

*Department of the Environment,  
Transport and the Regions,  
and the Welsh Office*

*Wales Air Services Study*

*Final Report*

*Appendices*

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# 1 *Literature Review and References*

## 1.1 *Literature Review*

### *Environment, Transport and Regional Affairs Committee (1998) Eighth Report - Regional Air Services*

This report from the Transport subcommittee reviews the state of regional air services (particularly those into London), following concern that they were being eroded as airlines re-deployed landing slots to more lucrative routes. The report seeks to identify the change in services in recent years, the economic and social impact of these changes, substitution opportunities for Heathrow by mode and other airports, the impact of inefficient airlines and the desirability of Government intervention to reserve slots.

The research included wide consultation with organisations and has collated basic statistics on regional services. It also refers to CAA paper 638 which has a method for assessing economic impact: this was a starting point in our economic analysis.

There are several conclusions which can be applied to the Wales scenario. Firstly, there is no general rule about the economic impact of a new route, but the impact can be significant and is important for business development and inward investment. This inserts a note of caution when deciding on the method for assessing demand: local circumstances are obviously crucial and a general model will need to locate. Secondly, it is important to assess what type of inward investment is appropriate to the services on offer and the Welsh economy.

The report offers clear conclusions about the benefits of air services to different airports. Heathrow is the top choice of firms who need international connections, while for people wishing to access London any of the south east airports would be appropriate. Specification of the services to be provided therefore needs to give a clear statement about the nature of the traveller.

The Government has since (1999) issued its formal response to the 8<sup>th</sup> Report.

### *York Consulting (1997) Economic Impact Study prepared for Cardiff International Airport, pub York Consulting*

Looks at the market opportunities for developing CIA. The possible increase in passengers could give rise to significant employment and business opportunities and develop the inward investment potential of

the region, particularly South Wales. The airport is seen as a critical ingredient for bringing foreign tourism into the country. Perception of access to the airport is lowered by slow access road with capacity limits at present levels of air traffic. Report concludes that the airport is imperative to the country's more integrated role in the European Single Market, that it is a key factor in the future success of the region as economy and that the access road should be improved.

Offers primary research material about the supply and demand for services at CIA and the economic impact of expanding the airports services. Raises issues about surface access to the airport: all modes not just the road.

***Friends of the Earth (June 1998) Cardiff Airport Fantasy pub  
Friends of the Earth***

This report is a critical appraisal of York Consulting's Economic Impact Study of Cardiff International Airport. This reports seeks to show those three key statements concerning regional economic growth, necessity for the access road and job creation predictions of the Economic Impact Study of CIA are unsound or false. FoE views the expansion of the airport as unwanted, undesirable and costly in financial and environmental terms. Debate revolves around inadequate exploration of other transport modes, lack of evidence with respect to economic benefits and incompatibility with the policy context.

Raises questions about the assumptions that are used for predictions, and the political forces behind this research.

***Transport Management & Marketing Ltd, AVMAR Consultancy  
(1984) Air Services in Wales for Welsh Office, Cardiff-Wales  
Airport Joint Committee, Mid Wales Development, South  
Glamorgan County Council, Welsh Consumer Agency, Welsh  
Development Agency***

This is an economic feasibility study of and infrastructure required for air services in Wales. It looks at the operational requirements and costs, assesses demand, identifies destinations to be serviced and identifies the investment likely to be required.

The report concludes that there is no significant frustrated demand for intra Wales air services, wholly contained in Wales. Only one route (Caernarfon to Cardiff) is likely to be financially viable along with a call for Mid Wales aerodrome to serve Newtown and Aberystwyth. Air

travel outside Wales is more viable as is the potential for air taxis and a helicopter service.

The report contributes to the current study as a reference document, containing historic and planning data as well as a methodological statement, from which lessons can be drawn and applied to today's research.

The conclusions should be re-tested particularly to track what has changed in the past fifteen years to affect both demand and supply for jet services and helicopter services. The demand assessment notes the importance of recreational visitors to Wales and oil industry traffic. How have these industries changed? Another problem raised in 1984 was a lack of awareness for services: is this still the case today?

***ACI Europe (Sept 1998) The Social and Economic Impact of Airports***

This study examines the latest evidence on economic impact of airports, updating a previous report in 1992. It concludes that airports are a major economic asset, having both local and regional impacts. It concludes that airports are creators of direct, indirect and induced employment, help to attract and retain industry, and are vital to tourism development and hence offer economic and social benefits. The study offers a methodology for assessing the employment impact of expanding / new airports.

***DTZ Pidea (September 1998) UK Airports Economic Impact for BAA pub DTZ Pidea***

Reviews existing studies on the economic impact of airports, although Cardiff Airport is not among the selected. Also includes a brief overview of demand characteristics of air travel and the historic growth of air travel. It provides a set of economic models for determining direct, indirect and induced employment.

***Michael Donne (3/9/98) Regional Jets in the Financial Times and***

***Small Jets Arriving (September 1998) Aerospace International edited abbreviation of Jetting Together by Douglas Nelms in Rolls Royce Magazine***

Discussion of the role of regional jets, their operational specification, position within the demand hierarchy and future market potential. Of general interest to the technical discussion about short regional trips. Demonstrates the growing demand for such aircraft reflecting diversification and growth of demand for air travel.

### *Welsh Transport Policy Statement*

Para 11 Commitment to North South links: roads, rail and air

Para 12 Freight growth by rail

Chapter 2 broad overview of the Welsh Population and transport networks. Airports: Cardiff ambitious programme to upgrade services, over one million passengers, want to increase number of destinations. Smaller airports have potential for expansion for business market. No mention in this chapter of plans to increase rail services.

Para 2.10 Powers of the Secretary of State of Wales to make payments for public transport:

- Transport Grant: support of integrated transport strategies
- Freight Facilities Grant: cost of facilities to transfer goods to rail / road/ waterways
- Grants in respect of public transport infrastructure
- Rural Transport Innovation Grant: Set up innovative public transport services in rural Wales

These responsibilities will be taken over by National Assembly.

Para 2.17 Passenger and rail freight services to be strategically planned by a Strategic Rail Authority for Great Britain.

Para 2.22 Welsh Transport Advisory Group has already been established to provide advice on the development and implementation of the ITS, and promote co-operation. What is their input to this project?

Para 3.9 recognise potential of rail to improve north-south links.

Para 4.4 Rural local authorities will have access to transport capital support for new infrastructure. In areas heavily affected by tourism.

No specific airport chapter, mentioned within the infrastructure description chapter.

Para 8.8 Wales Air Study research is identified. Possible demand from the NE and NW to Cardiff to serve the Assembly: “consider the scope for new and enhanced services as well as the role of airports in economic development”. Train at present between N and S does not serve Wrexham. Discussions with operators are underway to try and increase the service destinations and frequency. Report indicates 1 train per day.

Para 8.10 says in relation to tourism that 90% of visitors came by car compared to 80% in the UK. 18% of overseas visitors use their own cars compared to 10% UK average. This difference may reflect little more than the with/without London difference nationally.

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## 2 *Consultation*

### 2.1 *General approach to consultation*

- 2.1.1 The Study followed a staged approach to consultation, involving an initial written request for response, followed by a programme of meetings and site visits. It is important to note that none of these consultations or contacts is envisaged as in any way substituting for the formal consultation process which the DETR and the Assembly will carry out once this Study and its companion Regional Air Studies are complete. This was explained in the initial letter to consultees. Details of the consultation are provided in the table which follows.

#### *Initial written consultation*

- 2.1.2 An initial letter was sent to 22 local authorities and 17 other agencies and bodies, as listed below. Subsequently, others were added. The letter sought views and information on the development of air services in Wales. Fourteen of the Councils and all but one of the other contacts responded, showing a considerable level of interest. The Councils who did not respond were mainly in the Valleys area of South Wales.

#### *Meetings & site visits*

- 2.1.3 Follow-up meetings with twelve of these contacts were then held, often involving site visits to the air facilities and / or towns in the relevant area. Extensive telephone consultation and fax exchanges have also backed up the initial contacts.
- 2.1.4 Further contacts were made with MPs, the four regional economic forums, the WDA (centre, Mid-Wales and North Wales), Welsh Local Government Association and the Mid Wales manufacturing group, to discuss specifically the relationship between air services and how local economic development constraints can be released by air service development. A presentation was also made to the WDA's automotive manufacturers' liaison group meeting in Swansea.

#### *The Reference Group*

- 2.1.5 A "Reference Group", comprising air, environmental, economic and other transport interests was established by the clients, and met twice in 1998 and twice in 1999 to consider study issues and papers prepared by the team. The national Seminar, originally intended for the later stages of the Study, and drawing together all those with an interest in the subject, was not in fact held; because of the possible conflict with the election period for the new National Assembly.

2.1.6 The major aviation bodies were contacted, including the airlines, other air service operators, and the airports – including, in BAA’s case, exploration with their rail team of the potential for linkages around Heathrow. Within Wales, detailed discussions and visits were held with airport owners and operators at Cardiff CWI, Cardiff Heliport, Welshpool, Caernarfon, Withybush, and RAF Valley / Mona. Telephone discussions and / or meetings in London were held in respect of Swansea, Hawarden, Aberporth and Severnside. Other air facilities were dealt with by correspondence. Outside Wales, detailed discussions have been held with airport operators at Manchester, Birmingham, Liverpool, Bristol and Gloucester / Cheltenham.

## 2.2 *Response*

2.2.1 As noted, the majority of consultees responded with interest to the consultation either with a formal letter, reports and information, a telephone call, or a request for a meeting. The responses are summarised below.

2.2.2 The responses were extremely helpful in providing additional data on facilities, in summarising local authority attitudes to economic development potential and/or environmental concerns, in explaining how service and infrastructure operators saw the potentials and the constraints, and in contributing to the overall balance which the consultant team brought to its judgements.

2.2.3 Whilst there were few major surprises in the responses, some notable features can be outlined:

- Several of the local authorities (in South, West and North West Wales) are very interested in and broadly positive about, the development of air infrastructure and services in their area;
- Little work had been carried out to date to establish the nature of the economic development potential and linkages which such air development might help with (this was subsequently tackled through the business survey reported in the main study);
- Wales has a stock of interested and already-active businesses in the air sector, which represents a considerable asset for development;
- Few of the facilities or proposals reviewed appear to raise serious environmental issues, although two do (proposals for road access

improvement to Cardiff Airport, and for a Severnside Estuary Airport);

- There appeared to be no major dissent from the prospect of air service expansion in and serving Wales;
- There was less of a consensus on the question of ground transport, both as an alternative and as a feeder to air, especially in relation to surface access routes to Cardiff International.

## 3 *Benchmarking*

### 3.1.1 *Benchmarking analyses were undertaken to meet 3 objectives:*

Objective A: **Maximum Scale:** identify the levels of air services in countries / regions which are significantly more wealthy, to understand the upper limit of air travel experienced today. (**Sweden, USA**)

Objective B: **Typical Scale:** identify the level of air services in countries which are broadly comparable with Wales, to understand the relative level of provision of air services in Wales; (**Denmark, Eire**)

Objective C: **Policy Lessons:** identify the impact of policy initiatives in favour of regional air services development. (**France**).

3.1.2 Comparable data were not available in some of the categories of information that ideally were required, so that comprehensive comparison tables could not be compiled. The benchmarking results discussed in the main report have therefore been used in an interpretative fashion in relation to specific items of discussion.

3.1.3 This annex includes base information collected as part of the benchmarking work as follows:

- Tables by country and by centre, relating to Objective A.
- Detailed information collated in relation to Objective B.
- Matrices of Danish and Irish air services relating to Objective B.
- Chart showing distances between airports, relating to Objective B.
- Map showing relative size of countries, relating to Objective B.

### 3.1.4 *Objective B Data*

#### *Introduction*

3.1.5 The countries were chosen for their comparability in relation to wealth (Eire), population density, geographic peripherality (Denmark) as shown below.

#### *Summary of Comparison Indicators*

	Wales	Denmark	Eire
GDP per capita (\$US)	13,500	32,119	19,612
Population Density People/km <sup>2</sup>	141	123	52
Peripherality – remote areas	YES	YES	YES
Topographical barriers to travel	YES – Mountains, estuaries	YES - Seas	Yes – Estuaries and lakes

3.1.6 The key differences between the countries which may affect air service patterns are to be:

- Greater wealth in Denmark
- Relatively small population in Wales (2.92 million compared to 5.29 million in Denmark and 3.6 million in Eire)
- Less dense settlement of Eire.
- Business dominance of Copenhagen and Dublin over the rest of the country. Wales has a more geographically diverse focus (Cardiff, north / midland regions of England, Bristol and London.), although this is like to be strengthened towards Cardiff as the Assembly gains status.

3.1.7 For each country we have analysed the frequency and destination of air services, passengers numbers and (where data allow) the propensity for residents to fly.

#### *Airport Location*

3.1.8 The map shows the location of airports with routed flights (chartered or scheduled) in relation to population density.

3.1.9 The location of airports is related to population. The major international airports in each country are located in the most densely populated areas. Regional airports occur in less densely populated areas and sparsely populated areas, but at the local level are located close to medium-large county and regional centres. Airport location also appears to bear a relationship with distance from the major international / domestic hub and the location of business. Both these aspects are considered in more detail below.

### *Role of Regional Airports*

3.1.10 The following table summarises the air services in Denmark and Eire during 1998. Information was gained from airport managers or statistician and the national aviation authority. The proportion of business travellers is an average from all airports able to provide data.

3.1.11 International scheduled services constitute the greatest proportion of passenger movements: 72% in Denmark and 66% in Eire.

3.1.12 Business travel dominates use of regional airports in Denmark, but the picture is more diverse in Eire. In Denmark 75-100% of passengers on scheduled flights (domestic and international) are travelling for business. This national average shown in the table reflects the relatively large number of movements through the Billund Airport, which offers a wide range of interlining opportunities. (Data for Copenhagen was not available.) In Eire, most airports have 10-30% of international scheduled passengers travelling for business reasons, the exception is Galway where 74% of passengers are on business. The proportion of business travellers on other flights ranges from 14-100%.

3.1.13 Leisure travel on regular chartered services is offered from the larger regional airports. (Dublin, Shannon, Cork & Copenhagen, Billund, Aarhus, Alborg).

3.1.14 Adhoc charter flights are available from most of the smaller provincial airports, many of whom also offer air taxis usually destined for locations not served by major airlines.

### *Air Services in Denmark and Eire*

*Llewelyn-Davies*

Passenger Movements- Total 1998			Proportion of Movements that were Business travellers		
<b>DENMARK</b>					
	SCHEDULE D	CHARTERED		SCHEDULED	CHARTERED
INTERNATIONAL	<b>13.7 million</b>	<b>2.5 million</b>	INTERNATIONAL	<b>47.4%</b>	<b>0.3%</b>
DOMESTIC	<b>2.1 million</b>	<b>0.67 million</b>	DOMESTIC	<b>48.0%</b>	<b>94.7%</b>
<b>EIRE</b>					
	SCHEDULE D	CHARTERED		SCHEDULED	CHARTERED
INTERNATIONAL	<b>14 million</b>	<b>1.7 million</b>	INTERNATIONAL	<b>See note in text</b>	
DOMESTIC	<b>1million</b>	<b>0.34 million</b>	DOMESTIC		

NB DENMARK: These figures do not include Esbjerg airport for which no information was available, or Ronne airport, which has no surface access links to Copenhagen.

EIRE: Information not available for Waterford International scheduled. Shannon Airport figures don't distinguish between chartered and international. Assume chartered is one-tenth of scheduled.

3.1.15 Feeder service into a hub airport is the only domestic route offered in both Denmark and Ireland. In Denmark, domestic air travel, as shown in the Figure below, centres around Copenhagen Airport. 9 Regional Airports fly into Copenhagen and all but one have flights scheduled to enable a days business in Copenhagen. Only one other internal route operates – Billund to Alborg. In Eire, Dublin is the honey pot to which all airports except Knock and Waterford fly. 4 out of 6 airports have flights which enable a days business in Dublin and access to interlining. No other internal routes are offered. This is summarised in the Figure below.

3.1.16 In Wales, there are currently no domestic routes.

3.1.17 The Danish, French and Irish experience suggests that the threshold for feeder services into a national hub is approximately 200km. The closest airports to the national or regional hub offering services to the hub are as follows:

- Vojens 238km by road 2 returns / day
- Lyon 173km by road 1 return / day

- Galway 208km by road 3 returns/ day

Such distance thresholds suggest that Caernarfon and Holyhead to Manchester, and Haverfordwest to Cardiff are on the borderline threshold, while Caernarfon to Cardiff is clearly a route which might justify an air service.

3.1.18 A map showing the benchmarking countries and Wales at the same scale is included below. It illustrates that current domestic air services in Denmark and Ireland mostly cover greater distances than between Cardiff and other airports in Wales.

3.1.19 The experience abroad indicates that at such distances, between and 1 and 3 return flights per day is viable, although of course, frequency of service is highly dependent on factors other than distance.

3.1.20 It is not possible to definitively identify the stimuli for the frequency of services and the large number of airports serving the capital. Undoubtedly wealth and population are key factors, and availability of alternative modes of access. The significance of the latter is neatly demonstrated at Odense. The opening of the Oresund road and rail link caused air passengers on scheduled flights to drop from 122,000 in 1997 to 23,000 in 1998 to 0 in 1999. Clearly, there are lessons to be learnt for Wales. By road the airport is 170km from Copenhagen airport, the same distance as from Manchester to Caernarfon or Cardiff to Haverfordwest.

### **Propensity to fly**

3.1.21 There is no holistic set of data giving measuring this behavioural aspect of Danish society. Smaller regional airports serve a local catchment and virtually all passengers live locally. At Billund and Copenhagen 50-60% of passengers were Danish, while at the larger regional airports 80% of passengers were Danish.

3.1.22 Estimates suggest that at larger regional airports, such as Alborg, there are 1.07 movements per capita, given a catchment of nearly 500,000.

Alborg offers wide range of domestic and international services, with no other airports close enough to compete for the county's custom.

- Residents in Nordjyllands : 493,114
- Total passenger movements at Alborg : 663,900

- |  |
|--|
| <ul style="list-style-type: none"><li>• % of movements by Danish residents : 80%</li><li>• Movements / head of population : 1.07</li></ul> |
|--|

3.1.23 In Wales, the population of Isle of Anglesey, Gwynedd and Conwy, all potential users of an airport in the north-east, is 200,000. Applying the Alborg propensity to fly, the north-east airport might generate demand for 214,000 movements. Population in Pembrokeshire and Carmarthenshire is approaching 300,000 which equates to 321,000 passenger movements. These numbers are not to be read as predictions of future traffic, merely as indications of the possibilities. Clearly, the issue of which comes first economic growth or airports is the million dollar question.

### 3.2 *Danish Airports*

#### *Copenhagen*

Passenger Movements- <i>Total 1997</i>			Proportion of Movements that were Business travellers		
	SCHEDULE D	CHARTERED		SCHEDULED	CHARTERED
INTERNATIONAL	12,762,320	1,386,193	INTERNATIONAL	N/A	N/A
DOMESTIC	2,144,495	66,376	DOMESTIC	N/A	N/A

50% of all international scheduled service passengers are in transfer.

Proportion of Danish flyers is difficult to tell but they collect a figure for the number of local departures i.e. not transit passengers. Local departures for scheduled services was 3.7 million (7.4 million two way) and 674,729 chartered departure (1.35 million two way).

Chartered destinations- worldwide but only account for a very small proportion of movements.

Aircraft movements in 1998 - 2800 movements in total. Only 5% were charter & general aviation, 74% scheduled international, 15% scheduled domestic, 6% all cargo.

125 scheduled destinations each week by 71 airlines

Helicopters – Extensive helicopter service for Sweden, used for general transport. Malmo & Copenhagen in 5 minutes. Used by businesses who want quick transfer to international flight at Copenhagen..

Catamarran – 475,000 operations between Sweden and Copenhagen. Many customers in the big companies in Sweden,

Freight – 375,000 tonnes

### *Billund*

Passenger Movements- <i>total passengers in 1998</i>			Proportion of Movements that were Business travellers		
	SCHEDULE D	CHARTERED		SCHEDULED	CHARTERED
INTERNATIONAL	700,000	1,000,000	INTERNATIONAL	<50%	0%
DOMESTIC	190,000	0	DOMESTIC	<50%	N/A

60% of travellers were Danish (Study was completed in 1998 on passenger origins)

Helicopters – adhoc private flying

Freight – Second most important airport for freight in Denmark. In 1998 38,000 tonnes of freight was transported, 60-70% on dedicated cargo planes and 30-40% on passenger flights.

### *Aalborg*

Passenger Movements- Total 1998			Proportion of Movements that were Business travellers		
	SCHEDULE D	CHARTERED		SCHEDULED	CHARTERED
INTERNATIONAL	42,500	27,400	INTERNATIONAL	100%	0%
DOMESTIC	594,000	0	DOMESTIC	75%	N/A

80% of travellers were Danish

Taxi services transported 2100 people to international destinations where large airports don't exist.

Helicopters – none

Freight – Second most important airport for freight in Denmark. In 1998 693,000 tonnes of freight was transported, 60-70% on dedicated cargo planes and 30-40% on passenger flights.

## *Aarhus*

Passenger Movements			Proportion of Movements that were Business travellers		
	SCHEDULE D	CHARTERED		SCHEDULE D	CHARTERED
INTERNATIONAL	83,378	39,471	INTERNATIONAL	N/A	N/A
DOMESTIC	494,771	478	DOMESTIC	N/A	N/A

Charter flights go to Greece, Madeira and Portugal

Not known what proportion of travellers were Danish

Helicopters – No services operate from Aarhus, though helicopters can be given permission to land and take off.

Freight – 3.4 tonnes of which 88% was carried on dedicated freight carriers and 50% was mail.

## *Odense*

Scheduled services ceased in 1998 and there are no regular chartered services. There are no aircraft based at the airport.

## *Roskilde*

Passenger Movements			Proportion of Movements that were Business travellers		
	SCHEDULE D	CHARTERED		SCHEDULE D	CHARTERED
INTERNATIONAL	0	4,000	INTERNATIONAL	N/A	100%
DOMESTIC	0		DOMESTIC	N/A	

Charter flights go to adhoc destinations for business purposes, school flights and inspections

100% of travellers were Danish

Helicopters –2 companies operate charter and taxi services from the airport. Environmental restrictions limit the airport to 4000 operations per annum.

Freight – none.

### *Herning*

Passenger Movements			Proportion of Movements that were Business travellers		
	SCHEDULE D	CHARTERED		SCHEDULE D	CHARTERED
INTERNATIONAL	0	0	INTERNATIONAL	0	0
DOMESTIC	0	0	DOMESTIC	0	0

The main functions of the airport areas a flying and gliding club. Also used by air taxis which serve the conference centre in Herning (the largest in Denmark). Most of these passengers are from Holland, Germany, Sweden and Norway, will limited amount of domestic passengers. This taxi service typically carries 900-1000 passengers each year.

Helicopters – no schedules services but airport used by private owners of helicopters (many farmers) and military. Helicopter school may be set up next year.

Freight – only small at less than 1 tonne in 1998.

### *Karup*

Passenger Movements			Proportion of Movements that were Business travellers		
	SCHEDULE D	CHARTERED		SCHEDULE D	CHARTERED
INTERNATIONAL	2,991	0	INTERNATIONAL	Not known	N/A
DOMESTIC	324,285	0	DOMESTIC	Not known	N/A

Charter flights were last operated in 1960.

The proportion of Danish travellers is not known.

Helicopters – No services

Freight – Very small amount of non-mail freight is carried on passenger flights. (Exact figures not available) 1.5 million tonnes of mail was transported during 1998 on dedicated freight carriers and ...% was mail.

Catchment is the west and midland of Jutland

Taxi services – Not known

### ***Esbjerg***

Passenger Movements- <i>please state unit of measurement used (i.e.Total / departures etc...)</i>			Proportion of Movements that were Business travellers		
	SCHEDULE D	CHARTERED		SCHEDULED	CHARTERED
INTERNATIONAL	13,500	N/A	INTERNATIONAL	N/A	N/A
DOMESTIC	N/A	N/A	DOMESTIC	N/A	N/A

No further information available

### ***Kolding***

No scheduled or chartered services, only a limited taxi service and flying club. Acts as a hangar base for freight carriers operating from elsewhere. Some helicopters use the airport during their agricultural and line inspection work.

#### **3.2.1 *Sonderborg***

Passenger Movements			Proportion of Movements that were Business travellers		
	SCHEDULE D	CHARTERED		SCHEDULED	CHARTERED

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INTERNATIONAL	1900	3000 approx	INTERNATIONAL	0%	100%
DOMESTIC	100,000	1000 approx	DOMESTIC	100%	100%

Charter flights go to range of destinations, but no package holiday traffic. The international scheduled flight to Montpellier is in effect a holiday flight.

International scheduled and charter flights were used mainly by Danish people. The Copenhagen scheduled service has approximately 10% of its passengers from Germany.

Air taxi services serve approximately 650 international passengers and 130 domestic passengers each year (based on September 1998 traffic).

Helicopters – No regular services, but used for refuelling. Military and ambulance services

Freight – a very small amount is carried on passenger services

### *Thisted*

Passenger Movements			Proportion of Movements that were Business travellers		
	SCHEDULED	CHARTERED		SCHEDULED	CHARTERED
INTERNATIONAL	0	400	INTERNATIONAL	90%	100%
DOMESTIC	14,500	0	DOMESTIC	90%	100%

Charter flights go to Sweden and Germany. In May, a taxi service is due to be transferred from Billund and Aalborg to Thisted. This service will fly to Sweden serving particular industries. Passengers will travel by bus and train from the previous catchment of Billund and Aalborg. The service is moving because Thisted offers an uncongested airport.

70-80% of travellers were Danish. BA operates the Copenhagen flight so tickets can be bought anywhere.

Helicopters – No commercial but some private. Also get fee for staying open to serve the offshore oil industry, but they are rarely used.

Freight – nothing, because the aircraft used has no capacity. One company from Copenhagen is looking to set up dedicated service.

*Skive*

Passenger Movements			Proportion of Movements that were Business travellers		
	SCHEDULE D	CHARTERED		SCHEDULED	CHARTERED
INTERNATIONAL	0	2100	INTERNATIONAL	100%	
DOMESTIC	0		DOMESTIC		

Charter flights serve businesses and are used as taxis and fly to both domestic and international destinations. The airport is very small, although scheduled services did fly until 1997. They ceased due to competition from Karup Airport 40 km away.

Virtually all travellers were Danish

Helicopters – None

Freight – None

*Stauning*

Passenger Movements			Proportion of Movements that were Business travellers		
	SCHEDULE D	CHARTERED		SCHEDULED	CHARTERED
INTERNATIONAL	0	0	INTERNATIONAL	N/A	N/A
DOMESTIC	0	0	DOMESTIC	N/A	N/A

The only passenger services are a limited amount of taxi and leisure flights. Taxis predominantly serve the international market and local businesses. Approximately 200 passengers were carried in 1998.

Helicopters – none

Freight – none.

*Vojens*

Passenger Movements			Proportion of Movements that were Business travellers		
	SCHEDULE D	CHARTERED		SCHEDULE D	CHARTERED
INTERNATIONAL	0	0	INTERNATIONAL	N/A	N/A
DOMESTIC	26,000	5-6000	DOMESTIC	100%	100%

All passengers on the scheduled and taxi services live / work within 50km of the airport..

Charter – varied destinations (both international and domestic) to suit adhoc business requirements

Helicopters – none

Freight – none.

Taxi – approximately 5-6000

### 3.3 *Eire airports*

There are 15 airports with paved runways, of which 7 have runways less than 914m. There are a further 29 airports with unpaved runways.

#### *Dublin*

Passenger Movements			Proportion of Movements that were Business travellers		
	SCHEDULE D	CHARTERED		SCHEDULE D	CHARTERED
INTERNATIONAL	11,101,656	1,350,000	INTERNATIONAL	28%	N/A
DOMESTIC	539,444	11,000	DOMESTIC	47%	N/A

Proportion of flyers from Dublin: 39% of international scheduled services and 53% of domestic scheduled services are used by residents of Eire. Information not available for chartered flights.

Chartered destinations- 56 mainly for ski and sun holidays. Many of the scheduled routes, particularly those to America are effectively chartered routes.

Helicopters – no scheduled services, but there are chartered operations and search and rescue

Freight – 134,652 tonnes in 1998 of which 6% was mail and 35% was carried on dedicated freight aircraft.

#### *Shannon*

Passenger Movements- Total 1997			Proportion of Movements that were Business travellers		
	SCHEDULE D	CHARTERED		SCHEDULE D	CHARTERED
INTERNATIONAL	1,664,633		INTERNATIONAL	N/A	N/A
DOMESTIC	157,431		DOMESTIC	N/A	N/A

Irish flyers – not known

Chartered flights – mainly to sun spots. Often get combined / stop off at Cork and Dublin to fill the flight.

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Helicopters – no service other than search and rescue

Freight –43,400 tonnes in 1998. No further information available.

### ***Cork***

Passenger Movements			Proportion of Movements that were Business travellers		
	SCHEDULE D	CHARTERED		SCHEDULE D	CHARTERED
INTERNATIONAL	1,132,472	182,752	INTERNATIONAL	14%	
DOMESTIC	229,322	4056	DOMESTIC		

Irish flyers – Not known

Chartered flights - 18 holiday destinations in Europe and northern Africa

Helicopters – Daily service to the oil rigs

### ***Knock***

Passenger Movements- <b><i>Total 1998</i></b>			Proportion of Movements that were Business travellers		
	SCHEDULE D	CHARTERED		SCHEDULE D	CHARTERED
INTERNATIONAL	184,000	16,000	INTERNATIONAL	30%	100%
DOMESTIC	0	0	DOMESTIC	N/A	N/A

Chartered destinations- Germany, Switzerland, Sweden

Helicopters – No regular service.

Freight - None at present, but are considering moving into this area.

Proportion of passengers who are Irish - approximately 40%

### ***Galway***

Passenger Movements- <b><i>Total 1998</i></b>			Proportion of Movements that were Business travellers		

	SCHEDULE D	CHARTERE D		SCHEDUL ED	CHARTER ED
INTERNATION AL	4793	688	INTERNATION AL	74%	40%
DOMETSIC	77,647	300	DOMETSIC	66%	35%

Helicopters – Information not available

Freight – Very little. Figures not available

60% of passengers are resident Irish.

### *Kerry*

Passenger Movements- <i>total in 1998</i>			Proportion of Movements that were Business travellers		
	SCHEDULE D	CHARTERE D		SCHEDUL ED	CHARTER ED
INTERNATION AL	82,000	2000 approx	INTERNATION AL	10%	100%
DOMETSIC	60,000	5000 approx	DOMETSIC	25-30%	100%

Chartered traffic tends to be all leisure/ conferences. No set destinations, goes all over Europe.

Helicopters – no regular services

Freight – limited amount, approximately 20-30 tonnes in 1998 in the belly of passenger aircraft.

### *Waterford*

Passenger Movements			Proportion of Movements that were Business travellers		
	SCHEDULE D	CHARTERE D		SCHEDUL ED	CHARTER ED
INTERNATION AL		0	INTERNATION AL	Approx 20%	N/A

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DOMESTIC	0	0	DOMESTIC	N/A	N/A
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London Stansted is the only permanently operated scheduled service. Approximately 65% of tickets are sold in UK - many Irish born residents in UK. Service arrives in Stansted at 15.25 allowing limited interlining. Route doesn't suit business users either in Ireland or London.

A positioning flight to Manchester, which enables the Sunday flight to Stansted. Operates during the summer months on Saturday at midday little demand: bring in from Manchester.

The airport is now underused and in decline. Stansted flights enjoy high occupancy but the timing is unsuited to business peoples needs of an early morning flight and evening return. Limiting factor to airport growth is proximity of Cork and Dublin: Cork is just 90 minutes from the city. The population catchment is small, about 300,000 but this is eaten into by other airports.

Freight - none

Helicopters – no passenger services but frequently used by Rescue services and offshore helicopters.

### *Sligo*

No information available

### *Donegal*

Passenger Movements- <i>two-way passenger movements 1997</i>			Proportion of Movements that were Business travellers		
	SCHEDULED	CHARTERED		SCHEDULED	CHARTERED
INTERNATIONAL	8162	0	INTERNATIONAL	<15%	0
DOMESTIC	9908	0	DOMESTIC	60%	0

Private leisure flying is a significant function of the airport. 3656 two way passengers within Eire, and 1155 international passengers (779 – N Ireland, 355 – Scotland and England, 21 – Rest of Europe).

Freight – very small quantity on scheduled flights.

Helicopter services – adhoc use by private helicopters and occasional short term contracts for off shore helicopter services.

## 4 *Modelling*

### 4.1 *Contents of this Annex*

- 4.1.1 A considerable amount of data was produced as part of the SPAM modelling exercise undertaken for the Wales Air Study by the CAA. It would be inappropriate to reproduce all of this data. Included here are summaries of the specification for the SPAM runs, and summary output tables for the important runs.

4.2 *Specification for SPAM model runs in relation to the constraint of south east England airports*

Assumptions were as contained within the Civil Aviation Authority's model and were as follows:

**South East Airports fully constrained:**

- the Heathrow passenger capacity to be held at 65 million from 1998 onwards;
- the Gatwick passenger capacity to be held at 40 million from 2010 onwards;
- the Luton passenger capacity to be held at 15 million in all years;
- the Stansted passenger capacity to be held at 35 million in all years.

**South East Airports partially constrained:**

- the Heathrow passenger capacity is held at 100 million from 1998 onwards;
- the Gatwick passenger capacity is held at 45 million from 2010 onwards;
- the Luton passenger capacity is held at 20 million in all years;
- the Stansted passenger capacity is held at 40 million in all years.

In addition it was assumed that the access time to the south east airports is reduced 30 minutes by the year 2010.

#### 4.3 *SPAM Run Descriptions: Welsh Air Service Study*

**(Supplied by CAA)**

##### Introduction

Three Base Cases (the Low, Central and High) have already been created for the Regional Air Service Studies and these are described in a separate paper, “SPAM RUN Descriptions: Regional Air Services Studies, Base Cases”. The Wales Air Services Study uses a Base Case formed with identical assumptions to the RASS Central Base Case, except for different surface access costs.

In addition eight tests (model runs), which are all variants of the Welsh Base Case, were also commissioned for this work and these are listed below: The tests are referred to as “Scenarios” in this Annex, but are called “Tests” in the main Report (Chapter), in order to avoid any confusion with the policy scenarios developed in Chapter 6.

- Welsh Scenario 1: Small Jets
- Welsh Scenario 2: Small Jets, Partially Constrained SE
- Welsh Scenario 3: CWL Direct, Partially Constrained SE
- Welsh Scenario 4: CWL Direct, Fully Constrained SE
- Welsh Scenario 5: CWL Direct, Partially Constrained SE, Surface Access Variant 1
- Welsh Scenario 6: CWL Direct, Partially Constrained SE, Surface Access Variant 2
- Welsh Scenario 7: AMS Interlining, Partially Constrained SE
- Welsh Scenario 8: MAN Interlining, Partially Constrained SE

All these test scenarios have been run out to 2030 and their specifications are given in the attached tables. The relationship between these scenarios is shown in Figure 1, and it should be noted that they all use the small jet assumptions outlined in Scenario 1 although the words ‘Small Jets’ may not necessarily appear in their titles.

## ***Output***

The output available from a SPAM run is determined by the specification of the report run. For the Welsh Scenarios several reports have been produced and a number of tables formed from this output, similar to those provided for the RASS Base Cases. Each of these tables is described briefly below and contains 1997 actual data and SPAM forecasts at five yearly intervals, starting in 2000, unless otherwise stated. The name of the SPAM report from which the table was produced is shown in italics.

- 1 A summary table giving pax (in millions) and atms (in thousands) for each SPAM UK airport.
- 2 A series of tables giving pax (in thousands) for each SPAM UK airport by DETR destination for scheduled and charter separately. (*AptRoute Report*)
- 3 Detailed records providing information on all international routes from CWL. For each route these will contain total pax, number of direct pax, number of international interliners and number of domestic interliners. (*AptRoute Report*)
- 4 Detailed records providing information on all domestic routes. For each route these will contain total pax, number of end-to-end pax, number of domestic interliners over each airport and a residual. (*New Domestic Report*)

Regional origin/destination tables for the years 1993, 2000, 2010, 2020 and 2030. For each region, these tables show the number of *FirstAptInt* passengers using each airport. *FirstAptInt* passengers contains international passengers travelling on a direct routing or the first leg of an international interlining route; they do not include domestic passengers, international to international interliners or passengers taking domestic interlining routes to international destinations. (*Regional Summary Report*)

## ***Implications of Scenario 2***

From Figure 1 it can be seen that each of the Welsh scenarios build on a previous one. In particular, Scenario 2 was something of a pivotal

run, in that the exact specification of the later runs were dependent at least to some extent on the shape of its forecasts. The main areas which need to be considered are described below.

### *The International Scheduled network at Cardiff*

The international scheduled route network at Cardiff in Scenario 2 determined which routes were “forced” into existence in Scenarios 3-6.

### *The Cardiff - Amsterdam route*

The level of service on the Amsterdam route in 2000, 2005 and 2010 determined whether any frequency boosts were required on that route in the Welsh Scenario 7.

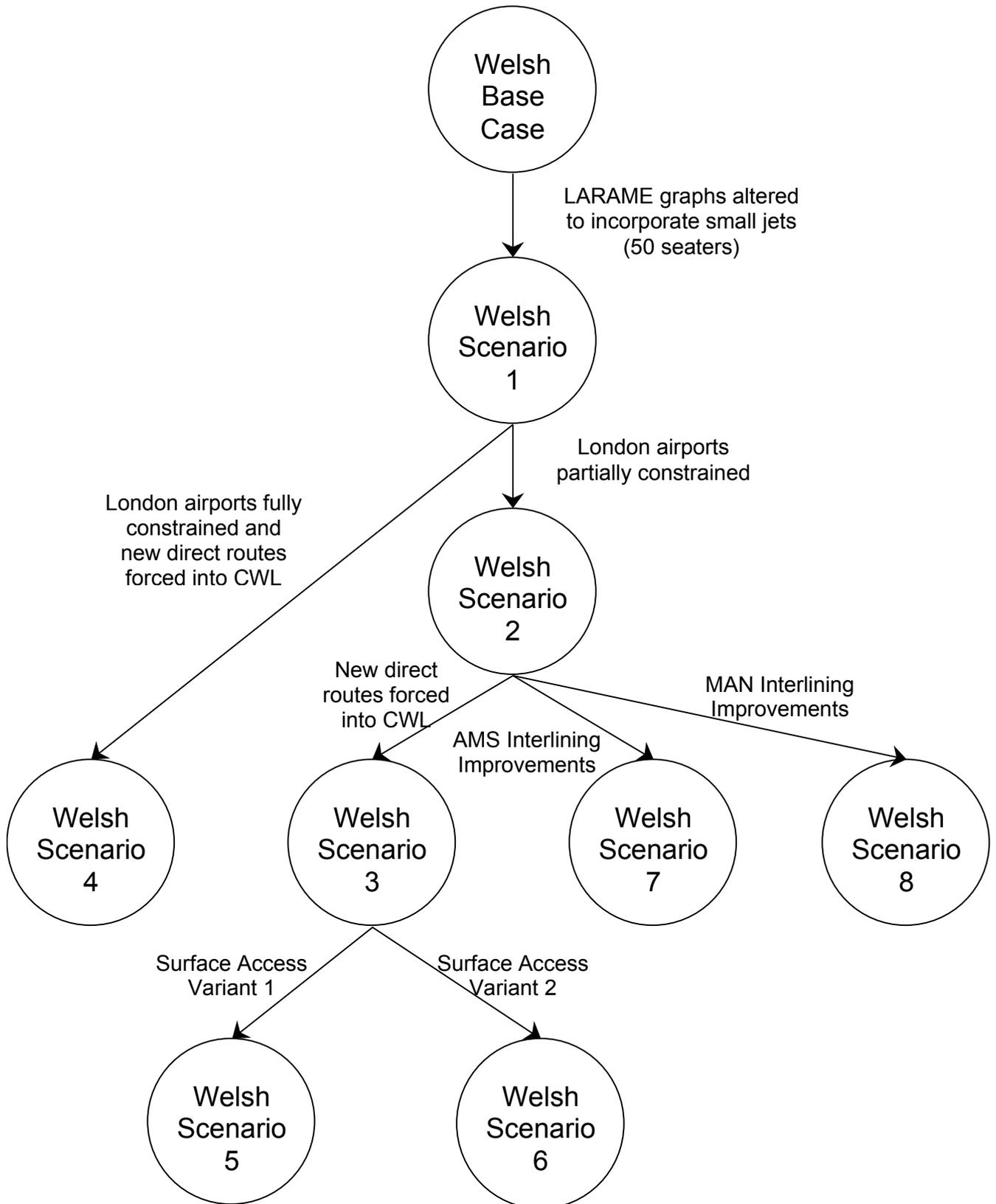
### *Other International interlining from Cardiff*

If other foreign points attracted significant volumes of international interlining traffic, then these options would need to be removed in the Welsh Scenario 7.

### *The Cardiff - Manchester route*

- 4.3.2 The level of service on the Manchester route in 2000, 2005 and 2010 determined the size of the frequency boosts required on that route for Welsh Scenario 8. If Manchester already had the specified level of service then this last scenario would not be needed.

**Figure 1: Relationship between the Welsh Scenarios**



## Surface Access Specification for Wales Air SPAM Model Runs

### *Several Scenarios*

#### General

Existing Cardiff City Centre to the Airport – a 30 minute frequency bus service.

1993 highway network assume to be same as 2000

Present trunk road programme – assume to be completed by 2010

#### Rail Links

Access Cardiff to Heathrow Airport improved giving time saving of 20 minutes by 2010.

New rail link to Cardiff Airport improved to give time saving by rail access of 20 minutes by 2010.

Generally improved rail routes within the Cardiff catchment area predominantly the Valleys and the Shrewbury route – time saving (additional) 5 minutes by 2010.

Westerly rail link to Manchester Airport by 2010 – time saving 45 minutes from Wales.

All existing services (non local services) which terminate at Cardiff General to extend into Cardiff Airport.

#### Roads

Road access to Cardiff airport giving time saving of 15 minutes by 2010 (road schemes or traffic reduction).

### *Scenario 5 Maximum SA improvements to CWL and MAN*

Aim is to test effect of a range of surface access improvements to CWL and MAN coupled with disadvantages to road access to London airports to identify maximum possible impact that favourable SA changes might have on throughput at CWL and MAN.

#### Rail

Upgrading of present freight only line to passenger standard and creation of direct link to CWL.

All non-local rail services currently terminating at Cardiff Central run on to airport.

No shuttle service from Cardiff Central to the airport.

Minor improvements to local services, Valley line, Shrewsbury etc. leading to approximately 5 minutes journey time savings to Cardiff Central.

Direct Westerly link to MAN from Chester to Manchester Piccadilly line. It is understood that the link proposed would be 6km long with 1km in a tunnel under the airport. Joins up with present rail link. Half hourly service from Chester and Knutsford to Manchester Piccadilly via airport.

Minor improvements on North Wales rail line, leading to 5 minute saving between Holyhead and Chester.

All from 2010.

#### Road

Single carriageway road (7.3m wide) from M4 direct to airport (TBI scheme) from 2010.

Congested network in South East by 2010.

Uncongested in all other regions from 2010.

### ***Scenario 6 – SA improvements to London airports***

Converse of scenario 5, with no SA improvements to CWL or MAN, but improved rail access to LHR and no congestion on SE road networks.

#### Rail

20 minute rail journey time reduction between Cardiff Central and Reading. No time saving between Reading and Heathrow assumed.

#### Road

Uncongested networks across whole country, again from 2010.

#### 4.4 *SPAM Output Summary Tables*



## 5 *Airport Infrastructure in Wales*

This section provides detailed information on all known airfields in Wales. It consists of a Table together with Key and Sources of Information.



## 6 *Surface Access, Present and Future*

### 6.1 *Overview*

6.1.1 This section includes information about three studies of surface access:

- 1 An analysis of access times between a selection of origins and destinations;
- 2 Access to Cardiff and other airports serving Wales using an accessibility mapping exercise of the access time assumptions built into the CAA model runs. This was undertaken by Scott Wilson as part of a DETR contract to service the regional air studies;
- 3 Patterns of travel including mode to Cardiff and other airports serving Wales. This was based on an analysis of CAA airport survey data.

6.1.2 Material from each of these exercises is included below.

### 6.2 *Current access choices*

6.2.1 In order to quantify the view that much of Wales is remote from airports and the advantages of regular air service, access from a selection of five origins within Wales to five airports with significant scheduled passenger services was examined. These are shown below:

<b>ORIGINS</b>	<b>DESTINATIONS</b>
Cardiff City Centre	Cardiff International (CWL)
Pembroke	London Heathrow (LHR)
Aberystwyth	London Gatwick (LGW)
Bangor	Birmingham International (BHX)
Wrexham	Manchester (MAN)

6.2.2 The five Welsh cities and towns give a spread across the different parts of Wales. The five airports are the one Welsh airport with scheduled passenger services, the two most important British airports, and two English regional airports nearest to Wales with substantial scheduled services.

- 6.2.3 Travellers' choices about access to airports can be influenced by a wide range of factors apart from the characteristics of the transport system itself, for example perceptions of reliability and cost, which can vary markedly according to the size of the group, and frequency and range of service.
- 6.2.4 Consequently this analysis concentrated on a typical or simplified case in terms of the issue of how readily travellers can reach the different airports. This was carried out by examining the possibility of reaching a destination in time for a 10.00 am meeting, leaving home not earlier than 5.30 am, using drive times by car, and timetabled public transport journey times.
- 6.2.5 The results emphasise the already familiar geography of Wales:
- Cardiff has the advantage of being close to its own airport, and has the added benefit of being connected to London airports by motorway;
  - North Wales has the next best access to air services, but at Manchester and Birmingham, with the London airports next, and very little attraction in terms of access to using Cardiff;
  - West Wales is the most peripheral: Pembroke has better access by car, but both Pembroke and Aberystwyth have generally slow and infrequent access to the airports by public transport.
- 6.2.6 It is also very clear that there are major differences in public transport provision. Cardiff and Bangor, located on the major east-west routes of South and North Wales respectively, have considerably better rail access than the locations at the ends of relatively minor east-west routes (Aberystwyth, Pembroke) or on a north-south route (Wrexham).
- 6.2.7 If we further elaborate the example journey by considering travel to Brussels, a morning meeting starting at 11.00 is possible from:
- Cardiff, via Cardiff Airport; and from
  - Wrexham or Bangor, via Manchester.
- 6.2.8 The first of these can be achieved by taxi, but the others can only be accessed in time by car. Access is not possible in time from Aberystwyth or Pembroke by any means, and the earliest possibility would be a lunchtime or afternoon meeting.
- 6.2.9 The significance of such a single example should not be overstated, but it suggests that it might be justifiable to identify:

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- an area of South Wales, probably including Swansea as well as the Cardiff area, which is well-served to the extent that Cardiff offers scheduled services; with the London airports, particularly Heathrow, as very attractive and reasonably convenient alternatives for many purposes; and
- an area of North Wales which is well served by virtue of the services from Manchester (which are much more numerous than those from Cardiff).

6.2.10 Much of the rest of Wales would have to be described as poorly served, particularly for domestic air travel. The poor quality of access by rail is apparent, though in some cases its disadvantage is less if one considers the likelihood of congestion on the road network, and if one assumes that rail is relatively reliable.

### 6.3 *The GIS Mapping Exercise*

6.3.1 Using the GIS surface access data held by Scott Wilson, a series of maps were produced showing accessibility from each local authority district (based on the boundaries prior to reorganisation in 1998).

6.3.2 The maps included here show:

- The nearest international airport (Cardiff and Manchester), including a base position for 2010, and the position assuming accessibility improvements as used in the model scenarios 5 and 6 (see figure in Modelling annex);
- Access times from individual airports to Welsh Districts under model scenarios Base, 5 and 6 (Birmingham, Bristol, Cardiff, Gatwick, Heathrow and Manchester).

6.3.3 The key results are:

- 1 A clear distinction between north and south Wales and access to international airports. For Meirionydd, Montgomery and counties north, Manchester and Liverpool are the closest international airports by road time. For the more southerly counties Cardiff is the nearest. For rail the picture is very similar, except that Ceredigion and Radnor fall in the Manchester catchment rather than Cardiff.
- 2 Even with incorporated surface access improvement up to 2010, accessibility in Wales to the different airports is slow

except for south east Wales. Notable is the very slow access between mid / north Wales and Cardiff / south Wales. From Cardiff by road the northern half (geographically) of the Principality is more than three hours away. About three quarters of the area of Wales is more than four hours away by rail. From Aberystwyth and Caredigion rail offers to better access Cardiff than from Anglesey, despite being only half of the crow-fly distance.



#### 6.4 *Surface access to airports from Wales using CAA Airport Survey data*

6.4.1 The results confirm, first of all, that Manchester dominates the market for air travel from North and Mid-Wales (Gwynedd, Clwyd and Powys – generally abbreviated to North Wales in the following), attracting four-fifths of all travellers; the remainder are shared mainly between Heathrow, Gatwick and Birmingham. The proportion of NorthWales travellers using Cardiff appears to be little more than 1%.

6.4.2 From South Wales, Cardiff attracts slightly under half of all travellers, Heathrow about a quarter and Gatwick about 15%.

6.4.3 Analysis of the surface mode shares required a series of tabulations of the data, which were carried out by DETR. This involved classifying the surface access mode given the information on up to three surface access stages reported in the interview. Separate tables were produced for passengers reporting zero, one, two or three access modes, and these were merged. A conventional sequential classification was applied, as follows:

- 1 a passenger who used a train (BR, London Underground or possibly other) for any stage is recorded as a train user;
- 2 any other passenger who used a bus or coach (other than a courtesy bus) for any stage is recorded as a bus/coach user;
- 3 any other passenger who used a taxi for any stage is recorded as a taxi user;
- 4 any other passenger who used a car for any stage is recorded as a car user.

6.4.4 The remainder consisted of a large number of respondents who did not answer the question, and a small number of other modes. The major reason for lack of answers is that the surface access questions are not “core questions” in the CAA survey; interviewers are instructed to skip them if the respondent is in a hurry to catch his or her plane, or otherwise unwilling to participate in the full-length questionnaire. The other modes included some respondents who reported using courtesy bus for long distance journeys; these were classified into “other/don’t know”. The discussion of mode shares below is based on the proportions of passengers whose mode was identified as one of the four

main possibilities, i.e. it assumes that failure to answer the question was independent of the surface access mode.

It should be noted that the information available did not allow any distinctions based on how much of the journey to the airport was made by each mode. This means, for example, that a journey by coach from Holyhead to London Victoria, and then by Underground from Victoria to Heathrow, would appear in the analysis as access to Heathrow by train.

Analysis of surface access to the different airports from the different parts of Wales is severely limited by the underlying sample size. The information on sample size provided to us suggests that just three combinations can be readily considered: North Wales to Manchester, and South Wales to Heathrow and Gatwick. For these three combinations, there is a 95% probability that the true percentage is within about 4.2% of the value obtained from the sample. Hence for example we can be reasonably certain that the percentage travelling by bus or coach from South Wales to Heathrow, which comes out at 32.6% of the sample, is actually in the range 28.4% to 36.8%. Note that in these percentage terms, this range or confidence interval is narrower for very small or very large observed percentages of a particular sample.

Sample sizes for travel to Bristol, Cardiff and Exeter have not been supplied, but assuming that the sampling rates are similar to those at other airports it is reasonable to place similar reliance on the mode shares for travel from South Wales to Bristol and Cardiff.

From North and Mid-Wales (Gwynedd, Clwyd and Powys) to Manchester, some 79% of passengers travel by private car, and a further 18% by taxi. This leaves less than 4% reaching Manchester Airport by train, bus or coach. From North Wales to all airports, slightly over 10% of passengers use train, bus or coach; this indicates that a substantially higher proportion of passengers to more distant airports (mainly Heathrow and Gatwick) are using public transport, though the sample sizes are too small to comment on the proportions to each of those airports.

From South Wales, the overall proportions using car and taxi are lower, at 67% and 7% respectively. The most important single airport from this region is Cardiff, where the proportion using car, 77%, is

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almost identical to that at Manchester, but the proportion using taxi is lower at 11%; bus is correspondingly higher, at 12%. For travel to the London airports, car is markedly less important (46% to Heathrow, 52% to Gatwick), and public transport takes a substantial share (44% in total to Heathrow, 52% to Heathrow). Note that the differences in mode shares between Manchester and the London airports are highly significant; differences between the two London airports are not necessarily significant.

Whilst the results for the other numerically important area/airport combinations (North Wales to London, South Wales to Manchester, both areas to Birmingham) are statistically less reliable, some conclusions can be drawn. They all conform to the general pattern that non-London airports have car percentages shares in the 70s or above, whilst the two major London airports have car percentages around 50-60% or below. The high proportions of rail use from North Wales to Heathrow and Gatwick appear to be significant, but could well be due to the use of Underground (to Heathrow) or Gatwick Express for the last stage of a journey by coach.

The relatively high use of train to Birmingham relative to the low use of bus/coach seems to be significant and is perhaps less easy to explain, especially as it seems to be more marked from South Wales than from North Wales (whence train services via Crewe and Birmingham might be a more obvious means of access). Note incidentally that the difference between train and bus/coach at Manchester is not significant, even for total Welsh traffic (ie although the figures show more use of bus/coach than of train, it is quite likely that the opposite is true). The high proportion of bus/coach use relative to train at Cardiff almost certainly is significant (though we cannot formally confirm this); given the lack of direct rail access to Cardiff Airport, this is not unreasonable, though given the way that modes have been classified it implies either negligible use of rail+bus or rail+taxi via Cardiff Central - alternatively that the survey has failed to record such multi-modal journeys.

From this analysis an overall summary of surface access from Wales to the major airports would be:

- 1 two airports (Manchester and Bristol) where car and taxi are completely dominant;

- 2 two (Cardiff and Birmingham) where public transport (train, bus, coach) has a small but non-trivial share of the market;
- 3 the two London airports where public transport carried very broadly half of passengers arriving by surface modes from Wales (ie ignoring those who fly from Manchester to Heathrow or Gatwick).

6.4.5 There is no clear evidence that the mix of modes to any one airport is significantly different between North and South Wales. The one case where this result appears, the high use of rail from North Wales to Heathrow and Gatwick, may be due to the importance of rail local transport between Central London and the airports rather than to the quality of rail service between North Wales and London.

6.4.6 The summary table is included below.



## 7 *Appraisal Exercise*

### 7.1 *DETR framework for appraisal*

7.1.1 This section includes the DETR guidance note and appraisal framework which formed the starting point for our appraisal of the 5 scenarios for air service development set out in the main report.

7.1.2 The appraisal exercise also included levels of accessibility criteria developed specifically for the Wales Air Study as follows:

- 1 *It should be possible for all people resident in Wales to be able to visit their capital city for a day and return the same day for whatever purpose.*
- 2 *It should be possible for all people resident in centres of population in Wales to visit London for a day and return the same day for whatever purpose.*
- 3 *It should be possible for all people resident in centres of population in Wales to visit major near-European destinations and return the same day for whatever purpose.*
- 4 *All major world destinations should be available for all residents of Wales within 30 hours.*

## **FRAMEWORK FOR APPRAISING REGIONAL AIR SERVICE STUDY DEVELOPMENT OPTIONS**

Guidance note by DETR

### **Background**

**1** The terms of reference for the regional air service studies requires the development of options for airport growth /interaction, including:

- exploring how to make best use of existing facilities by addressing current constraints;
- the requirement for new civil airport facilities;
- the scope for new air services. and
- surface access initiatives to improve integrated accessibility.

**2** Factors to be considered in the appraisal of options as noted in the TOR are:  
engineering and operational feasibility commercial and financial considerations environmental and planning considerations economic benefits

**3** This note develops the outline above into guidance on the framework for the appraisal of development options for use In all regional air service studies. Its purpose is to provide clarity In terms of scope and consistency of approach, while retaining some flexibility in how the overall appraisal requirements are met - particularly the extent of quantification and the way in which the analysis is carried over.

### **New approach to transport appraisal**

**4** The 'New Deal for Transport' White Paper and documents supporting the Roads Review set out a new approach to appraising transport projects by DETR which it is intended should eventually be used to appraise transport projects covering all modes. The approach used in the Roads Review draws on information collected for COBA appraisals, but presents and uses this in a different way and also includes additional information. It is based around the five key criteria linked to transport policy objectives. These are.

- accessibility
- economics
- environment
- integration and

- safety

**5** For each criteria a number of specific indicators are identified for use in the appraisal. These can be expressed as monetary values, physical units, or described qualitatively.

Examples are journey time savings and regeneration under the economy criteria effect on pedestrians and cyclists under accessibility etc.

**6** The appraisal framework used in the Roads Review attaches no weight to criteria or indicators to produce an overall 'score' for an option as the basis for comparison with other options, the relative weights given to each being regarded as an essentially political judgement. But the framework does allow direct comparison between options based on the indicators under each of the criteria. A similar approach has been adopted for use in the RAS Studies.

## **Appraisal Framework for Regional Air Service Studies**

**7** Although the Roads Review framework was developed for appraising road investment projects, with some adaptation, it can also be applied to other transport modes and we have adopted the basis for the appraisal of options generated by the Regional Air Service studies. The criteria and indicators in the framework are designed to reflect the particular characteristics of air transport, the range of different options which it may be necessary to appraise and the differing circumstances which exist between regional study areas. These factors mean that a flexible approach is required based around a common core. Not all indicators will be appropriate for each study or for all options.

**8** The proposed criteria and indicators are attached as an Annex. The broad approach

underlying the choice of criteria and indicators takes into account:

- those likely to be of interest to decision makers and other interests
- practicality and cost
- the need for high level strategic indicators rather than site specific considerations
- a preference for quantification to qualitative judgement
- factors relevant to a wide range of options

**9** Any variations to the core framework will need to be cleared with DETR. It should also be noted that these are summary indicators and would, in most cases, need to be supported by more detailed assessments of the relevant impacts of individual projects at the project development stage.

## Outline Appraisal Framework for Regional Air Services Study

(Criteria underlined, indicators in italics)

### Engineering and Operational Feasibility

- *Airport Engineering: Physical Constraints (qualitative quantitative); Construction Costs, Broad Estimates (quantitative).*
- *ATC/Operational Issues: Runway Capacity (quantitative); Airspace/Weather Constraints (qualitative assessment).*

### Air Transport Policy Objectives

- *Increased accessibility from new air services (quantitative) - i.e. the benefits to users of the air services (time and distance cost charges)*
- *Clawback potential/ reducing pressure on LHR and LGW (qualitative/quantitative)*

### Economy

- *Direct/indirect induced employment (quantitative)*
- *Inward investment, competitiveness, local economic linkages, lifeline services (qualitative assessment)*
- *Regeneration Effects - airport related employment distribution relative to regeneration areas and areas of high social deprivation; access to devolved administrations and from remote communities (qualitative/quantitative)*
- *Financial viability/Cost (quantitative where possible, qualitative where not) - review with airport(s) concerted*

### Environment and Planning

- *Noise: change in population within the 57 leq contour – rely on existing airport data of “typical” mix of aircraft and service frequency (qualitative/quantitative)*
- *Property land take in **hectares** (quantitative)*
- *Other environmental impacts: statutory designations - SSSIS, Listed Buildings; Green Belt etc. (quantitative)*

*important natural resources/physical features - aquifers, watercourses, woodland, high grade agricultural land (qualitative/quantitative)*

*Other important receptors (qualitative/quantitative)*

*Air pollution commentary on local issues in broader natural economic context (qualitative)*

### Accessibility (Surface Access to Airports)

- *Change in modal shares -% (quantitative);*
- *Average access times by mode in minutes (quantitative),,*

Llewelyn-Davies

- *passenger focus, examination population within key isochrones by mode*
- *average time from key urban centres to airports*
- *Congestion effects on strategic transport links (qualitative/quantitative)*
  - *motorway/A roads, PT;*
  - *demand relative to capacity as reflected in congestion levels on local roads and overcrowding on public transport*

#### Integration

- *Compatibility with local/regional plans (qualitative)*
- *Interchange potential (qualitative/quantitative)*
  - *Air/surface, between surface modes*
  - *range of mode/route choices, no. of passengers interchanging*
  - *ease of interchange (layout, information, availability of through-ticketing etc)*
  - *intermodal freight opportunities*

#### Safety

- *PSZ, third-party risk implications - households within PSZ (quantitative)*
- *Constructional programme/perceived planning risk (qualitative)*

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