

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

*Wales Air Services Study*

*Final Report*

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*July 1999*

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# 1 *Executive Summary*

- 1.1.1 The fast growing aviation market changes constantly. Predictions of future demand, or even the structure of air service networks, cannot rely solely on extrapolation of past trends. This is especially true in Wales, where a relatively undeveloped and patchy market provides few pointers as to the direction of future growth.
- 1.1.2 In examining how the Welsh aviation market could develop, this study therefore used a blend of approaches including modelling of future growth, benchmarking Wales against experiences elsewhere, and consideration of environmental, economic development and social objectives.
- 1.1.3 There are two key factors that determine the shape of the study findings:
- 1 The current policy of encouraging growth at regional airports can be implemented in Wales without encountering significant capacity, operational or environmental constraints;
  - 2 Given favourable economic assumptions, the Welsh aviation market is likely to grow very significantly over the next 30 years. This will provide scope for many direct routes from Cardiff, better service from north Wales using Manchester, and potentially for new intra-Wales domestic services.
- 1.1.4 Five scenarios were developed, each emphasising a different set of objectives. They were tested against a set of criteria including levels of service standards, based on reasonable requirements for access to Cardiff (to meet the “new nation” agenda) and to London and international destinations.
- 1.1.5 Three fairly discrete key decision areas have been identified. These are:
- the introduction of new domestic services for Wales;
  - the development of scheduled routes to destinations outside Wales, both short-haul European and longer-haul potential;
  - the development of road and rail travel both as a complement, and as an alternative, to air travel.

## 1.2 *New Domestic Services for Wales*

- 1.2.1 At present there are no scheduled domestic services within Wales, and many parts of the Principality rely on road and rail routes that are slow and often of poor quality. The establishment of a domestic airport network would enable a new “layer” of access quality to be provided. Domestic air routes would help to bring together north and south Wales and so address the “new nation” agenda. In addition they could work in synergy with development of the Welsh economy.
- 1.2.2 Such a network would need some capital investment in airport infrastructure, and initial financial support to allow a stable demand to develop. Suitable existing airports have been identified for two sub areas of Wales (North West and South West) where domestic routes would offer benefits over surface travel. In west mid-Wales, a new facility would be needed at or near Aberystwyth. Public subsidy for such services, whether ongoing or – as is more likely - for an initial period to help establish the route, would need to be provided in a competitive environment within well-defined tender procedures.
- 1.2.3 In the eastern part of Mid and North Wales, the case is less clear, particularly given the surface access options, and alternative airports in adjacent regions, which are available to Welsh travellers.
- 1.2.4 Decisions on a domestic network may be seen as largely a Welsh matter, although CAA Licensing, and Public Service Obligation (PSO) issues concerned with financial support, fall within UK-wide competences.

## 1.3 *Developing the Welsh External Market*

- 1.3.1 Given capacity and other constraints in South East England, forecasts indicate a growing market for Cardiff, serving South Wales, and Manchester and Liverpool serving North Wales. South East airports will decline in importance for the Welsh market.
- 1.3.2 Changes in aviation can accelerate this trend. Examples are the boost to regional routes given by the new generation of smaller jets offering high levels of speed and comfort, and the growth of low-cost airlines that increasingly are bridging a gap between leisure and business travel and generating wholly new demand.

- 1.3.3 Deliberate action could be taken to encourage this growth to meet UK transport policy objectives, or as an encouragement to Welsh economic development. This could involve support for new routes from Cardiff, though probably not route subsidy: measures could include marketing assistance and co-ordination, aid with airport infrastructure investment, and temporary cost rebates. Or it might comprise investment in surface access routes such as the planned westerly rail link into Manchester Airport. It has to be recognised, however, that it is the commercial priorities of the airline operators, in particular BA, which will tend to govern the type of service development and its speed of arrival. However, the fact that market and public-interest considerations do not exactly overlap is not impossible to resolve: some suggestions for encouraging route development are discussed in Chapter 6.
- 1.3.4 Cardiff Airport will need to expand terminal, stand, apron and hangarage capacity incrementally as passenger throughput grows as forecast. It is well capable of doing so within the established airport perimeter, and it has sufficient runway capacity to meet the demand over the 30-year period. This means that there is no need to consider development of a wholly new airport for South Wales.
- 1.3.5 Economic development opportunities could include air-related industry, and other indirect development effects within the Cardiff airport catchment area. However, care is needed in justifying development which happens to be near the airport in “air-related” terms, which must always have regard to policy guidance on the relationships between transport and land-use (PPG 13). In other parts of Wales, the opportunities associated with airport and air service development would be fairly small in scale, but of potential local significance.

## 1.4 *Surface Access*

- 1.4.1 The third key decision area relates to the development of road and rail, and public and private transport facilities. This is seen as primarily a Welsh matter, and one that is driven by general transport policy rather than by airport access considerations. However, access to Cardiff airport will need to be planned carefully to reflect wider UK and Welsh transport policy; a multi-modal study encompassing access to the airport is to be commissioned by the National Assembly for Wales. For North Wales, the planned westerly rail link to Manchester Airport will be beneficial in improving public transport accessibility and thereby

providing a good alternative to road access, and is thus important to Welsh interests.

- 1.4.2 It is inevitable that growth of air travel on the scale expected will involve increased road traffic in Wales, even if good rail access can be provided. However, such increases in Wales would to an extent be balanced by less surface travel to airports in South East England, and can be limited by tough action at Cardiff and Manchester airports to deliver a higher share of access for public transport.
- 1.4.3 Surface access has been reviewed as an alternative to air travel. Within Wales, surface links between the Mid-East and South East parts of the Principality have the potential to avoid the need for air services in order to meet the identified service criteria. For other areas, the scope for substantial reductions in journey times is limited, and does not affect the case for domestic air services. There are competing proposals for the improvement of road and rail services, including upgraded links from North and West Wales to Cardiff; these are currently being studied by consultants on behalf of the National Assembly. It is important that potential air services and infrastructure are considered alongside the surface transport alternatives, so that relative costs and potential roles are fully understood.

## 2 *Study Context and Aims*

### 2.1 *The aims of the study*

2.1.1 The consultants' brief for the Wales study stated that the regional air services studies would "focus on the role of airports, commercial opportunities, and the link between air services, economic growth, and regeneration, in specific local circumstance". More specifically the study was to:

- Review air services, surface access, infrastructure and opportunities;
- Develop and appraise options for the scale and location of future air services.

2.1.2 The purpose of the study has been to inform the debate about future demand for air services (scheduled, charter, business), and the relative merits of different ways of responding to this demand. The study has therefore included consideration of the various factors that may influence demand, both internal and external to the air industry itself. Given the currently sparse provision for air travel in most of Wales, and the need to look ahead 30 years, it has been necessary to look beyond the Welsh borders in order to arrive at a view of the potential for air services development.

2.1.3 A further important factor influencing the study conclusions is the development of aviation technology, in particular the introduction of small "regional" jets with levels of comfort and performance similar to their larger cousins. This, combined with new attitudes to marketing and pricing, is opening up potential for route development that was unavailable even a few years ago.

2.1.4 Although this is primarily a study of future markets for air services, the research looks beyond airports and considers the role of surface access (rail and road) both as a means of accessing airports and as an alternative to air travel. It also looks at travel and infrastructure beyond the borders of Wales, so as to locate the Welsh situation within a wider market. The work has been influenced by factors which distinguish the air travel market from surface transport, particularly route flexibility, the elasticity of demand, and the powerful effect of supply-led traffic generation.

2.1.5 While recognising the currently high proportion of air travel related to leisure, the consultants have also highlighted the significance of business travel as a vital link between air travel and economic

development and regeneration. This aspect of the work used level of service standards as the basis for exploring options for the future.

- 2.1.6 In terms of specific actions that could be taken, the study includes a review of the present infrastructure and draws conclusions about the pros and cons of various options for airport, air service, and surface access development.
- 2.1.7 In all of this two basic themes have been addressed. The first is an examination of the case for the introduction of internal air services in Wales. The second is an examination of the prospects for growth and development of services out of Cardiff, and the English airports serving Wales. From these two themes flow a large number of questions and issues, and these have been dealt with under the various headings within this report.

## 2.2 *The policy context*

- 2.2.1 The policy context is important to the study output, and especially the appraisal of various options for air service development. The relevant policy objectives and choices are therefore highlighted in this section.
- 2.2.2 The overall policy context is provided by the New Deal for Transport White Paper (NDFT) “A new deal for transport: better for everyone” (Cm 3950, July 1998).<sup>1</sup> Most of the section on air is concerned with airport planning including ground access, including fairly robust statements concerning reducing the role played by private transport, and the need to boost the role played by public transport for airport access.
- 2.2.3 As with most public transport, however, the prime consideration in air service planning is the routes and places served, and the quality of the service. Airport planning is fairly meaningless if divorced from air services. The exception is where airport land is considered for development for uses unrelated to air.
- 2.2.4 The White Paper mentions the different service roles played by London and regional airports, as between hub and spoke services (3.193), while paragraph 3.197 states the policy of encouraging international flights at

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<sup>1</sup> DETR 1998, “A New Deal for Transport: Better for Everyone”, CM3950

regional airports, which would tend to reduce the difference between hub and spoke airports.

2.2.5 Paragraph 3.196 includes the important policy for the encouragement of “the growth of regional airports to meet *local demand* for air travel where *consistent with sustainable development* principles. The aim is to:

- Maximise the contribution which they make to local and regional economies;
- Relieve pressure on congested airports in the south east of England;
- Reduce the need for long surface journeys (particularly by road) to south east airports.”

2.2.6 This study has not attempted to test the sensitivity of growth forecasts to changes in external regimes, for example on airline fuel tax. We do not know what will emerge from the ICAO work on environmental levies, including possible fuel taxes; we can make an assumption that the exemption of international aviation fuel from tax will eventually end (this is UK Government policy, stated in the White Paper); but neither the tax level, nor its applicability to domestic airlines’ fuel, are settled. In any event, this mainly affects the rate of growth of air travel, not its eventual emergence: it is not therefore crucial to the discussion and choices covered in this study.

2.2.7 Other external demand factors mentioned in the NDFT White Paper are the liberalisation of international routes (3.197), lifting of borrowing restrictions at local authority airports (3.198), and slot allocation for regional services at Heathrow and Gatwick (3.199). The study conclusions take account of these policies, but are also influenced by commercial considerations.

2.2.8 In addition to the aviation policies set out in the NDFT, there are a number of other policies relevant to the development of airports and air services. Particular examples relate to “containing the dispersal of development so reducing the need to travel and improving access to jobs” (paragraph 4.158), and the intention for the new Local Transport Plans “to implement the transport aspects of Regional Planning Guidance” (paragraph 4.74).

2.2.9 *Other policy sources*

2.2.10 We have assumed that other policy sources relevant to the choices involved (such as the UK sustainable development strategy and the various planning policy guidance notes) are subsumed in the New Deal for Transport White Paper or will be revised to reflect it. The Welsh Transport Policy Statement is also assumed to be consistent with and parallel to the UK White Paper.<sup>2</sup>

### 2.2.11 *Funding*

2.2.12 It is more than likely that the development of domestic air services in Wales will be dependent on some form of initial support, even if only for pump priming or market testing. The White Paper makes no mention of such funding for air services or airport development, apart from ground access arrangements. However, the study has assumed that there would be the possibility of intervention, including possible public funding, provided sufficient justification could be established.

### 2.2.13 *Integration with Local Transport Plans*

2.2.14 The White Paper implies that the outcome of the regional air strategies will provide demand inputs to local transport plans, and that the LTPs themselves will be concerned only with how that demand should be addressed in terms of surface access. It is therefore assumed that local transport objectives could be overridden by regional air planning considerations.

### 2.2.15 *Policy Development*

2.2.16 Since the Integrated Transport White Paper was produced, the Government has announced its intention to prepare an Air Transport White Paper, covering both airports issues and air services. This will provide a framework for the future of aviation and airports throughout the UK.

2.2.17 In addition, and in preparation for the Air Transport White Paper, the Government intends to publish a wide-ranging consultation document on aviation and airports. This will provide an opportunity for all interested parties to consider the main issues and put forward their views. It is clear that the policies in the Air Transport White Paper must aim to ensure that aviation in the UK develops in a sustainable

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<sup>2</sup> A further document taken into account is the DETR response to the Environment, Transport and Regional Affairs Committee's Report on Regional Air Services, Cm 4257, January 1999.

way, and this will involve consideration of the economic, environmental and social impacts of the sector's activity.

## 3 *The study method and outputs*

### 3.1 *Purpose*

This Chapter sets out the different work components undertaken, and explains how they relate to the overall aims of the study.

### 3.2 *Study method*

3.2.1 The study involved a review of present day conditions, both the supply of and demand for air travel, and consideration of future air services and the policy and infrastructure measures that might be needed to bring them about. All of this needed to be within the framework of various environmental, economic and social objectives, with various options for the future tested in relation to these objectives.

3.2.2 In order to achieve these study outputs a range of tasks was undertaken.

- Consultation
- Benchmarking
- Surface access studies
- Modelling
- Economic development studies

3.2.3 These tasks and results from them are summarised below. More detailed information is provided in subsequent sections of this report or, in some cases in the separate Technical Report. The outputs and key findings were used to develop and appraise the five scenarios for air service development as presented in Sections 6 and 7.

### 3.3 *Consultation*

3.3.1 Direct consultation was undertaken with local authorities, development and other agencies in Wales, and operators and owners of airports serving Wales, as well as airlines. In addition a Reference Group set up by the client enabled a dialogue with representatives from a range of interest groups at different stages of the project.

3.3.2 The consultation responses provided information on aviation facilities, local authority views on economic development potential and/or

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environmental concerns, and were helpful in explaining how service and infrastructure operators see the potentials and the constraints. The reference group meetings in particular enabled the consultant team to understand the range of issues and how they might be balanced.

3.3.3 Some particularly notable features of the consultation responses were:

- 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 section 5.10);
- 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 within 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.

### 3.4 *Benchmarking*

3.4.1 Benchmarking is a standard aviation technique where information is limited or there are no existing facilities, infrastructure or services to evaluate. Whilst it is true that every community is different and every country is physically different as well as having social and cultural variations, broad-brush comparisons between various similar situations can help to develop a vision of future possibilities.

3.4.2 In the context of this study benchmarking was carried out for three reasons as follows: (The results from these exercises are discussed in Section 5.3)

- 1 Scale: to explore what an “upper limit” might be for air service development in Wales over the next 30 years;
- 2 Level: to explore likely latent demand in present economic and social circumstances; and
- 3 Policy: to inform the issue of possible policy mechanisms

### 3.5 *Surface access studies*

3.5.1 Surface transport was considered as an alternative to air travel, and as access to airports serving the Welsh market. Consideration of surface access involved five levels of analysis:

- 1 Current access choices (from Wales to Cardiff and English airports) (see 4.4 below);
- 2 Anticipated or likely changes in road and rail infrastructure affecting surface access in the future (4.5 below). Particular consideration was given to the main airport access issue in Wales, namely that to Cardiff airport;
- 3 Current level and distribution of air passengers from Wales, including mode of access to the airport (from CAA air traveller surveys);
- 4 Mapping of accessibility to airports. This mapping of accessibility was undertaken by Scott Wilson as part of a DETR contract serving all the regional air studies. These studies formed an integral part of the CAA modelling of future demand.

3.5.2 Account has also been taken of other accessibility studies, in particular a study by MVA for OPRAF, October 1998.

### 3.6 *Modelling*

3.6.1 Use was made of the CAA model (SPAM) to explore the forecast development of air services in the Welsh context. Different model runs were used, including a base case scenario (i.e. with no policy interventions), and further runs explored the impact on demand of different assumptions about supply quality.

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3.6.2 The aim was not to provide a definitive answer as to what *will* happen over the next thirty years, but to help in forming a view about *could* happen, given certain assumptions. The model was not designed specifically for regional air services and its limitations in this respect have to be recognised. It is nevertheless a valuable tool when set in context with the benchmarking and other elements described here.

### 3.7 *Economic development analysis*

3.7.1 The study has explored the potential contribution of air services to Welsh economic development by collecting information about the scale and nature of air-related activity in Wales today and about the wider performance of the Welsh economy, both sectorally and in its sub-regional components.

3.7.2 This has been done by a mixture of discussion with key agencies and consultees, review of the literature and data sources, and original survey work. The Study Team held discussions with the economic development officers of the major authorities, drew on the responses to the initial consultations and the Reference Group discussions, carried out a Business Survey of 220 enterprises throughout Wales, and held 6 in-depth interviews with major companies. The survey approach and conclusions are reported in a Technical Appendix.

3.7.3 Whilst the scale of activity at present can be readily defined, assessment of the potential - given the low level of actual air service from and within Wales itself - has inevitably to be a matter of judgement, based partly on experience elsewhere and partly on consideration of what respondents told the Study Team about their likely responses to changes in service patterns.

## 4 *Review of Air Services for Wales*

### 4.1 *The current Welsh market for air travel*

4.1.1 The market for air travel is derived from long distance travel. Indeed the term long-distance could almost be defined as the distance above which air travel becomes a realistic option. The benchmarking studies indicated that this threshold is where the road alternative is about 200 kilometres.

4.1.2 In broad terms, travel demand is determined by the strength of attraction of doing things at other places (population, economic opportunities, weather, etc.) as constrained by a range of factors that deter travel including time, cost, convenience and so on. Journey distance does not in itself deter travel. In the Welsh context there are two powerful deterrent factors:

- topography
- relatively undeveloped travel infrastructure

4.1.3 Current patterns of demand for travel to and from Wales, and within Wales, reflect these deterrents. Excluding purely local access, travel is most easily provided (i.e. there is least deterrence) in east-west directions, especially along the North Wales coast and through South Wales.

4.1.4 Travel in north-south directions is much more difficult, especially west of the easier terrain of the Marches. Topography effectively separates Wales into three entities:

- *North Wales* – the mountainous and spread-out districts served primarily by the coastal A55 and Holyhead/Chester railway, but extending south into Snowdonia and west into the Lleyn peninsula;
- *Mid-Wales* – a mixture of remote upland and coastal plain, whose eastern edge is reasonably accessible to the English Midlands, but which is characterised by indirect, infrequent and slow transport routes both by road and rail; and
- *South Wales* – the country's industrial core, plus a widespread rural hinterland, served partly by the strong east-west axis of the M4 and GWR, but also relying heavily on shorter north-south links between largely unconnected Valleys communities.

- 4.1.5 Surface travel infrastructure has not been developed to overcome these sharp separations. Internal air transport, other than business, private, and general aviation activities, is non-existent. Rail routes are either absent (north to south except in the eastern part near the English border) or poorly developed with indirect routes, poor interchange and slow running. The road network is more complete, but away from the main population centres (M4 and A55 corridors) it allows for only relatively slow travel times.
- 4.1.6 These aspects of the Welsh geography are reflected in the current patterns of air travel and in the airports currently serving its population. The highest population densities are to be found within the Cardiff airport catchment area, where most of the unitary authorities have a population density of over 200 people per hectare. The only other area with this density is the north east tip of Wales next to the English border, served primarily by Liverpool and Manchester airports. All other authorities in Wales oversee population densities of less than 100 people per hectare. Figure 4.1 locates the main air infrastructure in Wales.

**Table 4.1 Welsh Operational Airports**

<i>Airport</i>	<i>Region Served</i>	<i>Ownership</i>	<i>Operation</i>	<i>Runway Length</i>	<i>Navigation Aids*</i>
<i>Withybush</i>	<i>SW</i>	<i>Pembrokeshire CC</i>	<i>Charter (small), flying club &amp; emergency</i>	<i>1221m &amp; 1040m</i>	<i>NDB</i>
<i>Pembrey</i>	<i>SW</i>	<i>Private</i>	<i>Charter (small), training</i>	<i>1160m planned</i>	<i>installation believed to be imminent</i>
<i>Aberporth</i>	<i>Mid</i>	<i>MOD</i>	<i>RAF</i>	<i>915m &amp; 514m</i>	<i>NDB</i>
<i>Llanbedr</i>	<i>Mid</i>	<i>MOD</i>	<i>RAF</i>	<i>2286m, 1282m &amp; 1319m</i>	<i>RADAR</i>
<i>Welshpool</i>	<i>Mid</i>	<i>Private</i>	<i>Flying club and private</i>	<i>830m</i>	<i>NONE</i>
<i>Harwarden</i>	<i>NE</i>	<i>British Aerospace</i>	<i>Specialised freight</i>	<i>2034m &amp; 1004</i>	<i>RADAR</i>
<i>Valley</i>	<i>NE</i>	<i>MOD</i>	<i>RAF+ helicopter squadron</i>	<i>2290m, 1640m, &amp; 1286m</i>	<i>RADAR</i>
<i>Mona</i>	<i>NW</i>	<i>MOD</i>	<i>Military exercises</i>	<i>1666m</i>	<i>RADAR</i>
<i>Caernarfon</i>	<i>NW</i>	<i>Atlantic Air</i>	<i>Charter (small), flying club</i>	<i>940m &amp; 1000m</i>	<i>NDB</i>
<i>Cardiff CWL</i>	<i>SE</i>	<i>TBI Plc</i>	<i>Charter, schedule, freight</i>	<i>2345m</i>	<i>RADAR</i>
<i>St Athan</i>	<i>SE</i>	<i>MOD</i>	<i>RAF (maintenance)</i>	<i>1825m</i>	<i>RADAR</i>
<i>Swansea</i>	<i>SE/SW</i>	<i>Private – 2 Directors</i>	<i>Flying club, private training (Did have Dublin schedule)</i>	<i>1472m, 1037m &amp; 1037m</i>	<i>VDF</i>
<i>Cardiff Heliport</i>	<i>SE</i>	<i>Cardiff County Council</i>	<i>Charter op. base</i>	<i>24 m diameter</i>	

*\* NDB – Non Directional Beacon: enables aircraft equipped with a loop antennae to home in or determine his bearing relative to the sender.*

## 4.2 *Airport and other air related infrastructure in Wales*

- 4.2.1 Our research identified almost 60 airfields that are or have been used for flying. Of these 18 are no longer identifiable as airfields (i.e. have gone back to agriculture or have been developed), 10 are disused, 5 are in use by the armed forces and 19 are active civilian airfields, of which 7 are public air fields). In short there was no shortage of sites to consider for expanding air services in Wales.
- 4.2.2 A review of the airports aimed to distinguish those that were currently, or could be, used at least for regional flights. A total of 13 airfields met this criterion. The review aimed to assemble a list of such airports that could provide a geographical spread covering the main sub areas of Wales, namely NW, NE, SE, SW and both west and east central Wales
- 4.2.3 An important criterion was for a paved runway of at least 800m in order to accept larger and faster aircraft. Further criteria were access to communications (rail and road), proximity to urban facilities for security, medical and hotel services. Operational status was a further criterion since those in operation would probably require less investment, but disused airports were still considered. (Many of the airfields do not currently have the quality of lighting, and landing equipment of a regional or international airport, but it could be provided as and when the status of the airport changes). The characteristics of the airports meeting these criteria are set out in Table 4.1 and are located on Figure 4.1, along with nearby English airports significant for the Welsh market.

## 4.3 *Current air services within Wales*

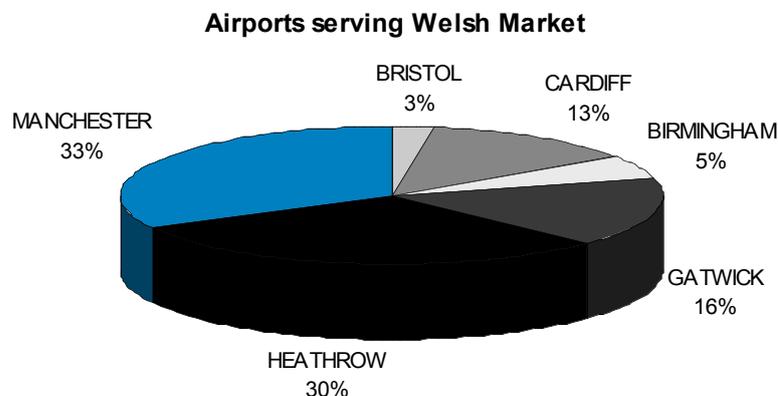
- 4.3.1 Cardiff International Airport (CWL) is the only airport in Wales offering scheduled passenger services<sup>3</sup> It currently offers international scheduled and charter flights and scheduled domestic (UK) flights. With Cardiff the only airport offering scheduled services, there are no services internal to Wales. Only a limited number of passenger-carrying flights emanate from other civil airports in Wales, principally air-taxi; with a small number of occasional charter operations.

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<sup>3</sup> Swansea did have services to Dublin, but these ceased in 1998

- 4.3.2 During 1997 CWL dealt with 1,120,000 passengers. Just over 300,000 passengers were on scheduled flights, an increase of 20% over the previous year. About 75% of flights were to international destinations, with the most popular destinations being Amsterdam and Dublin.
- 4.3.3 In the same year CWL handled just over 140,000 passengers on domestic flights. Scheduled flights to Newcastle ended in February 1998 after a few months operation, while scheduled flights to Manchester had been downgraded and eventually ceased in October 1997.
- 4.3.4 The most frequent service from CWL is to Amsterdam with 4 return flights daily.
- 4.3.5 With Cardiff offering a limited range of routes and no other Welsh airports offering scheduled flights, the majority of air travel to and from Wales is served by English airports. For example, English airports served 87% of Welsh international air travel in 1997, and an even higher proportion of all air travel.

**Figure 4.2 Airports Serving the Welsh Market**



- 4.3.6 The airports serving the Welsh market are shown in Figure 4.2. Of note is the very high number of passengers presently travelling to Heathrow direct. This is primarily due to the much wider number of destinations served from the UK's major airport.
- 4.3.7 As would be expected the only other two airports of note serving the Welsh market are Birmingham and Bristol, at 5% and 3% respectively.

#### 4.4 *The pattern of air travel at present*

4.4.1 Currently the CAA in its data collection separates out the Welsh market into two sections – North Wales and South Wales, with Mid Wales split between the two. Based on 1993 CAA data updated to 1998 (using 1998 Cardiff Airport throughput as a check, and rounding to the nearest 100,000) we estimate the scale of the present air travel market in Wales to be:

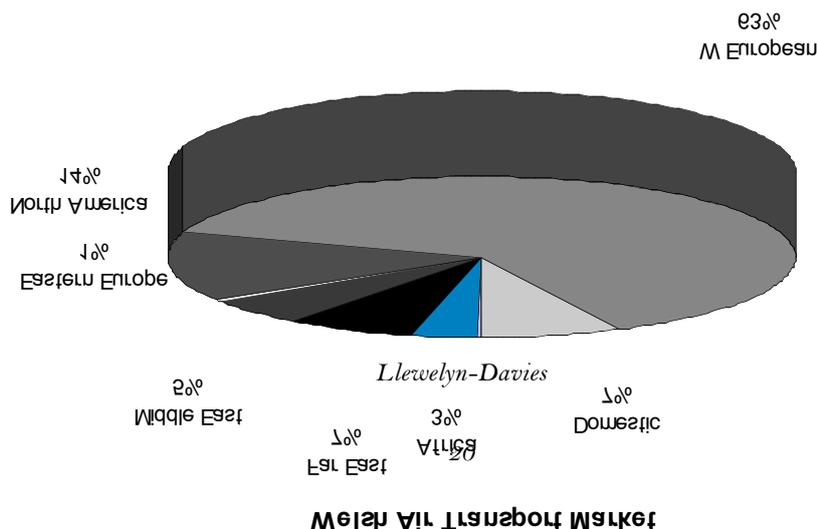
- North Wales - 700,000 p.p.a
- South Wales - 1,800,000 p.p.a

This is for both arrivals and departures (split approximately 50:50) and divides between:

- Scheduled - 600,000 p.p.a
- Charter - 1,900,000 p.p.a

The split between scheduled and charter traffic is often taken to represent the split between business and leisure traffic. However, while charter movements are almost exclusively leisure traffic, scheduled services also carry a significant proportion of leisure travellers. We do not have any reliable figure for the shares taken by these two market segments, and applying UK national averages could be misleading. For example, 1993 figures for Heathrow indicate that 44% of travellers there were on leisure trips despite the very low charter content there; whereas Cardiff Airport is characterised by about three-quarters of its passengers flying on charter flights to holiday destinations.

4.4.2 The destinations of this traffic are shown in Figure 4.3; broadly most traffic goes to Western Europe, with a substantial minority (14%)

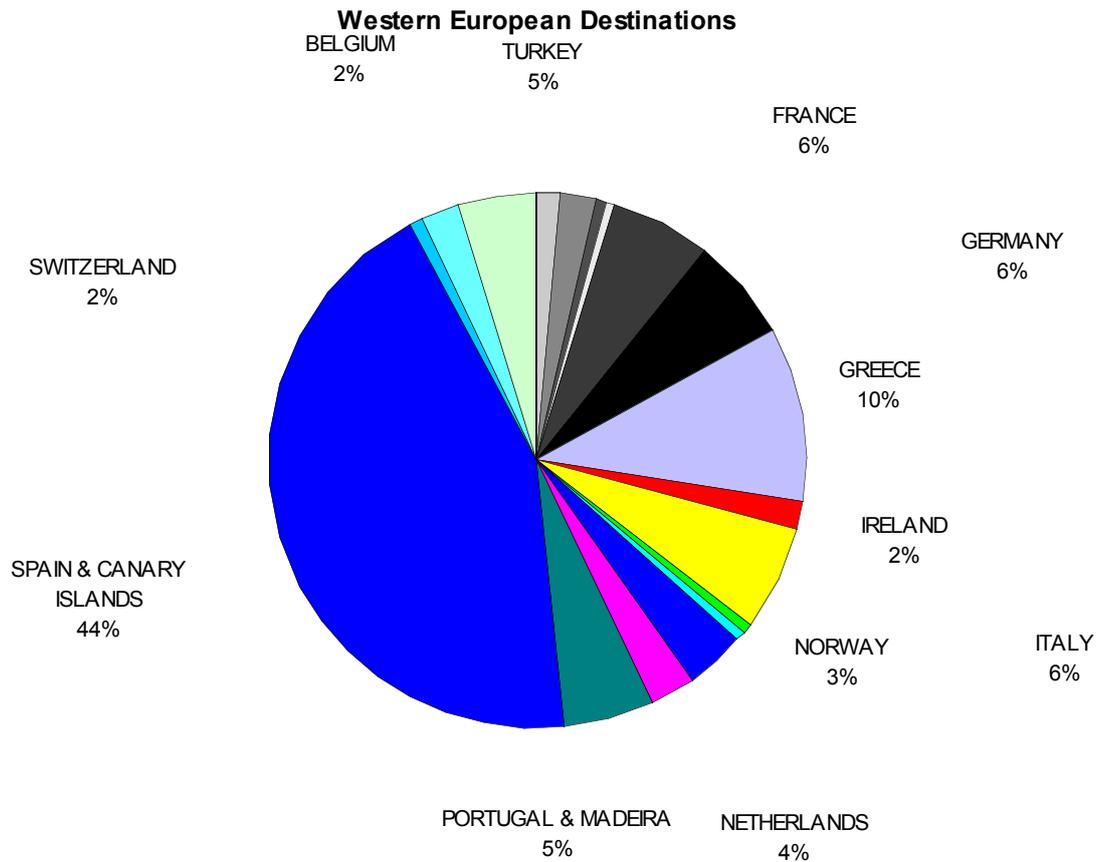


having an ultimate destination in North America, and a very small (7%) domestic content.

**Figure 4.3 Destinations of Welsh Air Travellers, 1997**

4.4.3 Figure 4.4 indicates the split between Western European destinations – all destinations with less than 1% have been ignored. As would be expected, the major destinations are dominated by the leisure market, (Spain including the Canary Islands 44%, Greece 10%). The main business destinations are split fairly evenly between Germany and France, with significant numbers also going to Italy, Norway and the Netherlands.

**Figure 4.4 West European Destinations of Welsh Air Travellers 1997**



4.4.4 The importance of air travel in Wales should clearly not be exaggerated. Use of air services by Welsh people and business is lower than average, (see Appendix) and the connections are sketchy or non-existent. In addition the potential in the form of unsatisfied or latent demand is not always evident. However, the existing air infrastructure provides opportunities to expand air facilities and services, sometimes with marginal capital expenditure, and a range of possibilities can be identified. In terms of the geographical spread, there is the potential to introduce scheduled services from one or more existing airports within each of the sub-areas identified in paragraph 4.2.2, with the exception of west central Wales.

#### 4.5 *Surface access as feeder to airports*

4.5.1 The detailed exercise to examine the accessibility of the various Welsh districts to airports resulted in both spreadsheet and mapped output, and the distance/time/cost deterrence factors formed an input to the SPAM modelling exercise described later. In addition, specific journey examples were examined to highlight the range of accessibility in different parts of Wales. This exercise identified:

- 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; and with the London airports, particularly Heathrow, as very attractive and reasonably convenient alternatives for many purposes;
- 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).
- Much of the rest of Wales is poorly served, particularly for domestic air travel. The poor quality of access by rail is apparent.

#### 4.5.2 *Surface travel instead of air*

4.5.3 The significance of competition between air and surface modes is somewhat complex and dependent to a large degree on the objectives that are sought.

4.5.4 For international travel, the key issue is whether the relatively long trek by road or rail into Heathrow (or other south east England hubs)

can be avoided. At present at least this is largely a South Wales issue, since from North Wales most travellers already fly from their nearest hub, Manchester. If and when Cardiff offers a more comprehensive range of destinations the majority of travellers flying to these destinations may abandon the London option, as indeed is predicted in the modelled forecasts discussed elsewhere.

- 4.5.5 This would serve an objective of reducing congestion on the M4, and on the rail line. But in terms of environmental objectives the outcome is less clear-cut and would lie in the balance between the reduction in long journeys to LHR (many by rail) and the increase in trips to CWL (mostly by car). Broadly, the impact seems likely to be positive, and thus help to meet White Paper objectives..
- 4.5.6 It may well then be the case that the advantages to the South East airports and their surface access links (in terms of released capacity), and the advantages to South Wales travellers, will outweigh the somewhat uncertain environmental considerations.
- 4.5.7 In our view, the environmental issues relating to air travel and its growth need to be tackled on a much broader front than is possible in the context of this or other regional studies. There was no dissent from this view in the consultation exercises undertaken as part of the study. There is not enough *a priori* evidence of serious negative impacts to call a halt to the current policy of promoting regional air travel, whether as a means of accommodating further growth, or of distributing a given amount of air travel.
- 4.5.8 In terms of surface modes as a substitute or competitor for possible new Welsh domestic air services, the issue is perhaps a little more straightforward. In terms of our levels of service standards, it is fairly clear that the Cardiff objective cannot be met by surface transport from North West or Mid West Wales. The level of infrastructure investment needed to reduce journey times by over 30% by road, and over 50% by rail would be of a scale that could not possibly be justified. This is not to say that ground transport should not be improved, in order to address the requirements of other markets - just that the case for niche air services will be unaffected.
- 4.5.9 It is therefore possible to regard air services to Cardiff from the remoter areas as adding a new dimension to travel within Wales. The savings in time would, of course, come at a premium price, but they would at least be available. This perhaps could be viewed in the same

way as any premium service, such as first class and second class – one doesn't always need it, but it certainly is helpful and valued for some people some times. At present in much of Wales there is no “top of the range” access choice, and travel is unavoidably slow.

- 4.5.10 Air services, however, would only supply a very limited market, and to the extent that there is a demand for travel between north and south Wales, it will continue to be served mainly by road and rail. At present rail is considerably slower than road, and this means that one of rail's natural advantages is not present for these journeys. To this must be added the higher price of rail travel, compared to the marginal cost of car travel.
- 4.5.11 The balance between the merits of air and surface travel is much finer between south west Wales and Cardiff, since both road and rail routes are relatively direct, the terrain is easier, and the overall distances shorter compared to mid and north west Wales. However, air could provide a substantial time advantage over road or rail to Manchester and other destinations off the main Swansea-London axis.

#### 4.6 *Surface transport: proposals and prospects for improvement*

- 4.6.1 Changes to the transport networks in future could affect the pattern of access to airports. In addition, they could affect the relative importance of air as opposed to surface access for journeys within, and to and from Wales. Future changes in prospect have been identified under the following headings:

- the main road network;
- the local road network serving Cardiff Airport;
- the rail network (both generally and locally);
- airport policies on surface access.

- 4.6.2 Many of the changes are general improvements to the existing transport infrastructure not particularly related to or justified by airport access considerations.

#### 4.6.3 *Changes in the main road network*

- 4.6.4 Traffic congestion is expected to become markedly more serious on a number of routes, mainly:
- the M4
  - the valleys north of Cardiff;
  - the A483 around Wrexham; and
  - the North Wales coastal routes.
- 4.6.5 Whilst these trouble spots are limited in number, the patterns of traffic within Wales mean that a high proportion of main road movements would be adversely effected. Likewise, a high proportion of possible journeys to airports (both Cardiff and the relevant English airports) would suffer from the worsening congestion.
- 4.6.6 Of the five schemes which the Strategic Review included in the Short Term Programme, only one - the dualling of the A55 across Anglesey - is potentially significant in terms of access to airports, and that only affects Anglesey itself. The Welsh Transport Advisory Group has said that the Assembly will wish to review these inherited schemes, and it is currently doing so.<sup>4</sup>
- 4.6.7 The proposals and corridors that have been kept back for separate announcement or for further analysis are of potentially greater importance. These possibilities include:
- widening or paralleling the M4 around the north of Cardiff and eastwards to Magor;
  - improving or dualling the A40 and the A477 in West Wales;
- 4.6.8 Both of these would affect access from South Wales to English airports and from South-East Wales (and England) to Cardiff Airport.
- 4.6.9 A study has also been carried out into alternatives for improvements to the A470 North-South route between Llandudno and Brecon. This is of significance both because it affects some of the longest journeys within Wales, where air transport might be an alternative, and because it affects access to Cardiff Airport from Mid and North Wales. It is the one case where the provision of an air service (and/or a faster rail service) might affect the argument for road improvement, in that there

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<sup>4</sup> Welsh Transport Advisory Group, "The Transport Legacy of Wales", Welsh Office Transport Policy Division, as reported in *Local Transport Today*, Issue 260, 25<sup>th</sup> March 1999.

might be less need to make significant reductions in the overall North Wales to Cardiff road journey time if one or more fast alternative modes were available.

4.6.10 The equivalent English review shows that the congestion is expected to get markedly worse over many parts of the main road network. Areas affected include the M4, the motorway network in the West Midlands, and the motorway network south of Manchester, thus adding to the problems of reaching all the major airports from Wales.

4.6.11 *Changes in the local road network serving Cardiff Airport*

4.6.12 The question of local road access to Cardiff Airport has been the subject of considerable debate. For non-local traffic, the signposted route from the M4 is via the dual carriageway A4232 to Culverhouse Cross, and thence via the single carriageway A4050/A4226 to the airport terminal. Bus services from Cardiff join this route at Culverhouse Cross.

4.6.13 The problems associated with this route are traffic congestion at Culverhouse Cross (partly due to the substantial out-of-town development there) and low speeds on the single carriageway roads. A proposal for an Airport Access Road consisting of a dual carriageway from a new junction on the Cardiff Peripheral Distributor Road to the airport, supported by the Vale of Glamorgan Council, is not being taken forward, primarily because of its high cost (in the order of £70m for Phase 1 alone).

4.6.14 There has also been a considerable level of local opposition on environmental grounds. This has prompted alternative proposals to be developed by the airport operators, TBI. The case for such road improvements is reviewed in outline within the scenario appraisal (Section 7 below), but will be examined in detail in a proposed multi-modal study to be commissioned by the National Assembly for Wales.

4.6.15 *Changes in the rail network*

4.6.16 Problems in the rail network can be divided into:

- recognised problem areas or routes;
- routes which are not considered problematic by the rail industry, but which we feel are unsatisfactory and would not meet our

objectives of a day's business anywhere in Wales or the rest of the country.

4.6.17 Of the rail routes relevant to the present study, the one with most problems at present is the West Coast Main Line (WCML) (Euston - Rugby - Crewe - Preston - Glasgow) and its branches (Crewe to Holyhead and Manchester, and Stafford to Birmingham). These routes form key parts of the journey from Mid and North Wales to the London Area airports and from North Wales to Birmingham Airport.

4.6.18 Currently, Virgin operates three services a day between London and Holyhead, but the frequency of trains and quality of track is set to improve.

- North Western Trains have a franchise commitment to introduce four through trains a day from May 2000 to 2004. As part of the agreement, the Rail Regulator has agreed to protect Virgin services from competition at the end of this period, provided that Virgin offer six through trains a day. There is some talk of Virgin providing this level of service from 2002.
- The Railtrack Network Management Statement 1998 includes extensive replacement of track, signalling and power supply by Railtrack.

4.6.19 Together these improvements should achieve marked improvements in journey times and reliability, in some cases saving up to 30 minutes in a journey, and are likely to result in some improvement in access to airports for travellers from Wales.

4.6.20 The Great Western routes from London to Bristol and South Wales are in a rather less critical condition. Increases in rolling stock are planned<sup>5</sup>, but the question remains of how to deal with sections of the route where capacity is, or will become, inadequate. Existing locations with network congestion are in the Bristol/Severn Tunnel area and at Reading, whilst the Didcot-Swindon area is forecast to suffer from congestion in the near future. All these are relevant to services from South Wales to the London area:

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<sup>5</sup> First Great Western has an outstanding order for eight five-coach high speed diesel units, which will enter service in 2001 and FirstGroup gave a commitment in 1998 to acquire a further 32 new vehicles, to supplement the existing High speed trains.

4.6.21 The DETR commissioned some two years ago a London Airport Surface Access Study. This identified that South Wales will be unable to have a direct train link into Heathrow due to the type of train currently serving the Principality. All direct routes into Heathrow (including T5 proposals) are deep tunnel connections, suitable only for electric trains, making them unusable by the diesel powered trains on the South Wales run. The Great Western 2000 Study <sup>6</sup> indicated that electrification of this line at £1.5 billion was not viable. The result is that there is unlikely to be a direct link into Heathrow Airport from South Wales or South West England with existing technology. Rail routes from these areas into Heathrow will always require a change of train or platform and it is well recognised within the industry that having to change trains causes a significant loss of passenger traffic.

4.6.22 In practice the market from South Wales is actually quite small in terms of Heathrow's total market and Heathrow's main purpose is seen by the BAA as serving the population on its doorstep. It is however recognised that Heathrow with its significant number of destinations would always be the first choice for a residual number of passengers from the principality. Potential solutions to improve rail access to Heathrow are:

- A rail transfer at Hayes with a direct link into Heathrow;
- De-coupling carriages and linking with the new Paddington link. This is highly unlikely due to the small South Wales market;
- Retain or enhance the bus facility from Reading;
- Create a Transfer / Check in Point at Reading, fed by GWR services, with connections to LHR either via "Airtrack" services running through Staines or, in the longer-term, using the Colnbrook link or a reverse curve at Airport Junction (Hayes) once the Heathrow/Reading section of GWR was electrified.
- A direct bus service into T5 supported by 'bus only' lanes or even a unique access in the new terminal. In terms of business travel BAA believe that suitable, good quality, executive buses could be routed directly into Heathrow;
- A helicopter link from Cardiff which is also being investigated, although inevitably likely to face difficult issues of capacity and environmental impact.

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<sup>6</sup> The Great Western 2030 Study: Oscar Faber (1995)

*Llewelyn-Davies*

4.6.23 When considering rail services as a means of linking different parts of Wales, the fact that they are not controlled by Welsh interests makes prioritising Welsh services difficult. There is an issue concerning franchising arrangements, which currently do not reflect the “new nation” agenda. Most of the companies with rail franchises (until 2004) are not Welsh focussed, being based in England, and hence their priority tends not to be Welsh routes. Only one franchisee is wholly within Wales. Furthermore, the new transport powers agreed for the Welsh Assembly do not include rail franchising. These circumstances may make it difficult to secure an integrated approach to internal travel in Wales.

#### 4.6.24 *Rail access to Cardiff Airport*

4.6.25 At a more local scale, Cardiff Airport is very close to the line from Cardiff via Barry to Bridgend (though the line runs south of the airfield, and the terminal is to the north). A frequent passenger service works from Cardiff as far as Barry, branching off to the terminus at Barry Docks, but the rest of the line has no passenger stations and is used mainly for freight trains to and from Aberthaw and for diversions from the main line. There are suggestions that a passenger service could be reinstated with either

- a station on the existing line at Rhoose, linked to the airport by a bus shuttle; or
- a new rail spur extending into the airport terminal itself.

4.6.26 The Vale of Glamorgan and Bridgend Councils have Transport Grant funding to undertake a feasibility study into the restoration of passenger services on the Vale of Glamorgan line and the possibility of a rail link to Cardiff International Airport. The prospects for this are closely linked to forecast passenger numbers (and hence also employee numbers) requiring access to the Airport.

4.6.27 It has to be stressed that the provision of a new station, on the existing line or on an airport spur, has to be considered in conjunction with the services that would be provided. These fall into three groups:

- a local service from Cardiff (possibly as a through service from one of the Valley routes);
- longer-distance services via Cardiff (e.g. from North Wales, the West Midlands or Bristol); and

- possible direct services from the west, i.e. from Bridgend and beyond.

4.6.28 The second of these is assumed for the modelling exercise because it would maximise benefit to air passengers, while the third would also be useful but difficult to include with a direct airport link.

#### 4.6.29 *Rail access to Manchester Airport*

4.6.30 With respect to Manchester Airport, a westerly direct route into the Airport extending from Chester is currently being planned which will give a direct rail route and put Colwyn Bay for example well within a realistic reasonable access time to the Airport.

4.6.31 Satellite terminals along the rail link, whereby bags may be checked in at the railway station for direct serving into the aircraft, should be investigated for the North Wales route, which is a prime contender for this form of service.

#### 4.6.32 *Changes in airport policies on surface access*

4.6.33 There has been considerable recent discussion of airport access in transport and development circles. This was formalised by the publication, July 1999, of Government Guidance on Airport Surface Access Strategies (ASAS), and on Airport Transport Forums. ASAS are currently being prepared, with a view to feeding into Local Transport Plans (July 2000). It is anticipated that ASAS, of which one is being produced for Cardiff, will over time result in:

- better provision of public transport for both local and long-distance access;
- more provision of so-called “para-transit”, or demand responsive shared taxis, of which Cardiff airport currently provides a prominent example; and
- increasing charges for car parking, so as to contain rising demand within existing or perhaps reduced capacity.

4.6.34 Together with the continuing possibility of motorway tolls, this means that public transport access to airports could be increasingly important, especially for price sensitive travellers. For less price-sensitive

travellers car or conventional taxi could remain dominant except where public transport offers a time or other advantage such as remote check-in. The key will be to define an approach which is flexible and sensitive to the needs of different market segments.

#### 4.6.35 *Surface access conclusions*

4.6.36 Except for the Cardiff airport road and rail access possibilities, the surface transport issues involve decisions where Welsh air travellers represent a small or insignificant proportion of the total travellers affected. Road and rail improvements for travel within Wales are unlikely to affect the potential niche market for domestic air services.

4.6.37 Efforts to increase the share of Cardiff airport access by public transport to be effective may need to be planned alongside increased parking charges and constrained supply. The balance will affect the commercial viability of public transport, and hence the case for external support. The Airport's ASAS will set a modal split target and offer a strategy for improving public transport access in the short and long term.

## 5 *Potential and Constraints*

### 5.1 *Future demand for air travel*

- 5.1.1 World growth in Aviation is approximately 6% per annum. The growth rates vary from region to region, and between market segments, and they fluctuate with regional and national economic performance. But overall, the trends are well established and are regarded as a reasonable basis for long-term planning.
- 5.1.2 The assumptions contained in the CAA model are based on National Forecasts prepared by the DETR from time to time. Wales, with its low propensity to travel, has experienced below average growth in the recent past.
- 5.1.3 Since the baseline position in Wales is somewhat patchy and the market weak, there is a limit to how much can usefully be learned from extrapolation of past or global trends and their projection into the future. It is probably reasonable to assume that increased air services would stimulate a period of above average growth as the propensity to travel converges towards the normal UK rates. But even in a generally growing market, this is not a very secure basis for long-term planning, or assessing the development options.
- 5.1.4 Given this complex relationship between supply and demand the study used three techniques to allow consideration of future demand from different angles and under different circumstances. These were:
- Computer modelling;
  - Benchmarking; and
  - Original analysis (e.g. the impact on demand of service and equipment quality).

### 5.2 *Equipment quality in the Future*

- 5.2.1 The quality of aircraft provided is an important factor influencing demand for, and hence the viability of air services. Routes can fail because of the lack of adequate equipment, with the Manchester - Cardiff route being an example. When the aircraft type was downgraded passenger traffic dropped off significantly.
- 5.2.2 Domestic routes of this type generally satisfy the business market, which is made up of a comparatively small number of travellers flying

frequently. The market itself is not particularly price sensitive but, because of this, levels of service and comfort are expected to be high. The problem in the past has been that the aircraft manufacturers have concentrated on the development of large and mid range jets from 100 seats upwards, and on turboprops for the small seat-size ranges. It is true to say that this is still generally the case. However the smaller jet aircraft manufacturers and even Airbus and Boeing are now considering the potential of aircraft in the 50-100 seat range. Both the Fokker F50 and the Embraer 135/145 satisfy the 50-seat market and provide levels of comfort, speed and reliability comparable with the Boeing 737 range. They are presently going into service in Europe and it is expected that they will offer the scope to generate a significant number of new “thin” routes feeding hubs from principal centres, and serving other key airports throughout the Continent.

- 5.2.3 Of significance to Cardiff is the fleet of Embraer 145 aircraft presently on order from British Regional Airways, a franchise operator of BA. The first phase of the fleet's activity has been based at Southampton where the enhanced equipment has resulted in passenger increases of 30-60% over that previously served by turbo-prop aircraft. Whilst much of this traffic is probably diverted from Gatwick business routes by passengers located nearer to Southampton, there is almost certainly a growth in the propensity of business travellers to fly in that area.
- 5.2.4 Within the scenarios outlined later in the report, it is assumed that unless otherwise identified, the routes will be flown by small jet aircraft able to provide levels of comfort necessary to attract the business traveller. However, it is not inconceivable that market testing could start with turboprops, as on Plymouth/Bristol/Edinburgh, and if successful for Regional Jet (RJ) services to follow on.

### 5.3 *Benchmarking results*

#### 5.3.1 *Scale*

- 5.3.2 In order to scope the potential upper limit of what could be reached in Wales over a 30-year period, information was collated from Jönköping, Halmstad and Karlstad in Sweden, and the States of Connecticut and Massachusetts in New England, USA.
- 5.3.3 The analysis suggested that:

- Massachusetts, with a similar land size to Wales, but roughly twice the population, supports 4 airports with domestic services, of which at least 3 also offer international services, compared to Cardiff alone in Wales.<sup>78</sup>
- Wales has only a slightly smaller population than Connecticut, and covers a much larger area, yet Connecticut has five domestic airports, at least one of which offers international services.
- GDP and business activity are higher in these US states, no doubt benefiting from their proximity to New York, but Wales is similarly close to and potentially could benefit from, London and the south east of England.
- Medium-sized or small towns with a large rural or sparsely populated hinterland such as Aberystwyth and Bangor could be comparable to Karlstad or Halmstad in Sweden. Compared to the Welsh towns, which have no flights, Karlstad has 8 flights to Stockholm, and 3 to Copenhagen on weekdays, while Halmstad has 8 daily flights to Stockholm (it also has charter traffic to Tenerife during the winter).

5.3.4 This comparison suggests that air services available for Wales at present are fairly rudimentary by comparison with what could potentially be provided in the future. The extent to which the levels of service already enjoyed by Connecticut, Massachusetts, or remote Swedish towns could be replicated in the Welsh context within 30 years will of course depend on the potential for major economic growth, and other factors which shape the propensity for long distance travel. Such other factors might be as diverse as economic interdependence with other centres, or cultural attitudes to flying as compared with, say rail travel.

5.3.5 It is not within the scope of this exercise to predict whether the potential for air travel will be reached in Wales. But we can say that the potential is a quantum leap away from the present position, and certainly no less than the present predictions of air traffic growth over the next 30 years.

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<sup>7</sup> It may be argued that Manchester should be included in the airport total for Wales, especially since the benchmark areas do not have similar major airports just across their borders. Even if Manchester is included, provision for Wales remains substantially short of the benchmark areas.

### 5.3.6 *Level of service in comparable regions*

5.3.7 This part of the benchmarking exercise was intended to position Wales in the context of countries or regions with comparable geographic or economic circumstances. It is potentially useful in judging the scope for future air services development in Wales, without having to rely on assumptions about major economic growth. The comparisons are complex, however, and the results should be treated with caution.

5.3.8 The selected comparative locations were Eire and Denmark.<sup>9</sup> Of course, neither of these countries is wholly comparable with Wales. Eire has similar remote rural areas, but is much larger in total than Wales and has a lower population density overall. Denmark is much wealthier, but water presents a topographical barrier to movement similar in effect to the mountains of Wales. Denmark is also relevant to issues of scale, as already discussed.

5.3.9 For each country the frequency and destination of air services, passenger numbers, and the propensity for residents to fly were analysed.

### 5.3.10 *Airport location*

5.3.11 The location of airports is directly related to population. The major international airports in each country generally are located close to the most densely populated areas. Regional airports occur in less densely populated areas, or even sparsely populated areas, but at the local level are located close to centres of population.

### 5.3.12 *Role of regional airports*

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

5.3.14 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 reflects the relatively large number of movements through the Billund Airport, which offers a wide range of

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<sup>9</sup> It had been intended to include Scotland, but in the context of the Scottish air services study, information was not available within the timescale of the present study.

interlining opportunities.<sup>10</sup> 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 is highly variable (from 14-100%).

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

5.3.16 Ad hoc charter flights are available from most of the smaller provincial airports, many of which also offer air taxis usually destined for locations not served by major airlines.

5.3.17 Feeder services into a hub airport form the only domestic routes offered in both Denmark and Eire. In Denmark, domestic air travel focuses on Copenhagen Airport with 9 regional airports offering connecting routes into. All but one of these has flights scheduled to enable a day's business in Copenhagen.

5.3.18 In Eire, Dublin is the hub to which all routes except some from Knock and Waterford converge. Out of 6 airports, 4 have flights which enable a day's business in Dublin and access to interlining. No other internal routes are offered.

5.3.19 In Wales, there are currently no domestic routes.

5.3.20 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 return flights / day
- Lyon        173km by road      1 return flight / day
- Galway     208km by road      3 return flights / day

5.3.21 Such distance thresholds suggest that Caernarfon and Holyhead to Manchester, and Haverfordwest to Cardiff are on the borderline, while a route between Caernarfon or Anglesey and Cardiff would clearly exceed the threshold. However, domestic air services in Denmark and Eire mostly cover greater distances than between Cardiff and other airports in Wales.

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<sup>10</sup> Data for Copenhagen were not available.

- 5.3.22 The existence and frequency of flights is of course not solely a matter of distance. Other factors will include wealth, population and economic activity, and also the availability of alternative modes of travel. The significance of the latter is neatly demonstrated at Odense. The opening of the Oresund road and rail link, which cut surface travel times to Copenhagen by more than an hour, caused air passengers on scheduled flights to drop from 122,000 in 1997 to 23,000 in 1998, and the withdrawal of the service in 1999. By road the airport is 170km from Copenhagen airport, the same distance as from Manchester to Caernarfon or Cardiff to Haverfordwest.
- 5.3.23 Caernarfon in North Wales is a community with significant potential for tourism with its harbour facilities, its road access to the Snowdonia National Park and its adjacent beaches. It should be earning a reasonable tourist revenue. Looking to Eire it may be broadly compared with Cork, which is similarly positioned with ready access to the sea and countryside, but without the grandeur of Snowdonia/Eryri. The difference in markets which these two areas serve should be noted.
- 5.3.24 The reason that Cork has a higher level of high spending tourists coupled with the appropriate hotels, restaurants, and attraction facilities can be directly related to the routes serving the appropriate airports.
- 5.3.25 Domestic traffic at Cork is over 20,000 passengers per year and it has direct routes into the major airports of South East England and Manchester. Despite the A55 trunk road, Caernarfon is significantly more isolated than Cork, which is detrimental not only to tourism but to the attraction of inward investment.

#### 5.4 *Propensity to fly*

- 5.4.1 The propensity to fly is defined here as the number of flights made per person per year. The rate for Wales as a whole in 1997 was an average of around 0.74 flights per person per year (around one thousandth of all trips made in the year). <sup>11</sup>The rate for France as a whole is markedly higher at 1.46. Only South Glamorgan reached this level by 1997.

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<sup>11</sup> CAA 1997, per DETR/EAMI

5.4.2 Danish data do not allow calculation of the overall rate, but it is estimated that the rate within the 500,000 population catchment of Aalborg (one of the larger regional airports) is 1.07.

#### 5.4.3 *Policy lessons*

5.4.4 The third benchmarking exercise is concerned with the policy dimension of French regional air services. The virtual absence of internal Welsh air services and the small number of flights from Welsh airports other than Cardiff International suggests that provision has up to now been beyond the scope of a reasonable commercial risk. In some countries, however, government intervention has deliberately set out to overcome this constraint on air service provision. This part of the benchmarking exercise attempts to explore experience of such intervention, both the objectives behind it and the methods used, in the Bretagne and Massif Central (Auvergne) regions of France.

5.4.5 France has 78 airports serving a country of 58 million people over 550,100 km<sup>2</sup>, that is one airport for every 750,000 residents. In 1997 there were 1.546 million flights carrying 1.1 million French passengers<sup>12</sup>, suggesting that the propensity for the French to fly is around 1.46 flights per person.

5.4.6 Undoubtedly, wealth, distance and population thresholds play an important part in generating a 'flying culture', but it has also been enabled by Government support of regional airports. This chapter explores the financial and operational assistance offered to airports.

#### 5.5 *Air service subsidy*

5.5.1 EC regulations allow state subsidy of both routes and airport infrastructure. In France, there are three state subsidy models.

5.5.2 Firstly, the State has a responsibility to fund runways, fire, security and navigation at all airports. Finance is from airline and airport charges, and from taxes.

5.5.3 Secondly, subsidies are available to provincial airports to support "thin routes" that are deemed important for regional development. The management of these airports is the responsibility of local Chamber of Commerce (CCI). This is a particularly onerous burden for airports

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<sup>12</sup> Source: Direction Generale de l'Aviation Civile Dec 1998.

with a throughput of less than 1 million passengers, as viability is not guaranteed below this threshold. At present 40 routes are subsidised.

5.5.4 Thirdly, the State is able to gap fund other routes that are put out to tender. Successful bidders are awarded a three year contract, whereby revenue is 'topped-up' from central funds. Currently two routes to Paris are subsidised in this manner (Corsica and Strasbourg).

5.5.5 Although details of the level of subsidy provided have not been provided, it is acknowledged that many services are only viable because of financial help from the State.

#### 5.5.6 *Funding of airport infrastructure*

5.5.7 Airports also draw on a range of local and regional funding to help with the capital costs of airport development. Clermont-Ferrand airport in Auvergne has embarked on a major expansion programme. In 1992, when there were 250,000 passenger movements, the local Chamber of Commerce set a target to reach 700,000 passengers by 2005. This target was in fact reached by the end of 1998, and this is attributed to the ease of access to the airport and relatively short check in times.

5.5.8 Long-term growth is being planned for, with a major addition to the airport terminal. Capacity is to be increased to 200 flights per day, arrivals and departures will be in separate halls, and passengers will embark through air bridges. Capital funding for these improvements comes from a number of organisations involved in land use planning, air transport and regional economic development: the local Chamber of Commerce, the EC, DGAC (national aviation authority) FNADT (regional fund) regional and county councils, and a joint local authority group for the metropolitan area. Without, this partnership, the airport management would be unable to support the proposed development.

#### 5.5.9 *Routes*

5.5.10 Slots at Paris Orly airport are reserved by the State for flights from regional airports. This enables routes to be flown from the smaller airports, rather than them being squeezed out by more profitable routes.

#### 5.5.11 *Lessons from France*

5.5.12 The French experience offers certain benchmarks with respect to development of air services in Wales:

- Airports with less than 1000 passenger movements a year are deemed to need subsidy;
- The Government believes local and regional economic development is stimulated by the provision of air services from a local airport, and is prepared to support this by the provision of subsidies;
- Many regional and provincial airports require State assistance to secure popular and profitable routes in the face of wealthy and powerful airlines and airport operators, hence the reservation of slots at Orly

## 5.6 *Future demand (latent/constraints)*

5.6.1 The relative remoteness of certain parts of Wales may be perceived as a problem, but the reality of this problem cannot automatically be assumed. What may be more certain is that reducing travel deterrence in Wales would open up travel opportunities that currently do not exist. Of particular interest are:

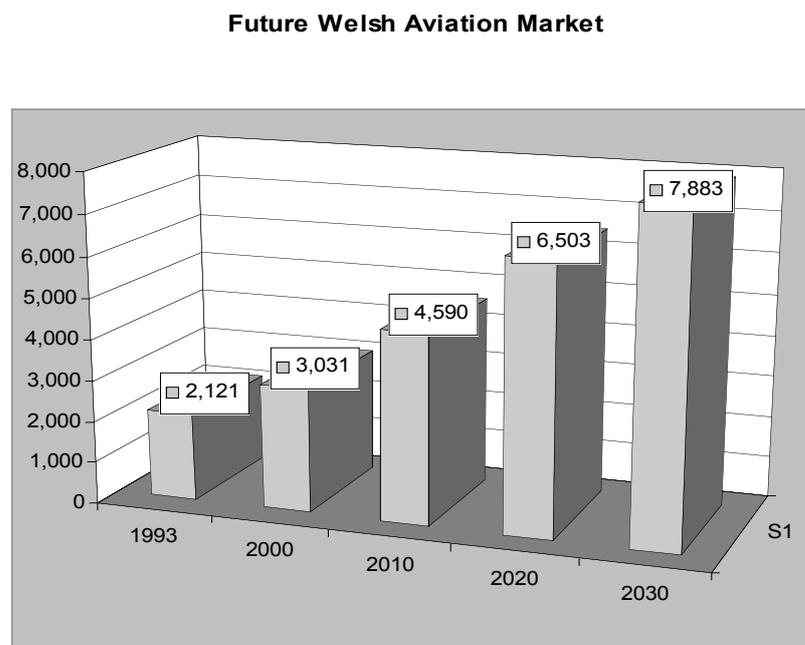
- the opportunity for closer connection between North, Mid and South Wales, now more important following the creation of the Welsh Assembly;
- the opportunity for easier connection to transport nodes providing routes to the rest of Britain and internationally;
- the opportunity for widening markets and diversity for business in Wales – but bearing in mind the risks of the so-called “pump effect” whereby Welsh markets would be less protected from outside competition than at present.

5.6.2 It is therefore postulated that opportunity–creation is more important than problem-solving in considering the future of air travel and air services in Wales. Current demand for air travel gives little guidance as to future potential. Future demand will depend quite heavily on what can be created by the provision of services, hence the value of benchmarking as already described.

5.6.3 Within this basic framework, the potential market for air travel needs to be segmented. For example, while all air travel demand is sensitive to price and quality, the impact of these factors differs widely between leisure and business travel, and between internal and external travel. These factors are explored further below.

- 5.6.4 It has also to be recognised that even where a travel need can be defined, air may not necessarily be the automatic answer. The scale of competition from other modes, or at least the scope for co-ordination and partnership in providing access throughout Wales, point to the need for an integrated approach. Of particular importance is the issue of surface access.
- 5.6.5 Although the pattern of routes from Cardiff is at present limited, the operators have identified several routes where they believe latent demand is above the threshold needed for a commercially viable service. This raises the issue of why such routes are not operated, and we return to this later in the report.
- 5.6.6 Future markets were extracted from the Base Case of the CAA model whose assumptions are taken from the overall UK forecast prepared by the DETR. The methodology of this model is shown in the separate Technical Appendix. The assumptions made by the DETR assume a greater growth in the regions than the overall UK rate. Figure 5.1 shows the outcome of this analysis with the Welsh aviation market increasing by a factor of almost four between 1993 and 2030. Three major factors are revealed during this analysis:

**Figure 5.1 The future Welsh Aviation Market**

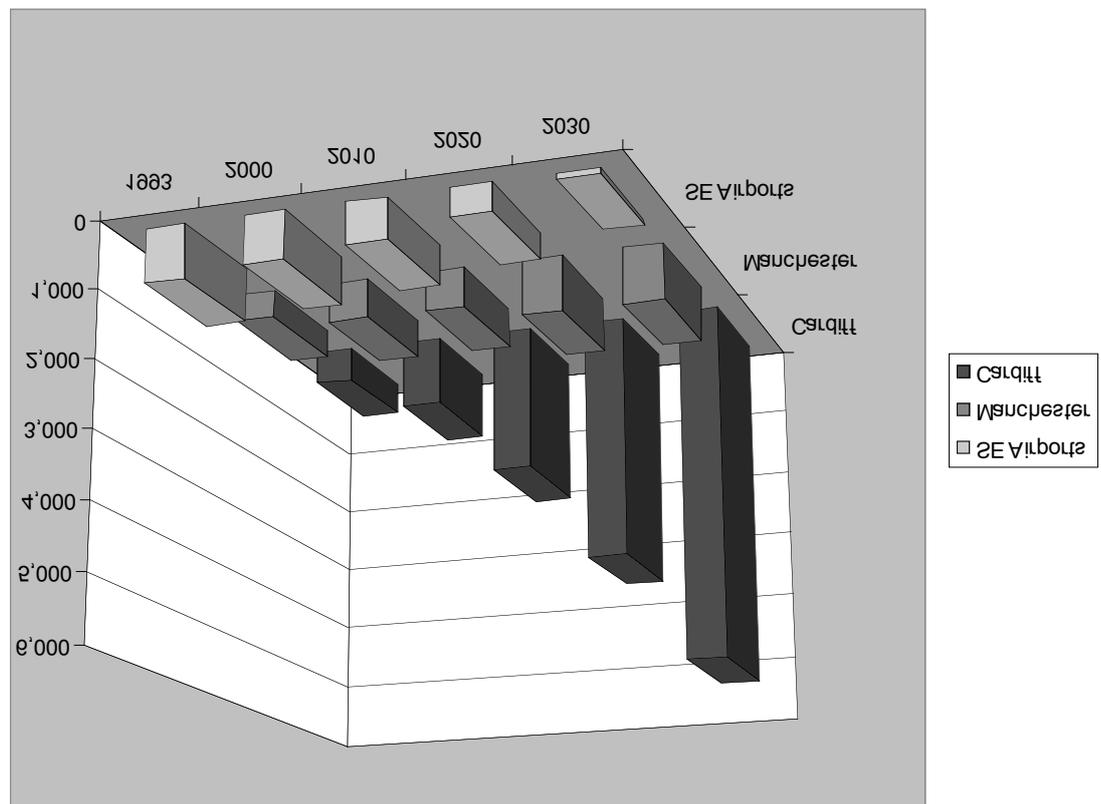


5.6.7 Three major factors are revealed by this analysis:

- a dramatic decline in the proportion of passengers using South East airports, associated with an improved range of services provided locally;
- a significant increase in the number of passengers using Manchester Airport, though this increase levels off in the latter years as Liverpool starts to claim an increasing proportion;
- a significant growth in Cardiff Airport throughput with ultimate passengers in 2030 exceeding 6 mppa.

This contrast is shown diagrammatically in Figure 5.2.

**Figure 5.2 Distribution of Air Traffic Growth 1993 – 2030**



5.6.8 To reinforce the above points, the figure shows the following:

- the actual reduction in passengers using the south east airports from 26% of the market to 3% of a much larger market;

- the increase in Cardiff share from 35% to 64% - once again of a greatly increased market; (the forecast volume is over 5 million, compared to just over half a million now);
- within the North West market share, which goes up from 21% to 22%, Liverpool's share goes from 1% to 8% of the market.
- Bristol maintain its share of the market at approximately 8-9% over the period, showing itself to be a major competing influence to Cardiff Airport in that area.

5.6.9 The above is essentially the 'do nothing' picture, and would happen if the present policies were allowed to run their full course over the next thirty year period.

5.6.10 The objective of the Study is to identify those circumstances which could affect the way that the Welsh market is served over the thirty year period.

5.6.11 The following circumstances were analysed and the implications reviewed:

- South East Airports fully or partially constrained; this involved assuming various capacity constraints, notably runway capacity at Heathrow, and analysing their potential effects on route development from Cardiff;
- Development of Cardiff Airport: the objective here was to test the effect of "forcing" the development of routes from Cardiff by assuming increased aircraft capacities in advance of modelled commercial demand. In fact we found we had no need to do this as the routes achieved sufficient load factors without interference in the basic run of the model;
- Introduction of the Small Jet: The model as originally constructed only brought in new routes when the loading equated to the commercial introduction of a 100 seat airliner. With the introduction of a new generation of small jets such as the Embraer 145, we believe that routes acceptable to business traffic could be generated at much smaller volumes. The assumptions were therefore amended such that new routes were established when demand reached capacities suitable for a 35-seat aircraft.

#### 5.6.12 *Interlining Options*

- Cardiff and the South Wales market is not seen as a hub, but as a catchment linked to one or more major air hubs. Currently it lies at

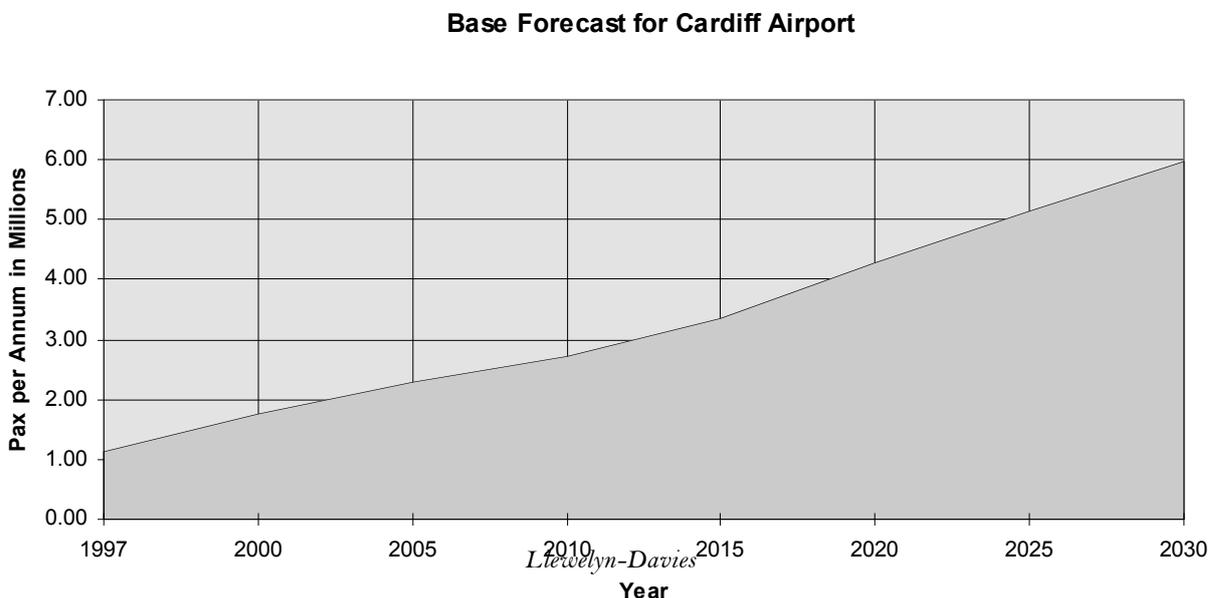
*Llewelyn-Davies*

the end of the spoke into the Heathrow hub, with the spoke itself being the main road/rail link into Heathrow.

- With the size and maturity of the market currently within the Cardiff Airport catchment area, a scheduled air service “spoke” has been envisaged feeding hubs other than Heathrow. The two obvious hubs for investigation are the UK’s primary regional hub at Manchester, and continental Europe’s most aggressive hub at Amsterdam (Schiphol). Amsterdam is already served by Cardiff’s most frequent service, operated by KLM. Over 60% of this Amsterdam traffic is interlining. Dublin is a further possibility, especially for North American traffic.
- A final major policy decision which could fundamentally affect the distribution of air traffic related to the surface access improvements to the airports serving the Welsh market. This has also been examined.

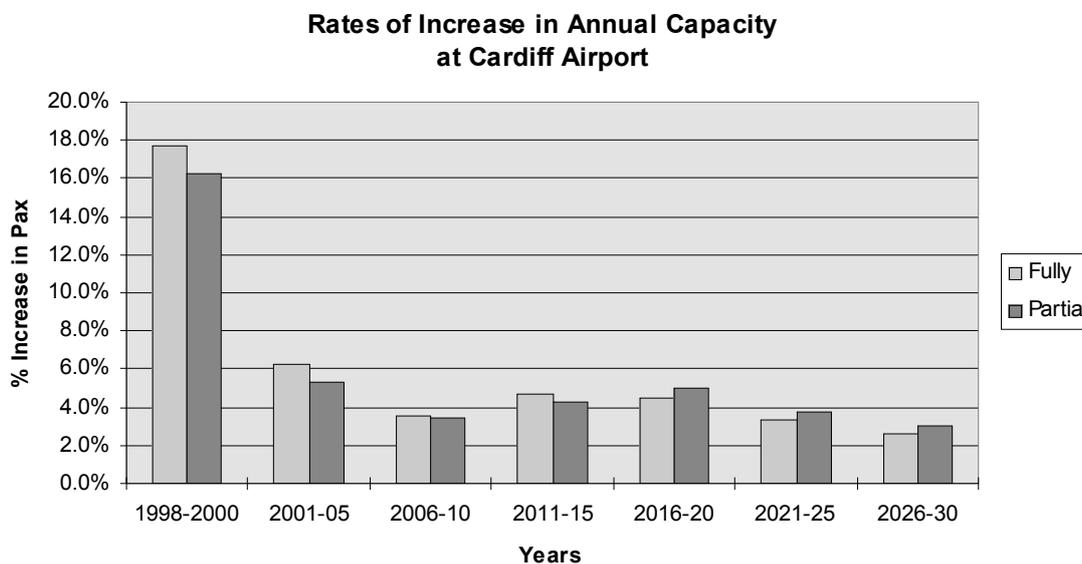
5.6.13 In order that the impact of the above options could be tested, a base forecast for Cardiff Airport was established. This is shown in Figure 5.3. It should be noted that the forecast for Cardiff Airport has been derived from the catchment area of Cardiff Airport, which is of course independent of national boundaries. There is a competitive overlap of catchment areas between Cardiff and Bristol, and the competitive influences of the routes serving these airports will define the utilisation of the airports. The base forecast for Cardiff represents the ‘do nothing’ picture outlined earlier.

**Figure 5.3 Base Forecast for Cardiff Airport**



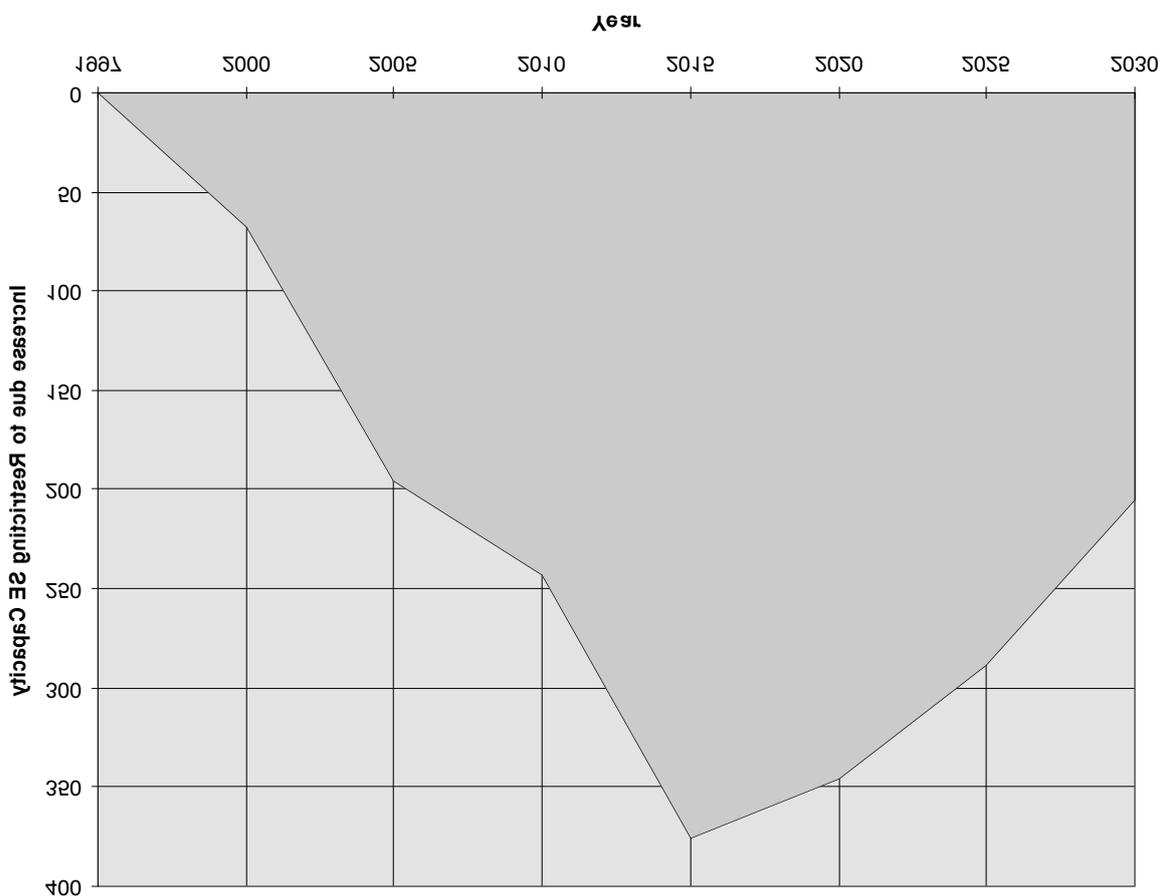
5.6.14 The initial test assumed that the South East airports were fully or partially constrained. The impact on Cardiff Airport is shown in Figure 5.4. There would be an initial surge in utilisation of the Airport as the airline industry re-focuses its route activities nearer to the base market. This would slow down after the first decade to more normal rates of increase associated with increased activity caused directly by economic growth. A similar situation would be reflected at Manchester Airport serving the North Wales market. This would fill out and increase capacities on the main destinations and would no doubt throw up more new routes primarily into additional gateways in North America, and more secondary and tertiary routes into Europe.

**Figure 5.4 Rates of Increase in Annual Throughput at Cardiff Airport**



5.6.15 Figure 5.5 shows the actual effects of the South East airport restrictions on the throughput at Cardiff Airport, with the overall rate of increase in passenger traffic peaking in 2010 and falling away thereafter. A similar effect would be felt at Manchester but in percentage terms it would not be as significant as at Cardiff.

**Figure 5.5 Impact of South East England Restrictions on Cardiff Airport**



**Cardiff Airport-Effects of SE Airport Restrictions**

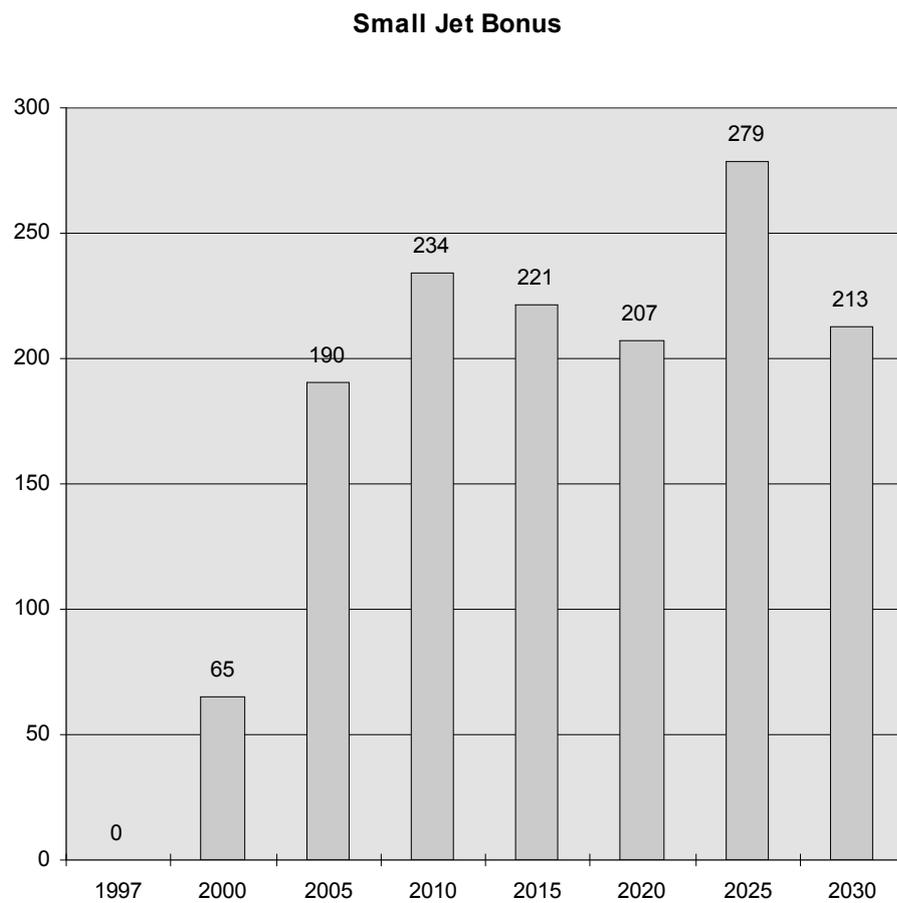
5.6.16 The effects of the introduction of the small jet commuter aircraft such as the Embraer 145 and similar models, are going to be significant for

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the regional airports with limited catchment areas. They will provide similar levels of comfort, speed and reliability on low density routes as that now being experienced from the larger airports with larger aircraft. It is likely that business traffic in particular will feel comfortable utilising this equipment, enabling a denser more commercial route network to be developed from the smaller airports.

5.6.17 However, at a minimum 50-seat configuration they still require a significant annual demand to fill them. A further model run was based on reducing the annual levels at which a route becomes viable in line with the carrying capacity of these new aircraft. As can be seen from Figure 5.6, this would have a noticeable effect on the South Wales market centred on Cardiff Airport.

**Figure 5.6 The Small Jet “Bonus” Effect**



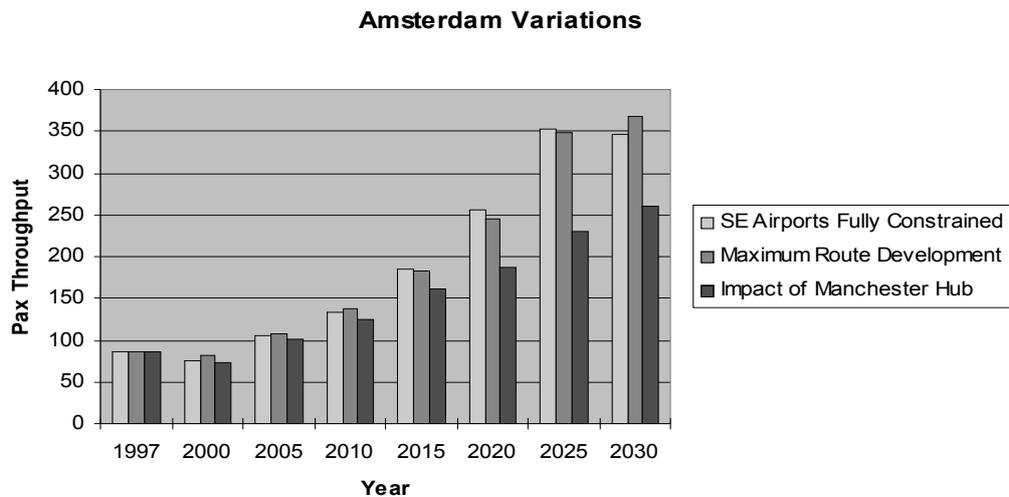
- 5.6.18 For North Wales, fed primarily from Manchester and Birmingham, the result of the introduction of this type of aircraft would be more related to the development of the long “thin route” to secondary and tertiary destinations within Europe, as well as increases in frequency to more established destinations, for example by the introduction of additional rotations in off-peak periods.
- 5.6.19 The next series of tests concentrated on the relationship of Cardiff with the appropriate business hubs. At present, as we have seen, the South Wales catchment area is effectively a spoke of the major hub at Heathrow, but with that hub served by road and rail. Already routes have been established to Amsterdam, Brussels and Paris, no doubt with the operators attempting to feed passengers who presently travel to Heathrow directly into the hubbing systems at these airports. For the purpose of this model run, Amsterdam was selected as a potential European hub, in order to assess the impact of a significant increase in capacity on the Cardiff-Amsterdam route.
- 5.6.20 The principal regional hub of the UK is Manchester Airport. We believed it appropriate therefore to model a Cardiff-Manchester link of such frequency and capacity as to test a strategy of feeding interlining passengers into the hub routes at Manchester Airport.
- 5.6.21 The interlining market we have described is primarily business orientated relating to the potential for a day’s business or a short visit to a European destination. A secondary market is people joining long haul routes to the Far East and North America.
- 5.6.22 The success of the hub depends therefore on the number of destinations served, coupled with the frequency of destinations from that hub. Whilst Manchester has frequent and good services to the prime destinations of Europe and to a lesser extent to North America and the Far East, it cannot match the levels of service and frequency presently on offer at Heathrow.
- 5.6.23 The Manchester-Cardiff route itself has tended to be very marginal over the last decade. It grew to a direct point-to-point total of 12,000 passengers before declining to 7,000 passengers and being subsequently withdrawn, and only very recently re-introduced. The argument has been put forward that the reason for this lack of success was the single service on offer, coupled with the level of equipment on that route which made it less acceptable to business traffic who require frequency, reasonable comfort levels and the ability to set their own

time-table. On this basis any Cardiff-Manchester route seen as providing the option for the business traffic to South Wales should have a high frequency and modern jet equipment. As far as the model is concerned, a significant capacity was put on the route to establish the route potential.

5.6.24 Figure 5.7 compares the number of passengers on the Amsterdam route over the thirty year period under three of the model tests:

- South East airports fully constrained;
- maximum route development assuming limited competition;
- the impact of the introduction of a fairly frequent service to the Manchester hub.

**Figure 5.7 Impact of Assumptions on Amsterdam Traffic**

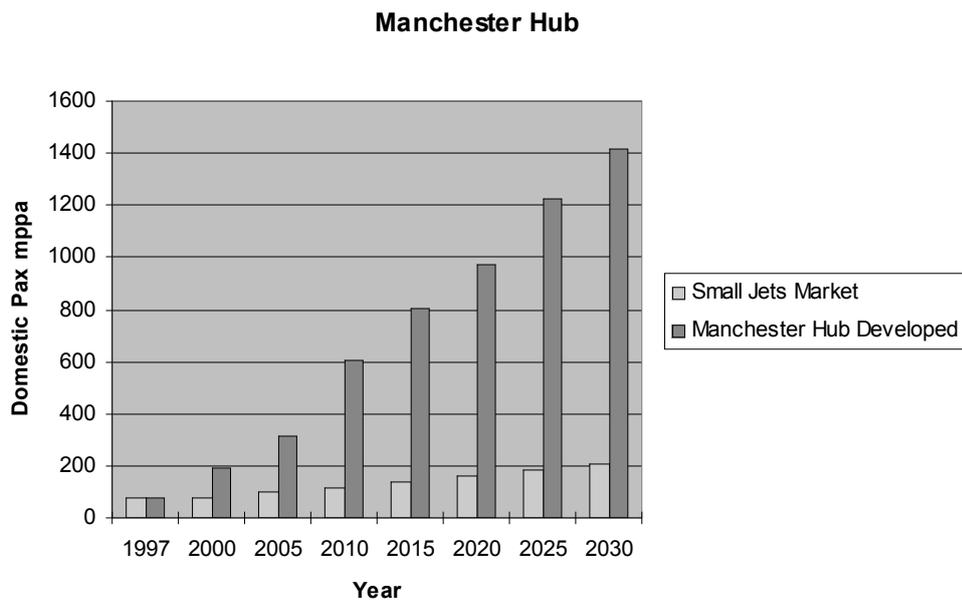


5.6.25 A secondary effect of the possible Manchester hub development is that it would transfer a significant sector of the Cardiff market from international/European to domestic travel. Whilst with the abolition of duty free allowances this does not necessarily have a major impact on the revenue of Cardiff Airport, it could well affect the passenger handling activities within the terminal.

5.6.26 Figure 5.8 shows the impact on the throughput of Cardiff Airport of the Manchester hub and compares it with the impact of the introduction of small jets. Properly marketed and served, the potential of this route

would divert passengers from Heathrow. It should be noted, however, that in practice it would represent a diversion of revenue for the operator rather than an increase, under current conditions.

**Figure 5.8 Domestic Traffic and the Manchester Hub**



5.6.27 The final major impact which policy decisions could have on the aviation market and Wales relates to surface access improvements, either as a way of substituting road/rail journeys for air journeys or, alternatively, improving the access to airports to later improve our defined access standards. Surface access improvements were assumed as follows:

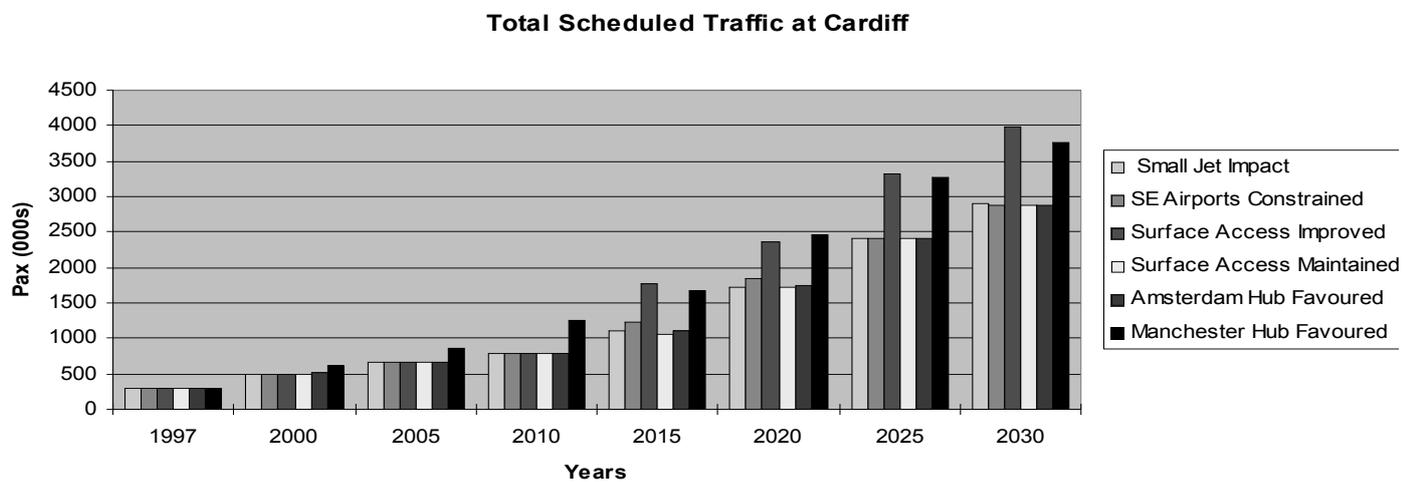
- all improvements completed by 2010;

- present trunk road programme completed;
- new or improved road/rail access to Cardiff Airport;
- new westerly rail link to Manchester Airport;
- rail services to Cardiff currently terminating at Cardiff extended to the Airport;
- modest rail time improvements generally;
- rail access to Heathrow improved significantly.

5.6.28 This resulted in a significant improvement at Cardiff Airport as measured by the total scheduled traffic. Particularly in the later period, it is the policy component which has the most marked effect on the throughput.

5.6.29 Figure 5.9 summarises the total impact of all the model variations on the scheduled traffic at Cardiff.

**Figure 5.9 Total Scheduled Traffic at Cardiff, 1997 – 2030**



5.6.30 Reviewing the different model outputs, in terms of the South Wales business market, the most significant impact will stem from infrastructure improvements, followed by the development of a Manchester hub linked to the South Wales business community.

5.6.31 *The Cardiff Airport operator's perspective*

- 5.6.32 The airport operators of Cardiff International (TBI) have identified several routes where latent demand for services exceeds the threshold needed for a commercially viable operation. In particular they would like to be able to offer more flights to Paris and Amsterdam and introduce services to Frankfurt. Amsterdam services are limited by operators' reluctance to provide aircraft for this route. German routes are constrained by a lack of slots and aircraft at the major hubs. Larger airlines have a tendency to operate from major hubs to make more efficient use of their equipment, for example by being able to fill larger aircraft.
- 5.6.33 From the population living within the airport's 90 minute catchment, TBI also consider there to be strong demand for long haul international flights<sup>13</sup>, but the existing runway length restricts take-off weights to a level below that which would be economically viable. On the basis of experience in recent years, with services to Manchester and Newcastle having been introduced and subsequently withdrawn, they recognise that it appears that domestic routes have less potential. However, the story is seen as more complex, in that success of a route depends not only on sufficient demand to ensure commercial viability, but on a range of other factors including the quality of aircraft, the willingness of operators to allocate aircraft to a route, and pricing and marketing policies.

## 5.7 *Plans for the future of Cardiff International (CWL)*

### 5.7.1 *Predicted Growth of Cardiff International Airport*

- 5.7.2 TBI, as airport operators, are committed to developing services, and have an investment programme of £10 million for a new international arrivals hall, improved passenger facilities, upgraded runway lighting and other items.
- 5.7.3 Growth of passengers has been predicted by the CAA model "base case" (without specific interventions) over the next 30 years to be more than four-fold to 5.96 million (Base Case), with the majority of passengers using charter flights for leisure purposes as at present. The passenger

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<sup>13</sup> Currently these passengers use other airports. Sourced from YRM / Vector Management Ltd (Dec 1998) Cardiff International Airport: Masterplanning: An Incisive Study (draft without drawings)

growth is forecast to include expansion of current routes as well as new routes, the greatest growth being to Amsterdam, Dublin, North America and the holiday destinations in the Mediterranean and Caribbean.

- 5.7.4 The forecasts are limited by the fairly low base from which volumes start. This means that even more than usual, simply extrapolating trends could lead to error. Demand can always vary in response to factors not fully represented in the model, and so the forecasts therefore are indicative rather than providing a definitive picture of future demand.
- 5.7.5 It is also important to note that the CAA forecasts are essentially demand-driven, and do not therefore indicate the scale or character of new or diverted demand that would arise from step-increases in supply. It is here that the benchmarking exercise may be more illuminating.

#### 5.8 *Other airports (plans/aspirations/realities)*

- 5.8.1 Some of the smaller airports in Wales, especially those with active private or public management have plans to develop various flying or other associated activities, though scheduled passenger services have not so far been established. Some of these specific plans are discussed in the economic development section below. In general, the issue of most relevance is the potential for the airport to serve a sub regional catchment in terms of regular passenger flights. Otherwise the development or otherwise of small airports can remain essentially a local matter. The airfield infrastructure has been reviewed in order to establish those with potential to play a role in a wider network.
- 5.8.2 There are at present tentative proposals for two wholly new airports that could potentially affect the Welsh market. These are a replacement for Bristol, and a proposal for a new single-runway airport set in the Severn Estuary (“Severnside”). The first of these has not been developed into a firm proposal, but could potentially act as a stronger competitor to Cardiff than Bristol (Lulsgate). The Severnside proposal is not seen as consistent with the evolving pattern of air services and airports within the European context. Additional European facilities will require a minimum of two parallel runways at 1.5-km centres to allow for independent operation. It would therefore be either a replacement for Cardiff Airport or, alternatively, would only become commercially viable as Cardiff became congested. With the investment

required to establish such a facility and with the spare capacity available at Cardiff over the next 30 year period, it is unlikely to prove commercially viable in its own right and could only be considered an option, if at all, for other commercial and social reasons. Our initial appraisal would be that environmental considerations in this location are liable to act at least as strongly against it as any positive socio-economic considerations in its favour.

## 5.9 *Airfreight Traffic Potential*

- 5.9.1 Air Freight is currently the subject of a separate UK-wide Study. Broadly airfreight activity today is concentrated on scheduled passenger flights, filling the void beneath the passenger compartment. Thus freight service development tends to follow the development of scheduled passenger routes. Consequently Heathrow is by a large margin the biggest freight centre in the UK carrying in excess of 1.4 million tonnes annually; Manchester and Stansted are also important centres.
- 5.9.2 This will not necessarily continue to be the pattern indefinitely. Research by the aircraft manufacturers has led them to predict that a significant number of all-freight aircraft will be required over the next thirty years, with the implication of a move away from the predominance of the belly-holds of passenger aircraft. Two predominantly all-freight airports have already been announced, near Brussels and Paris.
- 5.9.3 Another dynamic element is small parcels freight. This is dominated by American companies, with the operator taking complete responsibility for door to door handling and delivery of the freight. Separate air freight/logistics hubs are now being developed to support this market.
- 5.9.4 In Wales, there is one specialist air freight operation, dedicated to a manufacturer (BAe). Hawarden maintains a unique operation employing specialist aircraft to transport completed Airbus wings to its final assembly plant in Toulouse. It recently expanded and upgraded its runway to become independent of possible highway problems and the future availability of handling space at Manchester. Whilst it has indicated the potential for developing specialist airfreight movement utilising its specialised aircraft, this will not be allowed to affect the core activity of the factory.

- 5.9.5 In terms of general air freight, Wales generates comparatively small volumes of airfreight in comparison with the rest of the UK, and with its less developed road and rail infrastructure, it is unlikely to attract a developer for a major freight hub. Cardiff will remain the main focus within Wales and the flown throughput can be expected to increase in line with the development of its scheduled routes subject to the capacity of the aircraft serving these routes. Volumes are however very small.
- 5.9.6 Outwith Cardiff, the potential small domestic airports reviewed elsewhere in this report cannot expect freight activity on any significant scale. Some Post Office traffic might be attracted, though this is usually required at night, thus being incompatible with limited daytime schedule flights and raising potential environmental conflicts. Occasional freight charter operators might be attracted to the small airports for specialist requirements, but this is not a sector of activity that will repay detailed attention for local economic development reasons.

## 5.10 *Economic development potential*

### 5.10.1 *The nature of the relationships*

- 5.10.2 In principle, better accessibility for freight and passengers aids economic development, by reducing the frictional effect of distance on economic transactions. How those effects work for particular regional economies and for individual transport modes is however very difficult to assess with any precision. If a transport improvement is not lifting a particular constraint to growth, or if it is but there is little actual potential able to respond, then the role of that improvement will be very limited. The DETR "Guidance on methodologies for assessing economic benefits from airport capacity increases and new air services" reviews earlier work which looks at the economic impact of new air services (CAA - CAP638), the contribution of the combination of services and infrastructure (Pieda - Heathrow; Fraser of Allender - BAA Scottish Airports), and specific work forecasting effects of capacity increases at Cardiff / Rhoose (York Consulting). Various methodologies have been used and are summarised, but there is only a limited amount of actual empirical work of much relevance: principally the Berkeley Hanover work for the parallel South West Study, and our own Business Survey. (See Technical Annexes, Annex 5).

- 5.10.3 This limited relevance is mainly because of the limited transferability of lessons. There is no doubt that airports can be very powerful poles of attraction for economic activity. Heathrow and Gatwick are two of the most important facts in the economic geography, as well as in the transport infrastructure, of South East England, and the air sector is a significant element of the UK's and some regional economies. The American experience is summarised in the Wilbur Smith report for Airports Council International, which estimates direct jobs attributable to the 500-plus US airports as 2.3 million, and total jobs as 7.6 million. But there is not a straight-line relationship between growth in air transport and the consequent economic impetus, especially not at lower levels of activity: below the (say) 5 -10 m.p.p.a. level (Stansted, Glasgow, etc.) it is hard to distinguish any particular effect on businesses' locational choices or investment. Thus, forecasts that, for example, London City's growth to its 1 m.p.p.a threshold would be accompanied by induced effects in the local economy may or may not have been borne out; but there have been no visible physical development effects, even on sites adjoining the airport which were seen as ideal for "air-related activities". Until much higher levels of activity, the relationship is simply (and logically) the other way round: more regional economic activity stimulates more air activity.
- 5.10.4 Nonetheless, it is generally accepted that air service and infrastructure development has potentially an important role to play in economic development, whether through releasing specific constrained potential, or through more general reduction of peripherality and distance friction. The WDA's Corporate Plan, for instance, specifically refers to helping to "eliminate the economic disadvantage of distance"(5.12), and identifies "developing an all-Wales strategy for regional and local airports" (p.16) as one of its Policy Initiatives for Business Infrastructure. Our "policy benchmarking" comparisons with French experience and policy also illustrate how airport infrastructure and service support are seen as integral to a package of measures to ensure the maintenance of regions' competitiveness. As an example, Clermont/Auvergne has been modernised by a partnership deploying local, regional, national, European and Chamber of Commerce funds, some of its routes are supported by PSO provisions, and slots into Paris/Orly may be protected. The rationale is the general one: "développer, au sens très large, les échanges économiques de la Région" (E. Juillard, Satellite Info, Dec 98).
- 5.10.5 Before moving on to the three specific levels of analysis, there are two notes of caution to be added. The first is the so-called "pump effect"

whereby the economic advantages of reducing the friction of distance may be counter balanced by the disadvantages arising from opening peripheral areas to competition from areas that are potentially stronger and more efficient. The second is the question of whether the objective of economic development relates to the UK economy as a whole or to the regional economy? If the latter, account should be taken (presumably) of whether the growth induced by air services is net growth or simply diverted from other regions. There may be important social benefits if growth is diverted from the “overheated” areas of South East England, but these benefits may not be so clear if growth is diverted from, say, under-heated South West England. This study offers little extra illumination of these issues, but this does not diminish their potential significance.

5.10.6 *Direct air-related activity*

5.10.7 Vector’s study for TBI, on the basis of WDA figures, estimates that there are 16,000 jobs in the aerospace sector in Wales. This includes manufacturing and other jobs which do not necessarily have any specific relationship with Welsh air services or airports. Easily the biggest cluster of air-related work is at and near Cardiff/Rhoose. There are an estimated 1884 jobs (including part-time) at the Airport:

Airlines & handling agents	286
Airport company	170
Concessions	106
Government agencies	53
Cargo	46
BAMC (747s maintenance base)	900
Other	323

5.10.8 There are reported to be 4000 jobs at the nearby RAF maintenance base / air station at nearby St Athan. In addition, BA have two related facilities (BAAE Llantrisant and BAIE Blackwood) in the wider region, part of an estimated total of over 7100 jobs in MRO (Maintenance / Repair / Overhaul) in South Wales. This is a major cluster of activity, skills and investment, which is clearly of regional significance. It must be a high priority for Welsh economic policy to maintain and expand this sector, and to facilitate its concentration at and near Cardiff Airport, which is the key locational factor.

5.10.9 The other significant location is Hawarden in North East Wales (a fully-equipped airport: BAe / Airbus Industrie: over 3,000 jobs), and

Raytheon: 120 jobs). Hawarden regard their core business of manufacturing as an absolute priority; they do not wish to compromise it by attracting other air activity, so have not followed up approaches from commercial interests about possible passenger and freight usage.

5.10.10 The other airports and airfields in Wales account for very few jobs, apart from the military and ancillary staff at Valley and Mona (1150 personnel), Llanbedr, and Aberporth/Blaenannerch). Withybush, just outside Haverfordwest, owned and operated by Cyngor Sir Pembro, is probably the most active. It is the base for a (fixed-wing) air charter company, is used by helicopters serving the lighthouses, army and offshore oil, and provides a facility for one or two local companies' European executive flights. Two companies (Prestige Air Engineers and Aeromaze Avionics) provide airport services; the job total is estimated at less than twenty. Cardiff / Pengam Heliport and the company based there employ 7 people, as does Maes Aer Penbre near Kidwelly. Caernarfon, (Morfa Dinlle), with some maintenance work (CAMCO) a small air museum and a cafe/restaurant, Welshpool and Swansea are the most active of the others, but none account for more than ten direct air-related jobs.

5.10.11 There are no airlines based in Wales. The principal service providers are British Regional Airlines, formerly Manx Airways and now a BA franchised operation, and KLM CityHopper.

5.10.12 In terms of the potential, Vector's report for TBI reports forecast employment growth from 1884 to 4750 jobs (direct on-site) at Cardiff / Rhoose over the next decade: this is calculated pro rata to a projected trebling in passenger volumes to approximately 3.5m.p.p.a. This seems extremely optimistic, because it assumes that there are no economies of scale to be had, and because there is no reason for a direct relationship between passenger numbers and the 'MRO' jobs at Cardiff Rhoose. But it is still clear that this represents far and away the most significant source of direct air-related employment growth potential in Wales; no other location can be expected to reach 100 (non-military) jobs, even assuming a network of intra-Wales services.

5.10.13 *Airport economic development potential*

5.10.14 Airports attract more than the businesses who are essentially providing the services needed for the airport to operate, or who rely critically on the airport facilities - which are those reported in the preceding section. They can also act as hubs for activities which draw

advantage from location at or near airports: hotels, freight forwarders, HQ offices, global companies' European centres, exporting manufacturers of high-added-value low-bulk products, and so on. Such enterprises are choosing airport or near-airport locations because this confers advantages (convenience, profile, competitive edge) that override other locational pulls - which may be motorway access, or rail access to a qualified labour catchment, or face-to-face interchange in central cities.

- 5.10.15 Apart from the air-related activity reported above, there is very little (non-air) development or business located at or associated with the Welsh airports. Apart from Hawarden, which is the special case of an air manufacturing facility, with a cluster of other enterprises nearby, the only airfield with co-located business development is Mona in Anglesey. This has a part-let WDA / local authority industrial park on land released from airfield use, but since there are no air services, there is no synergy between the two uses.
- 5.10.16 A number of locations, however, have considered the issue of airport-located business development. Cardiff / Rhoose has about 24 hectares of development land, including 16 ha. with planning permission for B1/B2/B8 use, granted in 1992. TBI see the opportunities as a mixture of air-related (passenger and freight related, further MRO expansion), and non-air (high-tech, knowledge-based and other businesses). However, the Vale of Glamorgan local plan does not require or highlight any need for the business park development to be for air-related activity. Indeed, TBI are earmarking other parts of the airport site for potential future air-related development.
- 5.10.17 Swansea's planning policy would permit development at the airport, but the Council concluded, following a 1992 study, that the logical location for high-tech inward investment is not there but near the University, as the potential synergy is more important than the air access potential.
- 5.10.18 Pemfro have identified land within the curtilage of Withybush airport as a possible inward investment site, for any occupiers (not necessarily air-related). A similar intention seems to be emerging at Aberporth, as a result of the consultants' study for Ceredigion.
- 5.10.19 There seems very little persuasive logic to seeking out *non-air* development potential at the Welsh airports. They are almost by definition in out-of-town locations, so development there tends to run

counter to sustainable transport and other environmental considerations. They will tend to deflect demand from the priority locations, such as brownfield / urban regeneration sites, the strategic sites identified by WDA, and Cardiff Bay. And as the analysis by Swansea Council suggests, there actually tends not to be any real functional economic advantage conferred by the location. Where there is such advantage, as in the case of the MRO potential, then this is clearly a very strong policy plus; for other sectors, it seems that the presumption should be against.

#### 5.10.20 *Indirect economic development potential*

5.10.21 As we have noted, airports and air services can help to induce economic activity and employment in the surrounding regions, and in the case of the major international airports, these effects are very powerful indeed. Any additional activity injected into a regional economy will of course impart at least some further “multiplier” effects: the question here is what are the effects that better air transport facilities can have on the economic development potential of Wales. We have found little empirical evidence or survey material reporting on these effects specifically, though there have been a number of attempts to estimate what they might be. This section therefore considers what sectors of the Welsh economy, and which regions, might benefit from air service development.

5.10.22 The single most significant feature of the Welsh economy is the importance of manufacturing: it represents 28.5% of GDP, compared with approximately 21% for the UK as a whole. This proportion has remained quite stable over the last few years, again differing from the UK trend, and despite success in increasing the share in financial and business services (up from 15.7% (1994) to 17.4% in 1997). Agriculture is a very small, and falling, proportion, at 1.8% of GDP (1.6% of jobs), though it is of course locally very important. Manufacturing has attracted high levels of inward investment, productivity has grown, and there is a high export content.

5.10.23 However prosperity in Wales (as measured by GDP / head, or personal incomes) has failed to match this growth, largely because the expansion in the manufacturing sector has not generated enough spin-off in other sectors to raise total factor productivity. The level of local sourcing remains low, as does R & D by the inward investors. Indigenous company growth is sluggish. Coupled with low wages in the service sector, a continuing high proportion of jobs in public

administration, and low average levels of economic activity especially in rural Wales, these factors mean that an economic priority is to improve the “conversion rate” from inward investment success to regional economic benefit.

5.10.24 Studies by Cardiff Business School have identified considerable dormant export potential. Only around 2500 Welsh-based firms are engaged in exporting, with about 600 of them “active” exporters selling more than 20% of output overseas, and with manufacturing again dominant: over 70% of all exports. Both Wales and the UK as a whole are notable in the EU for having the smallest proportion of SMEs engaged in exports. Networking of these firms, and supplier/customer linkages with the main exporters, could help to release the potential. The aim of increasing the international orientation of Welsh firms could be helped by air service development, facilitating travel both from Wales by indigenous businesses, and to it by potential investors. This is one reason why this study suggests the adoption of levels of service standards for business travel.

5.10.25 One particular sector whose potential is generally closely bound up with air travel is inbound tourism: an important prospective source of export earnings, given that international travel is growing at between 3.5% and 5% per annum. For some parts of Wales, this ought to be an important driver of economic development. Welsh tourism is however unusually dependent on the UK domestic market. This accounts for over three-quarters of tourist spending in Wales; it is growing much more slowly than international visits; and over 80% of visitors come by car. Generally, growth potential is seen as being in short breaks and weekend breaks, business and conference tourism, and the early retired. Key markets for Wales are South East England and North West Europe: it is noticeable that visitors from the closer European markets have a higher than average propensity to visit regions outside London. Some of these facets fit quite well with the sort of air service development which Cardiff Airport could support; whilst it is unlikely to justify new services on its own, tourism - with the right target marketing - could thus be an important support to service development.

5.10.26 Wales, like Scotland, now has an additional dimension to think about in relation to economic and air service development. This is the “New Nation” agenda since devolution to the Assembly. The presence of the Assembly is inevitably bringing a new demand for intra-Wales travel. As well as Assembly Members and their staff commuting to and from their constituencies, local authority members and staff increasingly

need to visit Cardiff to press their case, as do other interests, lobbyists and businesses. Surface access from Cardiff to Mid-Wales, the West beyond Carmarthen, and North East Wales is slow and inconvenient; between the North West of Wales and anywhere in the South or West it is slow going. It is around 4 hours by road, and nearly 5 hours by train, from Caernarfon to Cardiff. This study has not been able to estimate the scale of any extra travel associated with such activity, and neither have we found any attempt to assess the scale of the Assembly's impact in Cardiff. However, drawing on some work done in relation to the Scottish Parliament, and reported in a Technical Appendix, we suggest that:

- a possible range of employment effects in Cardiff could be in the range 200 - 2500 jobs: i.e. positive, but not an enormous boost in terms of the whole city economy;
- the country and city will have a greater media presence and higher profile, attracting more legal, professional, media and business services;
- there will be some demand for additional passenger movements through Cardiff Airport, both internationally and, if services are available, within Wales.

#### 5.10.27 *Sub-regional potential*

5.10.28 Conventionally, the Welsh economy is analysed in terms of South, Mid and North Wales. However, the economic characteristics within these broad divisions differ quite markedly, and in ways which affect the potential response to improved air services. We have therefore grouped this discussion into six sub-regions: South (east) Wales, around Cardiff, Newport and Swansea; West Wales (Carmarthenshire, Pembrokeshire); Mid Wales (west), around Aberystwyth; Mid Wales (east) in Powys, North East Wales (Wrexham, Flintshire, Denbighshire); and North West Wales (west of Rhyl, north of the Mawddach).

5.10.29 South Wales contains half of Wales's 2.8 million people within a 45-minute drive of Cardiff, as well as the main concentration of inward investor firms, manufacturing and the growing finance sector. Cardiff Council's target sectors are food, electronics, and applied high tech and biotech drawing on university links, as well as service sector relocations from South East England. The local authorities of South Wales, and the South Wales Economic Forum, regard Cardiff Airport

as a vital but under-exploited asset in their efforts to consolidate and expand the sub-region's economic successes; they regard road access, from the western side in particular, as sub-standard, because of the "tortuous" route. However, both Cardiff and Swansea appear to see two more important problems: first, the limited range of destinations / convenient services from Cardiff Airport, and second, the absence of good connections to, and interlining at, the hub airports, and in particular Heathrow. Their perception, informed by both anecdote and by consultancy advice, is that whilst established major firms do not particularly regard it as a problem, it can have two impacts:

- 1 Locations do not get onto investor "long lists" if they are not able to offer the onward air connection; and
- 2 In the case of marginal decisions to re-invest in branch plants, it adds to the perception of peripherality and distance from key European markets.

5.10.30 Because of this, Cardiff Council is currently studying the prospects for a helicopter link to London, but this seems unlikely to come up with a credible proposition. It would seem that concentrating on better links to hubs such as Amsterdam, Dublin and Manchester, and on ensuring that the inbound travel trade knows of the alternatives to Heathrow, would be a more robust response to this dilemma.

5.10.31 West Wales is a smaller and more rural sub-region - about a quarter-million people, with no major urban areas west of Llanelli. Cyngor Sir Pembrokeshire see Worthybush airport at Haverfordwest as an asset with the potential to reduce peripherality, to influence firms when they are considering relocations / inward investments, and possibly also links with Ireland. It is "useful rather than essential" to businesses at present, but nonetheless helped them attract both a Dutch oil company (who fly to Schiphol) and an Irish service company in recent years. They do not see tourism as a relevant sector for the airport: tourism is ferry and carborne. Carmarthenshire Council, similarly, identify the lack of regional air services in West Wales, and the poor access to those outside the area, as a weakness for the local economy, but have no formal policies either in general terms or in relation to Pembrey airfield, which is in their area.

5.10.32 To the north, Ceredigion forms the western part of Mid Wales. It is even more predominantly rural and upland, but with one larger centre, Aberystwyth, a market, university and resort town. By rail it is well

over 4 hours from Cardiff by rail, and over two and a half hours by road. Aberystwyth is the biggest town in Wales without any nearby airfield. The MoD facility at Aberporth, near Cardigan town, is 30 miles to the south. The local authority is interested in the potential for a helicopter service to Aberystwyth, as well as in Aberporth's development potential; and its consultants are studying the latter. With a catchment population well below 100,000, only a limited economic base, and a primarily UK domestic tourism market, it is difficult to see how either option is worth pursuing. An alternative might be to find and develop a small airfield site nearer Aberystwyth as part of a longer-term infrastructure strategy, as discussed in the next section.

5.10.33 Eastern Mid-Wales, around the towns of Newtown, Welshpool and Llandrindod Wells, has a broader economic base and an existing air facility at Welshpool. The WDA's predecessor agency (Mid-Wales Development) did also carry out a study of a possible Mid-Wales airport at Caersws, west of Newtown, but decided not to proceed with it. Welshpool airport is seen as an asset in attracting inward investment by WDA; the area has been quite a successful growth pole for both FDI and for businesses and households relocating from the West Midlands and South East England. The airport is used by local inward investor firms, and would be used by more if its runway allowed larger business jets. The location is marginal in terms of competition with surface access to Cardiff, Birmingham or Manchester; conceivably services to a hub such as Manchester, or direct into Europe, might be possible in the longer term, but again the catchment is small, probably less than 150,000 population.

5.10.34 North East Wales is the second focus of major economic activity after Cardiff and the Valleys. It has 20% of the principality's population and 23% of its GDP, lower than UK average unemployment (4%), and a very wide range of economic activity including aerospace, steel and high tech industry, as well as resort towns and a commuter role for Manchester, Merseyside and Chester. The existing airport at Hawarden, as noted earlier, is used primarily in connection with BAe's industrial concern. This part of Wales is firmly within the catchment of Manchester Ringway, Britain's third busiest airport; the authorities and agencies in the sub-region recognise this, and regard its international links as of crucial importance to their economic prospects. There is little priority given to development of intra-Wales air services, and this is probably realistic, since most of the sub-region's needs could probably be better met by fairly straightforward improvements to

surface access. This view appears to be shared by local authorities in the area.

5.10.35 This becomes steadily less the case, however, westward along the coast towards Anglesey (Ynys Môn). North West Wales is very different: culturally, with a distinctly more Welsh-language identity, and economically, with less industry and more reliance on tourism, education, and farming. Nonetheless, it is a significant sub-regional economy, with some quarter-million population and sizeable settlements in Llandudno, Colwyn, Bangor, Menai and Holyhead. Despite improvements to the A55 and the presence of the railway, it remains somewhat peripheral, even on the main coastal axis, and much more so in the Lleyn and Snowdonia/Eryri. Anywhere west of Llandudno Junction is over 4 hours from Cardiff by train, and over 2 hours from Manchester Airport. Travelling by rail from Llandudno itself, one cannot arrive in Cardiff before midday. Anglesey's councillors, staff or businesspeople are five hours' travel from their national capital; they can reach Dublin or London more easily. Thus the local authorities regard air service development as potentially an integral part of their economic development (as well as Welsh national) agenda. Ynys Môn (Anglesey) are keen to see RAF Valley developed for commercial use, as is the RAF's business manager at the station. Their stated policy is to encourage the development of a north-south air link, and they regard Valley as the logical location for this rather than Caernarfon / Morfa Dinlle. They also want to further develop the nearby Mona site, though their wish to attract air-related commercial activity seems unlikely to be realised, for reasons discussed earlier. On the other hand, the owners of the Caernarfon airfield, who are also light aircraft operators, envisage their facility as the location for a North Wales regional airport with a link to Cardiff. In either case the economic development potential capable of being released would not be very great, given the nature and scale of the sub-regional economy.

#### 5.10.36 *Business Survey*

5.10.37 The response of the economy to the lifting of constraints ultimately depends on the decisions of individual enterprises. In order to explore the factors which might influence the use of regional air services by Welsh firms, the study team carried out a business survey of 220 private-sector companies involved in the internationally traded sectors, and interviewed 6 major firms in depth. A fuller summary is included as a Technical Appendix, but the principal conclusions were:

- 50% of all exporting firms use air services in some way to further their export development; they use sea and road most, but air more than rail;
- air-freight is particularly important to North Wales firms, more so than to those in the South, with the former making heavy use of Manchester Airport; South Wales firms use London airports predominantly, but in a mix which involves more surface transport;
- air-freight use tends to be monthly rather than daily (though 10% do use it daily), and volumes / values are not very large - the majority export less than 500kg / month (less than £50,000 / month by value);
- almost all companies' air passengers do make use of regional air services: in North Wales this is completely dominated by Manchester (90% of firms); in South Wales, once the (dominant) London usage is taken out, Cardiff is the most used (86% of firms make some but not necessarily very regular use of it); in both regions two-thirds of the firms said they would be concerned if regional air services worsened, and that it would impact on their business;
- North Wales firms said that they would make use of a North Wales airport if one were developed: nearly 70% for passenger travel, and almost 50% for freight; South Wales firms were much less likely to be interested in this prospect (11%);
- improvements sought by South Wales firms were principally more destinations and more frequent flights (wanted by over 30% of firms): in order of preference, they suggested European destinations (37%), Germany (18%) and the USA (17%);
- in contrast, the firms served by Manchester were much more satisfied: the figures are half or less those for the South, with 15% mentioning more frequency or more destinations, 16% naming Europe, 4% Germany and 2% the USA.

5.10.38 These responses give an interesting benchmark for Cardiff Airport development - in that it appears that a level of international service improved towards that currently on offer at Manchester could (a) meet many of the needs of South Wales economy and (b) encourage a substantial transfer of usage away from the London airport system. This is of course an ambitious target: Manchester's international scheduled passenger carryings alone currently exceed all passenger numbers at Cardiff, including charters and domestic, and its natural market is much larger.

*Llewelyn-Davies*

5.10.39 Two other surveys suggest related conclusions:

- Berkeley Hanover's work for DETR/GOSW on the Plymouth/Newquay to London route confirms how important companies feel it is to have direct local access to an airport serving their worldwide destinations, and how vulnerable they feel on the re-investment front when this worsens; and
- Cardiff Airport's own survey of 1400 catchment area firms' regular flight destinations, reported by Vector, shows the predominance of four principal international destination areas: Asia-Pacific, North America, Germany and France, with no other country or region attracting even half as many frequent trips.

## 6 *Scenarios for the development of Air Services for Wales*

### 6.1 *Level of service criteria*

6.1.1 This study has established basic level-of-service criteria against which we can judge the Welsh transport industry, both air and other modes, and the scenarios for its development set out in this report. The following criteria were adopted:

- 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.

6.1.2 Business related travel is the focus of the criteria. It is a legitimate concern if the needs of Wales' economy, businesses, and administration cannot be adequately met because of shortcomings of the transport system.

6.1.3 The reason for the emphasis on business rather than leisure travel concerns the nature of the market. Business travellers, providing the core market for *scheduled* air services, are relatively "cash rich and time poor", and they may be required as part of their responsibilities to travel fairly frequently (perhaps 10-30 international trips per year). Leisure travellers by contrast are relatively "cash poor and time rich", at least in the sense that they are travelling at their own rather than a company's expense and time. Also they may make only a few such trips each year.

6.1.4 A further reason for tying air travel criteria to business travel is that the leisure market is more flexible and responsive to demand. It is also less important in terms of business links and inward investment; hence it is less likely to be the subject of any case for public support for service development.

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## 6.2 *Description of 5 discrete scenarios*

6.2.1 The study has identified ways in which air infrastructure and services could be developed to serve the integrated transport, environmental and economic development policies now evolving in Wales. These have been packaged into five alternative scenarios.

6.2.2 There is a range of policy objectives that air service or alternative transport development in Wales might be expected to satisfy, and decisions will in due course need to be made about the priorities between different objectives. For this reason, the scenarios do not assume a single set of agreed objectives, but rather represent alternative approaches and emphasise different objectives. However, they all take account of the basic criteria for levels of service for Welsh business travel, established as part of the study.

6.2.3 Each scenario has a discrete focus as far as possible, though in practice a preferred scenario could, and probably should, combine elements from more than one scenario.

### 6.2.4 *Scenarios*

6.2.5 The scenarios were developed as ways of addressing the identified travel criteria identified above, taking into account other policy objectives and factors affecting supply and demand.

6.2.6 The scenarios and their objectives are listed in Table 6.1

**Table 6.1 Scenario Summary**

1. BUSINESS AS USUAL	<ul style="list-style-type: none"> <li>• SPAM forecasts reflect market trends &amp; relatively little policy constraint</li> <li>• No public intervention to develop or speed up the market, or to slow it down</li> <li>• Surface access decided by the market and/or non-air parameters</li> </ul>
2. FOCUS ON CARDIFF	<ul style="list-style-type: none"> <li>• Invest in and help Cardiff, both airport infrastructure and access to it (road and/or rail, public and/or private)</li> <li>• Route development support, to help competition with South East</li> <li>• Cardiff catchment expanded towards the north and west (improved surface access)</li> <li>• Better rail into Manchester from North Wales is also included</li> </ul>
3. CARDIFF & NORTH WEST	<ul style="list-style-type: none"> <li>• North West Wales air link to Cardiff, to meet the objective of better access to the Welsh Assembly, and business travel criterion</li> <li>• Public investment to support or pump-prime</li> <li>• Air link provided by an “interrupt” of a new jet service between Cardiff and Manchester</li> <li>• Rail improvements from North Wales to Cardiff via Wrexham (Direct rail to Manchester airport is consistent with this scenario)</li> </ul>
4. LOCAL ECONOMY DRIVER	<ul style="list-style-type: none"> <li>• Support and provision for minor links to Cardiff and other “hub” airports (Manchester and possibly Bristol, Birmingham) and possibly London</li> <li>• Links envisaged are from south-west, mid-west and north-west Wales airports. Includes north-west Wales to Cardiff service</li> <li>• Aircraft are expected to be fixed wing</li> <li>• Tourism to remote Wales as possible spin-off economic benefit</li> <li>• Growth of private charter and other air activity at small airports on a mainly commercial basis</li> </ul>
5. ENVIRONMEN	<ul style="list-style-type: none"> <li>• Rely on rail (and possibly road) to reduce peripherality and achieve rural economic development</li> </ul>

T EMPHASIS	<ul style="list-style-type: none"> <li>• Rely on rail / bus service improvements to improve access to Cardiff and English hub airports</li> <li>• Mode switch away from car for access to Cardiff airport</li> </ul>
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***Scenario 1: “Minimum Case”***

- 6.2.7 This broadly follows the Civil Aviation Authority’s medium level forecasts. It represents how air services within Wales would develop in response to market forces. As indicated previously, the CAA analysis separates Wales into two areas, North Wales and South Wales. The proportion of traffic using Cardiff over a 30 year period from South Wales is forecast to double, to approximately 64.5% of the total market, whilst Birmingham and Manchester maintain their present shares.
- 6.2.8 Within the North Wales catchment area, the proportion using Manchester and Liverpool will increase to over 90%, whilst Heathrow and Gatwick’s share will reduce to an insignificant percentage with Birmingham maintaining its current percentage of approximately 6%. These market share figures are detailed above in Section 5.
- 6.2.9 A route to Germany is not predicted to come on-stream until 2010, despite the current known demand. This reflects model assumptions about slot availability and other factors, and therefore probably applies to other new destinations.
- 6.2.10 Other market-led services could be established, including a simple North-South link. From the level of interest we have found from small operators, this could actually commence within two years. However the type of equipment, level of operator experience of such services and the services proposed pose questions of future commercial viability.
- 6.2.11 In this scenario it is also assumed that a level of investment in rail and road will be undertaken in the longer term that will improve access to both Cardiff in the south and Manchester serving the north.

***Scenario 2: “Focus on Cardiff”***

- 6.2.12 This scenario assumes selective investment and support measures to accelerate and intensify the expansion of air travel along the lines identified in the “minimum case” scenario.

- 6.2.13 It would involve seeking to encourage route start-ups from Cardiff, to help claw-back Welsh-originating passengers, primarily from congested South East airports. It involves scheduled routes utilising modern jet aircraft. The model for this is seen to be the American experience whereby several routes are commenced at once, thus improving the commercial viability as overheads are not concentrated on one particular route. This scenario would seek to maximise the number of air services serving Welsh business. Because of the problems of congestion in South East England, it would concentrate on services from Cardiff to Manchester, Dublin and West European hubs, as well as other European destinations. It would aim for the Welsh market to bypass the Heathrow system for interlining but provide equal routing opportunities.
- 6.2.14 Intervention would be targeted at releasing potential for air travel from Wales to non-Welsh destinations. This could involve support to attract services away from the South East, or to allow effective competition of new services with those from South East airports. Types of assistance could include discounts on airport charges to lower entry costs; assistance in marketing support for new routes; capital grants for new hangarage; rent-free periods; access to venture capital or start-up loans; etc. More difficult would be direct financial subsidy from public funds, as this would be difficult to square with European PSO regulation.
- 6.2.15 At the European level, the UK Government is arguing for measures to open up routes by removing the constraints currently caused by restrictions on airport slots, for example in Germany. These efforts focus on revisions to the European Slot Directive, on provisions to make slots tradeable, and on reservation of some slots at hub airports to protect regional air linkages. This scenario assumes a successful outcome.
- 6.2.16 It is assumed that there will be considerable traffic generated by the provision of services, above that indicated by the CAA projections of demand. As a consequence, the need for subsidies may be short term, or non-existent.
- 6.2.17 The scenario also includes public investment and support for surface access improvements (road and /or rail), including better access into Manchester airport from north Wales, and to Cardiff airport, thereby intensifying and extending the Welsh catchment of these airports.

### *Scenario 3 “Cardiff and north-west”*

*Llewelyn-Davies*

- 6.2.18 This scenario gives more emphasis to an air link between the north west of Wales and Cardiff. It is assumed to be operated as an “interrupt” of a Cardiff-Manchester shuttle, probably with modern jet equipment replacing an initial turboprop service as utilisation built up; but there may be other possibilities such as a hopper service to Dublin or Belfast.
- 6.2.19 The Cardiff-Manchester offer would be, for example, three rotations morning and evening, with an interrupt at north west Wales for two of the rotations (one morning, one evening). i.e. two flights per day to both Manchester and Cardiff.
- 6.2.20 Such air services may not satisfy all the demand for links between north west Wales and Cardiff (e.g. for the new Assembly). No single north west Wales airport is ideally placed for the population centres, unless access to Caernarfon airport is greatly improved, or dualling of the A55 in Anglesey improves access to Valley. For this reason improved rail services are also included, envisaged as quicker direct rail services from Holyhead to Cardiff (possibly via Chester and Wrexham) also serving the leisure/VFR markets where “same-day” return is less crucial. Improved rail times to Manchester airport using the planned westerly link are also consistent with this scenario.

#### *Scenario 4 “Local economy driver”*

- 6.2.21 This scenario envisages the provision of a network of small air links from one to four airports in the remoter parts of Wales, and to use the development of those airports as a focus for local business growth, and possible inward investment.
- 6.2.22 The west coast airports would feed in the most viable and efficient manner into the appropriate Cardiff/Manchester/Birmingham/Bristol hub. Links to minor airports in the London area would also be consistent with this scenario, to meet the London business criterion.
- 6.2.23 At this stage it is envisaged that there would be three candidates in the western parts of Wales, namely:
- south-west Wales (Withybush at Haverfordwest being the best located);
  - in mid-west Wales an airport serving Aberystwyth (requiring investment in a new airfield); and

- a north-west Wales airport (with Caernarfon, Mona or Valley airports being possibilities).
- 6.2.24 The network would provide for the business user (including traffic related to the Welsh Assembly) but could also have a spin-off in terms of tourist development in the remoter parts of Wales.
- 6.2.25 The minor services could in theory be operated by helicopters but small fixed-wing aircraft are seen as likely to be more practicable and economic.

### *Scenario 5 “Environment emphasis”*

- 6.2.26 This scenario gives greater weight to environmental consequences of air travel expansion and assumes that surface public transport travel is (at least potentially) less environmentally damaging than air travel. It accepts that much air demand would continue to be “exported” to English airports.
- 6.2.27 Expansion of air services in Wales is not precluded, but the emphasis is on the improvement on the rail and road systems with air services providing a minimum route network out of Cardiff, linking to existing hubs.
- 6.2.28 Air travel would continue to rely heavily on surface access to English airports, but efforts would be made to reduce the adverse environmental impact of such travel. For example this would emphasise the upgrading of the rail links into Heathrow, with increased speeds and capacities enabling communities to the west of Cardiff to obtain satisfactory levels of service, and stronger competition with private transport.
- 6.2.29 Travel to Cardiff airport would also be the subject of intervention to reduce the mode share by the more environmentally damaging modes. It would include, for example, a rail link to the airport, possibly combined with a park-and-ride facility for travel into Cardiff city from the west. In the short term improved bus links would be developed. A parking management strategy would be needed at Cardiff airport, involving higher parking charges within the context of stable or even reduced supply.

- 6.2.30 North-south links to Cardiff (e.g. for the Welsh Assembly) would be improved by better rail services. Increased road capacity would be inconsistent with this scenario because it would reduce the ability of rail to compete with the car.
- 6.2.31 As far as North Wales is concerned it would lay emphasis on the planned western rail link to Manchester Airport and the upgrading of the north Wales coast line to run directly into the airport. Air services would then only be required to link Cardiff and Manchester with more inaccessible areas along the West Coast (as described in scenario 4).
- 6.2.32 It is possible that this scenario might be able to meet the accessibility criteria only at excessive cost, in which case these criteria would need to be relaxed. This may, however, accord with opinion that attaches less weight to accessibility in maintaining a healthy local economy in remote parts of Wales.

### 6.3 *Commercial considerations*

- 6.3.1 Planning for the future air service provision cannot be undertaken simply on the basis of predicted demand, or the aspirations of authorities outside the air industry. What is possible, or even what is likely, will be determined primarily by commercial considerations. This section therefore attempts to explain the key constraints in the development of regional air services that are presented by the commercial realities of airline and major airport operation at present.
- 6.3.2 The South Wales market currently feeding into Heathrow is approximately 800,000 passengers per annum. It can be assumed that they are predominantly British Airways customers and they are feeding into the BA hub. From the point of view of British Airways, it is in their operational interests to maximise on the Heathrow hub because that is the main focus of their organisation.
- 6.3.3 The main airline at Manchester is also British Airways (BA). Here again, the objective is still to maximise interlining at Heathrow, via the Manchester-Heathrow Shuttle. This is clearly advantageous for the North Wales (and North West) markets, but does not do anything to help South Wales. BA have in fact a sizeable network of services operated into Manchester by their franchisee, British Regional Airways (BRA). BRA, with its low cost structure, its focus on point-to-point services and its ability to serve other hubs from Cardiff, is obviously a

key player. However it should be recognised that the relationship between franchiser and franchisee is notoriously difficult. Where BRA are feeding into a long haul route, the proportion of the fare they take will depend on the distance they travel. Therefore, despite BRA being a franchise of BA, it is likely that they will seek more profit by feeding more distant European hubs (such as Paris or even Milan).

6.3.4 From the BA group perspective there is not necessarily advantage to them in moving passengers from Heathrow to Manchester. Thus whilst a Cardiff-Manchester route makes very good sense in terms of reducing congestion and environmental problems around Heathrow, improving levels of service to South Wales business people, and keeping interlining traffic within the UK, it makes less commercial sense for BA, who are the dominant influence on the pattern of scheduled flights.

6.3.5 It would appear therefore that upgrading the levels of service for South Wales business traffic via a Cardiff link to a hub requires some intervention that would affect BA group decisions, or provide incentives for other airlines such as KLM. It cannot simply be left to the market, since a key player's interests (or at least priorities) do not necessarily chime with rapid route development.

6.3.6 Manchester undoubtedly has a role in a strategy which seeks to build Cardiff's links around alternative hubs. Cardiff already has links to Paris and Amsterdam, and Frankfurt could become an option if a new runway is built there. So in the short and medium term Manchester provides a potential alternative UK hub, especially as there is also likely to be an underlying point to point market. For this reason there are currently discussions between Manchester, Cardiff and an airline about providing a Cardiff-Manchester link. Some relative incentives may be needed in the form of discount in early years on charges, marketing support or WDA involvement but it does not appear necessary to subsidise the service. If it works and if as we expect, Manchester (now 18 mppa) grows to become UK's alternative hub, this may provide an attractive alternative for people from South Wales, to using London airports via road/rail, in addition to the continental hubs possibility.

#### 6.3.7 *Route Analysis and Potential*

6.3.8 As already discussed, the low levels of air travel coupled with absence of supply in many parts of Wales makes it difficult to produce accurate forecasts of demand using current data. Little data exists on 'near markets' such as first-class rail (where it is an option), and very

resource-intensive market research would be needed to produce figures of any value.

- 6.3.9 The high income elasticity of demand for air travel is well known – that is, the demand for air travel is very much a function of ability to pay. But market air fare elasticities vary sharply between market segments: for business travel they are low, whereas for leisure passengers they are about three times as high (i.e. three times more responsive to price change). In consequence, the development of any domestic or feeder routes from Wales, either to Cardiff or to other hubs outside Wales, must be essentially supply-driven, with pricing levels and marketing carefully attuned to latent or emerging demand. It is a difficult judgement to make; route networks of this nature with limited demand tend to be volatile in nature and subject to frequent changes. It is for this reason that several countries have recognised the need to subsidise routes with limited demand in order to meet their (mostly non-commercial) policy objectives.
- 6.3.10 Routes developed using public subsidy must be maintained over the period of the subsidy, with access to the destination airport guaranteed. The subsidy period itself would need to be sufficient for the often indirect response to take effect.

6.3.11 ***Route Requirements***

***North West Wales to Cardiff***

- 6.3.12 This is required to satisfy our first policy objective. It is likely to require initial route support, but adequate airport facilities are in place at either end. The airport to serve the north west catchment could be decided on the basis of commercial tender for the franchise from the three potential airports identified (Caernarfon, Mona and Valley; see also paras 6.4.6. et seq below).

***North East Wales to Cardiff***

- 6.3.13 This is much less clear-cut. An air link from North East Wales to Cardiff would in theory satisfy two policy objectives: to improve the options to Cardiff in addition to road and rail (Chester-Cardiff); and also, if provided by a Cardiff to Manchester airlink, to satisfy the “European” objective as an efficient and sustainable alternative to current Cardiff-Heathrow surface links.

6.3.14 However, whilst the first objective could be served by a Hawarden-Cardiff airlink, the use of Hawarden may be constrained as discussed in Section 5. It seems unlikely that the air share of the NE Wales/Cardiff market will justify provision on its own, and local businesses and authorities are not pressing for it. A Manchester-Cardiff link could meet both objectives although the time savings would depend crucially on the access into the two airports.

6.3.15 *West and South West Wales to London (and Europe)*

6.3.16 The second level of service objective defined earlier relates to access to London. Arguably the areas identified where small airports could be established, such as south west Wales and near the suggested new facility at Aberystwyth, can only achieve this objective by providing routes to London. At present there is no designated London destination which smaller capacity routes from the outer limits of the UK are encouraged to use.

6.3.17 This should be taken into account in any review of the south east airport system. Historically the so-called “thin” routes were protected at Heathrow Airport until the early 80’s when they were abandoned as a result of commercial pressure to make more use of slots. There is little point in pursuing a policy objective regarding access to London by air if no landing slots are likely to be made available.

6.3.18 There may, however, be smaller airports near London that could accept such thin routes. The Government has already ruled out Northolt for development, but facilities such as London City, Farnborough or Biggin Hill might be able to provide the necessary access, especially for 18-50 seater aircraft.

6.3.19 It is worth noting that the near-European destination objective may not be assisted by such a London connection unless the airport used has onward routes, or has good access to the main London hubs. The airfield examples given would mostly not meet this requirement. If the absence of suitable slots at London continues, then an alternative approach could include feeder air services to Cardiff, Manchester, Cork or Dublin (which also provides an alternative for Transatlantic connections).

6.3.20 *Other West Wales Routes*

6.3.21 If a new facility were to be established to serve the Aberystwyth area, routes would theoretically be required to Cardiff or Manchester as well

as London in order to meet the full range of objectives. It is likely that the passenger traffic requirements initially would be very thin, though the benchmarking exercise shows that as the propensity to travel increases, so does the utilisation, and similar airports in other countries show reasonable passenger throughputs.

#### 6.4 *Operational and engineering considerations*

6.4.1 Substantial parts of Wales are remote from motorways, fast trains and the main English airports. If air services are in future to assist in meeting the identified business accessibility standards for these areas, it will be necessary to identify a domestic airport network that could bring air services within convenient travelling distance of the population.

6.4.2 As part of the Study a review the total aviation infrastructure within Wales was undertaken. This is shown in the technical appendices. A significant amount of the infrastructure was in fact established for military purposes and is not necessarily appropriate for potential commercial development. However, it is appropriate to maximise the use of this infrastructure as far as possible whilst recognising that it may not necessarily give the optimum solution.

6.4.3 The following have been identified as potential airports for designation as part of a Welsh scheduled domestic air network:<sup>14</sup>

- South West Wales - Haverfordwest
- North West Wales - Caernarfon, Valley
- North East Wales - Hawarden, (Manchester)
- South East Wales - Cardiff
- West Mid Wales - new facility required

6.4.4 Each of these is commented on below.

6.4.5 ***South West Wales:*** Haverfordwest is supported by the local authority and has the facilities capable of being readily developed as a community airport. Pembrey has seen an upgrading of facilities and is

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<sup>14</sup> This selection does not rule out potential for development of other small airports to meet private business, flying club or other demand.

enthusiastically promoted by its owner, but may be less well-placed than Haverfordwest to serve the south west Wales population.

- 6.4.6 Within *North West Wales* there are three options which may be considered. These are Valley, Mona and Caernarfon. Mona had previously been considered (in the context of a previous study) but at that time it was apparent that the RAF at Valley was not seeking to service commercial traffic. Under the new defence arrangements this position has changed and Valley are now seeking actively to attract commercial flights. They are proposing a separate commercial access bypassing the military control points and the conversion of an existing substantial building into a modern, small-scale passenger facility with ready access to aprons which are available.
- 6.4.7 Before allowing commercial activity at Valley it is recommended that full agreement is obtained regarding landing rights and opening hours. It should be stressed that whilst emergency considerations will predominate at Valley as at any other airport in the UK, military training and other requirements should be designed to allow the activities of regular scheduled commercial flights.
- 6.4.8 If Mona were to be considered, commercial facilities would need to be added, while agreement regarding its occasional military use would also be required, as at Valley. Of the two, therefore, it appears that Valley offers the more immediate possibility for the introduction of scheduled commercial services. Surface access considerations favour Valley, since it has the potential for both road and rail access.
- 6.4.9 Caernarfon is another contender for the north west areas, and is geographically fairly well placed in relation to the population centres on the mainland; less so for Anglesey. Caernarfon is a well run, privately owned airfield, with reasonable commercial facilities capable of handling the smaller commercial movements that may be anticipated. They have a good commercial approach, which the smaller operators may find more appropriate than other airfields in the area.
- 6.4.10 Whilst the local authority has expressed support in principle for development of the airport, this has not been matched to date with formal policies, for example to improve the poor road access. At Caernarfon there are no possibilities for rail access.
- 6.4.11 In essence the location of air routes from and to this area is likely to depend on the type of equipment utilised. If, for example, it is felt appropriate to programme an intermediate stop on any Manchester-

Cardiff schedule service, then obviously Valley would be appropriate because of its higher service levels. As far as direct routing of smaller aircraft is concerned, it should essentially be left to the market to decide, or a tendering process if public subsidy is involved.

- 6.4.12 In *East mid Wales*, Welshpool's small airfield was developed fairly recently and provides a base for private and company aircraft serving the sub-region. Although it could be considered for inclusion in a domestic scheduled route network, the case is less strong than for the other parts of Wales because surface routes to the main centres provide stronger competition: particularly east to Birmingham and north east to Manchester.
- 6.4.13 Hawarden in *North East Wales* is owned by British Aerospace and its main purpose is the production of wings for the Airbus. The sole reason for the recent extension and strengthening of the runway was to enable the new generation of wings to be transported to Toulouse on a regular uninterrupted basis.
- 6.4.14 There are likely to be environmental concerns if the airfield is developed on a more commercial basis. The lesson of Filton is borne in mind by British Aerospace. Nevertheless the operators would consider proposals for commercial use of the facilities.
- 6.4.15 Perhaps the key point is that Hawarden is within 30 minutes of Manchester Airport with good motorway or near motorway links, thus limiting the market potential. Realistically Manchester, and Liverpool for its evolving low-cost and charter services, can be seen as the airports for N E Wales.
- 6.4.16 *South East Wales* - Cardiff/Swansea. Within the UK region airports tend to go in pairs, often with one of the airports predominating. This is true of Cardiff and Swansea. Because of the proximity of Swansea to Cardiff, there will be difficulties in Swansea developing other than as a minor centre of aviation with limited schedule opportunities.
- 6.4.17 With respect to Cardiff Airport's development needs, whilst the base case shows a 6 mppa throughput within the 30 year timeframe, even on an optimistic assessment it is unlikely to exceed the capacity of the current runway which is probably rated in the 12-15 mppa bracket. The need for an overflow airport for Cardiff or indeed a parallel runway at Cardiff is therefore not seen as relevant over this timescale. But it is important that other air-related facilities including, for example, the

future development of the aircraft maintenance base currently established at Cardiff be allowed for in its long term planning.

6.4.18 *In the western part of Mid-Wales*, there are presently no facilities between Aberporth and Llanbedr. Aberporth is a facility currently under review by the Welsh Development Agency and DERA as to its future potential, whilst Llanbedr is a former RAF facility which has subsequently decayed. Taking account of the vibrant community of Aberystwyth with its university and tourist potential, and in line with the benchmarking results, a good case can be made for the establishment of a new facility capable of taking small community airlines. This is probably the only way that the level of service objectives as identified earlier can be met in this area.

#### 6.4.19 *Small Community Airports*

6.4.20 Inevitably, civil airports require a certain level of facilities irrespective of the number of commercial landings. They require basic fire and rescue services and air traffic control facilities as well as maintaining the level of infrastructure at a safe and adequate level. Thus small community airports have relatively high operating costs which are likely to need to be covered by a small number of movements.

6.4.21 Private facilities of this nature tend to be dominated by aviation enthusiasts with flying schools, and private and general aviation providing the major reason for their existence. In order to minimise on operating costs frequently staff must attempt a variety of jobs. Most small airports thus tread a difficult path between profit and loss. This is likely to mean that establishment of scheduled services to meet social, economic or other non-commercial objectives, and to meet associated fire and safety requirements, is likely to need public operating subsidy as well as initial investment support.

### 6.5 *Surface access and environmental issues*

6.5.1 Major expansion of passenger throughput at Cardiff airport is expected, as highlighted in Scenarios 1 and 2. This raises the issue of how these passengers will access the airport and what environmental and other impacts this will have. Local environmental impacts in terms of landscape, ecological and design can probably be ameliorated given adequate resources and careful planning. The more pervasive environmental impacts, however, relate to traffic noise and exhaust

emissions and the impact of substantial traffic growth. This cannot be resolved through design and planning, but only through measures to influence the mode split.

- 6.5.2 The extrapolation of trends shows growing congestion on the roads serving the airport, leading to arguments in favour of expanding the capacity of such roads. On its own, this will not address the more proactive integrated transport and environment agenda of “plan, monitor and manage”, but it may be necessary as part of a surface access package that allows the airport’s expansion to be accommodated.
- 6.5.3 The Vale of Glamorgan Council’s proposals for a dual-carriageway link are (as noted above, section 4.6) not now being pursued on cost grounds. A recent study for TBI suggests an alternative new road alignment linking to the M4. It would include a park-and-ride facility near the main railway and the M4, from where a direct bus service could be provided into the airport. This, coupled with the possibility of enhanced public transport (initially by bus and prospectively eventually by rail) between the airport and the city, begins to tackle the access issue in a more holistic way. Even so, reducing the per capita rate of car traffic generation at Cardiff airport is a formidable task. For example, if a mode split of 50% non-car-driver were achieved, and if passengers quadrupled over the same time period, car traffic could still increase compared to present levels, by 2.5 to 3.5 times.
- 6.5.4 There is considerable doubt as to whether public transport access to Cardiff airport can be expanded significantly while ample free parking is provided on site. The studies referred to do not address this issue, and appear to assume that provision of infrastructure and services will by itself cause people to switch from car to bus. Experience tells us that this is a fairly vain hope.
- 6.5.5 A further question arises as to the relative importance of surface access quality to the expansion of the airport. One of the airlines most likely to provide new services from Cardiff has made clear that the priority for any subsidy should be to pump prime or support new air routes, rather than to improve road access to the airport.
- 6.5.6 Regardless of the merits of the case for new road capacity to the airport, in the current policy climate it seems unwise to regard this as the key determining factor in relation to expansion of Cardiff. Significant expansion could take place without such road investment if available capacity were managed and public transport access improved.

The road investment will provoke substantial opposition, and the call on limited (and still declining) transport resources will need to be set against increasing demands for public transport and other projects.

- 6.5.7 Compared to this Cardiff issue, the surface access implications of development at the other Welsh airports are minor. Even so, there may be local matters requiring detailed study as and when such development is nearer decision. For example, a choice of Caernarfon as the airport for the north west area would need to take particular account of the current very poor road access. Similarly, were a new airport to be constructed for Aberystwyth, the choice of site would be heavily influenced by local access considerations, as well as air operation requirements.
- 6.5.8 A further important issue relates to the environmental scenario which emphasises mode switch from car to other modes not only for access to airports serving Wales, but also as an alternative to providing new air services. The key point here is that this scenario is driven by broader environmental objectives rather than objectives for air travel. If a major shift of mode is to be achieved for Welsh travellers, action is likely to be required on a fairly large scale, including significant investment in bus and rail facilities, and disincentives for car travel such as reduced parking and higher charges. Action on this scale cannot be justified only by reference to avoiding air travel.
- 6.5.9 If, however, such environmental priorities were adopted in Wales, then the case for accommodating major growth in air travel would need to be revisited.

## 7 *Scenario Appraisal*

### 7.1 *Appraisal Method*

7.1.1 The five scenarios address the requirements of the study specifically in relation to:

- Exploring how to make best use of existing facilities;
- The requirement for new civil aviation facilities;
- The scope for new air services; and
- Surface access initiatives to improve integrated accessibility.

7.1.2 Appraisal of these scenarios was based on the framework supplied by DETR for the regional air service studies.<sup>15</sup> This consists of a number of criteria and both qualitative and quantitative indicators. The appraisal undertaken is not intended to produce definitive answers about which scenario, much less which specific proposals, should be adopted. This will be a matter for political choice.

7.1.3 The aim has been to produce information and judgement about the impacts of the different scenarios in relation to various policy objectives as discussed in Section 2.

7.1.4 The policy objectives to some extent are in conflict with one another. It is therefore important that the different impacts and consequences are kept explicit for the use of the decision takers, and not subsumed within any overall point scoring system.

7.1.5 There also needs to be clarity over the nature of policy objectives themselves. Two points seemed relevant in carrying out the appraisal.

7.1.6 First, a distinction can often be made between a “problem solving” objective, and an “opportunity maximising” objective. For example, clawback of air traffic from Heathrow to Cardiff is seen as a problem solving objective, whereas stimulation of the local economy is mainly about looking for opportunities. Whether the aim is to solve problems or exploit opportunities will also depend on what is being proposed, and the relative weight attached to the different objectives. For example, new air facilities or services are unlikely to be proposed to solve environmental problems. They will be proposed to meet other objectives, but even so opportunities can be taken to minimise their negative environmental impact.

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<sup>15</sup> This is reproduced in the technical appendices.

- 7.1.7 Second it is not always clear whether impacts should be regarded as positive or negative impacts. Again, it will depend on what objective is being considered. For example, one of the indicators in the appraisal framework is “number of passengers interchanging”. Is a large number of passengers interchanging good (because it indicates quality of the interchange) or bad (because it indicates a large amount of avoidable friction in the transport system)?
- 7.1.8 Taking into account these various methodological issues, we have undertaken a fairly broad brush appraisal, providing detailed information on impacts only where it seems to have particular relevance to the decision that will finally be required.

## 7.2 *Appraisal framework*

- 7.2.1 The criteria set out by the DETR have been used here for the appraisal of the five scenarios, but commercial and financial criteria have been added, reflecting the importance of these as discussed elsewhere in this report. In addition, the criteria relating to air transport have been elaborated to include the “levels of service criteria” developed for Wales, as described in Section 6.
- 7.2.2 The criteria and indicators for the appraisal are set against the five scenarios in Table 7.1.

### 7.3 *Appraisal summary outcomes*

7.3.1 The appraisal illustrates the role played by each of the scenarios in the different aspects of air service development. It is clear that no one scenario will meet all of the identified policy objectives. For this reason, packaging of different elements is suggested, as described below.

7.3.2 The results of the appraisal are based on the factors explained in earlier sections of this report. Where there are uncertainties, for example in relation to economic development potential, this is due either to lack of evidence of the causal links (where detailed local studies could assist) or of lack of clarity in the objectives, or a mix of both.

#### 7.3.3 *Use of existing facilities and new requirements*

7.3.4 All of the scenarios make maximum use of existing infrastructure and facilities. There are few capacity or other constraints to the development of air services in Wales. There are two exceptions to this where significant investment is likely to be required, first in supplying public transport access to Cardiff airport to meet future growth, and second in the construction of a new community airport to serve Aberystwyth and mid-west Wales. There may in addition be relatively small scale investment for access and facilities at other airports, depending on the choice made.

#### 7.3.5 *Scope for new air services*

7.3.6 The exercise suggests considerable scope for the development of Cardiff as a regional hub, providing a much larger range of direct flights for leisure and business purposes, and also greater opportunities for interlining at Manchester or at European hubs such as Amsterdam, Milan and Paris. This growth will be accelerated by the introduction of modern small jet equipment. Otherwise the rate of growth, and the ability to claw back traffic from south-east England airports will be heavily influenced by commercial and regulatory realities at Heathrow and other London airports.

7.3.7 The exercise also highlights the importance of a domestic air network to meeting the levels of service criteria established for residents and businesses in Wales. This could be important for opening access possibilities presently not available in the remoter parts of the

Principality, especially for new linkages required as a consequence of devolution to the Welsh Assembly. Public subsidy will almost certainly be required to establish such services over a sufficient period for demand to get established at commercially self-sustaining volumes.

- 7.3.8 The public sector market for domestic services will also need mechanisms to ensure their use, in particular a limit to the mileage for which car allowance will be paid. (Many people prefer to drive on business not because it is the best mode, but because mileage allowances are much higher than perceived marginal costs of driving.)
- 7.3.9 The scarcity of the existing market between north-west Wales and Cardiff (estimated very roughly at no more than 250 movements each day) highlights the likely importance of supply-led demand when considering the introduction of such services.

7.3.10 *Surface access initiatives*

- 7.3.11 The main considerations are access to London, Manchester and Cardiff. The London access issue is somewhat perverse. More congestion on the Wales – London routes will fuel the development of air services direct from Manchester and Cardiff. However, it seems inappropriate to be planning such regional growth on the basis of an inability to solve London's traffic problems.
- 7.3.12 The other key questions relate to the accommodation of more surface access demand to Cardiff in line with the growth in air traffic. The first step will be to draw up a multi-modal Plan including targets for the car driver mode share well below current levels. The introduction of new public transport services (bus, coach and shared taxi in the short term) can also be phased in together with parking and traffic management measures to encourage mode switch.
- 7.3.13 In the longer term rail access should be planned, but again this is only likely to be feasible in conjunction with heavy parking or other car restraint at the airport, and this in turn is likely to be affected by the strength of car restraint elsewhere. Proposals for new roads linking to the airport need to be carefully considered as part of a multi-modal assessment of access to the airport and its environs (to be commissioned).
- 7.3.14 No convincing evidence has been put forward to justify major public expenditure on major new road capacity, compared to use of such resources for the development of air services and public transport

access. There is also much that could be done to promote non-car access to the airport, for example using integrated air/taxi/bus/rail ticketing and marketing.

#### 7.4 *Common elements and discrete elements of scenarios*

7.4.1 The appraisal provides information that allows evaluation of different courses of action. Essentially these are:

- 1 The development of a network of domestic air services, driven by level of service criteria for Welsh business, government and other interests;
- 2 Development of the role of Cardiff airport as a regional hub, driven largely by constraints in South East England; and
- 3 Measures to achieve a higher share of airport access by non-car modes, driven by environmental concerns.

7.4.2 Item 1 can be regarded as a stand-alone option (if desired), but its chances of success can probably be enhanced by combination with item 2. This is because the wider range of air routes from Cardiff will enable limited interlining traffic from and to the small Welsh airports to be added to the demand for Cardiff as a destination.

7.4.3 Items 2 and 3 are regarded as inseparable items. Major growth of Cardiff airport without directly tackling the issue of access by non-car modes is not seen as an option in the modern policy context for sustainable transport.

#### 7.5 *Packaging of options*

##### 7.5.1 *Policy considerations*

7.5.2 Decisions as to which of the scenarios should be pursued will need to take account of the priorities attached to the various policy objectives. The strength with which a particular scenario should be pursued, and the level of public resources to be deployed will also depend on these priorities.

- 7.5.3 In terms of developing the Welsh domestic air services, this may be regarded as a matter for the Assembly, and can be pursued without any particular constraints from outside Wales, save that PSO's remain a reserved matter for the UK Government. The only external factor of significance concerns the availability of slots at destination airports for Welsh services. A policy environment whereby slots can be protected, as is done in Paris for similar French regional thin routes, is an important component of any effective air service development strategy for Wales. This requires the UK Government to press for changes in the EU Slot Directive, which it has indicated it intends to do.
- 7.5.4 The development of services at Cardiff (and Manchester for the North Wales market), is only partly within the influence of the Assembly. Much more important will be the national air policy developed following on from the regional air studies.
- 7.5.5 The further policy consideration of major importance concerns the drive towards better transport integration and reducing reliance on the private car, together with local policies for demand management and traffic reduction. Access to regional airports at present is largely reliant on the private car, and to change this it will necessary to introduce step change improvements to public transport. The location of airports out of town means that securing a high proportion of access by non-car modes is extremely difficult. It will not be achieved by provision of alternatives alone. It will be necessary to actively discourage use of the car, particularly through parking charges and controls. The policy issue here is that such measures (which must be seen as radical by comparison to current practice) are most unlikely to be adopted for airport access alone. They will only be feasible (if at all) as part of integrated planning and transport policy adopted for the airport catchment areas as a whole.
- 7.5.6 *Timescale considerations and phasing*
- 7.5.7 The pace of change and the priority to be attached to the particular options identified can be determined to a large extent without constraint. In terms of the new domestic services, there are likely to be benefits from establishing a single new route as a first phase. This would allow experience to be gained of subsidy and franchising arrangements, and would give an early start to establishing the potential for supply-led demand in Wales.

- 7.5.8 On this basis, the best option will be the establishment of a link to north west Wales, from Cardiff. This area is relatively remote (i.e. above the time/distance threshold for air to be feasible) and has the benefit of three possible airports that could compete for the franchise. A service from south west Wales would be the likely contender for phase two, largely because of the availability of Withybush (Haverfordwest) airport. Mid-west Wales would be the third phase because of the necessity to develop a new facility. Planning of this facility could, however, begin immediately.
- 7.5.9 For the development of Cardiff, the pace of growth will depend both on the airlines' perception of demand and the facilities, and on any support offered by the airport operator and the public authorities to establish and maintain new links. Such support could accelerate the rate of business passenger growth. It must be recognised that the majority of traffic at Cardiff will continue to be leisure related, and such growth is expected to be entirely market-led. However some destinations under consideration, such as Newark NJ, could be of real benefit in the business market too.
- 7.5.10 The development of Manchester, which will continue to be the main supplier of the North Wales market, will be determined largely outside Wales.
- 7.5.11 *Economic and financial impacts*
- 7.5.12 It will be clear from the above that enhancement of the role of air travel in Wales is likely to require a variety of calls on public resources, at least in the short to medium term. This is certainly the case if domestic air services are to be established to address the "new nation" agenda. One approach might be for a service obligation to be established, with subsidy available to guarantee the service (buying a specified number of seats on each flight that remain unsold which helps keep the subsidy at the minimum level needed). A case could be made for the operator to retain a proportion of subsidy even where seats are sold; this would provide a marketing incentive.
- 7.5.13 The hard choices relate to the balance between air service development and surface access development. In general it will be difficult to justify wholly new road or rail capacity solely on the basis of airport access. For example, the airport currently accounts for less than 10% of the traffic using the A4050 at Culverhouse Cross. It would need to be demonstrated that the new road would support designated regeneration

initiatives, whether brownfield sites such as Barry Docks or greenfield sites such as at the airport. The proposed B1, B2, B8 development at Rhoose is estimated by the airport operator's consultants to generate more than three times the traffic generated by the airport itself (7470 vehicles added to the airport traffic, currently around 2220 AADT flow).<sup>16</sup>

- 7.5.14 Problems also arise in developing an economic case for a rail link to the airport. If the road and parking capacity were to be provided on the basis of accommodating predicted air traffic growth, the likelihood of securing any significant share for public transport, and particularly rail, would in our view would be close to zero. To give any chance for public transport to make a difference at Cardiff, car use may have to be actively discouraged through parking charges and controls. The revenues from such action could, however, be earmarked to help meet public transport costs. The feasibility of such action will depend in large measure on the relative costs of access to Heathrow and other alternative airports, and relative strength of the air service offer at Cardiff. Thus the growth of air traffic generates the problem of additional access, but at the same time could provide some of the means to solve it.
- 7.5.15 For access to Manchester, the planned westerly rail link (assumed within the SPAM modelling exercise) would offer considerable benefits in terms of enabling access from north Wales with less use of the car. Consideration could be given to whether a contribution towards this scheme could be justified in terms of benefits to Wales, for example in terms of enhanced rail service frequencies to Holyhead with direct connection to Ringway and to Manchester. This could be a factor in the review of the proposed dualling of the A55 to Holyhead.
- 7.5.16 In terms of access to other Welsh airports private car and taxi are likely to be the dominant modes, although there may be a case for limited rail or bus support where the circumstance are more favourable, such as for a station serving Valley, or where an existing bus route can be extended. Investment is likely to be small scale, and would need to be planned in the context of the emerging local transport plans.
- 7.5.17 For the environmental scenario, the Welsh Assembly would need to become closely involved in the planning of public transport

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<sup>16</sup> Denis Wilson Partnership, "Cardiff International Airport, Capacity of the Existing Highway Network and Future Proposals", for TBI, February 1999.

improvements and support for non-commercial services. Under the initial division of powers this presents a problem, with rail and other services being the responsibility of private companies regulated by the DETR. The Assembly is currently not planned to have any remit in terms of public transport franchising arrangements. This issue has been recognised by the Welsh Transport Advisory Group which has put forward suggestions for tackling it, including a possible Passenger Transport Authority accountable to the Assembly to take control of franchising and network integration.<sup>17</sup> This or similar mechanisms would seem to be essential if a balanced and coordinated view is to be taken of the relative investment requirements of road and rail. A clear example would be the proposed upgrading of the A470 which would offer direct competition to both the rail service and the possible air service between north Wales and Cardiff.

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<sup>17</sup> Welsh Transport Advisory Group, "The Transport Legacy of Wales", Welsh Office Transport Policy Division, March 1999.

## 8 *Wider contribution*

### 8.1 *Contribution to UK airports policy – 30 year timescale*

8.1.1 The findings from this study are seen as contributing to our understanding of the role of regional air services and their development, and the various related activities. The following points can be highlighted:

- 1 ***Economic development*** may be assisted by the availability of enhanced regional air service provision, but these effects are neither obvious nor straightforward. Apart from the contribution of the air industry itself (airlines, airports, MRO, etc), economic development at or near airports on the scale of those in Wales does not seem to have much potential direct linkage with the airport function. Unless it has such direct linkages, there seems no special case for its promotion or approval.
- 2 In terms of indirect assistance to economic development, at the level of regional airports, and especially smaller community airports, the prospects and desirability for ***local economic development*** are small scale and subject to specific local circumstances. This means that they should be studied at the micro level in relation to specific airports, and even specific airline routes, in order to get the maximum potential out of locally-specific linkages.
- 3 Some countries, such as France, take the view that a regional air network is important for the overall ***integration of economic opportunity*** in areas that cannot support commercial scheduled air services, and make subsidies and other provisions such as guaranteed slots at major hubs to ensure the viability of such networks.
- 4 ***Sustainable access*** to airports is a major challenge. The largest UK airports are working hard at reducing the proportion of travel made by car, but it will demand concentrated effort to achieve overall traffic reduction in the face of massive growth of air passenger volumes. The new approach of Airport Surface Access Strategies (ASAS) sets out a way of working towards improving the public transport mode share. The extent to which it will be achievable will depend on local circumstances – the availability of public

transport alternatives, the needs of different air market segments, and the use of “sticks” and “carrots” in influencing those who might or might not use the car for airport access. For Cardiff, these are very much live choices, on which current multi-model and access strategies must bite.

- 5 ***Policy levers*** can be used to unlock air potential. The justification for the use of such levers needs to be related to clear policy objectives. In particular the desirability of air as opposed to road or rail travel needs to be decided. More explicit priorities may be needed as between potentially conflicting objectives such as reducing congestion, liberalisation of air travel, promotion of regional economies, and environmental amelioration.
- 6 ***Constraints and bottlenecks*** in the system have become apparent in the Welsh context that also apply to other parts of the UK. Factors dominated by the big players in south east England include airline pricing, airport slot allocation, airport operation and management, competition and deregulation, and Fifth Freedom rights. As explained elsewhere, these factors are likely to be more important in the process of regional air service development than analysis of supply and demand in the regions themselves.
- 7 The study has emphasised the importance of ***service and equipment quality*** and elasticity issues in relation to air travel, especially for business purposes. These issues have general applicability. The main point is that where current levels of activity are low, trend extrapolation is unlikely to provide any reliable indication of potential future demand. The new generation of small Regional Jets could have a profound impact in reshaping air services to a denser pattern of thinner routes, especially point-to-point, than has been allowed so far. Again, the speed at which this develops will depend in large part on whether the constraints discussed above can be overcome at the national and international level.

## 8.2 *Contribution to regional transport policy for Wales*

8.2.1 The main issues dealt with in this study of wider significance for regional transport policy in Wales have already been discussed. In summary they are:

- (a) The development of domestic air services to meet the “new nation” agenda and specific economic development objectives may be regarded as a way of adding a *top layer of accessibility* in areas that are currently poorly connected to the Capital, and also to other main centres of activity. Although the market will always be relatively small, it is a market that cannot be served adequately by either road or rail.
- (b) The *environmental disbenefits* of such services are too small to offer any serious constraint.
- (c) The main demand for internal Welsh travel, however, will continue to be served by *road and rail*. Improvement of these will affect competition between public and private transport, but at the levels anticipated will not greatly affect the case for domestic air services.
- (d) *Clawback* of air travel from South East England airports to Cardiff will result in a switch of access trips away from the South Wales – London road and rail links, to links serving Cardiff airport. This may result in a reduction of average journey lengths by car. It will require re-focusing attention on access to Cardiff airport, as we have already seen with the proposals initiated by the operators.
- (e) Planning for a reduction in the share of airport access by car will need to be undertaken in the context of *local transport planning* (by Cardiff, Vale of Glamorgan and other authorities), but also in relation to Welsh issues for longer distance bus, coach and rail travel. The tools and mechanisms are now evolving for this (ASAS, multi-modal studies, the New Approach to Transport Assessment NATA), and will need to be deployed holistically by the Assembly and the local

authorities. This should enable a structured approach to be deployed, whereby new development is better related to accessibility by all car and non-car modes, as now urged in policy guidance, and airport access is dealt with in terms only of air-related requirements.

## 9 *Study Team & Acknowledgements*

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We should like to thank three particular members of the client-side team for their help on the project: Chris Cain and Verna Cruickshank at DETR Aviation Policy Branch, and Martin Stevenson (then) of Welsh Office.

In addition, we were grateful for the helpful and informative response offered by the Reference Group, representing various interested bodies, which met four times in Cardiff during the progress of the study.