004, Andrew Davies, Minister for Economic Development and Transport for the Welsh Assembly Government (WAG), announced the intention to focus the development of a North-South intra-regional air route for North West Wales at RAF Valley as part of an £8 billion programme to deliver an integrated transport system for Wales (WAG, 2004c). It has recently been reported that civil air services are expected to commence from RAF Valley in October 2006 (Daily Post – 5th November 2005).

The Final Report presents our main findings, and in particular an assessment of the likely economic and social impacts of establishing air services between North West Wales and Eastern Ireland. The report examines four interpretations of social and economic impact, which are;

- **Economic Benefits.** There is a strong expectation that the development of Air Bridge services between RAF Valley (Anglesey, North West Wales) and Dublin Airport will contribute to the economic development of North West Wales and Eastern Ireland. We assess the potential for the Air Bridge to improve the welfare of travellers by calculating the value of potential time savings, and we also estimate the potential of a civil airport at RAF Valley to generate new employment opportunities.
- **Accessibility.** Measuring accessibility allows us to consider the attractiveness of each airport in terms of access to the international network of air services. Given the existence of operational constraints by the RAF on the number of daily movements at Valley, it is vital to identify the airports that will offer the best opportunity for access to UK and Ireland, European and global air transport networks. Determining the accessibility of Dublin Airport relative to other nearby airports will allow an estimation of the extent to which the Air Bridge will attract passengers who seek to make onward air connections at Dublin Airport.
- **Perceptions of indigenous business.** We report the results of a targetted survey of businesses and organisations in North West Wales and Eastern Ireland, which was conducted with the purpose of:
  1. Identifying destination preferences;
  2. Gauging the perceptions of the business community to the development of scheduled air services at RAF Valley; and
  3. Raising awareness and sensitising potential passengers to the opportunities presented by the establishment of scheduled air services at RAF Valley.

- **Stakeholder consultation.** We report the results of a consultation with key stakeholders on both sides of the Irish Sea which was undertaken to examine how its economic and social benefits may be maximised.

The specific aims and objectives for this study of the Valley-Dublin Air Bridge were set out in the *Project Proposal* and are reproduced below. They are:

- Investigate the contribution an air link will make to the dynamics of transportation between the regions. The project will assess the economic importance of links to the main international air transportation networks (e.g. European, North American networks) for Eastern Ireland and North West Wales.
- Establish the economics of an air route between North West Wales and Eastern Ireland.
- Identify the economic development potential in the business, leisure, freight and public sectors resulting from a civil air operation linking North West Wales with Eastern Ireland.
- Inform the regional planning authorities and infrastructure decision makers of the likely opportunities that may arise as a result of the enhanced inter-regional communication, enable proactive planning to take place for integrated public transport links and the likely investment needed to support such operations
- Identify a framework whereby the opportunities and benefits from this study could be taken through to implementation and consider the composition of any subsequent inter-regional body which could provide an on-going co-ordinating and strategic planning role with the objective of maximising the economic and social benefits which could flow from this study
- Undertake an environmental sustainability appraisal and consider ways in which ICT may be used to facilitate the dissemination of route information, costs, ticketing and general information in a user friendly manner which takes into account the particular needs of women, disabled persons, ethnic minorities and Welsh and Gaelic speakers.
- Identify any risks, barriers or drawbacks to the proposal and means by which they may be overcome.
- Identify the implications for connectivity and accessibility.

This report addresses the key issues outlined above. However it should be noted that the specific issues of Social Inclusion and Transport Infrastructure, Irish Tourism and the Use of ICT are examined in separate sub-reports available at [www.bangor.ac.uk/airbridge](http://www.bangor.ac.uk/airbridge).

The Environmental Impact Appraisal is available at [www.bangor.ac.uk/airbridge](http://www.bangor.ac.uk/airbridge).

## **2. Hinterland Analysis**

### **2.1 Overview**

This section seeks to identify the geographic characteristics of the Air Bridge, and the populations that lie at either end, as these will determine the extent of the pool from which passengers will be drawn to the Air Bridge.

### **2.2 Methodology**

The introduction of the Air Bridge will improve access to the regions located at both ends of the link. Residents of North Wales will enjoy improved access to the areas surrounding Dublin Airport, and residents of Dublin will enjoy improved access to the areas surrounding RAF Valley. Hinterland analysis is intended to determine the extent of these regions (to which we also refer as “service areas”) and the sizes of the populations residing therein.

In order to generate estimates of the population affected by the introduction of new air transport services operating between RAF Valley and Dublin, several tools in the ArcGIS suite were utilised. ArcGIS is a computer software suite used to store, display and analyse geographical information. Ordnance Survey data from Ireland and the UK were used together with Census data to generate a series of maps and estimates of the hinterland populations affected by new air links.

The populations of the areas surrounding each of the Air Bridge airports and Dublin’s two seaports (Dublin Port and Dun Laoghaire Port) were estimated using the ArcGIS 9.0 network analyst tool. The extent of each area was defined by reference to the distance travelled by road from the relevant port or airport. In the general analysis, several alternative areas were generated using travel distances of 50km, 70km, 90km and 120km. An exercise was also carried out to calculate and compare the populations that could be reached by a four-hour journey across the Irish Sea using the existing sea routes and the Air Bridge. Due to the differing speeds and check-in requirements of the respective modes, a number of different distances were used to derive the relevant service areas. Once each area had been defined, the population lying within that area was estimated using Census place population data.

### **2.3 Results**

In order to give a clear visual impression of the region directly affected by the establishment of an Air Bridge, we present in Figure 2.3.1 a map depicting the region that lies within 120km, by road, of either Dublin Airport or RAF Valley. 50km, 70km and 90km boundaries are also included, along with underlying population information.

Assumptions were made about average travel times so that the service areas can give indications as to the areas and populations lying within 20, 40, 60 and 120 minutes of each facility.

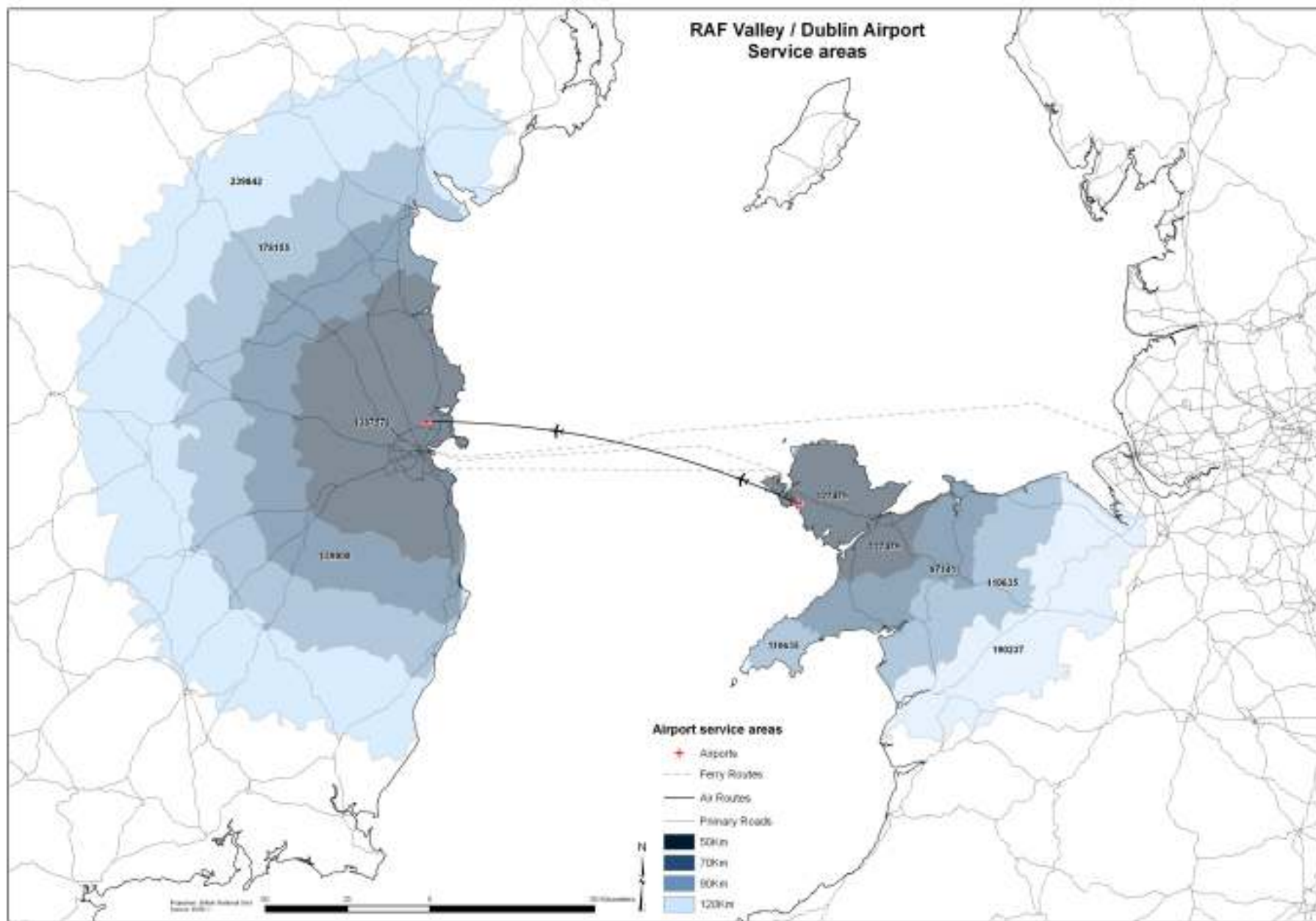


Figure 2.3.1

The population details of each region are as follows:

<b>Population located within:</b>	<b>RAF Valley</b>	<b>Dublin Airport</b>
<b>50km</b>	127,479	1,387,578
<b>70km</b> (additional population)	97,141	139,008
<b>90km</b> (additional population)	110,635	178,155
<b>120km</b> (additional population)	190,237	239,842
<b>Total population located within 120km</b>	<b>525,492</b>	<b>1,944,583</b>

Table 2.3.1

The population of the 120km-radius catchment area around Dublin Airport is almost four times that of the corresponding area around RAF Valley.

It should be noted that a major contributor to the Valley population is the zone lying between 90km and 120km from the airport. The population residing in the portion of this region that lies in or near England will in fact live much closer to either Liverpool or Manchester Airports, as is evident from Figure 2.3.2. In deciding from which airport to commence the air leg of a journey, these passengers will compare the generalised travel costs that are associated with each option (see Interim Report, pp39-41).

The Air Bridge may represent a relatively costly route for these passengers due to:

- the remoteness of RAF Valley compared to Manchester and Liverpool Airports; and
- the inflexibility imposed by the limited number of Air Bridge departures each day.

On the other hand, the appeal of a journey through RAF Valley will be enhanced by the greater perceived ease of access to RAF Valley due to the relatively uncongested state of its surrounding rural highways.

A factor that will affect this issue is the relative “accessibility” of Dublin, Manchester and Liverpool airports. Passengers will be more willing to travel to Dublin Airport in preference to (say) Manchester if the wider network of international air services may be more readily accessed through Dublin Airport. Accessibility of the respective airports is discussed in more detail, and analysed, in section 4.

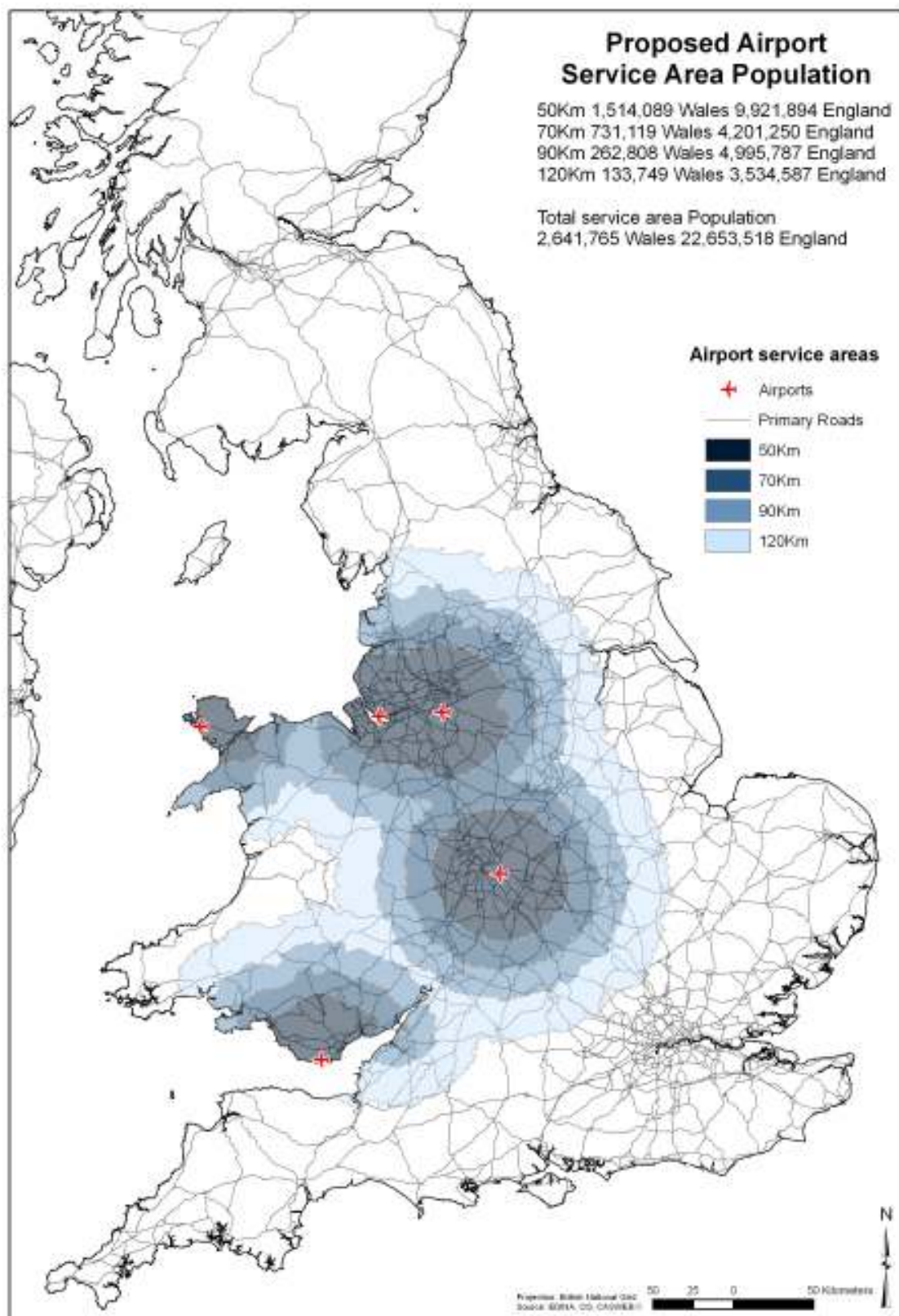


Figure 2.3.2

In order to assist an evaluation of the effect of the introduction of an Air Bridge service, we also set out the region in Eastern Ireland that is directly affected by the existing fast ferry services to Dun Laoghaire Port and Dublin Port, and would potentially be affected by the introduction of Air Bridge services to Dublin Airport. Once again, the map features 50km, 70km 90km and 120km boundaries, and refers to access by road.

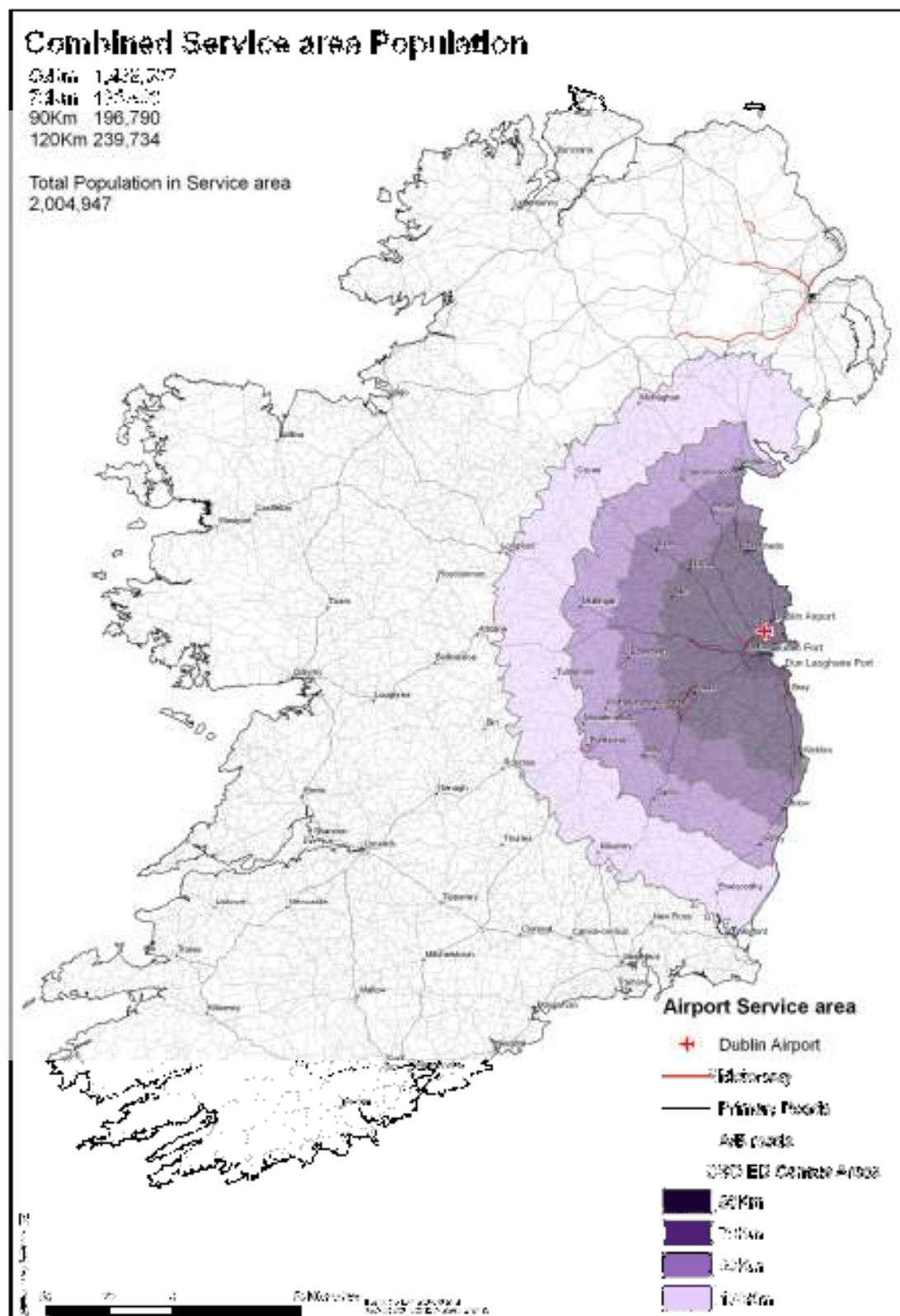


Figure 2.3.3

The populations of the relevant service areas are as follows:

<b>Population located within:</b>	<b>Dublin Airport</b>	<b>Dublin Port</b>	<b>Dun Laoghaire Port</b>	<b>Combined Area</b>
<b>50km</b>	1,387,578	1,383,983	1,322,656	1,432,537
<b>70km</b> (additional population)	139,008	160,000	190,395	135,886
<b>90km</b> (additional population)	178,155	197,031	167,543	196,790
<b>120km</b> (additional population)	239,842	238,764	258,164	239,734
<b>Total population located within 120km</b>	<b>1,944,583</b>	<b>1,979,778</b>	<b>1,938,758</b>	<b>2,004,947</b>

Table 2.3.2

Introduction of Air Bridge services will confer upon the residents of the area surrounding Dublin Airport the access to North Wales that was previously enjoyed only by the residents of the areas surrounding Dublin and Dun Laoghaire Ports. When the 50km region is considered, it is clear that the relevant population will increase by 3,595 relative to the Dublin Port regional population (an increase of 0.26%) and 64,922 relative to the Dun Laoghaire Port regional population (an increase of 4.9%).

The picture is less clear when the 120km regions are considered, as the population of the region surrounding Dublin Airport is greater than that surrounding Dun Laoghaire Port, but less than that surrounding Dublin Port. However, the difference in population between the most populated region (that surrounding Dublin Port) and the least populated region (that surrounding Dun Laoghaire Port) is only 41,020 – little more than 2% of the Dun Laoghaire population.

A more practical way of gauging the appeal of Air Bridge is to consider the manner in which it expands the region that is accessible to populations residing at either end, following a journey of “typical” duration. Due to the experiences of the project team in crossing the Irish Sea by ferry to attend meetings during the execution of this project, a period of four hours was selected as an appropriate journey duration. This journey duration is also consistent with that which could reasonably be required as part of an overnight (or longer) business trip.

The following assumptions have been made:

- the traveller reaches the sea crossing departure node by car, and leaves the arrival node by car;

- after deducting from the four-hour limit the time taken to check in, cross the Irish Sea and leave the arrival node, the remaining journey time is divided evenly between travel by car to the departure node and travel by car from the arrival node;
- average speed attainable on UK roads is 100kph, and on Irish roads is 80kph. The difference reflects greater congestion in the region of the Irish nodes than in the region of the UK nodes; and
- differing Air Bridge check-in and airport exit times apply, depending upon the direction of travel. This reflects the differing characteristics – especially size and congestion – of Dublin Airport and RAF Valley.

Due to the anecdotal variation in travel times that occurs as a result of actual or perceived road congestion, and the consequent need for passengers to arrive early for check-in, surface crossing times have been calculated for each mode on two bases, corresponding to “fast” (uncongested) and “slow” (congested) crossing times.

Component travel times are summarised below:

	<b>Check in</b>	<b>Crossing</b>	<b>Exit (including car hire)</b>	<b>Total</b>
<b>Air Bridge: Valley → DUB</b>				
<b>Fast</b>	30 minutes	30 minutes	30 minutes	90 minutes
<b>Slow</b>	60 minutes	30 minutes	30 minutes	120 minutes
<b>Air Bridge: DUB → Valley</b>				
<b>Fast</b>	60 minutes	30 minutes	30 minutes	120 minutes
<b>Slow</b>	90 minutes	30 minutes	30 minutes	150 minutes
<b>Existing fast ferry</b>				
<b>Fast</b>	30 minutes	100 minutes	30 minutes	160 minutes
<b>Slow</b>	60 minutes	100 minutes	30 minutes	190 minutes

Table 2.3.3

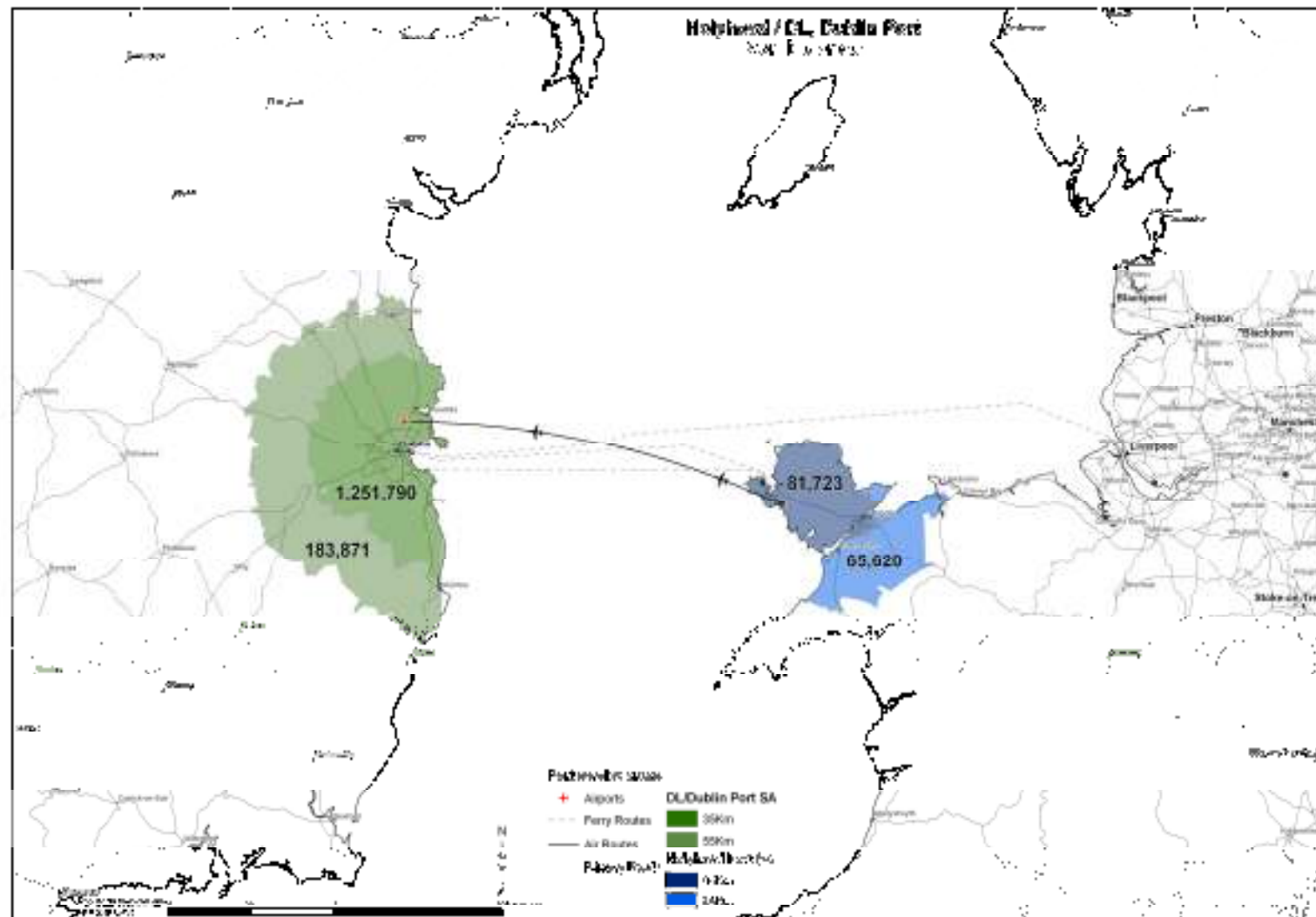


Figure 2.3.4

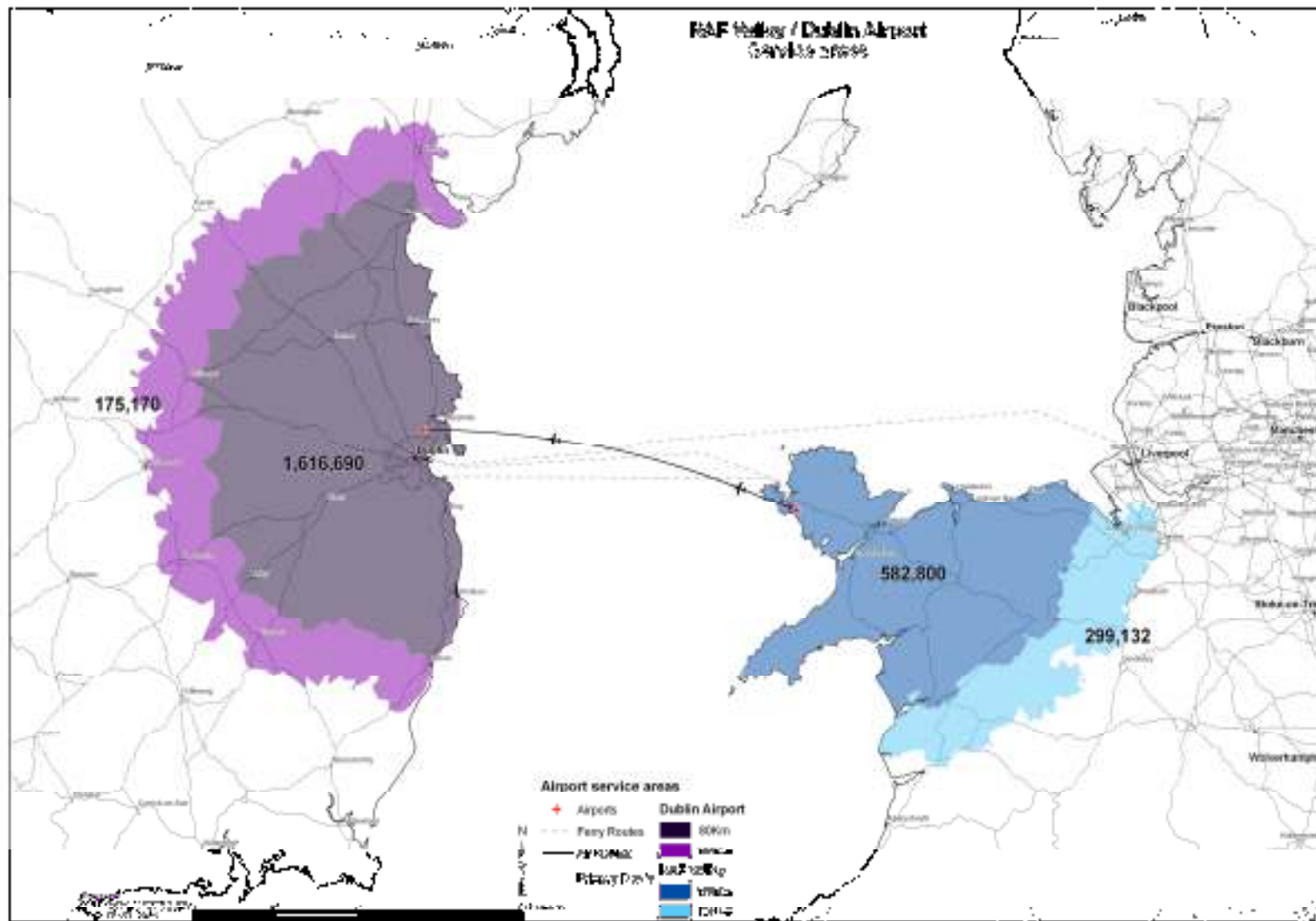


Figure 2.3.5

Figure 2.3.4 illustrates the population that may be reached under existing fast ferry arrangements following a four-hour journey across the Irish Sea, under both “fast” and “slow” crossing assumptions:

	<b>Population surrounding:</b>		
<b>Journey speed:</b>	<b>Holyhead Port</b>	<b>Dublin Port / Dun Laoghaire Port</b>	<b>Total</b>
<b>“Slow” crossing</b>	81,723	1,251,790	1,333,513
<b>“Fast” crossing</b>	147,343	1,435,661	1,583,004

Figure 2.3.5 illustrates the population that will be reached following a four-hour journey across the Air Bridge, assuming that a “fast” journey is possible. Due to the asymmetry in the access times for the respective airports, the population varies according to the direction in which travel occurs:

	<b>Population surrounding:</b>		
<b>Journey direction:</b>	<b>RAF Valley</b>	<b>Dublin Airport</b>	<b>Total</b>
<b>RAF Valley → Dublin Airport</b>	881,932	1,791,860	2,673,792
<b>Dublin Airport → RAF Valley</b>	582,800	1,616,690	2,199,490

## 2.4 Conclusion

Hinterland analysis is useful in enabling an immediate visualisation of the demographic characteristics of the area surrounding the Air Bridge nodes, and thereby giving an impression of the extent to which local populations will contribute to the “market” for services on the route. The use of GIS techniques enable this information to be supported by clear and compelling maps.

The population of the 120km-radius catchment area around Dublin Airport is almost four times that of the corresponding area around RAF Valley. The populations in question do not change

significantly when the new Air Bridge nodes are compared to the existing ferry service nodes. When catchment areas are defined by reference to total journey time rather than distance from the respective nodes, it becomes clear that the increased crossing speed available under the Air Bridge can be expected to facilitate significant (up to 60%) increases in the catchment-area populations.

### **3. Socio- Economic Impacts of the Air Bridge**

#### **3.1 Overview**

One of the aims of this study is to estimate the social and economic impacts of establishing an air service between RAF Valley and Dublin Airport. In this section we present two quantitative methods to estimate different aspects of the potential benefits: a cost-benefit analysis (CBA) of the time savings that may be gained with reference to the Valley-Dublin air route, and a multiplier analysis based upon passenger throughput attributable to all new civil air services at Valley, to suggest the number of jobs that may be created.

#### **3.2 Welfare Foundations of Cost Benefit Analysis**

Figure 3.2.1 illustrates the interaction between supply of, and demand for, transport, and the resulting welfare foundations of cost benefit analysis.

In equilibrium (E0), the difference between the aggregate of travellers' maximum willingness to pay in time and money for the journeys that they make (represented by the area under the demand curve) and the cost that they actually pay (the area of the rectangle delineated by P0, E0, Q0 and the origin) is known as consumer surplus. This is depicted by the shaded triangular area. It is changes in consumer surplus in response to interventions which CBA takes as the main indicator of user benefit. Thus, when a travel improvement is made, such as the addition of an air service, several changes take place: the supply curve shifts to the right which, in the new equilibrium (E1), reduces the generalised cost of travel from P0 to P1, and in equilibrium, the number of trips taken increases from Q0 to Q1.

Under the simplified specification depicted below, an increase in the supply of travel services – such as, in the present context, the addition of an air route between RAF Valley and Dublin Airport – can be expected to result in an increase in consumer surplus.

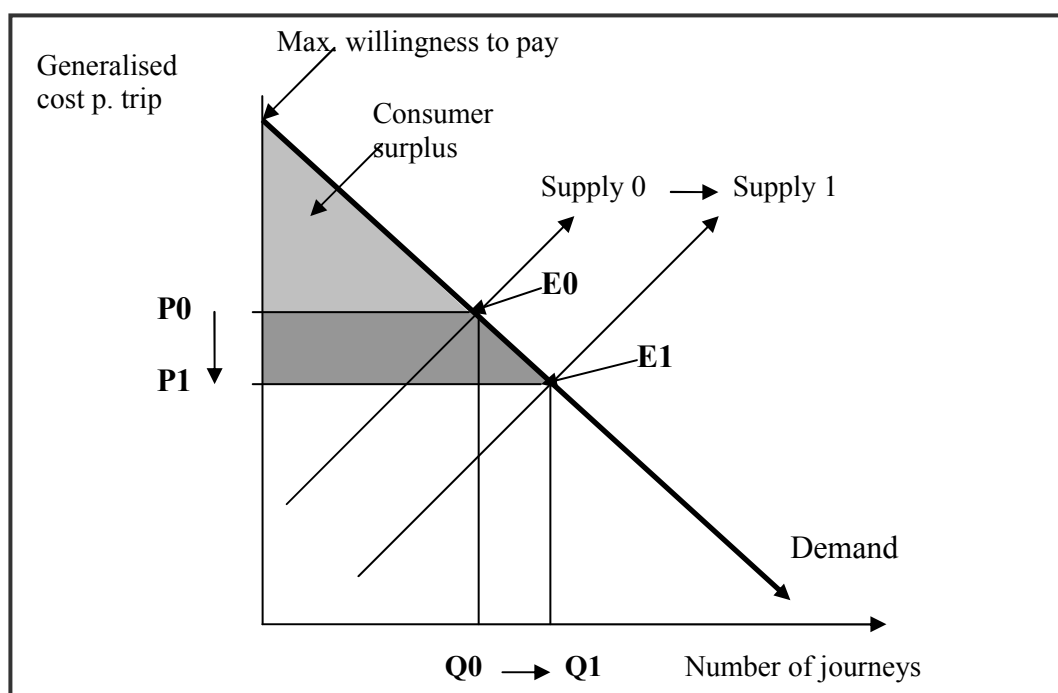


Figure 3.2.1

This analysis of the effect of a transport intervention includes welfare changes that relate to the reduction of travel times. Time spent travelling during the working day is a cost to the employer's business. It is assumed that savings gained in reduced travel times can be converted from non-productive time to productive use, with the value of individuals' working time being reflected in the wage rate they receive. It is assumed that it is possible to redistribute the monetary value of such time savings to the wider economy in such a way that they will accrue in various proportions to the producer, the consumer and the employee depending on market conditions.

It may appear counter-intuitive to suggest that the generalised cost of travel between North Wales and Dublin could be reduced with the addition of a more expensive mode such as an air service compared to the ticket price of the fast ferry service. However, generalised travel costs include the "cost" associated with the time taken for the journey (see Interim Report, section 4.3) and perceptions of service quality and reliability. Anecdotal evidence suggests that fast ferry sailings are subject to cancellation due to high seas and seasonal maintenance, which detract from the reliability of the service. Even though the ticket cost component of a journey across the Air Bridge may exceed the equivalent amount for a ferry journey, it may be that savings in time and improvements in reliability outweigh these differences.

### 3.3 Results of Cost Benefit Analysis

Our method in quantifying the monetary value of the time savings available from a Valley-Dublin air service is demonstrated in Tables 3.3.1 and 3.3.2.

We based our estimates of the likely number of Air Bridge passengers on the assumption that most of these passengers would be switching from existing ferry services, and taking into account the following information:

- ferry foot passenger traffic on the Holyhead to Dublin/Dun Laoghaire route declined by 8% between 2002 and 2003;
- since 1998 there has been a 39% decline in the number of ferry foot passengers passing through the port of Holyhead, while over the same period there has been an increase of 17% in freight traffic (Stena Line Ports – Holyhead, 2004); and
- since 1998, air passenger traffic at Dublin Airport from the UK has grown by 20% and by 5% in the period 2003 to 2004 (Aer Rianta, 1998 and Dublin Airport Authority plc, 2004). This growth can be explained in part by the switching behaviour of ferry passengers in favour of air services as a consequence of an increase in Irish disposable incomes and a simultaneous fall of air ticket prices due to the progressive increase in the activities of low-cost carriers at Dublin Airport (see Interim Report, section 3.4).

Against this background we have calculated two passenger scenarios: an optimistic and a pessimistic forecast based on the percentage changes of passenger traffic on the Holyhead to Dublin/DunLaoghaire route and Dublin airport as reported above. The optimistic forecast is based on the assumption that the Valley-Dublin Air Bridge service will attract 8% of the 481,000 annual foot passenger market (Stena Line Ports – Holyhead, 2004), while the pessimistic scenario assumes that 5% of the ferry foot passenger market will be attracted. These modal shifts equate to 38,480 and 24,050 passengers per annum respectively.

Third, using value of time guidance published by the UK Department for Transport an average hourly market price of the value of working time per person (£26.73 per hour, 2002 prices) was selected as a suitable metric to calculate the monetary value of the time saving.

Thus:

$$\text{£ value of time saving} = (t) \times (pn) \times (vot)$$

Where,  $t$  = time saved

$pn$  = passenger numbers (*estimated*)

$vot$  = hourly wage rate

The calculations were performed twice, corresponding to the “fast” and “slow” crossing times suggested in section 2.3.

Analysis under an assumption of “fast” journey times	Valley → Dublin Air Service	Dublin → Valley Air Service	Existing Fast Ferry Service (Holyhead ↔ DunLaoghaire)
Journey Time (see Table 3.3.3)	(A) 90 minutes	(B) 120 minutes	(C) 160 minutes
Total return journey time	(D) = (A) + (B) 210 minutes		(E) = (C) x 2 320 minutes
Time saved on return journey by use of Air Bridge	(F) = (E) - (D) 90 minutes		
Valuation of time <sup>1</sup>	(G) £26.73		
Estimated annual passenger traffic across Air Bridge	5% scenario	(H1) 24,050	
	8% scenario	(H2) 38,480	
Monetary value of annual time saving	5% scenario	(I) = (F) x (G) x (H1) £964,000	
	8% scenario	(I) = (F) x (G) x (H2) £1,543,000	

Table 3.3.1

Analysis under an assumption of “slow” journey times	Valley → Dublin Air Service	Dublin → Valley Air Service	Existing Fast Ferry Service (Holyhead ↔ DunLaoghaire)
Journey Time (see Table 3.3.3)	(A) 120 minutes	(B) 150 minutes	(C) 190 minutes
Total return journey time	(D) = (A) + (B) 270 minutes		(E) = (C) x 2 380 minutes
Time saved on return journey by use of Air Bridge	(F) = (E) - (D) 110 minutes		
Valuation of time	(G) £26.73		
Estimated annual passenger traffic across Air Bridge	5% scenario	(H1) 24,050	
	8% scenario	(H2) 38,480	
Monetary value of annual time saving	5% scenario	(I) = (F) x (G) x (H1) £1,179,000	
	8% scenario	(I) = (F) x (G) x (H2) £1,886,000	

Table 3.3.2

<sup>1</sup> Values of working time per person, measured in £ per hour at 2002 prices. See Department of Transport, 2004.

Our calculations based upon this approach indicate that the RAF Valley-Dublin Air Bridge may generate time savings valued in aggregate at somewhere between £964,000 (all modes fast, only 5% of ferry passengers switch mode) and £1,886,000 (all modes slow, 8% of ferry passengers switch mode).

The sum of the time saved identified is positive, although arguably not particularly large. However, the time saving calculated indicates a minimum expectation of the scale of savings that may realistically be achieved during the formative stages of the development of air services. It is reasonable to anticipate that these time savings will increase over time as the air service becomes established and as travellers continue to switch from ferry services in favour of air services.

It should be noted that the timings of the ferry sailings are designed to facilitate the freight traffic that provides the majority of the ferry company revenue. As a consequence, it is not possible to achieve, in one day, a return business trip which includes 6 working hours at the destination without imposing a fairly arduous schedule upon travellers. Although the current Stena Line timetable will allow an extended day of some 8 hours on the Holyhead → Dublin route (but not vice-versa), this includes a very late evening return at approximately 2350h.

Therefore, although the time saving looks modest, it is where the time is saved that is also important. It is anticipated that one of the principal benefits of the Air Bridge is that the flight schedules will facilitate inter-regional business trips within a reasonable working day.

### 3.4 Employment Impact

A review of the literature indicates that quantifying the economic benefits of transport infrastructure in terms of additional new employment opportunities is complex and that precision is difficult to achieve (see for example Vickerman, 1997; The Standing Advisory Committee on Trunk Road Appraisal, 1999).

Generally the economic impact of new transport infrastructure on a local economy can be divided into two components: the construction phase and the operational phase. The economic impact that occurs during the construction phase of large projects can be significant. Construction spending creates new local demand and employment. The construction phase however is short-lived and the economic impact generally ends when construction is completed. It is the ability of the new infrastructure during its operational phase to deliver additional employment opportunities over the longer term that is the focus of this report's analysis of the social and economic impact of Valley airport.

We have identified and applied four separate components of the long-term ability of additional infrastructure to create new local employment. These will be discussed in turn.

**Passenger throughput.** Passenger throughput is used by the aviation industry as a basis upon which to estimate the number of direct jobs that will be required at an airport in order to service a given number of passengers. The aviation industry's 'rule of thumb' is 950 jobs per 1 million passengers (Airports Council International –Europe 2004). It is acknowledged that this ratio serves as a rough guide only, and that it is likely to change during the development of each airport.

As this ratio is derived from the throughput at larger airports, another metric was sought which would reflect the more modest passenger throughputs expected at Valley. This was achieved by examining the staffing levels of small peripheral airports in the highlands and islands of Scotland. Passenger throughputs at 6 small Scottish airports operated by Highlands and Islands Airports Limited (HIAL) were selected: Benbecula, Islay, Kirkwall, Stornoway, Sumburgh and Wick airports. These airports have passenger throughputs ranging from 22,145 to 116,090 (average: 71,067) per annum, and are typically managed with staff levels ranging from 12 to 50 employees (average: 31). Basing our estimates on these averages would suggest that a ratio of 5 staff for every 10,000 passengers is a more suitable ratio with which to estimate the number of direct jobs that may be created at Valley.

This ratio was applied to the direct employment forecasts based on passenger throughput at Valley with respect to *all* routes proposed by the Intra-Wales Scheduled Air Service (WAG, 2004b), in addition to the passenger forecast made in the previous section in relation to the Valley-Dublin service. The forecast made in Table 3.4.1 was determined using the metric devised and assumes 2 return flights per day to each destination using an ATR-42 aircraft, which is capable of carrying up to 50 passengers.

<b>Destination</b>	<b>Passengers (p.a.)</b>
<b>Dublin</b>	24,050
<b>Cardiff</b>	25,882
<b>London</b>	10,439
<b>Total Passengers</b>	<b>60,371</b>
<b>Jobs Created</b> (at 5 jobs per 10 000 passengers per annum)	<b>30</b>

Table 3.4.1

It is therefore suggested that through the proposed civil air services, Valley Airport has the potential to create 30 new direct jobs divided between airside and landside operations. Although the exact proportions may vary between airports, in broad terms these jobs are divided in favour of airside in the airports with lower passenger numbers, and the landside in busier airports. On this basis, and assuming throughput of 60,000 passengers per annum, we estimate that Valley would support 12 landside jobs.. The proposal to establish civil air services at Valley is not a stand alone project but is an extension to an existing military operation. Therefore, the number of direct jobs created at Valley will be mitigated by the fact that existing RAF staff would manage airside operations (i.e. air traffic control and fire cover) and therefore only the 12 landside jobs may be regarded as newly-created

However, the increased activity at the airport will help to safeguard existing jobs and may lead to additional employment as the passenger and air services increase. As with all airports, passenger throughput is a critical element for Valley airport's long-term commercial viability in ensuring that it is able to fully cover its operating costs. This is especially important in view of the fact that there is unlikely to be an opportunity to cross-subsidise landside revenue streams with landing fees, as these will be retained by the RAF.

**Indirect Employment.** Indirect employment refers to the increase in employment by locally-based companies that supply goods and services to the airport, such as catering firms. A review of UK Department for Transport literature suggests a multiplier of 0.3 – that is, indirect employment might be expected to increase by 0.3 new jobs for every job created directly. This was the multiplier used in the South East and East of England Regional Air Service Study (UK Department for Transport, 2002) to measure the indirect employment impact of Newquay Airport. We have no reason to suspect that the 0.3 multiplier is not suitable for use in relation to Valley. The application of this multiplier to Valley airport suggests that if 12 new direct jobs at Valley are achieved then an additional 4 indirect jobs could be created.

**Induced Employment.** Induced Employment is employment generated by the additional spending of directly and indirect employees on goods and services within the locality of the airport. This calculation does not include spending by tourists and business people.

The rate used depends upon the rate at which employment can be absorbed in the local economy. The induced employment effect in a less developed economy such as found in North West Wales relative to the rest of the UK may mean that induced employment may be lower than usual. In line with the SERAS study we have used a multiplier of 0.3 (UK Department for Transport, 2002), which is applied to the estimated aggregate direct and indirect employment effect (16 jobs) to yield an estimated induced employment effect of five additional jobs.

**Catalytic Employment.** Catalytic employment refers to employment attracted to the area as a consequence of the presence of a new airport or, with reference to the current situation, the introduction of new services at an airport. There is little in the way of hard evidence to support catalytic employment assumptions. Commenting on this method of forecasting, ACI Europe state (2004, para. 3.5, p.13):

“Generally, the catalytic impacts, particularly business impacts, are best discussed in qualitative terms...”

In line with this recommendation, our analysis will be limited to describing the possibilities that Valley offers in terms of local initiatives. Research from published studies (e.g The Standing Advisory Committee on Trunk Road Appraisal 1999) indicates that the presence of an airport will be only one factor in an investment decision. Other factors such as the availability of skilled labour, labour market costs, the quality of the local environment and cost of premises have all been shown to be equally, if not more important when these factors are considered in isolation. However, catalytic impacts can be significant amongst firms that place a high value on access to air services.

The number of new jobs that will be created within the region of North West Wales by Valley airport cannot be precisely determined but will be influenced by the interaction of a number of factors, such as:

- the response of the North Wales tourism sector to the potential of the airport as a means of attracting tourists who were previously prevented from travelling to the region by the absence of an airport;
- the entrepreneurial response of local business to the opportunities offered by the destinations available from Valley airport as a means to expand into new markets and attract new customers;

- the extent to which firms, to whose businesses air services are crucial, decide to set up new facilities in North West Wales in order to make use of the new routes; and
- the extent to which Irish investors are attracted to the region as a consequence of the availability of direct services to an airport in North West Wales.

We expect that the Dublin route will attract 24,050 passengers per annum. Although modern developments in passenger handling have led to greater labour efficiencies, it is inevitable that this traffic will create additional employment at Dublin Airport. Whether this extends to the hiring of new staff, or can be accommodated through the more effective deployment of existing resources, will depend upon the identity of the airline(s) that serve the Air Bridge, and the nature and extent of their existing operations at Dublin Airport.

### **3.5 Conclusion**

The reduced travel time offered by a scheduled air service compared to the current fast ferry service on the Holyhead to Dublin/Dun Laoghaire route represents a reduction in the generalised costs of travel across the Irish Sea. Under the assumptions outlined, we believe that the Air Bridge service may confer annual aggregate savings in travel time valued at between £964,000 and £1,886,000. This time saving represents a positive gain for businesses and individuals on both sides of the Irish Sea. In the event that the air service ticket price exceeds those of the ferries, this difference will represent the extent to which the time savings gain is appropriated by the providers of the air service.

A review of the various methods used to estimate the job impact of airports suggests that accurate forecasting of the employment impact of establishing air services at Valley is problematic. Employment impact calculations are based upon an aggregation of the passenger forecasts made by the intra-Wales Scheduled Air Services study with our own forecasts for the Valley-Dublin route. When added together, the results of the three quantitative methods (passenger throughput, indirect employment, induced employment) suggests that in the short-term there is the possibility of creating an additional 21 new jobs plus the unquantified catalytic employment effect. The combination of new business premises at Ty Mawr and Llandygai industrial parks along with establishing scheduled air services at Valley airport may in the medium to longer term induce local, established firms to expand and attract firms from outside the region. Valley airport may also be successful in attracting new tourists to the region. Although it is not possible to be precise, the catalytic effects may prove significant in a local economy with potential to develop.

Due to the imprecise nature of calculating the catalytic employment effects of airports we have instead limited the discussion to describing briefly some of the factors that will determine the extent to which additional jobs will be created at RAF Valley. There is no axiomatic relationship between establishing air services and job creation – merely the opportunity. The effectiveness of the agencies whose mandate it is to attract tourism and inward investment to Wales will, in conjunction with local authority and Irish partners, be vital to the maximisation of these catalytic employment effects.

## **4. Accessibility Analysis**

### **4.1 Overview**

As well as potentially increasing the speed of a journey across the Irish Sea, the Air Bridge will allow passengers to connect, through Dublin Airport, to or from the wider international network of passenger air services. The accessibility analysis in this section is directed at quantifying the attractiveness of Dublin Airport to the residents of North West Wales for the purpose of onward journeys by air, in order to enable an assessment of the extent to which additional passengers will be attracted onto the Air Bridge.

### **4.2 Methodology**

This section describes the development and calculation of an air accessibility measure for each of the main Irish and UK airports in each of the years 2000, 2003 and 2005, and its relevance in assessing the benefits of the Air Bridge. Our results are presented in section 4.3 below.

As we stated in the Interim Report (p37), accessibility can be thought of as the capacity of a location to be reached from, or to reach, other locations, and it is inversely related to the generalised costs associated with access. The introduction of the Air Bridge will extend the network of air services that are currently available in the region, and will thereby improve the accessibility enjoyed by potential passengers located at both ends of the service due to the speed and convenience of air travel relative to surface alternatives. Residents of North Wales will enjoy improved access to Dublin Airport and onward destinations to which links exist from Dublin. We suggested in the Interim Report that air routes to North America from Dublin Airport would be particularly attractive to the residents of North Wales..

Persons located outside North Wales will enjoy improved access to North Wales by means of the Air Bridge. The extent of this improvement will depend upon how easily these passengers are able to reach Dublin Airport and thereby access the Air Bridge.

Various metrics can be derived to allow an objective measurement of accessibility, and to form the basis for an assessment of the effect of the new air service. Detailed reviews of accessibility in the context of transportation research may be found in Bhat et al (2000), VTPI (2005) and Rodrigue, Comtois and Slack (2006). We used a simple network example to demonstrate some of these measures (Interim Report, p37), including nodal “degree” with and without indirect connections, and augmented measures derived by the addition of information as to transport costs and destination demographics. We implied that our approach would be to select the most appropriate of these measures, and to compare their values before and after the establishment of the Air Bridge.

Since publishing the Interim Report we have also considered the connectivity measure recently applied by Burghouwt and de Wit (2005), and considered whether this measure is suitable for application in the current project. This measure examined connectivity at airports based on daily published scheduled, and required detailed calculation of potential connecting flights for inbound flight segments.

Although these measures are useful in certain contexts, we have decided not to apply them in this instance. This is because according to OAG (2005), passenger air services currently

operate between approximately 57 UK and Irish airports, 545 continental European airports and 735 North American airports (see Appendix 3). Each of these airports would need to be included as a node in the network of air links that would need to be constructed in order to calculate the standard measures of accessibility. The large numbers of airports means that the modelling of connection possibilities would be a complex and time-consuming task even if it is assumed that passengers could use any combination of reported services.

In reality, the costs facing passengers who wish to undertake journeys involving multiple air legs are even more difficult to calculate, due to the fact that travellers will be confronted by the tendency of many airlines to facilitate only those passengers that have used their alliance partners on earlier legs. It became apparent from the examination of a sample of North Atlantic schedules that the restrictions on multiple-stop multiple-carrier services were complex, and not readily discernible from the published schedule. For example, within one strategic alliance grouping, each alliance partner airline imposed a limit on the number of seats that it would reserve for passengers using its services as the second or subsequent leg of a multi-stage journey. Interlining – even between alliance partners – would not be permitted if the agreed ticket quota had already been allocated.

In addition, many European low-cost carriers explicitly discourage passengers from purchasing multi-stage journeys across the airline's own network.

Passengers wishing to use a combination of airlines from different alliances, or to undertake a multi-stage journey on a single low-cost carrier, will face significantly increased monetary and non-monetary costs, and in most cases these increases can be reasonably expected to be prohibitive. Despite the fact that onward flights from a destination airport depart within what appears to be a “reasonable” connecting time following the arrival of an incoming flight, these connections may not in practice be attractive or available to customers because of the additional costs or airline restrictions that are involved.

Merely using advertised schedules to compute connection options would therefore overestimate the range of services realistically available to customers. It would, in theory, be possible to reflect these restrictions in a network model and thereby prune the range of available services, but the requirements of such an approach exceed the data and resources at our disposal. We therefore prefer a measure of accessibility that does not require the calculation of costs applicable to travel between every origin-destination pair.

The notion of accessibility is intended to capture the potential onward connectivity of the airports that will be directly linked to RAF Valley. The study aims were to assess the relative attractiveness to the population of North Wales of the respective UK and Irish airports through which enhanced access could be obtained to the wider network of air services, to serve as a basis for assessing the attractiveness of the Air Bridge and to thereby estimate its usage.

The standard textbook measures of accessibility and spatial interaction outlined in the Interim Report also require population estimates for each node, along with measures of local economic activity or ‘economic attractiveness’. The use of European airport hinterland population data proved to be very misleading in efforts to build up an appropriate dataset for computing standard accessibility and passenger potential estimates. Many airport hinterlands overlap to a significant degree. Accurate population estimates would require analysis of airport market areas under assumptions of surface access times and partitioning of passenger demand among locally competing airports. At low-cost airports, the nearest urban centre can be located at a substantial

distance. Determining the appropriate market area under these circumstances is highly subjective.

#### 4.2.1 New Accessibility Measure

Our accessibility measure assigns a metric to each airport, which for the purpose of the following explanation will be referred to as the “origin airport”. The measure is based on the number of passengers that may potentially pass through the origin airport during a calendar year, and is derived from the scheduled seating capacities reported by OAG (2005). In calculating the measure, the number of available seats associated with each scheduled flight is adjusted to reflect the importance – as measured in a number of alternative manners – of the relevant destination airport. During a given period, the accessibility of the  $i$ th airport, from which  $m$  scheduled non-stop services to  $n$  other airports are offered, is:

$$Access_i = \sum_{j=1}^n \sum_{f=1}^m (seats)_{jf} \bullet (freq)_{jf} \bullet (weight_j)$$

where  $seats$  is the seating capacity of the  $f$ th flight,  $freq$  is the number of such flights during the period and  $weight_j$  is the index applicable to the  $j$ th destination airport.

Thus, rather than discounting destination airports by their distance from the origin airport (as is the case in standard ‘gravity’ or spatial interaction models), we discount destination airports by their importance in the regional, continental or global passenger air traffic hierarchy.

Annual data were used in order to remove the effects of seasonal variation. The measures were computed for 2000, 2003 and 2005, in order to identify any trends in the distribution of air travel that may be of interest.

The origin airport accessibility measure was generated for all of the UK & Irish airports and separately for all European airports that were reported by OAG (2005) as receiving scheduled air services during the three study years.

We consider that due to the diverse motivations for air travel, the accessibility of UK and Irish airports should be considered in a number of different regional contexts, which may be thought of as discrete markets for air travel. Each of these will be relevant to passengers wishing to travel to and from North West Wales. We consider the most important of these regions to be:

- United Kingdom and Ireland;
- Western Europe;
- Europe;
- North Atlantic; and
- the global “region”.

The regional groupings used by OAG (2005) (and which are set out in Appendix 2) facilitated these distinctions, although some additional work was required in order to isolate the “United

Kingdom and Ireland” and “Europe” regions. All destination airports within the various regional groupings were ranked on the basis of:

- total annual available seats; and
- total annual available seat miles.

Available seat miles are calculated in OAG (2005) by multiplying, for each scheduled flight, the number of seats by the distance between origin and destination airport. It should be noted that where a significant proportion of an airport’s traffic is made up of long-haul flights – as would be the case at a major international hub airport – this will tend to manifest itself in a much higher ranking under the available seat miles measure than under the available seats measure. It should be noted that the total numbers of available seats or available seat miles to and from a given airport tend to be identical, due to the underlying symmetry of most passenger schedules.

The ranking of the destination airports was then used as the basis for the generation of a set of weights, each between 0 and 1, which were to be used to adjust, by multiplication, the number of seats flown from the origin airports to each individual destination airport. Two separate sets of weights were created:

- a weight based simply on the rank of the airport in terms of available seats or available seat miles, and calculated as:

$$\frac{N - (r_i - 1)}{N}$$

where  $N$  is the total number of airports in the region, and  $r_i$  is the rank (highest = 1) of the destination airport in question; and

- a proportional weight calculated as:

$$\frac{T_i}{T_{TOP}}$$

where  $T_i$  is the amount of traffic through the destination airport (measured either in available seats or available seat miles), and  $T_{TOP}$  is amount of traffic through the busiest airport in the relevant grouping.

The available seats and available seat miles from an origin airport during a study year were then scaled on a flight-by-flight basis for each destination airport by multiplying by these weights, and totalled to give a score for each origin airport. For each origin airport, study year and regional grouping, the information generated by the various measures and weighting systems can be presented in one of the following ways:

	<b>Weight used to discount measure:</b>	
<b>Measure used:</b>	<b>Proportion of highest measure in peer group</b>	<b>Rank in peer group</b>
Annual available seats	See for example Figure 4.3.2.1.1 below.	See for example Figure 4.3.2.1.2 below.
Annual available seat miles	See for example Figure 4.3.2.1.3 below.	See for example Figure 4.3.2.1.4 below.

Table 4.2.1.1

A selection of the results is illustrated in a set of figures presented in section 4.3.2 below.

#### 4.2.2 Temporal Accessibility

The ability of Air Bridge services to connect with the wider international air service network will depend upon the ease with which passengers may transfer to the flights that are available from Dublin Airport. This will depend in part upon the time at which Air Bridge services arrive in Dublin, relative to the departure of onward services. This factor becomes even more important if the Air Bridge is constrained to carry only a small number of daily services.

We used the OAG (2005) capacity data to construct and consider daily schedules of departures from Dublin Airport during 2005. We suspected that the differing requirements of business and leisure travellers would give rise to considerable fluctuations in schedules between various days of the week, and that differing seasonal travel patterns would result in schedule variation between (for example) winter and summer months. To capture these effects, we carried out the analysis for a number of representative days: Wednesday 9 March, Sunday 13 March, Wednesday 13 July, Sunday 17 July, Wednesday 14 September, Sunday 18 September, Sunday 18 December and Wednesday 21 December.

We derived daily histograms that plotted outgoing seat numbers and departures against the time of day. The results are presented in section 4.3.3 below.

### 4.3 Results

#### 4.3.1 Weightings

It is first relevant to consider the weights that have been assigned to each of the destination airports for use in calculating accessibility. Each destination airport has been assigned an index figure between 0 and 1.

Indices were prepared for each of the regional air travel markets that were identified in section 4.2.1: UK/Ireland, Western Europe, Europe, North Atlantic and the global “region”. Airports are positioned on each of the figures below in order of their proportional available seat

weighting relative to the pictured group. Only those airports with the highest such weighting are pictured.

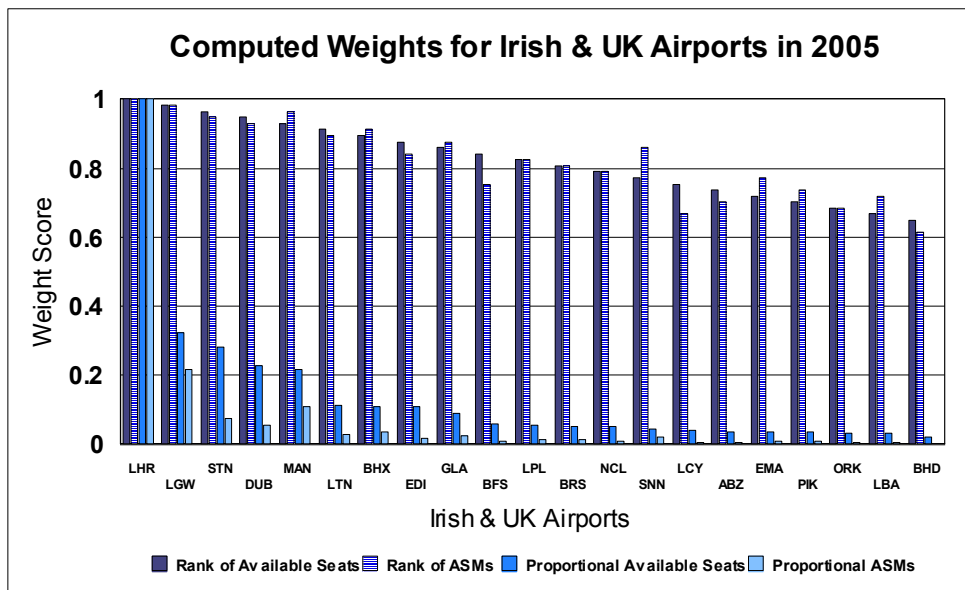


Figure 4.3.1.1

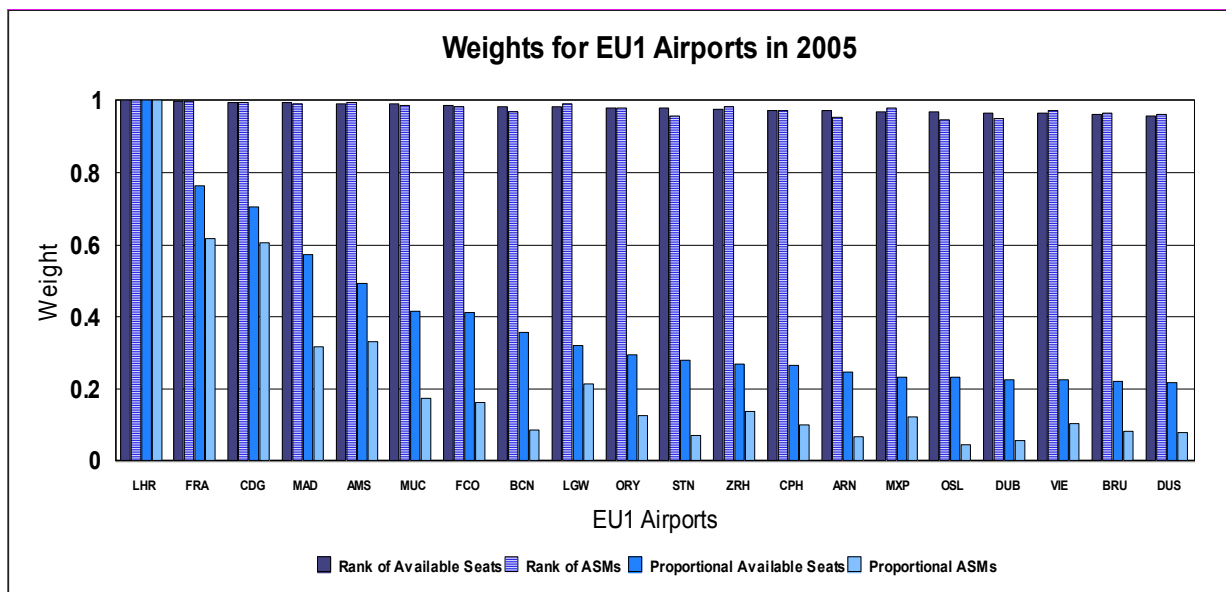


Figure 4.3.1.2

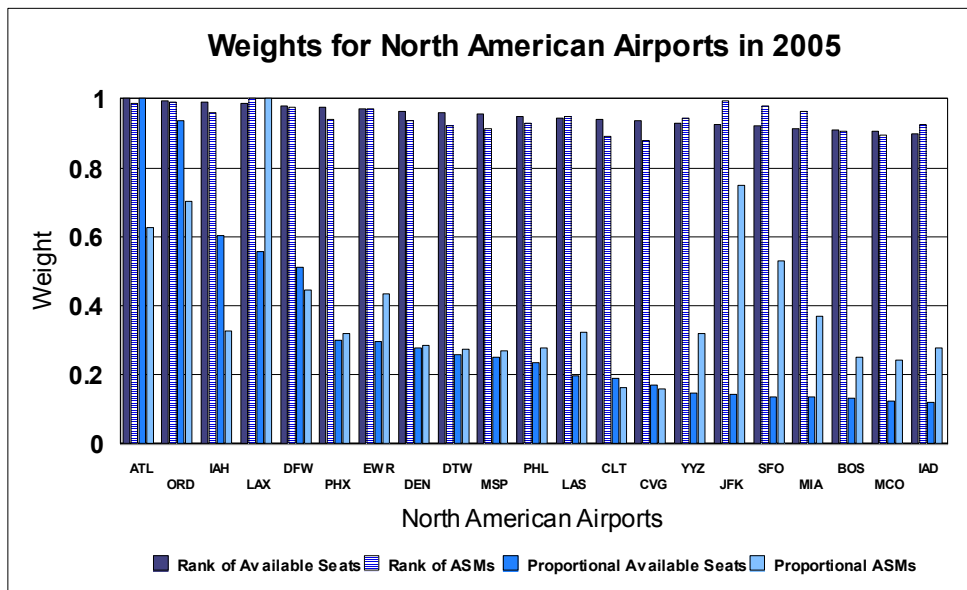


Figure 4.3.1.3

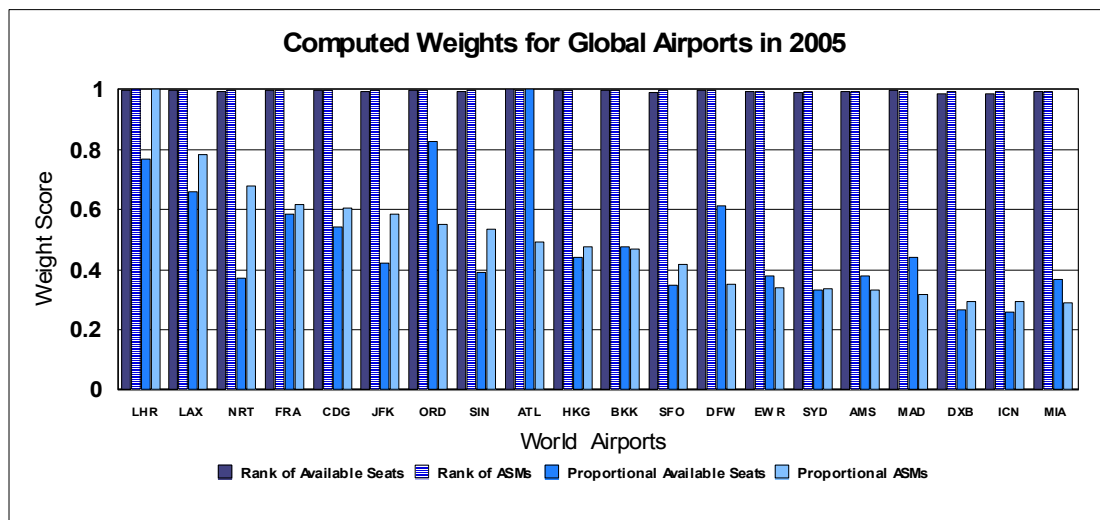


Figure 4.3.1.4

The more airports are present in a group (whether or not information relating to these airports is included in the above figures), the more significant will be the differences that arise between the accessibility results obtained from the use of proportional and ranked indices. This is because the rate at which the index falls, as one considers lower-ranked airports, is directly related to the size of the group. The difference is most obvious in the case of the Irish & UK group pictured above, where the dominance of London Heathrow is visible in the way that the proportional available seats and proportional ASMs weights attributable to all other airlines fall steeply away, and for most other airports are well below 0.1.

Because there tend to be only small differences between the ranks of *destination* airports in the same region, accessibility measures prepared using ranking-based weights will be closely correlated to the underlying volumes of seats or available seat miles that depart from each *origin* airport. However, this will obscure the qualitative differences between the destinations that are served from each origin airport. For example, in the UK/Ireland context, a rankings-

weighted accessibility measure would count each seat available from Dublin to London Heathrow (index: 1) as only 4% more valuable than a seat available from Dublin to Manchester (index: 0.96), despite the fact that Manchester has only 8% as much traffic as London Heathrow, and that a flight to London Heathrow clearly facilitates a wider range of onward journeys than does one to Manchester. By contrast, the use of proportionally-based weights acknowledges the attractiveness – in terms of accessibility – of a busy airport.

### **4.3.2 Accessibility Measures**

The accessibility measures described in section 4.2.1 above have been derived on a number of bases, and for a number of regional groupings. A selection of these will now be presented and discussed.

In the figures below, the accessibility measurement for the most accessible airport, has in each case been adjusted to 1, and the accessibility measurements for all other airports has been scaled accordingly. Measurements for each of calendar years 2000, 2003 and 2005 are presented. Airports are listed in order of their 2005 accessibility measure.

The “Total” figures show accessibility measures derived using proportionate weights, while the “Ranked” figures show accessibility measures derived using ranking-based weights.

As was discussed in section 4.2.1 above, accessibility measurements have been derived using both seats and seat miles, and destination airports have been indexed according to both rank in peer group and air traffic relative to that in the busiest peer airport. It is not asserted that any one of these measures provides the definitive measure of accessibility, but all contribute to a general picture of accessibility. A higher “seat miles” accessibility position relative to “seat” accessibility suggests that the traffic of the airport in question includes a relatively high proportion of long-haul services. An origin airport with a higher “total” accessibility position, relative to its “ranked” accessibility, would tend to have services to busier destination airports.

#### **4.3.2.1 UK and Irish Airports**

In view of the immediate regional context of the Air Bridge, we begin with a comparison of the accessibility of airports in UK and Ireland.

Due to their proximity to North West Wales, and similar traffic levels, the results for Dublin (DUB) and Manchester (MAN) have been highlighted in the bar graphs below. In all markets other than the proportionately-weighted Ireland/UK market, London Heathrow (LHR) was the most accessible airport. However, due to the presumed unavailability of slots for services between Valley and London Heathrow, the discussion will focus on the accessibility results for all other airports.

## UK/Ireland

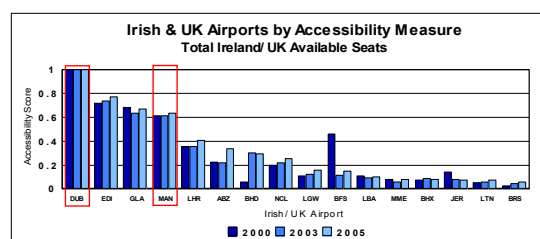


Figure 4.3.2.1.1

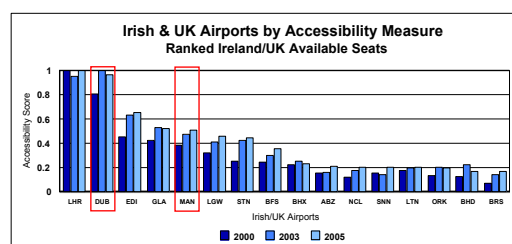


Figure 4.3.2.1.2

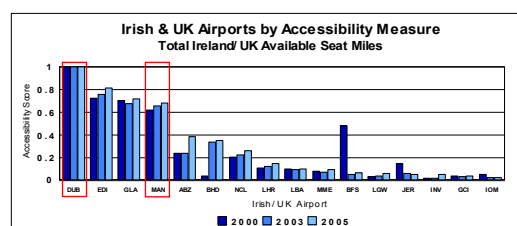


Figure 4.3.2.1.3

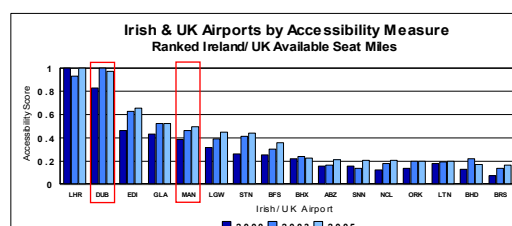


Figure 4.3.2.1.4

Perhaps not surprisingly, the position of London Heathrow was weakest in relation to the collective group of UK and Irish airports. The proportionally-weighted analysis suggests that Dublin was the UK/Irish airport that provided the most access to this market – exceeding that of London Heathrow. The ranking-weighted analysis suggests that London Heathrow was marginally more accessible than Dublin. In all cases, Dublin was considerably more accessible than Manchester.

This is the major result in terms of an accessibility justification for the Air Bridge. Even if slots were available at all airports other than London Heathrow, the significant accessibility offered by Dublin makes it the most attractive destination for an air link from North Wales, if access to UK and Irish airports is the primary objective.

## Western Europe (OAG region “EU1”)

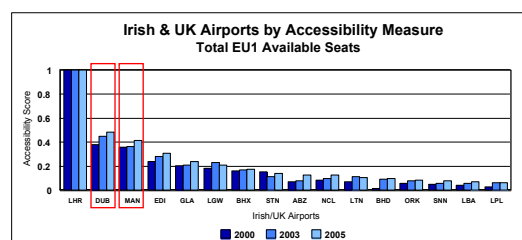


Figure 4.3.2.1.5

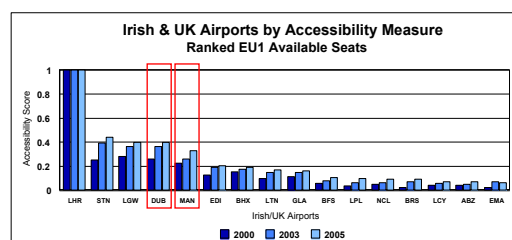


Figure 4.3.2.1.6

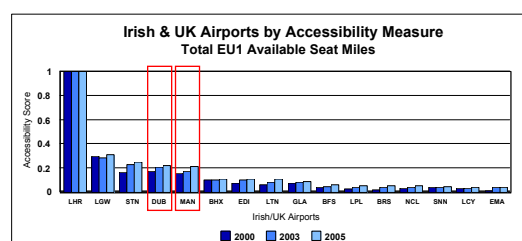


Figure 4.3.2.1.7

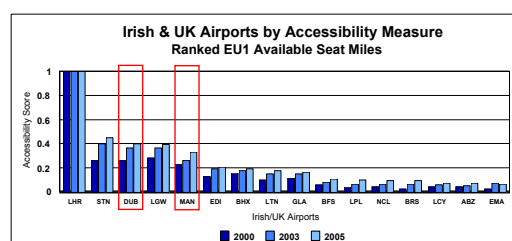


Figure 4.3.2.1.8

Dublin was narrowly more accessible than Manchester under the various measurements of accessibility applicable to the EU1 market. However, the ordering of close UK/Ireland peer airports relative to Dublin and Manchester was sensitive to the method used to calculate accessibility. In particular, London Gatwick (LGW) and London Stansted (STN) displayed similar levels of accessibility, except where “total seats” is the metric, in which case both airports are considerably less accessible than Dublin or Manchester.

## Europe (OAG regions “EU1” & “EU2”)

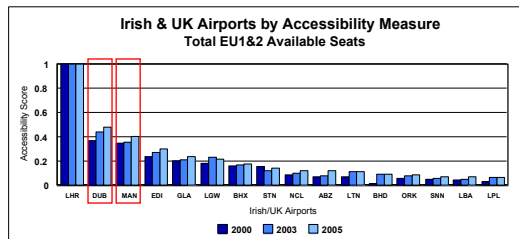


Figure 4.3.2.1.9

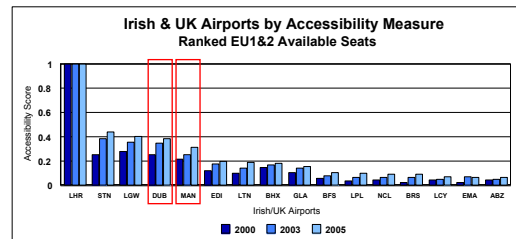


Figure 4.3.2.1.10

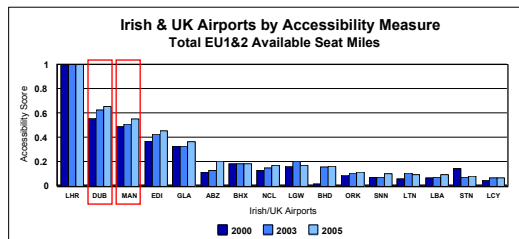


Figure 4.3.2.1.11

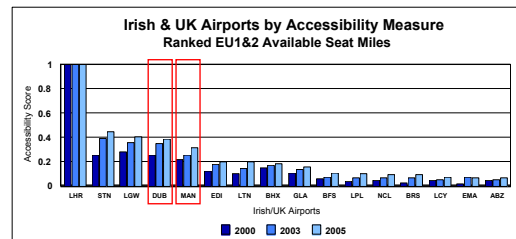


Figure 4.3.2.1.12

Again, Dublin was narrowly more accessible than Manchester under the various measurements of accessibility applicable to the wider European (EU1 and EU2) market. London Gatwick and London Stansted displayed superior levels of accessibility where destination airports were weighted on rank rather than traffic, suggesting that their accessibility in this market is based on volume of outgoing traffic, rather than the “quality” of destination airport served. Where destination airports were weighted on traffic, Dublin and Manchester were clearly more accessible than their closest rivals, the larger Scottish airports.

## North America

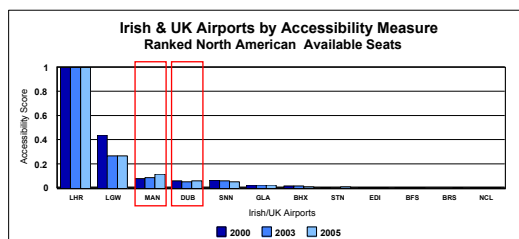


Figure 4.3.2.1.13

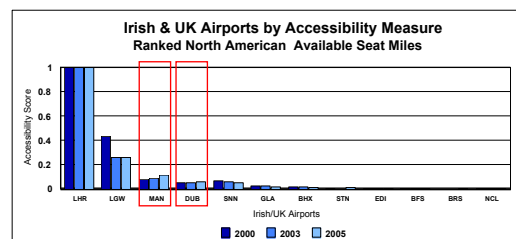


Figure 4.3.2.1.14

The accessibility of UK and Irish airports in relation to North America was considerably less evenly distributed than for the markets already considered, with London Heathrow dominating the market, and second-placed London Gatwick scoring less than 0.3. Manchester was

approximately twice as accessible as Dublin, whose accessibility was similar to that of Shannon (SNN). A sharp decline in the accessibility of London Gatwick from 2000 to 2003 could be contrasted with moderate increases in the accessibilities of Manchester and Dublin during the three survey years.

## World

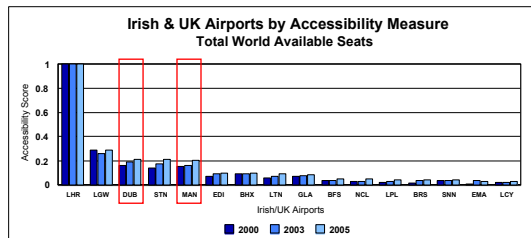


Figure 4.3.2.1.15

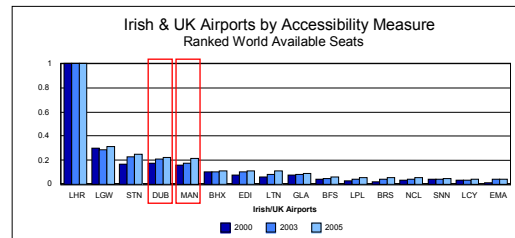


Figure 4.3.2.1.16

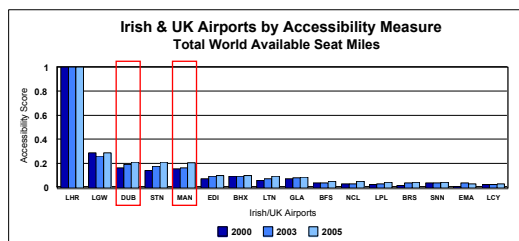


Figure 4.3.2.1.17

The global accessibility of London Heathrow overshadowed that of all other airports, and was followed by London Gatwick in distant second place. While Dublin's accessibility slightly exceeded that of Manchester, figures for both airports were very similar, and were also similar to that of London Stansted.

## 4.3.2.2 Western European Airports

We now explore the accessibility of selected UK/Ireland airports in the Western European context.

In the figures below, the accessibility measurement for the most accessible airport, London Heathrow, has in each case been adjusted to 1, and the accessibility measurements for all other airports has been scaled accordingly. Measurements for each of calendar years 2000, 2003 and 2005 are presented. Airports are listed in order of their 2005 accessibility measure.

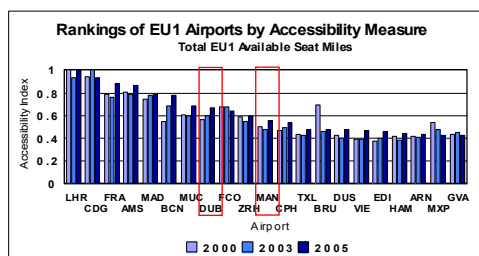


Figure 4.3.2.2.1

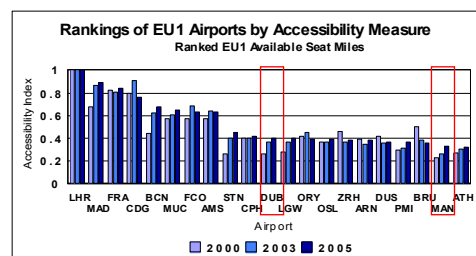


Figure 4.3.2.2.2

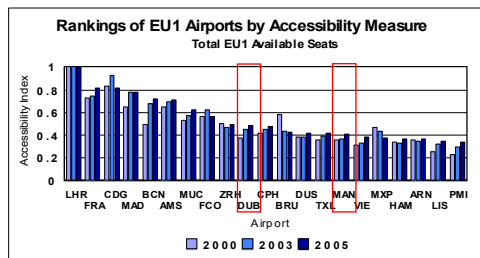


Figure 4.3.2.2.3

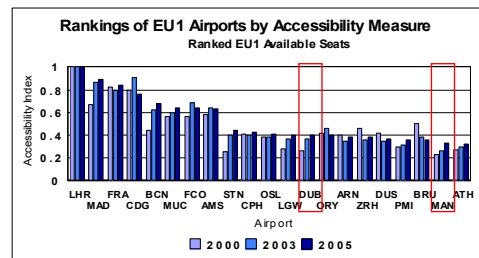


Figure 4.3.2.2.4

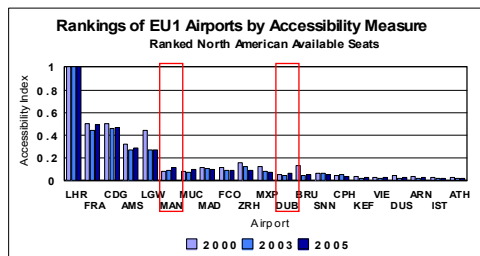


Figure 4.3.2.2.5

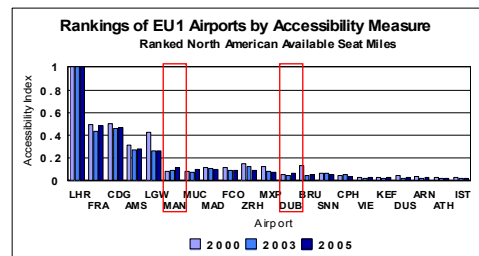


Figure 4.3.2.2.6

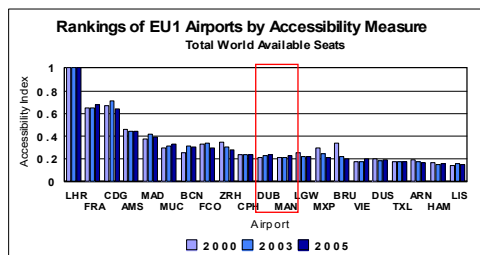


Figure 4.3.2.2.7

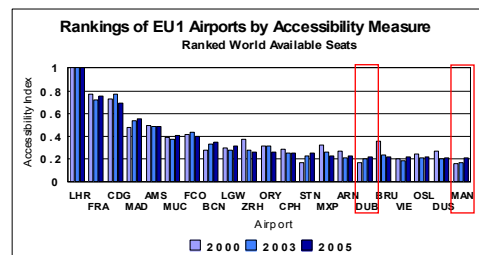


Figure 4.3.2.2.8

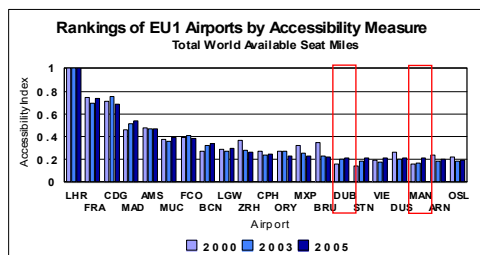


Figure 4.3.2.2.9

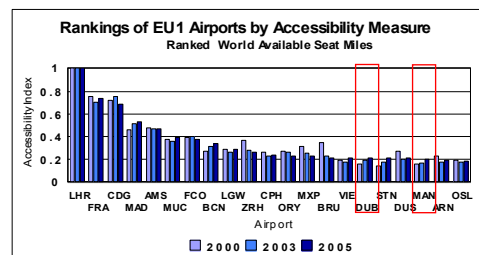


Figure 4.3.2.2.10

When these figures are compared to those that relate to the accessibility of UK and Irish airports only, it is clear that the relative positions of Dublin and Manchester airports are preserved under each measurement scheme – as would be expected. However, since there are many more comparable airports in Western Europe than in UK/Ireland, there are some instances in which one or more European airports are positioned between Dublin and Manchester. This may in some figures appear to exaggerate the minor differences between their respective accessibilities.

The continental importance of London Heathrow is confirmed by the fact that even at this enlarged regional scale, it continues to comfortably top all measures of accessibility.

### 4.3.3 Temporal Accessibility

See section 4.2.2 above for a brief discussion of our methodology. We set out below a summary bar graph which compares traffic levels – measured in outgoing seats – between the various representative days in 2005 that we selected for study (Wednesday 9 March, Sunday 13 March, Wednesday 13 July, Sunday 17 July, Wednesday 14 September, Sunday 18 September, Sunday 18 December and Wednesday 21 December). We conclude by inspection that only minor variations exist as between the traffic levels on each of these days, and that these variations related primarily to the increases in traffic to North America and Europe during summer, as would be consistent with expected tourist activity.

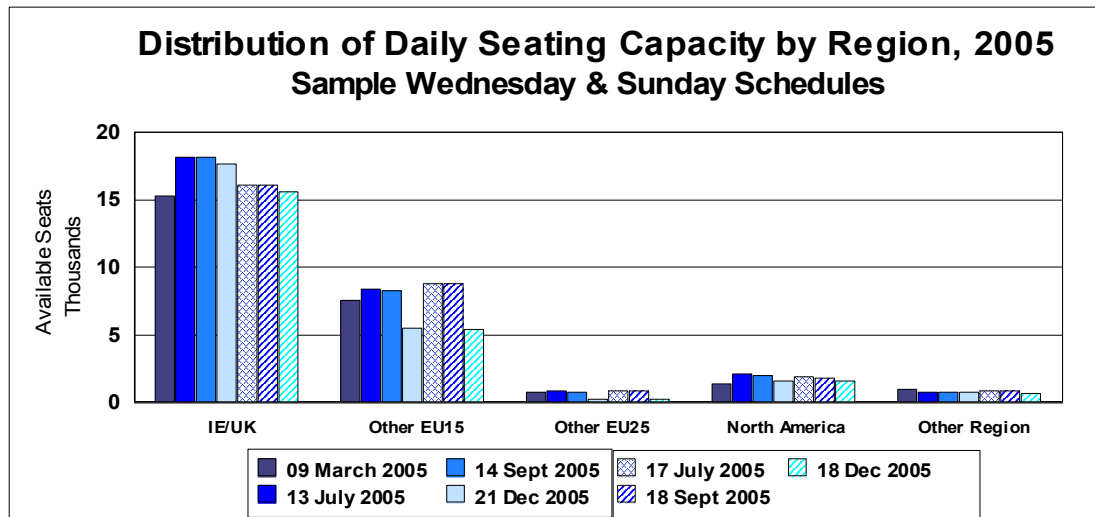


Figure 4.3.3.1

We do not consider that these variations justify a detailed analysis of any more than one representative day. Accordingly, the distributions of departures and departing seats from Dublin airport during a representative midweek day in summer (Wednesday 13 July 2005) are depicted in histograms below. Departures and departing seats are grouped into 15-minute intervals.

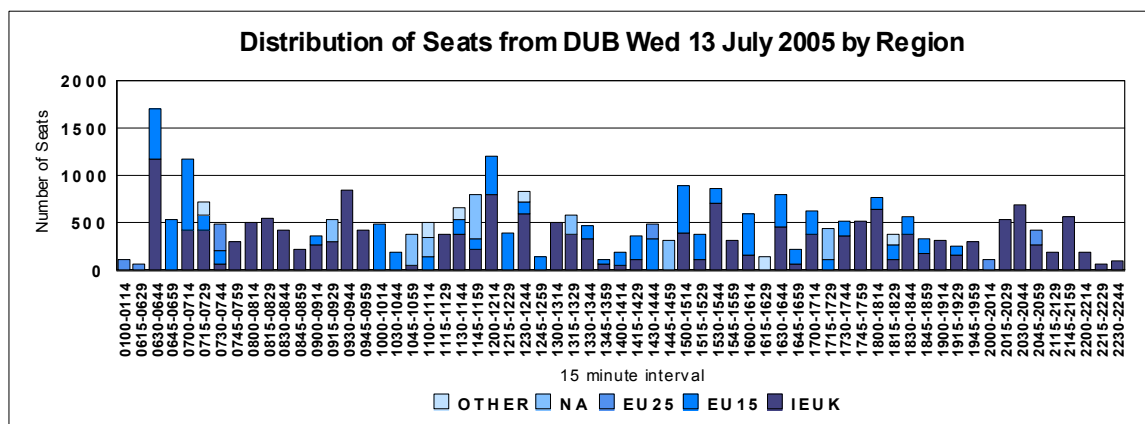


Figure 4.3.3.2

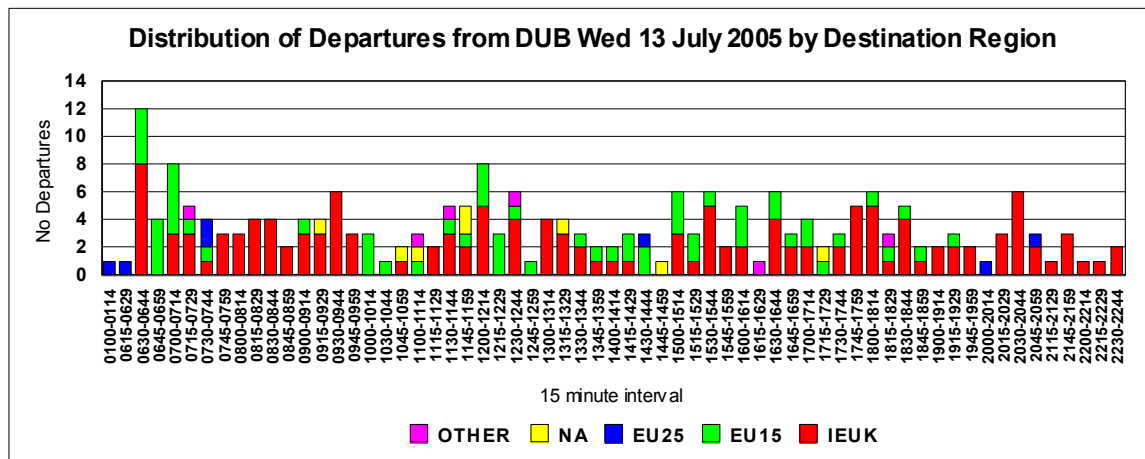


Figure 4.3.3.3

Some notable patterns of traffic movement are:

- Dublin airport is busiest in the early morning, with departures peaking at around 0630h (12 departures);
- a second, smaller peak occurs at around 1200h (8 departures);
- several other 15-minute intervals host at least 6 departures (0700h, 0930h, 1230h, 1500h, 1530h, 1630h, 1800h, 2030h), and these periods tend to occur in the afternoon;
- with the exception of the above, and “quiet” intervals at around 1030h, 1245h, 1345h, 1615h and 2000h, traffic is distributed evenly between 0630h and 2200h; and
- this evenly-distributed traffic tends to be clustered into banks of departures to either Europe and North America (0645h, 1000h, 1145h and 1415h), or UK/Ireland (the remainder of the day) – the exception being the two peak periods discussed above, during which flights depart for both regions.

Due to operational constraints at Dublin airport, it is unlikely that a service from Valley could be scheduled to arrive early enough to allow passengers to transfer to the bank of 0630h departures. However, the even distribution of traffic across the remainder of the day leaves plenty of scheduling flexibility.

#### 4.4 Conclusion

Relative to other UK and Irish airports, Dublin is clearly a highly accessible airport in the context of the various air service markets that might be attractive as potential destinations for the residents of North West Wales, or might provide a source of visitor traffic. An air service linking RAF Valley and Dublin would clearly confer the benefit of this accessibility to the residents of North West Wales.

The social and economic impacts that were estimated in the previous section were based on passenger number projections that reflect existing travel patterns, and do not take into account the potential for additional passengers flows on account of air accessibility. We believe that

these estimates of social and economic impact can therefore be regarded as conservative, and that in all likelihood they would be exceeded by the actual operation of the Air Bridge.

We have already referred to factors which affect the generalised costs that will apply to a passenger who is considering whether to travel across the Air Bridge. These factors will of course apply regardless of the length or complexity of the proposed journey. For passengers who wish to make an onward journey from Dublin Airport, a further issue requiring consideration is the limited interlining facility at Dublin Airport, and the consequent need for incoming passengers to exit to landside and then check in again if they want to make an onward journey. On the other hand, passengers wishing to travel to the United States can at present clear US Customs and Immigration at Dublin Airport, which confers significant security and convenience benefits and is not currently available at any of the comparable UK airports.

Much will depend upon the evolution of the route network available from Dublin Airport. Dublin's North Atlantic traffic is expected to expand in the next two years given new policy agreements between the Irish and US governments. The gradual removal of the Shannon stopover by 2008 will contribute to this expansion. This will enhance the attractiveness of Dublin as a connecting node for medium and small communities, and may confer sufficient additional accessibility to lure transit passengers from Manchester to Dublin Airport.

## **5. Perceptions of the Business Community**

### **5.1 Background**

We referred in the Interim Report (p.46) to our intention that the University of Wales Bangor (UWB) team would conduct a survey of the business and public sector stakeholders of North West Wales and Eastern Ireland as part of this study.

Wherever a firm is located, connectivity, access and cost are important factors in the 21st century, and this is reflected in the long-term strategic investment decision-making process (Wong, 1997). The monetary cost of lost time due to road congestion, and the falling cost of air travel, have contributed to the rise in popularity of air travel as an attractive alternative that facilitates the expansion of entrepreneurial activity into new markets.

The purpose of the survey was to gauge the perceptions, views and travel needs of employers and other stakeholders in North-West Wales and Eastern Ireland, and to sensitise them to the possibilities presented by the Air Bridge. This section begins with a brief description of the methodology that was used by the team, followed by a summary of the survey findings.

### **5.2 Methodology**

The survey was conducted by the UWB team over a twelve week period between July and October 2005. The sample group was selected by identifying industries using the Standard Industrial Classification (SIC) across Anglesey, Conwy and Gwynedd (the three counties of North West Wales). We selected respondents by SIC on a basis that would provide a representative sample of the needs of organisations located in North West Wales. The main sectors and industries selected were:

- public sector organisations, including local authorities, NHS Trust, regional and local enterprise agencies;
- firms engaged in manufacturing and service delivery, including food production, general manufacture, knowledge-based industries, professional services firms, retailers, wholesalers and distributors, construction firms, hotels, leisure and tourism operators, culture and heritage organisations, media firms, and representatives of employers' organisations; and
- social enterprise organisations, including those engaged in culture and media, community care, environmental reclamation and recycling.

Using the structure described, two organisations from each of the industry sectors were selected, one for face-to-face interview and a second for postal survey. To ensure that the quality of the data collected was of a high standard in all cases, requests for face to face interviews and postal surveys were personalised and addressed to the senior person on site. All respondents that participated in the mail survey received a personalised letter, questionnaire, a 'flyer' that explained the development of air services at Valley and the Air Bridge project, and a pre-paid addressed envelope. The postal survey achieved a 33% response rate which is particularly high for a postal survey and we interpret this as indicative of an interest in the

development of Valley airport and the Air Bridge. All survey materials were produced in a bilingual (Welsh/English) format.

### 5.3 Survey Results

**The Importance of Ireland.** To understand the strategic importance of Ireland to the economy of North West Wales, respondents were asked whether Ireland is an important market to their business. The results revealed that Ireland is important to 52% of respondents. This finding suggests that while there is a significant ‘base’ of current business activity between North West Wales and Ireland, there remains significant scope to increase business activity and co-operation between the two regions and that the Air Bridge has the potential to further integrate the two regions to their mutual benefit.

**Inter-regional relations:** Ireland is an established market for Welsh goods and services, and the relationships which underpin this were also examined by the survey. Building personal business relationships with Irish investors was reported by respondents to be an important formula for achieving long-term business success. The Celtic heritage common to both Ireland and Wales was identified as an important channel through which the two regions may further integrate and cement relations. Already there are a number of cultural events which enjoy considerable success along these lines, such as the Stena Llandudno Choral festival, which enjoys significant success in attracting choral groups from Ireland. Tourism industry respondents suggested the important role that the Air Bridge may have in attracting additional Irish visitors to the region. Although the number of tourists visiting from Ireland each year has slowly declined in recent years, this contribution is still significant at approximately 58,000 per annum (Wales Tourist Board, 2003). Evidence also emerged of Irish investment in the North-West Wales property market, with Irish investors beginning to take advantage of the lower property prices of North Wales relative to Dublin.

**Irish Firms in North-West Wales.** The UWB team identified just five Irish-owned companies currently operating within the North-West Wales region (although there are other Irish firms operating across the wider region of North Wales, and there may be others in North West Wales). Three of these are UK sales and distribution operations, while the other two are manufacturing and distribution operations. According to employee size classification, two of these companies are medium-sized, one is a micro business employing just two people, and the remaining two are small.

Face to face interviews with these companies yielded the following results:

- In all cases, Dublin was the first destination of choice for air travel, with London ranked second and Cardiff in third place.
- In all cases, the current fast ferry service was the favoured mode of travel to Dublin. Four of the Irish respondents regarded as extremely important to this choice the ability to work in the on-board executive facilities, and the flexibility to take cars or vans to deliver or collect supplies. The slower “cruise ferries” were not favoured.
- Congestion in and around Dublin, coupled with the location of Dublin Airport itself, were cited by four of the five respondents as a main reason why development of air services from RAF Valley to Eastern Ireland would not change their existing travel arrangements. (However it should be noted that the Irish Government recently

announced the “Transport 21” initiative, which includes plans to build a fast rail link to Dublin airport, and improve the road network (Irish Department of Transport, 2005)

- The cancellation of sea ferries during autumn and winter was cited as a concern, having been experienced on more than one occasion by three of the five respondents. (Cancellation data are commercially sensitive and are not publicly available, but anecdotal evidence suggests that bad weather does cause cancellations and that these are more frequent in the winter months; severely inconveniencing business travellers. For example, the Stena Explorer HSS fast ferry is not available during January 2006 as it undergoes annual maintenance.)
- Four of the respondents reported that the introduction of air services at RAF Valley would not change their business or marketing plans. However, 60% believed the Air Bridge could have a beneficial effect on their customer and supplier relationships. Irish companies based in North West Wales with customers in the South of England would also value an air link from Valley to London.

**Destination Preferences.** An important outcome of the survey was to identify which of the three destinations (Cardiff, London and Dublin) suggested in the Intra-Wales Scheduled Air Service Study would be the most preferred destination. Respondents were asked to rank the three destinations in order of importance to their business needs, with 1 representing most important and 3 least important. The mean score for each destination was calculated to establish its rank. In order of most preferred destination, the results were:

- **LONDON** – 2.06
- **CARDIFF** – 2.36
- **DUBLIN** - 2.42

It is perhaps not surprising that London should be ranked as the most popular of the three destinations, given its importance as the capital of the UK and its status as an international city. Assuming a strong correlation between this ranking and eventual passenger numbers, this finding seems to be at variance with the passenger forecast (10,439pax p.a.) identified for the London route in the Intra-Wales Scheduled Air Service Study for the WAG. Our findings suggest that this forecast significantly under-estimates passenger traffic on this important national route. Based on the survey rank and our own forecast for the Valley-Dublin route, we estimate that a London route could attract in excess of 40,000 passengers per annum. The closeness of the mean scores for Cardiff and Dublin supports the earlier finding of this report that indicates very little difference in terms of anticipated annual passenger volumes as between the two destinations (Cardiff: 25,882, Dublin: 24,050 – 38,480). It remains to be seen how the analysis presented here will translate into actual passenger volumes once air services begin in October 2006 (*Daily Post* – 5th November 2005).

Much will depend on the nature of the carriers – i.e. a large low-cost carrier as opposed to a smaller regional carrier – that eventually operate the services to these destinations. Success will also depend on Dublin coming to be viewed as a useful alternative hub, given that our analysis in section 4 above suggests that it is more attractive – but not *significantly* more attractive – than Manchester in terms of access to the wider air services network.

**Response to Valley airport by business.** Political leaders in Anglesey are generally hopeful that Valley airport will contribute to the regeneration goals of the region. To assess whether a mechanism exists by which these goals might be realised through the behaviour of local firms, respondents were asked:

- Does your organisation have a marketing strategy or business plan?
- If Yes, will it change to reflect the addition of air services at RAF Valley?

81% of respondents confirmed that they have in place a marketing or business plan, and 49% of respondents stated an intention to amend their business plan in response to the introduction of civil air services at RAF Valley. This response suggests that there will be a positive response by local businesses to the development of these air services, which will assist in the realisation of the regeneration goals.

#### **5.4 Summary**

Ireland is important to the economy of North West Wales, and this was reflected in the survey results. Irish companies that are currently located in North West Wales and make use of the fast ferries could see the potential benefits of an air service to Dublin as a means of overcoming some of the shortcomings of surface transport. Congestion and land costs in and around Dublin make North West Wales an attractive business location.

The Air Bridge survey has given those who are intensive users of transport the opportunity to express their destination preferences and it has sensitised them to the prospect of improved connectivity and accessibility to Dublin and alerted them to the opportunity it may afford their organisation. Overall, there was a genuine enthusiasm for the prospect of establishing scheduled air services at Valley among respondents and what it may bring in terms of new opportunity to North-West Wales.

## **6. Stakeholder Consultation**

In discussing Ireland and North West Wales, it is easy to emphasise the historic and cultural links that bind the two regions and to look for similarities and symmetries on which economic and social partnerships can be established. It is also possible to be persuaded that significant business enterprise links exist, a perspective reinforced by the well-developed ferry services which join the two economic spaces and from which visible traffic flows are generated.

Against this background and to set the North West Wales survey results within a local context, a series of consultations with key strategic stakeholders across the region was carried out. These consultations took the form of face-to-face discussions with representative organisations, including the North Wales Economic Forum, CBI in Wales, Directors of Strategic Planning & Regeneration in Anglesey, Conwy & Gwynedd County Councils, North Wales Tourism Partnership, North West Wales NHS Trust, Snowdonia National Park Authority, and Welsh Development Agency in North Wales and Ireland.

Since Ireland already enjoys a well-developed network of regional civilian air routes, consultations in Ireland were confined to representative trade and employer associations. Informal opinions on the potential of the Air Bridge were gained from a range of Irish organisations, including. Swords-Final Chamber of Commerce, Dublin Chamber of Trade, Dublin Business Centre, Ireland's Small Business Forum, Blue Book in Ireland, Irish Exporter's Association, Knock Regional Airport, the J T O'Toole Centre, Holyhead, on behalf of the Holyhead-Dun Laoghaire Community Partnership and the Welsh Development Agency's representative in Ireland.

It is in the nature of consultations of this type, that a range of views and priorities will emerge. In the interests of brevity, comments from the consultation process have been extracted and expressed as four broad themes:

### **6.1 Transport Infrastructure**

The collective voice emerging from the consultation process suggests a need to harmonise and build a patchwork of business-ready infrastructure to support the new opportunities arising from development of the Air Bridge, by linking an improvement to the transportation infrastructure to the changing needs of the tourism industry.

Discussing tourism in the context of transport infrastructure, results extracted from "Tourism Satellite Accounts" (Jones et al, 2004) suggest that the tourism economy in Wales is, in terms of relative scale and importance, much the same as for Scotland and the UK as a whole. The Satellite Account goes on to identify that, in Wales, value-added is concentrated much more in 'hospitality' sectors such as accommodation, food and retail, than for the UK, as a whole, where transport services are proportionally more important. They comment that this is because: 'Wales cannot lever much of the spending associated with international arrivals or inter-regional public transport, due to the lack of infrastructure in the region'.

Following this theme, the TSA for Wales highlights high proportions of tourist spend on road transport, £89.2m, with sea and air transport account for a relatively low £5.3m. 'Tourism in North Wales' reports that during 1999, the main method of transport used by UK tourists to reach North Wales was the car, accounting for 90% of all tourism trips and 91% of all holiday

trips, with 4% by organised coach tour and 3% by train, leaving just 3% of trips accounted for by air or ferry.

Against this background, our consultations with representatives of the tourism industry identified a range of experiences arising from quality of transport infrastructure in North West Wales, specifically:

- Late arrival of guests (due to delays on North Wales roads) resulting in a poor impression of the area en route and short-temperatures at the end of a long journey
- A typical 7-hour journey Friday evening journey from the South of England to reach a weekend break hotel destination in North West Wales.
- Hotel staff needing to work hard to overcome negative first impressions: the legacy of an unpleasant travel experience en route to North West Wales
- Overseas tourists to North West Wales reported to arrive by train and taxi from South of England, and Airports in North West England

Although tourism is particularly sensitive to transport infrastructure, it should be noted that the business community also cited the poor transport infrastructure in and around Dublin as a reason for looking to set up in Wales. Our respondents representing the business community in both Ireland and Wales saw the Air Bridge as a positive addition to existing infrastructure and indeed it was suggested that further links be made to western Ireland where air travel is seen as overcoming poor surface transport infrastructure.

## **6.2 Labour Market**

The consultation brief did not set out to investigate labour market issues per se; merely to identify broad recruitment plans for the coming twelve-month period and then in support of business plans. The unusually high level of unsolicited comment (72%) may however be taken as an indicator of the general level of importance and concern attached to labour market issues by individual organisations across North West Wales.

Consultations identified specific concerns about recruitment and retention, and the local skills level in particular. Difficulties encountered in the recruitment of not only young (and Welsh speaking) graduates and professionals, but also senior managers, software engineers and other 'specialist' managers were recorded. Improved accessibility and connectivity by air to the region was welcomed and was seen as a positive lever in an increasingly competitive labour market.

The manager of one Irish owned company explained that the local labour pool, and from which he was building a new team, presented some difficulties. The experiences of this manager are reflected in the findings of a study carried out by Future Skills Wales (2003), in which it is reported (at p7) that communication, ability to follow instructions, showing initiative, team work and adaptability are required at high levels, and (at p13) that whilst most individuals appreciate the need for greater skills levels in the current employment market, those in work

report that their skills are much higher than employers need while those out of work believe their skills are slightly higher than employers need.

Consultations also identified organisations using a range of innovative strategies to attract and retain graduate level staff, doing so with varying degrees of success. Also, that specific industries, for example, water sports and outdoor activities, can act as strong magnets for young recruits. Further, that training and flexible leave arrangements, linked to imaginative employment practices, can enhance attractiveness and, in turn, improve retention and leakage rates of young people.

### **6.3 Tourism**

The importance to the Welsh economy of Tourism activity is well documented, with over 60,000 people estimated to be employed in hotels and restaurants across the country and contributing 3.3% to GDP in 2003 and 5.6% of Welsh value-added GDP (Jones et al, 2004). Tourism contributed over €4b to the Irish economy in 2004. (Irish Department of Arts, Sport And Tourism: 2004).

Taking into account a reported increase of 11% in numbers of travellers to the UK from Europe (IPS Survey: 2005) and the relatively high spend by visitors (home and overseas) on road transport in reaching Wales, low-cost direct access by air is seen as an attractive option.

Regular fly-drive holidays and short breaks to Ireland from European (and to other destinations in England and Scotland) centres such as Switzerland, Holland and Belgium were described, confirming a growing trend, again highlighting the importance of regional air connectivity. (Welsh Rarebits: 2005)

Based upon historic patterns and a growing propensity to fly, it was also noted that:

*“The Irish are well disposed to specific offerings from the North-West Wales region in particular”* (Hotels Marketing Group: Ireland: October 2005).

Further consultations point to recent increases in tourism visits to Wales from across the UK, indicating that changing preferences reflected in increasing concerns for personal safety when travelling abroad, the ability to reach home in times of crisis, coupled with renewed support for the home economy, are now reported to be affecting consumer travel decisions.

The changing trends described may, to some extent, be reflected in new offerings, for instance: forms of ‘Sustainable and Geo-Tourism’ and ‘Gastro and/or Food Tourism’. (Swords-Fingal Chamber of Commerce: November: 2005) Such forms of ‘Sustainable Tourism’ are seen as increasingly important to both travellers and the places they visit, defined as Tourism that encompass four broad themes: visitor satisfaction, industry profitability, community acceptance and benefit, and environmental conservation.

Further, anecdotal evidence suggests that whilst Scotland is attempting to promote a new image, through the development of a cultural calendar, aiming to attract national and international tourists by direct air travel, the promotion is also designed to present Scotland as an attractive place to live, work and do business. Against this background, our local consultations revealed a need in North West Wales for:

- at least one major all-weather-year-round visitor attraction;
- a review of winter-closing policies of castles, historic houses and other major attractions;
- improvement to ‘quality of experience’ standards, including hygiene and customer service
- acknowledgement of concerns about traffic congestion and length of journey by car, combined with rising fuel costs during 2005, with direct air connectivity providing new direct access opportunities
- co-ordination of ‘Sustainable’ offerings, incorporating themed guided and structured walks and tours
- changing patterns of travel and customer requirements suggesting a need to re-appraise certain aspects of the North Wales offering.

#### **6.4 Making the Connections**

Reflecting commitments expressed jointly in the All Wales Spatial Planning Strategy, (WAG: 2004) and “Delivering the Connections” (WAG: 2005) a main theme distilled from the consultations was the need to break down barriers between authorities and agencies, to build alliances and coalitions for the benefit of the North West Wales region as a whole.

Development of air services at RAF Valley were also cited by many participants as the timely opportunity to bring agencies and authorities together for the mutual benefit of both regions.

Arrangements to convene more formalised working arrangements, in the form of a ‘Continuation Group’, should, it was suggested, move forward without undue delay. Working with newly identified partner organisations to drive the project forward, the Continuation Group should provide the main conduit through which the economic potential of the Air Bridge could be maximised.

From themes that emerged during the survey, the main purpose of the Continuation Group may be summarised as: Overseeing the development of a new ‘economic space’ and to ‘achieve measurable improvements to inter-regional social and economic co-operation, doing so by shrinking both time and distance through strategic improvements to the inter-regional transport networks and infrastructure.

In this way, pivotal activities outlined in the All-Wales Spatial Plan (2004) may also be addressed, specifically, to

- o Ensure WAG and its partners and agents develop policy in ways which take account of the different challenges and opportunities in the different parts of Wales and;
- o Provide a basis and momentum for working together on a shared agenda locally, so that the different partners in Wales can establish their own distinctive approaches to meet the objectives set in strategic plans

Developing themes identified within national economic, regeneration and spatial plans and from a detailed analysis of the two economies, it was suggested that an effective basis for inter-regional planning and collaboration might be achieved.

Rather than sector specific strategies, or traditional large-scale investment patterns, a new spatial model of economic development was described, acknowledging already strong historic and cultural commitments, to focus on:

- micro, small, and medium sized enterprises, family owned businesses and associated networks;
- knowledge-based enterprises and networks, especially in peripheral and scattered communities; and
- integrated inter-regional tourism, including tourism for heritage, culture and leisure purposes.

## **Summary**

Forging stronger connection between communities is an important component of European regional policy. Consultations with stakeholders across the region reflect an appreciation of this view and indicate a collective desire to capitalise on the new opportunities and benefits conferred by air services between RAF Valley and Dublin. Transport infrastructure was seen as as important and that the Air Bridge would make a welcome addition to the existing provision. A need to strengthen skills in the North Wales labour market was identified by Irish firms in the area. Tourism is a significant contributor to GDP in both regions and modern transport infrastructure is seen as an important factor and an aid to inter-regional tourism. Irish tourists contribute significantly to tourism in North West Wales.

The view was also expressed that a formal group be created to monitor and progress the initiative and to maximise the range of opportunities presented to individuals and organisations across the region.

## 7. Conclusions

### 7.1 Findings

The main findings of the report can be summarised under the following headings:

**Hinterland Analysis** - A comparison between the catchment areas surrounding RAF Valley, Dublin Airport, Holyhead Port, Dublin Port and Dun Laoghaire Port suggests that the population served by the Air Bridge – in the sense of residing near either end of the route – will not be significantly larger than that which is currently served by existing ferry services. However, when catchment areas are defined by reference to total journey time rather than distance from the respective nodes, it becomes clear that the increased crossing speed available under the Air Bridge can be expected to facilitate significant (up to 60%) increases in the catchment-area populations.

To the extent that ease of contact facilitates inter-regional trade and investment, this effect can be viewed as an enlargement of a common economic space taking in Eastern Ireland and North West Wales.

**Socio-economic Impacts** - Following the establishment of civil air services, which is proposed to occur later in 2006, Valley Airport will be the principal civil airport of North Wales, and in this capacity will generate direct benefits for the economy of North West Wales. In attempting to quantify these benefits, we have focused on travel time savings and employment creation.

Based on existing travel patterns across the Irish Sea, we estimate that the Air Bridge has the potential to deliver annual travel time savings with an aggregate value of between £964,000 and £1,886,000. This benefit will be distributed among the users of the service, so will be shared between residents of Eastern Ireland, North Wales and travellers from outside the region, and a portion will also be appropriated by airlines by way of ticket price. Over time this benefit could increase significantly if travellers continue to switch from the fast ferry services to the Air Bridge, and if the successful marketing of the Anglesey area as a tourist destination attracts additional traffic.

It is likely that the direct employment effect of the establishment of air services at Valley will be confined to the airport terminal, but we believe that a small number of additional jobs will also be created outside the airport through induced and indirect employment effects. We estimate that approximately 21 jobs will be created in and around Valley Airport in this manner. There will also be a catalytic employment effect which we have not attempted to quantify. Passenger traffic across the Air Bridge will form a major component of these employment effects.

**Accessibility** - We have also considered the extent to which passengers will be attracted to the Air Bridge in order to gain access to the wider network of international air routes, particular those serving Dublin Airport. We have carried out a quantification and comparison of the accessibility of Dublin Airport, Manchester Airport and other major Irish, UK and European airports, and have found that Dublin Airport offers the best access to routes serving other UK and Irish airports. When the range of destinations is widened to include continental Europe, the accessibility of Dublin Airport continues to exceed that of Manchester Airport, but by a smaller proportion. Manchester Airport offers the best access to North America.

The question for residents of North Wales will be whether, at the start of a multi-hop air journey, a flight across the Air Bridge to Dublin Airport will be an attractive alternative to an initial surface journey to Manchester Airport. We believe that for journeys to and from distant parts of the UK and Ireland, continental Europe and the US, the Air Bridge will attract additional passengers, and that the economic effects discussed above may therefore be regarded as conservative.

Dublin's North Atlantic traffic is expected to expand in the next two years given new policy agreements between the Irish and US governments. The gradual removal of the Shannon stopover (the existing requirement for a percentage of flights between the US and Dublin to stop en route in Shannon) will contribute to this expansion, and may further enhance the attractiveness of Dublin as a connecting node for North Wales.

**Perceptions of the Business Community and Stakeholder Consultation** - Perhaps not surprisingly, our survey of business and public sector organisations located in North West Wales has yielded a considerable degree of enthusiasm in principle for the establishment of the Air Bridge, to the extent that the establishment of a formal group has been proposed in order to monitor and advocate in favour of the facility. The business community recognises the potential that improved accessibility and connectivity provides. The stakeholder survey confirmed the importance of existing inter-regional links. They expressed the collective view that the Air Bridge, by shrinking time and distance, would contribute to the strengthening of these relationships in a new economic space.

The Environmental Impact Appraisal concluded that "the study has not indicated that significant environmental impacts will arise from the proposal. However, some concerns were raised over the internationally important populations of bird species in close proximity to RAF Valley and also to the potential noise implications of increased air traffic; it would be advisable for the developer to produce a formal scoping document once detailed plans have been drawn up and flight-paths decided upon.." (EIA 2005 p.21)

## 8. Beyond the Project

The establishment of an Air Bridge will not of itself provide more than modest advantages unless it forms part of a series of initiatives to leverage the benefits. The study shows that the Air Bridge will provide a significant opportunity to attract additional business and tourist traffic by facilitating travel between the regions and enhancing accessibility.

From the study a series of points emerged as follows:

1. There is a very real level of enthusiasm voiced by stakeholders on both sides of the Irish Sea for extending and formalising existing economic links and collaboration and creating a new economic space which should be captured and their expectations realised.
2. There is a need to create a formal continuation group to maintain the momentum behind the initiative and to drive the project forward.
3. Rather than sector specific strategies or traditional large scale inward investment patterns, a new inter-regional spatial model is suggested, acknowledging the already strong historic and cultural commitments by building sustainable links and specifically focusing on:
  - micro, small, and medium sized enterprises, family owned businesses and associated networks;
  - knowledge-based enterprises and networks, especially in peripheral and scattered communities; and
  - integrated inter-regional tourism, including tourism for heritage, culture and leisure purposes.

### 8.2 Suggestions for Further Research

Although this study has been confined to an assessment of the merits of the introduction of Air Bridge services between RAF Valley and Dublin Airport, our survey work has revealed themes, ranging beyond transport issues, that are of common interest to organisations throughout North West Wales. We therefore simply note here that any future study that intends to examine developmental issues in relation to the North West Wales region might usefully address these themes, which include:

- the impact of transportation infrastructure on investment patterns in North West Wales and Ireland, including short/medium term strategies to manage traffic flows across the Britannia Bridge area and along the A55 corridor;
- changing tourism patterns, particularly the development of high-value business and cultural tourism and ‘destination-hopping’ fly-drive travel;
- adverse regional labour market conditions, due to the difficulties in recruiting and retaining high-quality candidates at a range of career stages;
- the potential economic contribution from marine cluster development; and
- strategies for regeneration of the North West Wales economy, and an examination of the prospects for the local replication of the catalytic economic effect of Dublin and Glasgow upon the regions of Ireland, and the Highlands & Islands of Scotland.

## **9. In Conclusion**

The core benefits of the project will only be realised over time and come from improvements to inter-regional social and economic interaction, collaboration and spatial planning, made possible by shrinking time and distance through the strategic enhancement of the inter-regional transport network and infrastructure. This will in turn, result in improved prosperity for communities across the two regions .

# **APPENDIX 1 – SURVEY AND CONSULTATION DETAILS**

## **Wales (Anglesey, Gwynedd and Conwy)**

Interviews and discussions were conducted with small, medium and large organisations across the following sectors of the North West Wales economy:

- local authorities and public administration, including the North West Wales Health Trust;
- local enterprise agencies;
- manufacturing, including food processing, engineering, pharmaceuticals and general manufacturing;
- services, including accountancy, auctioneers and commercial estate agents;
- new technology industries;
- social enterprise organisations;
- retail, wholesaling & distribution;
- construction;
- culture, heritage, leisure & tourism;
- media
- representations from small business and employer organisations; and
- Irish-owned companies operating in North West Wales

## **Eastern Ireland**

Responses from the economic community of East of Ireland were elicited via a series of telephone interviews and informal discussions with representatives of public and local authorities, chambers of commerce, and representatives of the tourism industry.

## APPENDIX 2 - OAG REGIONAL GROUPINGS

Study Grouping	Regional	OAG Region	Countries include	Total Number of Aiports, 2005
<b>Ireland &amp; UK</b>			Ireland, UK	57
<b>Western Europe</b>	EU1		Gibraltar, Faroe Islands, Luxembourg, Iceland, Malta, Cyprus, Ireland, Turkey, Greece, Denmark, Portugal, Belgium, Netherlands, Finland, Switzerland, Austria, Sweden, Norway, Italy, France, Spain, UK, Germany	467
<b>Eastern Europe</b>	EU2		Moldova, Georgia, Macedonia, Albania, Bosnia and Herzegovina, Slovakia, Armenia, Estonia, Belarus, Azerbaijan, Lithuania, Slovenia, Latvia, Romania, Bulgaria, Serbia and Montenegro, Ukraine, Croatia, Hungary, Czech Republic, Poland, Russian Federation	602
<b>Europe</b>	EU1 EU2	+	All EU1 and EU2 countries	1069
<b>North Atlantic</b>	NA1		USA, Canada, Greenland, Saint Pierre and Miquelon	735
<b>Global</b>	All regions		All countries (221)	3275

## APPENDIX 3 – IATA AIRPORT CODES

Listed alphabetically by IATA code:

Code	Name	Code	Name
<b>World</b>		<b>Europe</b>	
AMS	Amsterdam	AMS	Amsterdam
ATL	Atlanta Hartsfield-Jackson	ARN	Stockholm Arlanda
BKK	Bangkok	BCN	Barcelona
CDG	Paris Charles de Gaulle	BRU	Brussels National Airport
DFW	Dallas/Fort Worth	CDG	Paris Charles de Gaulle
DXB	Dubai	CPH	Copenhagen
EWB	Newark Liberty	DUB	Dublin
FRA	Frankfurt	DUS	Dusseldorf Rhein Ruhr Airport
HKG	Hong Kong	FCO	Rome Fiumicino
ICN	Seoul Incheon	FRA	Frankfurt International
JFK	New York J F Kennedy	LGW	London Gatwick
LAX	Los Angeles	LHR	London Heathrow
LHR	London Heathrow	MAD	Madrid Barajas
MAD	Madrid Barajas	MUC	Munich
MIA	Miami	MXP	Milan Malpensa
NRT	Tokyo Narita	ORY	Paris Orly
ORD	Chicago O'Hare	OSL	Oslo
SFO	San Francisco	STN	London Stansted
SIN	Singapore	VIE	Vienna
SYD	Sydney	ZRH	Zurich
<b>Ireland/UK</b>		<b>North America</b>	
ABZ	Aberdeen	ATL	Atlanta Hartsfield-Jackson
BFS	Belfast	BOS	Boston Logan
BHD	Belfast City	CLT	Charlotte
BHX	Birmingham	CVG	Cincinnati Northern Kentucky
BRS	Bristol	DEN	Denver
DUB	Dublin	DFW	Dallas/Fort Worth
EDI	Edinburgh	DTW	Detroit Wayne County
GLA	Glasgow	EWB	Newark Liberty
JER	Jersey	IAD	Washington Dulles
LBA	Leeds/Bradford	IAH	Houston George Bush
LGW	London Gatwick	JFK	New York J F Kennedy

LHR	London Heathrow
LTN	London Luton
MAN	Manchester
MME	Teesside
NCL	Newcastle

LAS	Las Vegas McCarran
LAX	Los Angeles
MCO	Orlando
MIA	Miami
MSP	Minneapolis
ORD	Chicago O'Hare
PHL	Philadelphia
PHX	Phoenix Sky Harbor
SFO	San Francisco
YYZ	Toronto Lester B Pearson

Listed alphabetically by city name:

Name	Code	Name	Code
<b>World</b>		<b>Europe</b>	
Amsterdam	AMS	Amsterdam	AMS
Atlanta Hartsfield-Jackson	ATL	Barcelona	BCN
Bangkok	BKK	Brussels National Airport	BRU
Chicago O'Hare	ORD	Copenhagen	CPH
Dallas/Fort Worth	DFW	Dublin	DUB
Dubai	DXB	Dusseldorf Rhein Ruhr Airport	DUS
Frankfurt	FRA	Frankfurt International	FRA
Hong Kong	HKG	London Gatwick	LGW
London Heathrow	LHR	London Heathrow	LHR
Los Angeles	LAX	London Stansted	STN
Madrid Barajas	MAD	Madrid Barajas	MAD
Miami	MIA	Milan Malpensa	MLP
New York J F Kennedy	JFK	Munich	MUC
Newark Liberty	EWR	Oslo	OSL
Paris Charles de Gaulle	CDG	Paris Charles de Gaulle	CDG
San Francisco	SFO	Paris Orly	ORY
Seoul Incheon	ICN	Rome Fiumicino	FCO
Singapore	SIN	Stockholm Arlanda	ARN
Sydney	SYD	Vienna	VIE
Tokyo Narita	NRT	Zurich	ZRH
<b>Ireland/UK</b>		<b>North America</b>	
Aberdeen	ABZ	Atlanta Hartsfield-Jackson	ATL
Belfast	BFS	Boston Logan	BOS
Belfast City	BHD	Charlotte	CLT

Birmingham	BHX	Chicago O'Hare	ORD
		Cincinnati Northern	CVG
Bristol	BRS	Kentucky	
Dublin	DUB	Dallas/Fort Worth	DFW
Edinburgh	EDI	Denver	DEN
Glasgow	GLA	Detroit Wayne County	DTW
Jersey	JER	Houston George Bush	IAH
Leeds/Bradford	LBA	Las Vegas McCarran	LAS
London Gatwick	LGW	Los Angeles	LAX
London Heathrow	LHR	Miami	MIA
London Luton	LTN	Minneapolis	MSP
Manchester	MAN	New York J F Kennedy	JFK
Newcastle	NCL	Newark Liberty	EWR
Teesside	MME	Orlando	MCO
		Philadelphia	PHL
		Phoenix Sky Harbor	PHX
		San Francisco	SFO
		Toronto Lester B Pearson	YYZ
		Washington Dulles	IAD

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