



Llywodraeth Cynulliad Cymru
Welsh Assembly Government

Monitoring of the Cardiff/Ynys Môn Air Service

Final Report

October 2008



Halcrow

Welsh Assembly Government

Evaluation of the Cardiff/Ynys Môn Air Service

Final Report

Contents Amendment Record

This report has been issued and amended as follows:

| Issue | Revision | Description | Date | Signed |
|-------|----------|------------------------------|--------|--------|
| 1 | 0 | Draft Report | Jun 08 | EC |
| 1 | 1 | 2 nd Draft Report | Jul 08 | EC |
| 1 | 2 | 3 rd Draft Report | Jul 08 | EC |
| 1 | 3 | 4 th Draft Report | Aug 08 | EC |
| 1 | 4 | Final Report | Oct 08 | EC |

Contents

Executive Summary Crynodeb Gweithredol

| | | |
|----------|--|-----------|
| 1 | Introduction | 1 |
| 1.1 | <i>The Study</i> | 1 |
| 1.2 | <i>Background</i> | 1 |
| 1.3 | <i>Aims & Objectives</i> | 2 |
| 1.4 | <i>Approach to the Study</i> | 2 |
| 1.5 | <i>Structure of Report</i> | 3 |
| 2 | Existing Conditions | 4 |
| 2.1 | <i>Introduction</i> | 4 |
| 2.2 | <i>Demand for Air Travel</i> | 4 |
| 2.3 | <i>Demand for Travel between North and South Wales</i> | 6 |
| 2.4 | <i>Reasons for Travel (Journey Purpose)</i> | 7 |
| 2.5 | <i>Length of Stay</i> | 8 |
| 2.6 | <i>Service Reliability</i> | 10 |
| 2.7 | <i>Key Findings</i> | 11 |
| 3 | Reasons for Mode Choice | 12 |
| 3.1 | <i>Introduction</i> | 12 |
| 3.2 | <i>Journey Time</i> | 14 |
| 3.3 | <i>Journey Cost</i> | 15 |
| 3.4 | <i>Comfort</i> | 19 |
| 3.5 | <i>Departure / Arrival Locations</i> | 21 |
| 3.6 | <i>Frequency of Service</i> | 24 |
| 3.7 | <i>Environmental Considerations</i> | 26 |
| 3.8 | <i>Other Influences</i> | 27 |
| 3.9 | <i>Key Findings</i> | 27 |
| 4 | Social Inclusion | 29 |
| 4.1 | <i>Introduction</i> | 29 |
| 4.2 | <i>Social Inclusion Impacts</i> | 29 |
| 4.3 | <i>Access to Transport services</i> | 30 |
| 4.4 | <i>Additional Needs</i> | 31 |
| 4.5 | <i>Conclusions</i> | 31 |

| | | |
|----------|--------------------------------------|-----------|
| 5 | Economic Activity | 33 |
| 5.1 | <i>Introduction</i> | 33 |
| 5.2 | <i>Wider Economic Impacts</i> | 33 |
| 5.3 | <i>Conclusions</i> | 35 |
| 6 | Environmental Assessment | 36 |
| 6.1 | <i>Introduction</i> | 36 |
| 6.2 | <i>Environmental Impacts</i> | 36 |
| 6.3 | <i>Absolute Change in Emissions</i> | 39 |
| 6.4 | <i>Conclusions</i> | 40 |
| 7 | Addressing the Objectives | 41 |
| 7.1 | <i>Introduction</i> | 41 |
| 7.2 | <i>Intra-Wales Air Service Study</i> | 41 |

Appendices

Appendix A: Public Service Obligation (PSO) Routes

Appendix B: Air Passenger Surveys

Appendix C: Rail Passenger Surveys

Appendix D: Roadside Interviews

Appendix E: Assumptions for Journey Time Calculations

Appendix F: Assumptions for Journey Cost Calculations

Appendix G: Environmental Assessment Calculations

Executive Summary

The air service between Cardiff International Airport and a new £1.5m civil terminal at RAF Valley (Maes Awyr Môn/Anglesey Airport) began operating on 8th May 2007. The service is operated by Highland Airways under a three year contract (2007-2010) with £0.8m annual subsidy from the Welsh Assembly Government. The Welsh Assembly Government needs to monitor and evaluate the performance of the air service and its associated contracts to ensure that:

- Contractual conditions are being met;
- It is receiving value for money ;
- To inform future contracts and operational renewals;
- To support future policy on Intra Wales Air Services;
- The performance of the air route corresponds with the forecasts contained within the ‘Intra-Wales Scheduled Air Services’ consultation document.

The evaluation showed that:

- Passenger numbers have exceeded expectations. An 88% load factor was achieved in May 2008, equating to an average of two empty seats per flight.
- Some passengers are experiencing difficulties in booking seats due to the lack of capacity, which has been experienced by more than one third of the passengers surveyed;
- An estimated 1,879 new trips have been created between Northwest and South Wales as a result of the air service;
- The annual subsidy paid to the operator is in line with expectations, however capital and revenue expenditure at Anglesey Airport have been greater than expectations;
- The air service has generated the expected savings in total journey times between north-west Wales and south Wales. The ability to conduct business in one day was particularly welcomed by passengers with consequent increases in productivity and savings in hotel costs;
- The air service has enhanced the cohesiveness of Wales enabling people to take part in national events and improving access to cultural and sporting events. Passengers felt that the ability to return home on the same day improved their quality of life.

Crynodeb Gweithredol

Dechreuodd y gwasanaeth awyr rhwng Maes Awyr Rhyngwladol Caerdydd a therfynfa sifil newydd a gostiodd £1.5m yn RAF y Fali (Maes Awyr Môn) weithredu ar 8^{fed} Mai 2007. Caiff y gwasanaeth ei weithredu gan Highland Airways o dan gontract tair blynedd (2007-2010) gyda chymhorthdal blynyddol o £0.8m gan Lywodraeth Cynulliad Cymru. Mae angen i Lywodraeth Cynulliad Cymru fonitro a gwerthuso perfformiad y gwasanaeth awyr a'i gontractau cysylltiedig er mwyn sicrhau:

- Y caiff amodau contractau eu bodloni;
- Ei bod yn cael gwerth am arian;
- Er mwyn llywio contractau ac achosion o adnewyddu contractau gweithredol yn y dyfodol;
- Er mwyn ategu polisi yn y dyfodol ynghylch Gwasanaethau Awyr Oddi Mewn i Gymru;
- Bod perfformiad y llwybr hedfan yn cyfateb i'r rhagolygon a geir yn y ddogfen ymgynghori 'Gwasanaethau Awyr Rheolaidd Oddi Mewn i Gymru'.

Dangosodd y gwerthusiad y canlynol:

- Mae niferoedd y teithwyr yn fwy na'r hyn a ddisgwyliwyd. Cyflawnwyd ffactor llwyth o 88% ym mis Mai 2008, sy'n cyfateb i ddwy sedd wag fesul heddiad ar gyfartaledd.
- Mae rhai teithwyr yn cael anawsterau i archebu seddi oherwydd prinder lle, sef sefyllfa y mae mwy na thraean o'r teithwyr a holwyd wedi'i hwynebu;
- Mae amcangyfrif o 1,879 o deithiau newydd wedi'u creu rhwng Gogledd-orllewin Cymru a De Cymru o ganlyniad i'r gwasanaeth awyr;
- Mae'r cymhorthdal blynyddol a delir i'r gweithredwr yn unol â'r disgwyliadau, ond mae'r gwariant cyfalaf a referniw ym Maes Awyr Môn wedi bod yn fwy na'r hyn a ddisgwyliwyd;
- Mae'r gwasanaeth awyr wedi creu'r arbedion a ddisgwyliwyd o ran cyfanswm yr amseroedd teithio rhwng Gogledd-orllewin Cymru a De Cymru. Roedd teithwyr yn croesawu'n arbennig y gallu i gynnal busnes mewn diwrnod, gan arwain at gynhyrchiant gwell a chan arbed costau gwestai;
- Mae'r gwasanaeth awyr wedi gwella cydlyniant Cymru gan alluogi pobl i gymryd rhan mewn digwyddiadau cenedlaethol a chan wella'r cyfle i fynd i ddigwyddiadau diwylliannol a chwaraeon. Roedd teithwyr o'r farn bod y gallu i ddychweyd adref ar yr un diwrnod yn gwella ansawdd eu bywyd.

1 Introduction

1.1 *The Study*

1.1.1 The Welsh Assembly Government has commissioned Halcrow Group Ltd and the Wales Transport Research Centre to evaluate the success and utilisation of the Cardiff/Anglesey air service. The Welsh Assembly Government needs to monitor and evaluate the performance of the air service and its associated contracts to ensure that:

- contractual conditions are being met
- it is receiving value for money
- to inform future contracts and operational renewals
- to support future policy on Intra Wales Air Services
- the performance of the air route corresponds with the forecasts contained within the 'Intra-Wales Scheduled Air Services' consultation document

1.2 *Background*

1.2.1 An initial evaluation of the economic viability of an intra-Wales air service was published in July 2002¹. Further development of the concept was undertaken by consultants working for the Welsh Assembly Government². The findings of the consultants concluded that intra-Wales air services are not commercially viable, although there was latent demand. However, it is possible to support an air route between Cardiff and North West Wales under a Public Service Obligation (PSO). Under a PSO, a member state of the European Union can subsidise an air route to a peripheral or development region if it can be shown that surface transport does not provide a viable alternative. A full explanation is given in Appendix A.

1.2.2 The Welsh Assembly Government decided to provide support and the air service commenced on May 8th, 2007 operating between Cardiff International Airport and a new £1.5m civil terminal at RAF Valley (Maes Awyr Môn/Anglesey Airport). The terminal is operated by a facilities management company on behalf of Isle of

¹ The Future Development of Air Transport in the United Kingdom: Wales (Welsh Assembly Government/Department for Transport, July 2002)

² Development of an Air Transport Strategy for Wales: Final Report (Avia Solutions, December 2003)

Anglesey County Council. There is an agreement between the County Council and the Welsh Assembly Government for the recovery of the running costs of operation. The air service is operated by Highland Airways under a three year contract (2007-2010) with the Welsh Assembly Government, the contract allows for a maximum one way fare of £50, with a Welsh Assembly Government providing an annual subsidy of £0.8m.

1.3

Aims & Objectives

1.3.1

The agreement between the Welsh Assembly Government and the operators of the air route and of the terminal at Anglesey set a number of contractual Key Performance Indicators (KPI's) to monitor the operational performance.

1.3.2

The Wales Transport Strategy, the Welsh Assembly Government's overarching strategy for transport, sets a series of outcomes for transport focussing on contribution to education, spatial planning, health, social services, employment, the economy, environment and tourism. These outcomes are grouped under the three pillars of sustainability: economy, society and environment. Therefore, in addition to operational issues, the Welsh Assembly Government also needs to have regard for their environmental, economic development and social inclusion policies.

1.3.3

The aim of the study was to monitor and evaluate the performance of the Intra Wales Air service. The outcome of the study would also help to identify future options for operating the service. Specific objectives are listed below:

- Has the service generated the forecast number of jobs?
- Are there significant user benefits in terms of time saving?
- Has the air service facilitated closer integration in Wales?
- Have passenger numbers met the forecast numbers?
- Have the capital and revenue expenditures been as forecast?
- Have there been any significant environmental impacts?

1.4

Approach to the Study

1.4.1

The study aims to respond directly to the objectives set out above with the goal of providing sufficient evidence to inform the identification of options for the future operation of the air service.

1.4.2

The study is based on interview surveys of air and rail passengers and roadside interviews. This information provides an understanding of the existing trends in travel between Northwest and Southeast Wales. The interviews demonstrate the successes and future requirements for travel and provide an indication of the potential for mode shift to air travel. A detailed description of the methodology employed for the interviews is given by mode in Appendices B, C and D. A summary of the sample sizes is given below:

- ***Air passenger interviews:*** 20 flights sampled; 211 completed interviews;
- ***Rail passenger interviews:*** 100 services sampled; 518 completed interviews;
- ***Roadside interviews:*** 49 completed interviews.

1.4.3 The results of the air, rail and road interviews provide the evidence base for an examination into the potential for mode shift to air. Modal shift is an important element of the response to the outcomes and recommendations for the future operation of the air service.

1.4.4 The study also presents a modal comparison of the environmental impacts of selected journeys. The environmental study examines the following:

- CO₂ emissions per vehicle and per passenger;
- Comparison of modes: air, car and rail for selected journeys.

1.5 ***Structure of Report***

1.5.1 The report is structured as follows:

- Chapter 2 Examines the existing demand for air travel and gathers evidence of latent demand. Also provides an overview of demand for travel between North and South Wales. Finally, the reasons for people travelling between Northwest and South Wales are examined.
- Chapter 3 As well as existing demand for air travel, there is also the potential for mode shift to air as a result of a number of interventions. The reason people choose their mode of travel is presented and the potential for each reason to enact mode shift is investigated.
- Chapter 4 The barriers people experience when planning a journey and the additional needs people have when travelling are examined. This section focuses on the ability of people to access the air service.
- Chapter 5 Evaluates the extent to which the air service has contributed to the economy of Wales and identifies the opportunities that have arisen as a result.
- Chapter 6 Calculates the Co₂ emissions per passenger for air, rail and road as well as calculations for two larger aircraft.
- Chapter 7 Revisits the objectives and presents evidence to support, or otherwise, the statement made in the Intra-Wales Air Service study.

2 Existing Conditions

2.1 *Introduction*

2.1.1 Existing travel demand and reason for travel are important determinants of existing, or 'baseline', conditions. It is important to establish a baseline from which sensitivities to mode shift can be explored.

2.1.2 This Chapter firstly considers existing demand for air travel in isolation to other modes. The total demand for travel between Northwest and Southeast Wales is determined to understand the potential market for the air service to explore. Finally, the reasons for travelling between Northwest and Southeast Wales are defined, which is critical to appraising the need to travel and to identify which people groups are benefiting from the air service.

2.2 *Demand for Air Travel*

2.2.1 Loading statistics reveal that demand for the air service has exceeded predictions. A total of 14,133 passengers have used the service to the end of April 2008 compared with a predicted 1st year usage of 12,900 passengers. Occupancy levels for the air service between March and May 2008 are shown in Table 2.1. The table demonstrates steady growth for the three months culminating in an 88.3% load factor for May 2008. It is reasonable to expect demand for the air service to continue to grow during the summer months as demand for leisure and tourist trips increases.

Table 2.1. Cardiff to Anglesey Air Service: Loading Factors

| Month | Load factor |
|------------|-------------|
| March 2008 | 80.6% |
| April 2008 | 83.0% |
| May 2008 | 88.3% |

Source: Monitoring of PSO KPIs. Highland Airways/Welsh Assembly Government

2.2.2 Occupancy levels on individual services provide an indication of whether existing demand is being catered for. Air services at, or over, capacity can suppress demand for travel by these modes, possibly transferring trips to rail or road, or reducing the volume of trips. The extent of latent demand for travel by air is of significant importance to an assessment of modal shift. Air passengers verified that demand exceeds supply for some services. 35% of passengers on the air service have, on at least one occasion, failed to book a seat on the air service due

to the service being full. An inability to obtain a seat on the air service was cited by five rail travellers as a reason for travelling by rail.

2.2.3 Demand is exceeding capacity at the maximum fare of £50. It is not possible to make changes to the maximum fare during the period of the present contract except for an annual cost of living increase.

2.2.4 Air passengers were asked how many times they have used the air service. The results are shown in Table 2.2. Air passengers were also asked how often in a year they make a journey where the air service could be used as part of their travel. The results are shown in Table 2.3. A comparison of the two Tables shows that there are a number of regular passengers, particularly business travellers, who could use the air service more than they have done over the past year. This indicates that the air service could take a greater share of the market if the capacity was expanded.

Table 2.2. How many times have you used the air service?

| | 1 st time | 2-5 | 6-10 | > 10 |
|--------------------------------|----------------------|-----|------|------|
| Employers Business | 48 | 42 | 15 | 30 |
| Education | 4 | 1 | 1 | 1 |
| Shopping | 7 | 1 | | |
| Personal Business | 6 | 2 | 2 | |
| Visiting Friends and Relatives | 17 | 9 | 1 | |
| Recreation | 17 | 2 | | |

Table 2.3. How often in a year do you make a journey where this air service could be used as part of your travel?

| | 1-5 | 6-10 | 11-15 | > 15 |
|--------------------------------|-----|------|-------|------|
| Employers Business | 44 | 29 | 25 | 37 |
| Education | 3 | 1 | 2 | 1 |
| Shopping | 5 | 2 | | 1 |
| Personal Business | 6 | 3 | 1 | |
| Visiting Friends and Relatives | 20 | 5 | 1 | 1 |
| Recreation | 16 | 2 | | 1 |

Source: Air Passenger Surveys (*Wales Transport Research Centre/Halcrow Group Ltd, 2008*)

Note: There were 211 passenger responses but only 206 passengers chose to answer this question

2.3

Demand for Travel between North and South Wales

2.3.1

A study of North-South travel in Wales was carried out in 2000³. The study calculated total one-way person trips by road rail and bus, as shown in Table 2.4.

Table 2.4. AAWT (one-way) between North and South Wales

| Mode | Person Trips (One Way) | Person Trips (One Way) |
|-------|------------------------|------------------------|
| | October | August |
| Road | 443 | 587 |
| Rail | 143 | (143) |
| Bus | 2 | (2) |
| Total | 558 | 732 |

Source: Welsh North South Transport Links study: Transport Strategy (*The National Assembly for Wales/Babtie Group, April 2000*)

2.3.2

Roadside interviews conducted on the A470 near Builth Wells in April 2008 revealed that traffic travelling between Northwest Wales and South Wales accounted for 37% of total northbound traffic between South and North Wales and 59% of southbound traffic between North and South Wales. Application of these factors to the total road trips reported in Table 2.2 reveals 164 daily northbound trips between South and Northwest Wales and 261 southbound trips.

2.3.3

The demand for rail travel between North and South Wales has shown little growth in recent years. The North-South Study (2000) indicated a total of 111 one-way trips⁴. LENNON data from 2004/05 indicates 109⁵ trips. The rail passenger surveys (April 2008) indicate a total of 113 one-way trips.

³ Welsh North South Transport Links study: Transport Strategy (The National Assembly for Wales/Babtie Group, April 2000)

⁴ The North-South study reported 143 one-way trips but this included Chester as an origin and destination. Removal of Chester results in 111.

⁵ Annual data has been divided by 365 days to represent a daily volume. This is likely to under-report actual journeys as it includes public holidays, when services are reduced, and weekends.

2.3.4

The rail service between Cardiff and Holyhead is rarely over capacity and, on average, is less than half full between Hereford and Shrewsbury⁶. It is unlikely, therefore, that capacity issues on the rail network are suppressing a demand for North-South travel. It is more likely that mode switch from rail to air will be stimulated by other factors, such as journey time or cost savings.

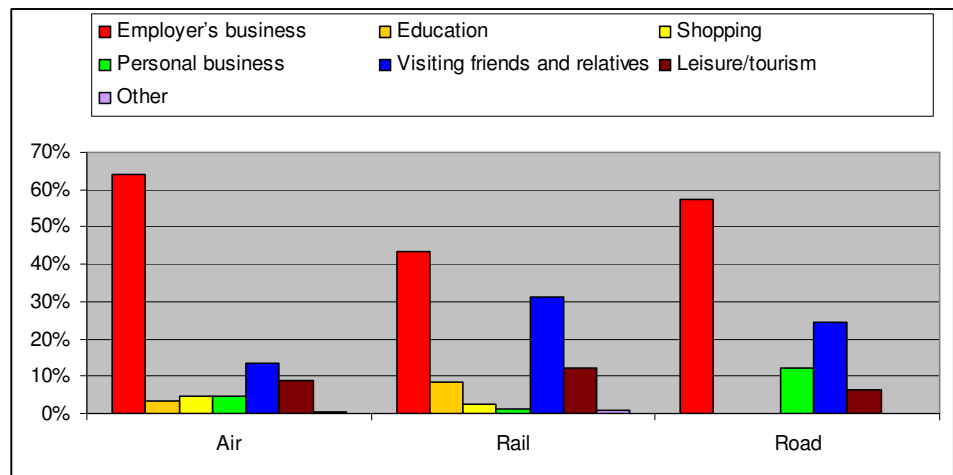
2.4

Reasons for Travel (Journey Purpose)

2.4.1

A comparison of journey purpose, by mode, is shown in Figure 2.17. It is evident that travel on behalf of employers business is the dominant reason for travelling by air with nearly two thirds (64%) of air passengers travelling for this reason. In comparison, 43% of rail passengers and 57% of car drivers were travelling for this purpose. Nearly a third (31%) of rail passengers were travelling to visit friends and relatives compared to only 13% of air passengers.

Figure 2.1. A Comparison of Journey Purpose, by Mode



Source: Air and Rail Passenger Interviews (*Wales Transport Research Centre/Halcrow Group Ltd, 2008*)

⁶ A two-car 158 and/or 175 on the direct Cardiff to Holyhead rail service had an average occupancy of 28 percent of total capacity. The maximum occupancy recorded was 64%. However, the rail service experiences higher levels of local traffic within North and South Wales. A respondent noted, for instance, that crowding levels on peak services from Cardiff prevented them from finding a seat until the train reached Hereford.

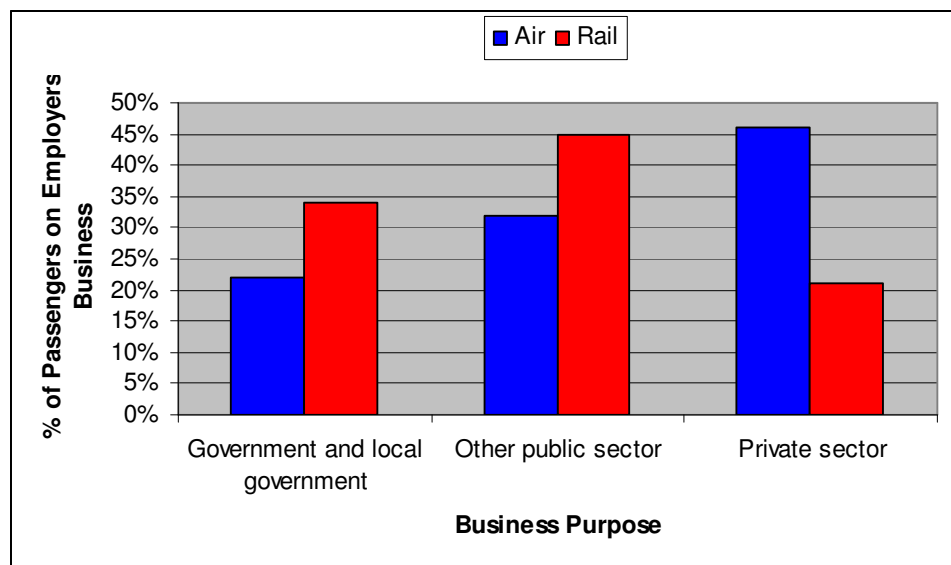
⁷ Categories presented to motorists were broadly similar to those presented to air and rail passengers. Where differences occurred, responses were categorised using a 'best fit' matching exercise.

2.4.2 A link between journey purpose and reason for mode choice is shown in *section 3.1*.

2.4.3 Analysis of the number of new trips created by air is provided in *section 5.3*.

2.4.4 Further analysis of those travelling on ‘employers business’ is shown in Figure 2.2. It demonstrates that 46% of those travelling by air for business purposes were from the private sector compared to 21% by rail. A total of 22% of air passengers on employers business were from government or local government and 32% from the rest of the public sector.

Figure 2.2. Further Analysis of Passengers on Employers Business⁸



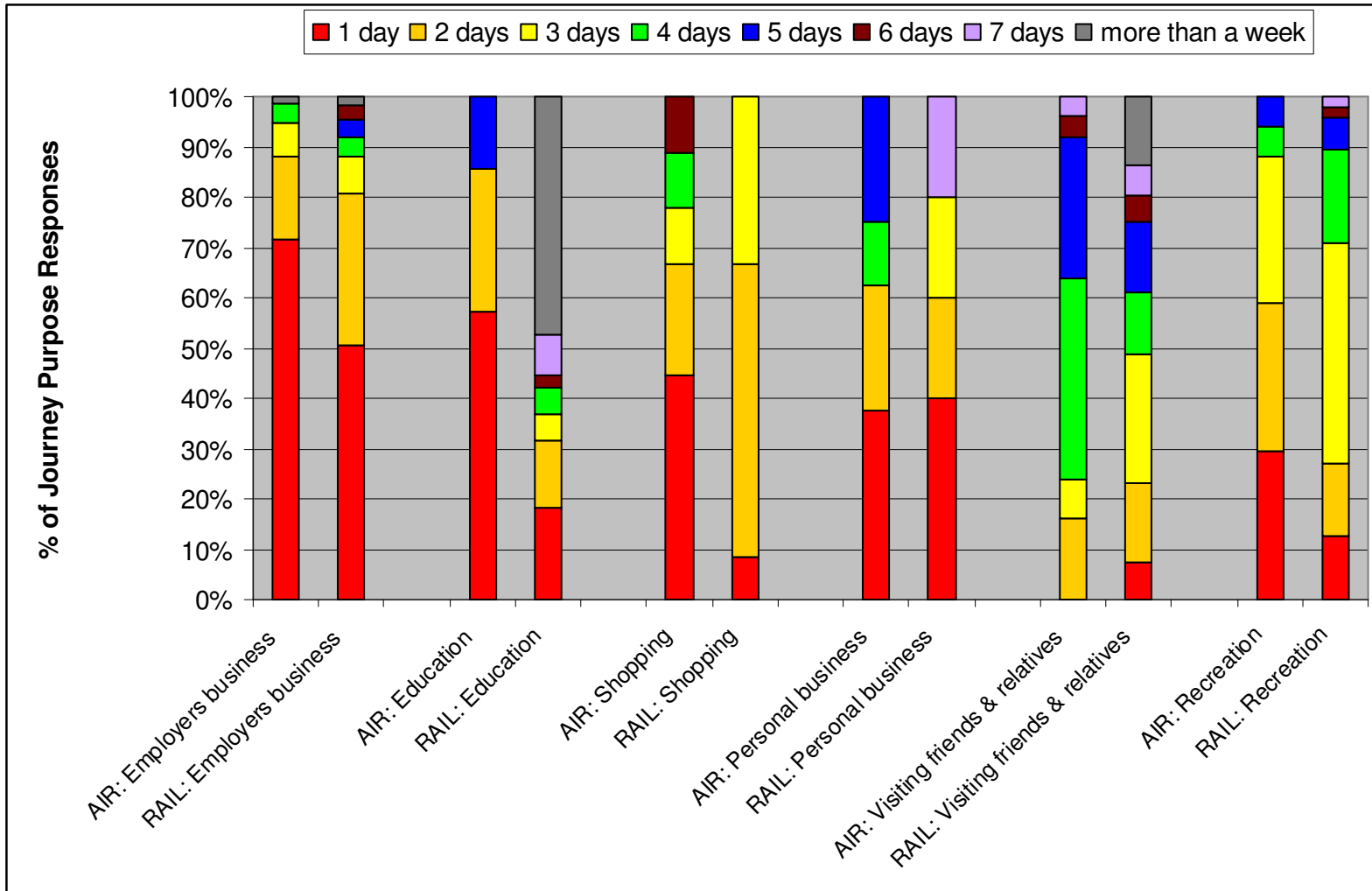
Source: Air and Rail Passenger Interviews (*Wales Transport Research Centre/Halcrow Group Ltd, 2008*)

2.5 *Length of Stay*

2.5.1 Air and rail passengers were asked to state the length of their stay. Figure 2.3 presents the results, by journey purpose.

⁸ Roadside interviews did not include sub-categories for business purposes. Air and rail surveys included sub-categories for employers business for week two of surveys only.

Figure 2.3. Length of Stay, by Journey Purpose



Source: Air and Rail Passenger Interviews (Wales Transport Research Centre/Halcrow Group Ltd, 2008)

- 2.5.2 It is evident that a greater proportion of passengers by air will make a return trip in a single day than by rail. However, passengers originating in Southeast Wales are more likely to be on a day return. 69% of air passengers starting their trip in Southeast Wales return the same day compared to 48% of passengers who start their journey in Northwest Wales. This is likely to be a function of the better flight timings for passengers starting their journey in Southeast Wales, which allow passengers more time to complete their activities in Northwest Wales.
- 2.5.3 A higher proportion of business travellers make a return trip in a single day by air than for any other journey purpose. Also, a greater proportion of business travellers return in a single day by air than by rail. 72% of business passengers by air return in the same day compared to 51% of business passengers by rail.
- 2.5.4 There are a high proportion of people travelling for education purposes between Northwest and Southeast Wales by rail who are staying for more than a week. This could suggest students are returning to University for the coming semester, or visiting home at the end of a semester. By air, however, there are no long-term education based trips, yet many same day return trips. This could suggest visits to University open days in Bangor or Cardiff, for example.
- 2.5.5 Passengers making the journey by air to visit friends and relatives, tended to stay longer, with a high proportion staying for four days. This could be a result of the air service not operating at weekends. Passengers wishing to stay for a week must either reduce their stay to four days or extend their stay into the following week, which is often not practical.

2.6 ***Service Reliability***

2.6.1 Punctuality statistics for the Cardiff/Anglesey air service for the three month period March to May 2008 are given in Table 2.5.

Table 2.5. Reliability of the Air Service , March, April and May 2008

| Airport | Cardiff | | Anglesey | |
|---------|--------------------|---------------------|--------------------|---------------------|
| | % Within 5 minutes | % Within 15 minutes | % Within 5 minutes | % Within 15 minutes |
| March | 84.2 | 89.5 | 89.5 | 94.7 |
| April | 95.3 | 97.7 | 93.1 | 95.5 |
| May | 89.7 | 92.2 | 92.2 | 92.2 |

Source: Monitoring of PSO KPIs. Highland Airways/Welsh Assembly Government

2.6.2 As shown in Table 2.6, a total of 100 rail services were surveyed, of which 82% departed on time and 92% departed within 5 minutes of their scheduled departure time. One service was cancelled, which was the northbound 08.28 departure from Hereford on the 14th March 2008.

Table 2.6. Punctuality of Surveyed Rail Services

| Delay | Frequency |
|--------------------|-----------|
| On time | 82 |
| Delay (0-5 mins) | 10 |
| Delay (6-10 mins) | 4 |
| Delay (11-20 mins) | 2 |
| Delay (>20 mins) | 1 |
| Service cancelled | 1 |

Source: Air and Rail Passenger Interviews (*Wales Transport Research Centre/Halcrow Group Ltd, 2008*)

2.7

Key Findings

2.7.1

Occupancy figures of 88% in May 2008 clearly demonstrate that the air service has been successful in attracting passengers. This is supported by passenger loading statistics which show that passenger volume has exceeded expectations: A total of 14,133 passengers have used the service up to the end of April 2008, compared to a 1st year prediction of 12,900.

2.7.2

However, despite an average occupancy of 88%, there is evidence to suggest that existing demand for travel by air is not being met by the existing air service. Over a third of passengers stated that, on at least one occasion, they have tried to book seats but failed due to flights being at capacity. Also, frequent users of the air service could have used the service more than they have done over the past year,

2.7.3

There is little evidence to suggest significant growth in demand for travel between North and South Wales by rail or road. There is also little evidence to suggest a latent demand for travel due to capacity constraints on the rail network.

2.7.4

Travel on behalf of employers business is the dominant reason for travelling by air. The private sector constitutes nearly half of all business travellers, compared to 22% from government or local government. It is evident that a greater proportion of air passengers than rail passengers will make a return trip in a single day.

2.7.5

The impact of these statistics on mode choice is discussed in the following Chapter.

3 Reasons for Mode Choice

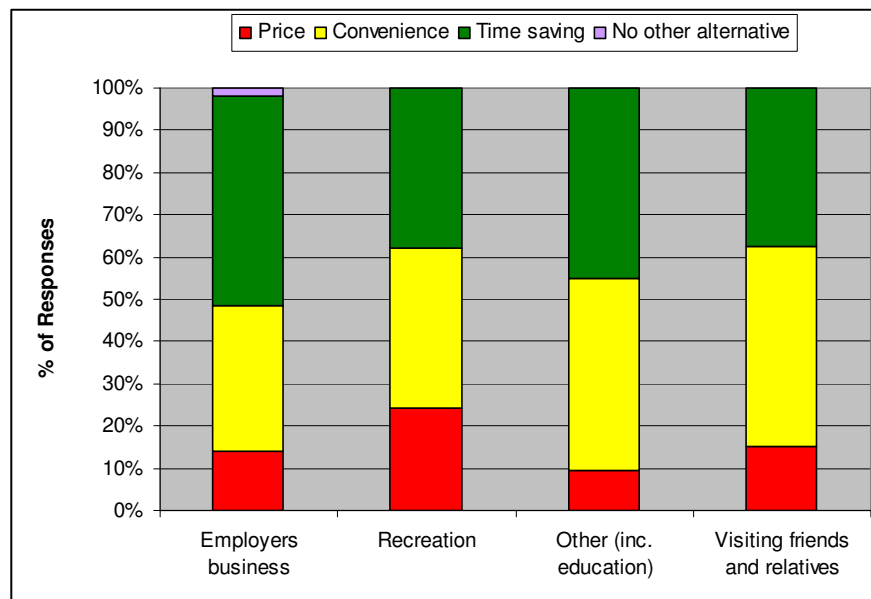
3.1 Introduction

3.1.1 A total of 568 rail passengers were interviewed, of which 454 were aware of the air service. Therefore, 80% of rail passengers travelling between South and Northwest Wales made a conscious choice to choose rail rather than air for their journey.

3.1.2 This Chapter examines what attracted people to choose a certain mode for their journey and presents the most likely factors that would attract them to an alternative mode. The intention is to discover the extent to which the air service is meeting consumer needs.

3.1.3 Air and rail passengers were asked their reason for choosing a certain mode for their journey between Northwest and Southeast Wales. The results are shown in Figures 3.1 and 3.2. The potential for each element to contribute towards mode shift is evaluated, in turn, in the remainder of this Chapter.

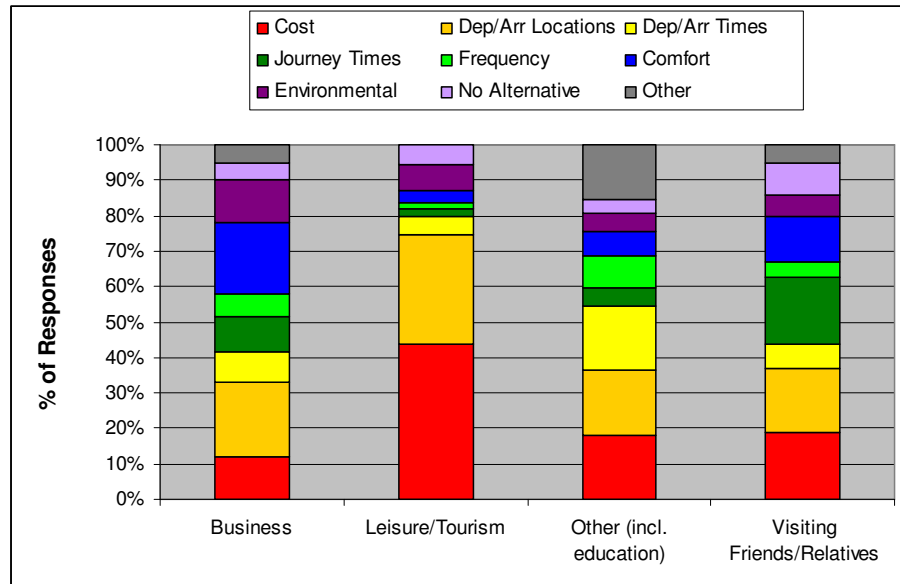
Figure 3.1. Factors in Choosing Air by Journey Purpose



Source: Air Passenger Interviews (*Wales Transport Research Centre/Halcrow Group Ltd, 2008*)

Note: Passengers were allowed to choose more than one option. The values shown are proportions of total options chosen, not proportion of passengers

Figure 3.2. Factors in Choosing Rail by Journey Purpose



Source: Rail Passenger Interviews (*Wales Transport Research Centre/Halcrow Group Ltd, 2008*)

Note: Passengers were allowed to choose more than one option. The values shown are proportions of total options chosen, not proportion of passengers

3.1.4

There is a clear difference in the motivation for choosing air rather than rail. Air passengers place a much greater emphasis on journey time, which is reflected in their ability and/or desire to make return trips in a single day. Journey time is discussed in more detail in *section 3.2*.

3.1.5

Whilst price is important for those travelling by air it is still not as important as convenience and time saving. For those travelling on business, time saving is most important followed by convenience. This data is important for understanding motivation for travelling by air. It shows that the air service is satisfying a demand, particularly for quicker journey times, between South and Northeast Wales. However, there are still a number of passengers travelling for business purposes who are price sensitive. These passengers are likely to consider alternative modes should the cost of travel increase. Willingness to pay is discussed in more detail in *section 3.3*.

3.1.6

There is little difference in responses from air and rail passengers regarding the importance of cost in mode choice. However, rail passengers choosing this mode for cost reasons are unlikely to transfer to air unless total journey costs become comparable. Journey costs are discussed in *section 3.3*.

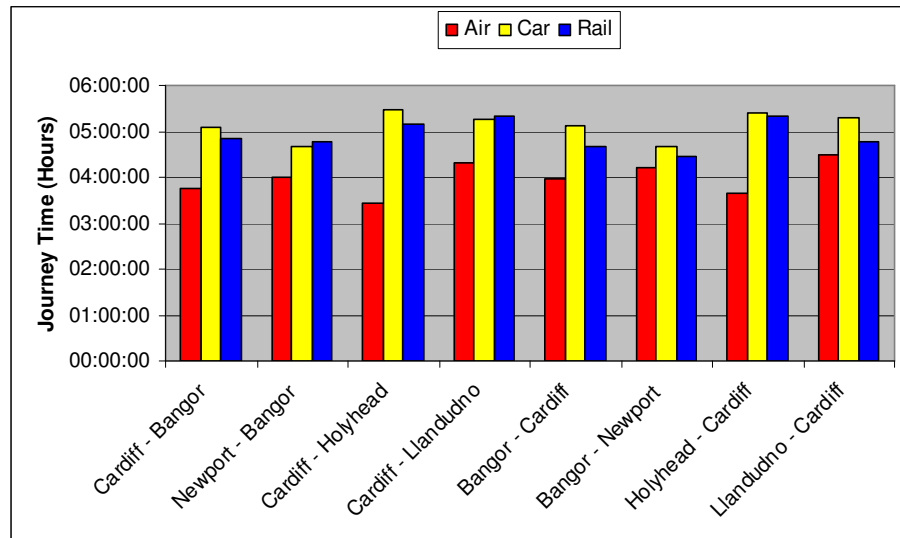
3.2

Journey Time

3.2.1

Figure 3.3 shows a comparison of journey times by air, private car and rail for selected journeys between Southeast Wales and Northwest Wales. The assumptions made are presented in Appendix E.

Figure 3.3 A Comparison of Journey Times by Air, Car and Rail



Source: Halcrow Group Ltd, 2008. See Appendix E for assumptions

3.2.2

It is evident that travel time by air is shorter than by car and rail for all selected journeys. For journeys between Cardiff city centre and Holyhead town centre, the short transfer time at both the origin and destination, equates to considerable travel time saving by air. However, the journey time benefits of air travel are eroded as the journey time between the airports and ultimate origin and destination locations increases.

3.2.3

Journey time is the most important consideration for air passengers when considering mode choice. This demonstrates a clear correlation between shorter actual journey times by air and the importance air passengers place on journey times when choosing the air service. However, the Welsh Assembly Government’s ‘One Wales’ agenda⁹ proposes to reduce journey times by rail between the North

⁹ One Wales: A Progressive Agenda for the Government of Wales (An agreement between the Labour and Plaid Cymru Groups in the National Assembly, 27th June 2007)

and South of Wales. Given the influence of journey time on mode choice, it is likely that the potential for mode shift to air will be reduced if a high speed rail link is implemented.

3.3

Journey Cost

3.3.1

The evaluation of journey cost includes the 'cost to the user'. This is a measure of what the user pays for their journey and what they would be willing to pay. The following elements are examined:

- Actual cost;
- Willingness to Pay;
- Value of time;
- Productive time; and
- Overnight stay.

Actual Cost

3.3.2

A calculation of the total cost of travel for selected journeys between Northwest and Southeast Wales is shown in Figure 3.4. The components and assumptions are shown in Appendix F¹⁰.

3.3.3

It is evident that the cost of one-way travel by air is comparable to the cost of a standard one-way rail ticket but more expensive than travel by car and more expensive than travel by rail when tickets are bought in advance. For return trips, air travel is significantly more expensive than other realistic alternatives. However, air fares range from £19.99 per single fare for passengers booking in advance. The price rises in increments as seats are sold. For the second year of the service the maximum price has risen to £52.09 per single seat.

3.3.4

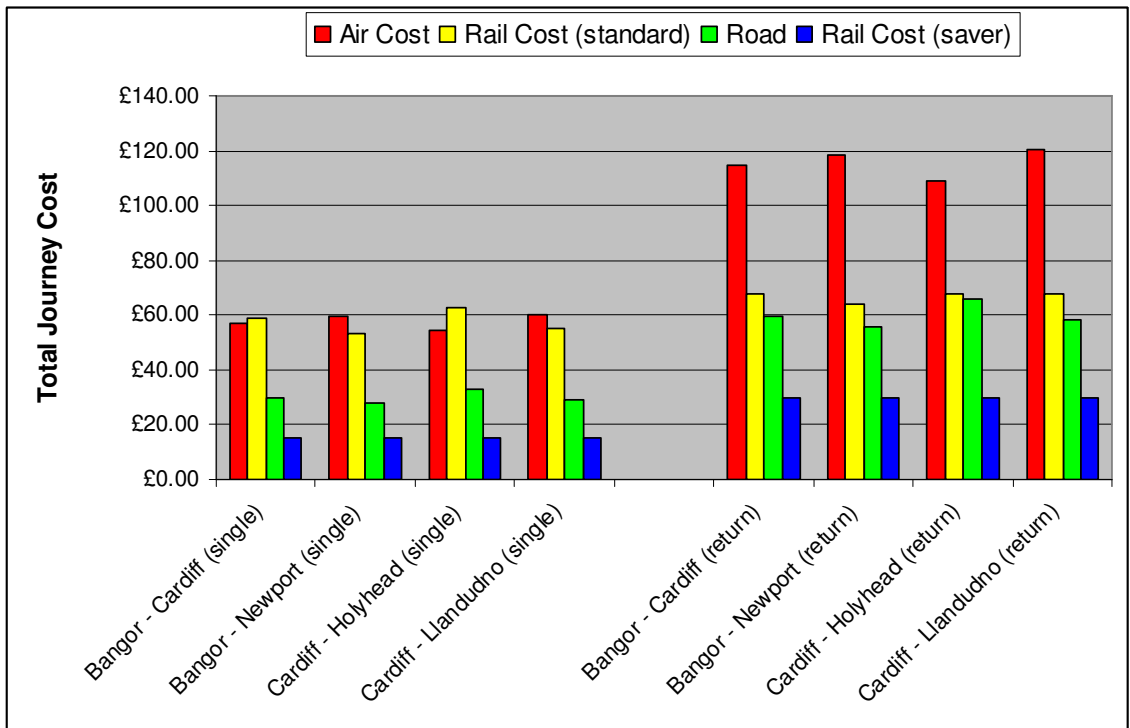
As expected, travel by air is more attractive if the trip ends are in close proximity to the airports. For example, Cardiff to Holyhead by air is cheaper than Cardiff to Holyhead by rail.

¹⁰ It is likely that the car costs are under-reported. Fuel prices have increased since the calculations in 2006 and only a limited parking fee is factored into the cost.

3.3.5 Travel by car becomes more cost effective as occupancy increases. Ticket prices by air and rail remain fixed regardless of the size of the group, but the cost per passenger by car reduces with higher occupancy.

3.3.6 The results show that a journey including air is more expensive than by other modes. This is clearly a deterrent to users of other modes sensitive to journey cost. However, the passenger loading statistics demonstrate that there is clear demand for travel at this cost. For these individuals, the other advantages of air travel (e.g. journey time) offset the higher cost of travel.

Figure 3.4. Comparative Journey Costs, by Mode

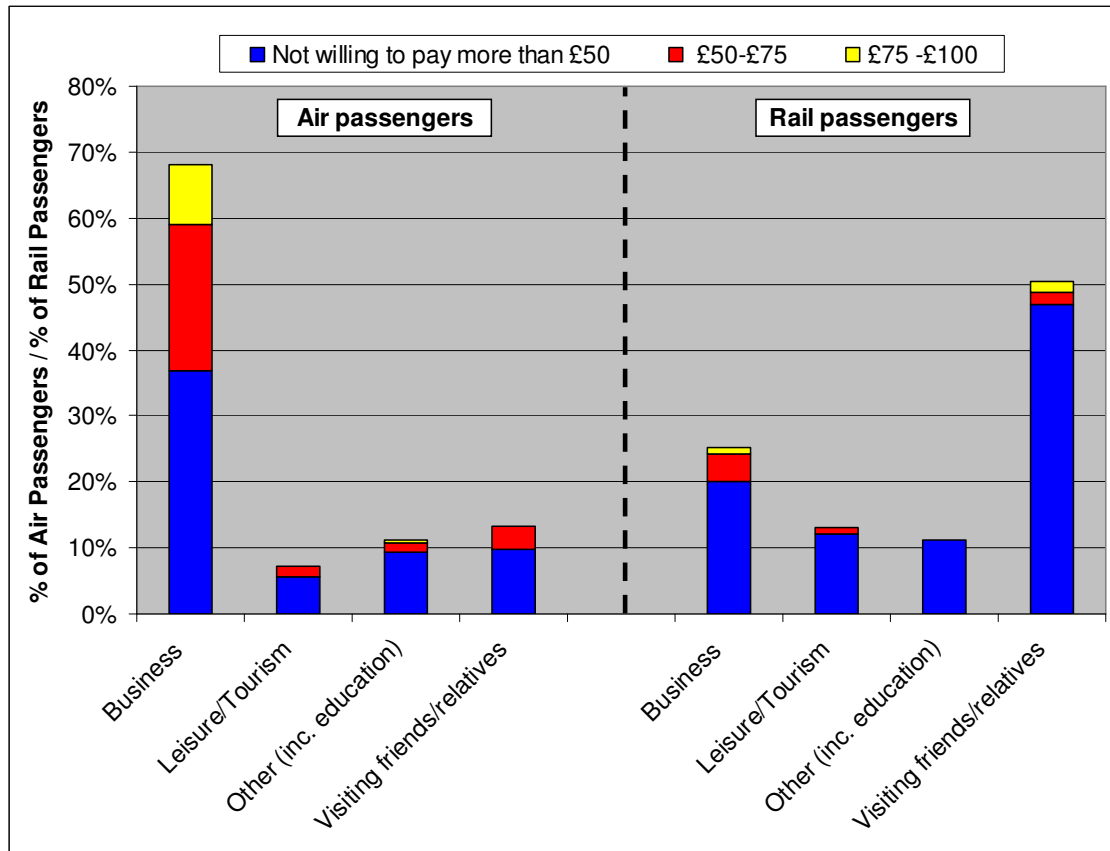


Source: Halcrow Group Ltd, 2008. See Appendix F for assumptions

Willingness to Pay

3.3.7 Air and rail passengers were asked how much they would be willing to pay for their journey. The results, shown in Figure 3.4, compare what air and rail passengers would be willing to pay for a single journey.

Figure 3.5. How much Passengers are Willing to Pay for their Journey¹¹



Source: Air and Rail Passenger Interviews (Wales Transport Research Centre/Halcrow Group Ltd, 2008)

3.3.8 The air passenger results indicate sensitivity to any future change in pricing structure is dependent on journey purpose. There is a willingness from nearly half of business travellers to pay more than the original limit of £50. However, a fare higher than £50 would deter significant numbers of those travelling for leisure, visiting friends and relatives and others from travelling on the air service. It is evident that an increase in fare could reduce demand for the air service.

3.3.9 In general, air passengers are prepared to pay more for their journey than rail passengers, although the difference is not pronounced. Rail passengers also show a

¹¹ Rail passengers were asked how much they would be willing to pay for their current journey. All journey are between Northwest and South Wales

clear sensitivity to fares with few passengers prepared to exceed a maximum threshold of £75 their trip. Those travelling for leisure and visiting friends and relatives are willing to pay less than those on business. It is evident that rail passengers are unlikely to transfer to the air service if the existing limit of £52 is increased. An increase in the cost of travelling by air could negate the benefits of other air service improvements, such as an increase in frequency, or amended timetable.

Productive Time/Value of Time

- 3.3.10 WelTAG¹² 6.2.37 refers to WebTAG Unit 3.5.6 for values of time.
- 3.3.11 Time spent travelling is a component of the total journey cost, as described by WebTAG¹³, which states:
- ‘...people implicitly put a value on their own time in that they will trade a cheaper, slower journey against a faster, more expensive one.’
- 3.3.12 The perception of domestic air travel is that it will transport passengers to their destination in a shorter time than other modes. This is attractive to employers as described by WebTAG:
- ‘...savings in travel time convert non-productive time to productive use and that, in a free labour market, the value of an individual’s working time to the economy is reflected in the wage rate paid.’
- 3.3.13 There are also opportunities for productive work time for air passengers, either prior to departure or on the aircraft itself. Laptops can be used on the aircraft except during take off and landing, but available working time is not continuous.
- 3.3.14 Rail travel provides the longest unbroken period of productive work time, although this relies on the availability of suitable seating and, possibly, the availability of a table for laptop users. However, the use of laptops is limited to the

¹² Welsh Transport Planning and Appraisal Guidance (WelTAG) (Welsh Assembly Government, June 2008)

¹³ Transport Analysis Guidance Website (Department for Transport). Provides detailed guidance on the appraisal of transport projects and wider advice on carrying out and scoping wider transport studies.

battery life of each machine as power points are not available on either 158 or 175 trains currently used on the north-south service. People travelling by car do not have the opportunity to work, thus making their travel time 'non-productive' for their employer.

3.3.15 Decisions on mode choice for business passengers are, therefore, often reflected in their company policy. The speed of air travel benefits employers by allowing employees more time at their destination for productive work and allows opportunities during the journey for periods of additional productive time. Also, the greater potential for a day return trip, in some cases, negates the need for an overnight stay. Some businesses, however, have a policy for surface transport only on environmental grounds.

3.3.16 Comments from passengers regarding productive time included:

- The ability to work was a reason for travelling by train;
- The lack of power points on trains as an impediment to working;
- Crowding levels on peak services from Cardiff prevented them from finding a seat until the train reached Hereford. As a consequence, productive time is limited.

Overnight Stay

3.3.17 From an economic perspective, an overnight stay adds to the total cost of a journey, although, as a consequence, there could be a reduction in investment in the local economy.

3.3.18 Length of stay statistics (Figure 2.3) show that a greater proportion of air passengers return the same day than by car or rail. The driving time between Northwest and Southeast Wales is too great, for safety reasons, to be achieved by a single person in a single day by car. This was supported by passenger comments that rail was chosen because the distance to South Wales and back was too great to be achieved in one day by car.

3.4 ***Comfort***

3.4.1 The quality of the service, in this context, is defined as the services and facilities available to users. This includes the quality of the stock, availability of on-board refreshments and the facilities for productive working. An assessment is made of the general standard of the services available for travel by each mode.

3.4.2 The level of services and facilities is limited on the air service. Free tea and biscuits are offered to every passenger, although there are no additional refreshments.

There are no toilets on the flight. However, the flight time is only 1 hour 5 minutes and these facilities are available at both Cardiff and Anglesey Airports before and after the flight. A total of 80% of passengers undertaking follow-up telephone interviews rated the comfort of the aircraft at 3 out of 5. Passengers commented that the aircraft was too small with poor leg room.

3.4.3 Cardiff Airport has a range of catering facilities and shops available. Passengers were generally happy with the facilities at Cardiff airport, although some passengers commented on the long walk to the aircraft, which becomes more of a problem in the rain. Only 20% of respondents rated the facilities at Anglesey Airport 'good'. A further 20% rated the facilities as poor, largely due to the absence of catering facilities - Anglesey Airport only has vending machines.

3.4.4 Rail facilities and services are variable. An on board trolley of light refreshments is provided on most but not all services and this is usually available south of Shrewsbury. On-board services are more valuable to rail passengers than air passengers given the comparable length of time spent on the service. There were a number of specific comments relating to the quality of the rail service. Catering, in particular, was criticised. Passengers referred to the length of time they had been on the train before they were able to purchase some refreshments. Other comments related to the lack of power points and the general upkeep of the trains. There was also some comparison to the long distance Virgin West Coast service.

3.4.5 Facilities for motorists along the main North-South route are being reviewed by the Welsh Assembly Government. Fuel, toilets, parking and food are clustered around the major settlements along the route. However, there are concerns that the number of garages is diminishing and there are few open in the evening. Proposals to close some public toilets along the route have been prevented following funding from the Assembly, although some services have already closed. A roadside interviewee raised concerns about facilities en-route, particularly late at night. The main concerns were the lack of garages, the clustering of cafes and toilets particularly around Llandrindod Wells.

3.4.6 The impact of comfort on mode shift depends on the potential for improvements by each mode. A larger, more spacious aircraft would improve comfort on board the flight. However, the potential for catering facilities to be improved at Anglesey Airport and on-board the flights are restricted by practicality and funding.

3.4.7 By rail, new rolling stock could improve the overall travel experience for passengers, particularly if permanent catering facilities are available. By road, an improved frequency and quality of stopping facilities could prevent mode shift away from the car.

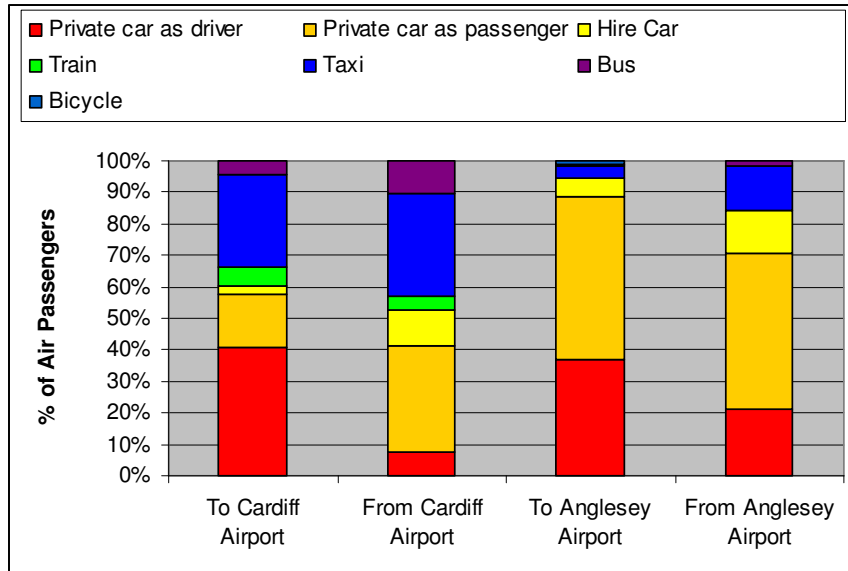
3.5

3.5.1

Departure/Arrival Locations

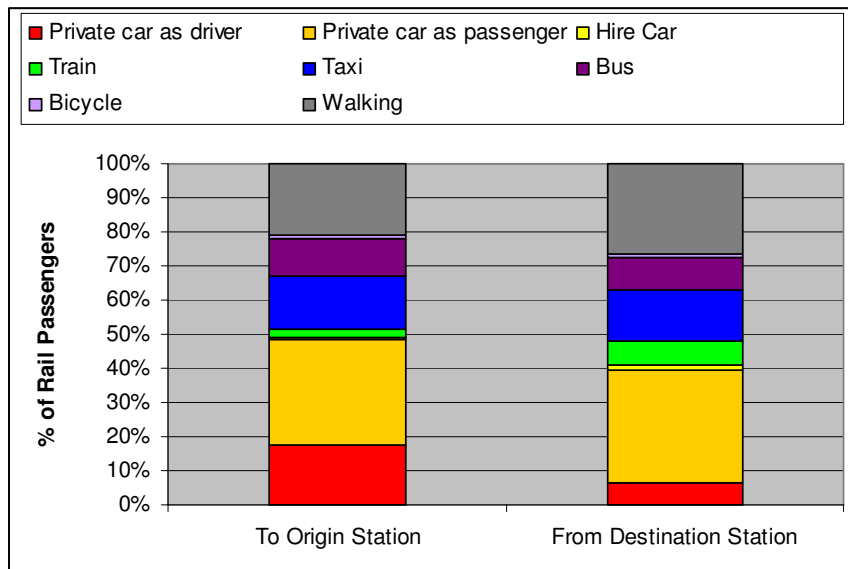
Air and rail passengers were asked how they travelled to their origin airport/station and how they will continue their journey from their destination airport/station. The results are shown in Figures 3.6 and 3.7.

Figure 3.6. Analysis of Travel to/from Cardiff and Anglesey Airports



Source: Air Passenger Interviews (Wales Transport Research Centre/Halcrow Group Ltd, 2008)

Figure 3.7. Analysis of Travel to/from Rail Stations



Source: Rail Passenger Interviews (Wales Transport Research Centre/Halcrow Group Ltd, 2008)

- 3.5.2 The ease of access to transport services is clearly a key determinant of mode choice. Rail stations are often in town centres and, for many people, are convenient to get to by walking, cycling or bus. The journey to the air terminus at Cardiff or Anglesey, however, requires additional planning. This conclusion is supported by comments that passenger transport provision at both Anglesey and Cardiff Airports was not sufficient. One air passenger, for example, commented that they had previously tried the rail and bus connection but ended up taking a taxi. A rail passenger commented that they would have used the air service but they do not own a car and cannot get to the airport. The high use of private cars and taxis at both airports supports the views expressed by passengers that bus services do not provide adequate connections with the air services.
- 3.5.3 A discussion on accessibility to Cardiff and Anglesey Airports is taken further in *section 4.4*.
- 3.5.4 Journey times have a significant influence on the choice of mode people choose to travel between North and South Wales, as demonstrated in *section 3.2*. However, the benefits were eroded as the distance between airports and trip ends increased. It is therefore assumed that the potential for mode shift to air is increased when trip ends are within close proximity to Cardiff and Anglesey airports.
- 3.5.5 Examination of population catchments within defined geographical boundaries¹⁴ of Cardiff and Anglesey airports is shown in Table 3.1. It demonstrates that a substantial population resides in locations in close proximity to Cardiff Airport. A smaller population resides in close proximity to Anglesey Airport reflecting a lower density region with smaller settlement sizes. For populations within close proximity, an assumption can be made that the short connection time to/from the airport for at least one end of their journey by air could save time on their overall trip between Northwest and Southeast Wales compared to alternative modes. The same assumption is likely to be true for residents in ‘relative’ and ‘reasonable’ proximity.

¹⁴ Based on the National Statistics Mid 2006 population estimates using an appropriate mix of both local authority and parliamentary constituency boundaries

Table 3.1. Population of the Zone Areas

| | Cardiff Airport | | Anglesey Airport | |
|----------------------|--|-----------------------|------------------------|-----------------------|
| Zone | Definition | % of Welsh Population | Definition | % of Welsh Population |
| Close Proximity | Bridgend Constituency Cardiff CCC The Vale of Glamorgan CBC | 511,819 (17%) | Isle of Anglesey CBC | 68,900 (2%) |
| Relative Proximity | Caerphilly Constituency Neath Port Talbot CCC Newport CCC Ogmore Constituency Pontypridd Constituency Rhondda Constituency | 605,013 (20%) | Arfon Constituency | 56,683 (2%) |
| Reasonable Proximity | Blaenau Gwent CBC Carmarthenshire CBC Cynon Valley Constituency Islwyn Constituency Merthyr CBC Monmouthshire CBC Pembrokeshire CBC Torfaen CBC | 1,464,468 (49%) | Aberconwy Constituency | 55,560 (2%) |

Source: Based on the National Statistics Mid 2006 population estimates using an appropriate mix of both local authority and parliamentary constituency boundaries

3.5.6

The North-South Transport Links Study looked at the location of trip ends for all South to North Wales journeys. The results revealed that:

- 41% of all northbound road trips, and 74% of all northbound rail trips, originated from Cardiff;
- 8.2% of northbound trip ends by road were in Anglesey and 30.3% of northbound trip ends by road were divided between towns on the North Wales coast;
- Cardiff to Anglesey accounted for 4.7%, and Cardiff to the North Wales coast accounted for 10.1%, of all road trips between South and North Wales;
- By rail, Cardiff to Bangor accounted for 21.6% of trips and Cardiff to Holyhead accounted for 2.4%.

3.5.7

The close proximity of trips ends in South Wales to Cardiff airport demonstrates a large potential market for the air service to explore. As expected there are a lower volume of trip ends in Northwest Wales in close proximity to Anglesey Airport.

However, there is evidence that there is existing demand for trips between origins and destinations where journeys by air would result in a substantial journey time savings.

3.6

Frequency of Service

3.6.1

For people travelling by car, the departure time is at the discretion of the driver and their passengers. For air and rail, departure time is fixed according to a published timetable. The opportunity to travel is limited to the scheduled services, thus the opportunity to access key services at appropriate times is constrained by departure and arrival times.

3.6.2

Tables 3.2 and 3.3 show the timetabled services between Northwest and Southeast Wales by air and rail.

Table 3.2. Weekday Air Services between Northwest and Southeast Wales

| | | | | |
|-----------------|------|------|--------------------|--------------------|
| Cardiff | 0730 | | 1615 ¹⁵ | |
| Anglesey | 0835 | 0855 | 1720 | 1740 ¹⁶ |
| Cardiff | | 1000 | | 1840 |

Table 3.3. Weekday Direct Rail Services between Cardiff and Holyhead

Northbound

| | | | | | | | | |
|-----------------|------|------|------|------|------|------|------|------|
| Cardiff | 0510 | 0720 | 0920 | 1120 | 1320 | 1520 | 1720 | 1934 |
| Holyhead | 1020 | 1220 | 1430 | 1630 | 1830 | 2030 | 2235 | 0047 |

Southbound

| | | | | | | | |
|-----------------|------|------|------|------|------|------|------|
| Holyhead | 0427 | 0615 | 0810 | 1030 | 1235 | 1435 | 1635 |
| Cardiff | 0918 | 1120 | 1321 | 1520 | 1715 | 1924 | 2119 |

¹⁵ 1515 to 1620 on Fridays

¹⁶ 1640 to 1740 on Fridays

3.6.3

The majority of passengers making comments about the convenience of flights would like the timing of the flights changed, nine passengers would like the morning departure from Anglesey to be earlier or the afternoon departure from Cardiff to be later, particularly on Friday. The feeling is that the current timings do not allow a full business day in Cardiff reducing the advantages of using the air service. Four passengers requested extra flights, particularly in the middle of the day. Six passengers stated that they would use weekend flights if they were available.

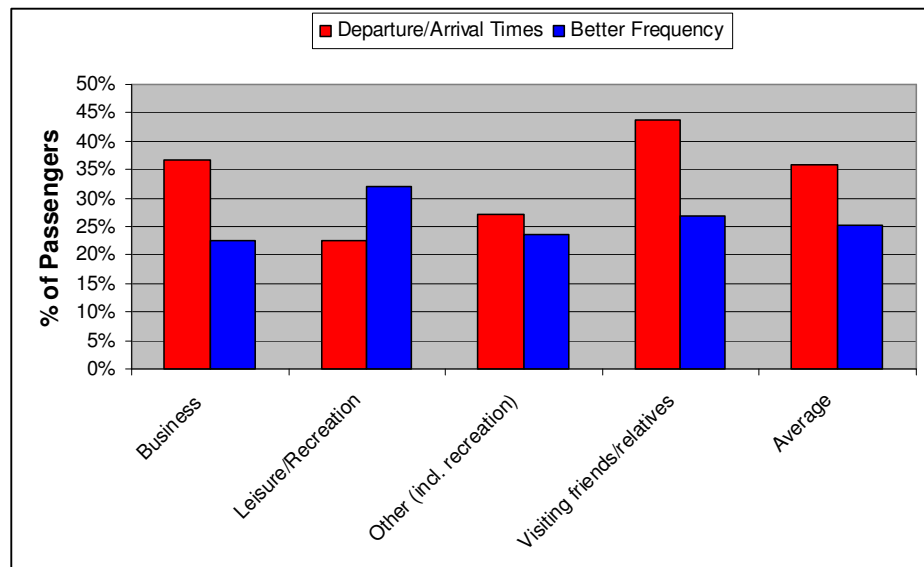
3.6.4

These comments were repeated by users of other modes. One roadside interviewee criticised the timings of flights and suggested the timings should be swapped around. The respondent argued that the air service gives them only 3 hours in Cardiff. Three rail passengers commented that they did not choose the air service because the timing of the flights was not suitable.

3.6.5

Changes to the air service timetable (improved service frequency and amendments to departure/arrival times) have the potential to attract passengers from other modes. Rail passengers were asked under what circumstances they would consider an alternative mode. Figure 3.8 shows that improvements in service frequency would be an important consideration for 25% of rail passengers when considering an alternative mode and more convenient departure/arrival times were an important consideration for 36% of rail passengers.

Figure 3.8. The Importance of Frequency and Departure/Arrival Times to Rail Passengers when Considering Alternative Modes



Source: Air Passenger Interviews (*Wales Transport Research Centre/Halcrow Group Ltd, 2008*)

Note: The values shown are percentages of passengers choosing this option.

3.7

Environmental Considerations

3.7.1

Increased media coverage and political focus on global warming and climate change has resulted in people becoming more aware of the emissions omitted by various types of transport. This has manifested itself in the decision making process of the mode to be chosen.

3.7.2

The rail survey provides evidence that environmental considerations have emerged as a significant factor in the choice of mode. Table 3.4 shows the results, by journey purpose¹⁷. The table shows that amongst the various categories of user, the environment was an important consideration among 30% of business travellers. This group was consistent in applying this factor to both rail and alternative modes. The next largest category was leisure and recreation users who cited as a factor in choosing rail but this diminished when alternatives were considered. The other two categories, showed some consistency but regarded environmental considerations as less important.

Table 5.1. The Importance of the Environment in Mode Choice

| Journey Purpose | Importance of Environment in Choosing Rail | Importance of Environment in Considering Alternatives |
|----------------------------|--|---|
| Business | 29% | 30% |
| Leisure/Recreation | 31% | 15% |
| Other (incl. education) | 12% | 12% |
| Visiting friends/relatives | 18% | 21% |

Source: Rail Passenger Interviews (*Wales Transport Research Centre/Halcrow Group Ltd, 2008*)

3.7.3

Analysis of environmental considerations has important consequences on mode choice. It can be assumed that 30% of business travellers by rail are unlikely to transfer to air even if air travel became a more attractive option through, for example, cheaper fares and shorter journey times. Furthermore, six respondents stated their company had a policy to use surface and more sustainable forms of transport and would not use the air service for this reason.

¹⁷ Environment was considered for week 2 of the survey only

3.8 ***Other Influences***

3.8.1 Other factors influencing mode choice are discussed elsewhere in this report, they include:

- No other alternative; and
- Additional Needs:

3.8.2 Both elements are examined in ***Chapter 4*** ‘Social Inclusion’.

3.9 ***Key Findings***

3.9.1 This Chapter has examined the reasons why some people choose the air service to travel between Northwest and South Wales and why others choose alternative modes. It has identified aspects of travel that are important to people and examined the circumstances that could convince them to change mode. The key findings have been brought together in this summary, which is split into two sections:

- Reasons for Mode Choice;
- Influences on mode shift.

Reasons for Mode Choice

3.9.2 The air service provides a significant journey time saving for most journeys between Northwest and South Wales. This is of particular benefit to many employers who place a high valuation on the time of their employees. The ability to work productively for periods of the journey gives the air service an advantage above travel by car, and the ability to return the same day, thus avoiding an overnight stay is also valued.

3.9.3 The timetable of the air service offers few options. Air travel, therefore, is only convenient if the departure and arrival times satisfy the needs of the traveller and if the total journey time allows travellers to accomplish their tasks prior to their return trip. The general feeling is that the current timings do not allow a full business day in Cardiff, thus reducing the advantages of using the air service. Also, air travel, on its own, serves a single origin and destination point, thus reducing the benefit of this mode as journey times from the origin or destination airport increases.

3.9.4 Travel by air is generally more expensive than travel by rail or road and this difference is exacerbated with larger group sizes which make the travelling by car more efficient. For business users, however, some of this cost can be offset by productive working time and the ability to return in a single day.

3.9.5 Passenger transport connections at both Anglesey and Cardiff Airports were viewed as insufficient. The high use of private cars and taxis at both airports supports the views expressed by passengers that bus services do not provide adequate connections with the air services.

Influences on Mode Shift

3.9.6 Journey time is one of the most significant benefits the air service has over other modes. These benefits could be diminished if the Welsh Assembly Government implements a new high speed rail link between the North and South Wales. Similarly, new rolling stock could improve the overall travel experience for rail passengers, particularly if permanent catering facilities are available.

3.9.7 There is a willingness from nearly half of business travellers to pay more than the original limit of £50 for their air fare. However, a fare higher than £50 would deter significant numbers of passengers travelling for other purposes. The majority of rail passengers were unwilling to pay more than £75 for their return journey.

3.9.8 Changes to the air service timetable (improved service frequency and amendments to departure/arrival times) have the potential to attract passengers from other modes. The majority of passengers making comments about the convenience of flights would like the timing of the flights changed to allow greater time at the destination location.

3.9.9 The environment was an important consideration among 30% of business travellers. It can therefore be assumed that 30% of business travellers by rail are unlikely to transfer to air even if it became a more attractive option through, for example, cheaper fares and shorter journey times. Also, some businesses have a policy for surface transport only on environmental grounds. This emphasises the importance of customer choice when funding North-South transport services, and is consistent with the 'One Wales' document.

4 Social Inclusion

4.1 *Introduction*

4.1.1 All transport services have a social perspective. Some transport schemes directly improve the quality of people's lives, whilst others have indirect social effects.

4.1.2 Social objectives are a fundamental element of transport and planning policy in Wales. The 'Social' theme is one of the three 'pillars of sustainability' which form the framework for the Wales Transport Strategy, One Wales: Connecting the Nation, and the Welsh Strategic agenda, Wales: A Better Country. Social outcomes, particularly in the Wales Transport Strategy, include accessibility to key services such as healthcare, education, shopping and employment.

4.1.3 The Welsh Assembly Government's social agenda was a driving force behind the creation of the air service and public service obligation (PSO). The PSO responded to the need to improve transport links between South and Northwest Wales on the basis that surface transport did not provide a viable alternative.

4.1.4 Social inclusion is the degree with which people are able to lead a full life. In transport terms, it is a measure of the relative ease with which people can get to the destinations and to access people, places and services that are important to them. Its converse, social exclusion, is the situation faced by many people whose choices are limited by a range of barriers, a key one of which is a lack of suitable transport.

4.1.5 This section discusses the barriers that people experience when planning a journey, and describes the additional needs that people have when travelling and how these needs are met. The section also discusses the ability to travel for people with no access to a car.

4.2 *Social Inclusion Impacts*

4.2.1 There is evidence to suggest that the air service has improved the quality of life for many passengers. Air passengers commented that:

- The service allowed full participation in the life of the nation;
- The need for overnight stays is reduced allowing more time with families;
- Stress and tiredness are reduced; and
- Social and cultural events in the capital are easier to attend.

4.2.2 One passenger has commented that he has witnessed “its use for purely social visits – one day visit to relatives or even a day out in North Wales – and has come to realise that it is providing a valuable contribution to the unification of Wales”.

4.2.2 However, the air service is not an option for a number of people making a journey between Northwest and South Wales. 14% of rail survey respondents (94 replies) stated that they had chosen the train because there was ‘no available alternative’ method of making the journey. A number of these respondents went on to specify that this inability to make the journey by another means was either because they had no driving licence, no car available or were unable to drive long distances.

4.2.3 There are a number of factors that could, potentially, form a barrier to travel by air between Northwest and South Wales. These include:

- A lack of awareness;
- Financial constraints;
- Difficulty travelling to/from the airport;
- Inconvenient arrival/departure times;

4.2.4 Difficulty travelling to/from the airport and access for people without a car is explored in more detail in the following section.

4.3 *Access to Transport services*

4.3.1 Private car is the dominant mode of access to both Cardiff and Anglesey airports. However, both airports are accessible by public transport.

4.3.2 Cardiff Bus is the principal operator of the bus service to Cardiff Airport. The 'Airbus Xpress' service X91 operates between Cardiff Central station and Cardiff International Airport hourly on Mondays to Saturdays daytime and every two hours on Sundays. The first weekday service arrives at 05:39, the second arriving at 06:39, which provide direct access for the first flight to Anglesey at 07:30. The cost of a single ticket between Cardiff (Central Station) and Cardiff International Airport is £3.40.

4.3.3 Arriva Trains Wales operates the rail service which stops at Rhoose station. A shuttle bus service (free to passengers in possession of a valid train ticket) connects with every train to carry passengers to the airport terminal. The bus leaves ten minutes to the hour. The service frequency is hourly with a total journey time of around 35 minutes to Cardiff. The first service arrives at Rhoose at 06:11.

4.3.4 Anglesey Council subsidises two bus services from Holyhead and Bangor that call at Anglesey Airport prior to the aircraft departure. Return services to Bangor and

Holyhead have also been coordinated to collect passengers from the airport shortly after flight arrival times. The services are run by three different operators (Arriva, Goodsir and O R Jones). The Airport is accessible only by bus as the nearest rail station is 2.5 miles away.

4.3.5 Air passengers are not fully supportive of the public transport connections to the air terminus at Cardiff or Anglesey. One passenger, for example, commented that they had previously tried the rail and bus connection but ended up taking a taxi.

4.3.6 Other passengers commented that they could not access the public transport connections available to the air service. A rail passenger, for example, commented that they would have used the air service but they do not own a car and cannot get to the airport.

4.3.7 The high use of private cars and taxis at both airports supports the views expressed by passengers that bus services do not provide adequate connections with the air services.

4.4 ***Additional Needs***

4.4.1 Highland Airways accepts passengers with special needs and/or reduced mobility, but for assistance to be provided it has to be booked in advance through the call centre. Only one aircraft passenger indicated that they had special needs and they reported that those needs had been entirely met by the air service.

4.4.2 Few rail respondents stated that they had additional needs. Some passengers reported an illness and/or injury preventing them from driving. One respondent stated that rail allowed her to respond to her baby's needs as she travelled. One respondent referred to assistance being available at origin/destination stations as a reason why they chose rail.

4.5 ***Conclusions***

4.5.1 The air service plays a limited role in providing access to key services. Essential services such as hospitals, education, employment, shopping and leisure are available in Northwest Wales and Southeast Wales. Therefore, the journey time to the nearest essential service by an alternative mode is likely to be quicker, cheaper and more convenient than travelling between North and South Wales by air.

4.5.2 However, the benefit of air travel is that it increases opportunity to make certain journeys and to achieve certain tasks. A return trip between Anglesey and Cardiff, for example, is achievable in a day and, depending on the ultimate destination, allows time to fulfil the objectives of the visit.

4.5.3

Difficulties getting access to/from Cardiff and Anglesey Airports by modes other than car puts a constraint on the potential for mode shift. This is particularly evident in North Wales, where alternative options are limited to infrequent bus services.

5 Economic Activity

5.1 **Introduction**

5.1.1 All transport schemes have the potential to impact upon economic performance at least at the local level. They may also influence demand for where economic and other activities are located. The importance of transport to the economy in Wales is expressed in the Wales Transport Strategy¹⁸:

'Transport supports the economy by connecting businesses with suppliers and customers, and enabling people to get to work...an effective and efficient transport system helps increase the number of people wanting to live, work and spend leisure time in Wales, which in turn builds strong and vibrant local economies'

5.1.2 The purpose of this Chapter is to evaluate the extent to which the air service has contributed to the economy of Wales and the opportunities that have arisen as a result of a new North-South Wales transport link.

5.1.3 The opportunity for new air routes is also considered in this Chapter. The operation of these routes and the potential economic activity that new routes could attract is discussed.

5.2 **Wider Economic Impacts**

5.2.1 Air passengers were asked if they would have travelled by another mode if the air service was not available. Passengers answering 'no' provide an indication of the number of new trips generated by the air service. The results indicated that the air service has generated 12.2% extra journeys that wouldn't have been undertaken by other means. Applying this factor to the total number of air passengers up to May 2008 shows an estimated 1,879 new trips between Northwest and South Wales as a result of the air service. These have been split by journey purpose in Table 5.1.

¹⁸ One Wales: Connecting the Nation – The Wales Transport Strategy (Welsh Assembly Government, May 2008)

Table 5.1: Analysis of additional journeys generated by the air service

| Purpose | Percentage |
|--------------------------------|------------|
| Visiting friends and relatives | 4.76% |
| Leisure | 52.38% |
| Employer's business | 23.81% |
| Personal business | 4.76% |
| Shopping | 14.29% |

Source: Air Passenger Interviews (*Wales Transport Research Centre/Halcrow Group Ltd, 2008*)

5.2.2

The air service has had a positive impact for businesses in Wales. It is evident from Table 5.1 that new business trips have been generated by the air service. Passengers commented that:

- They now undertake work in one day that previously would have taken two days with an overnight stay;
- The air service not only gave them more time but also more productive time;
- One passenger calculated giving his employer an extra 12 hours per week;
- Driving would leave them tired for the rest of the week;
- The reduced travel time saved their company on money and resources;
- They now attended more meetings in Cardiff which helped raise the profile of Northwest Wales bringing significant economic benefit to the region;
- The new air service has opened new business opportunities for their organisation. If their business continues to grow they would consider opening a new North Wales office.

5.2.3

It is evident that the air service has generated a high proportion of new leisure trips. One passenger commented that they had previously used the service for business purposes and have now begun to use it for family and leisure trips. It is likely that these new trips have a positive impact, albeit limited, on the leisure and tourism sector in Wales. A limited number of new shopping trips have also been generated by the air service keeping expenditure within Wales.

5.2.4

Some air passengers commented that opportunities to market Wales were being missed on board the aircraft and that there was no Welsh 'flavour' to the flights (tourist publications for Scotland were available).

5.2.5 Follow-up telephone interviews with air passengers indicated they wished to see additional routes developed. Two passengers expressed a desire to see an air route to London. Other respondents stated that they would wish to see a flight to Broughton to create a Northeast Wales link. The experience from other regional airports would tend to suggest that a London route would need to be successful before routes are developed to other destinations.

5.2.6 Eleven new direct jobs have been created as a result of the air service, five jobs with Highland Airways and six jobs at Anglesey Airport.

5.3 *Conclusions*

5.3.1 An estimated 1,879 new trips between Northwest and South Wales have been created as a result of the air service, which has had a positive impact on many sectors of the Welsh economy. It appears that many businesses are benefiting from the higher productivity of their staff and at least one business is considering options for a new office location in North Wales as a direct result of the air service.

5.3.2 It is also likely that investment in the leisure and tourism sectors in North and South Wales have benefited, particularly as 52% of the new trips are for leisure purposes. However, there is a possibility that expenditure on accommodation has reduced as a consequence of more passengers returning in a single day.

5.3.3 Adjustments to the air service timetable could be explored to make use of the existing aircraft for additional services amid return flights between North and South Wales. If flights could operate earlier and later in the day, this would satisfy passengers requesting more time at their destination during the day. However, this is not possible within the constraints of the existing opening hours at RAF Valley.

5.3.4 Cost-benefit analysis could be undertaken as an additional item pending a review of appraisal requirements.

6 Environmental Assessment

6.1 *Introduction*

6.1.1 In recent years, there has been increased focus on the environmental impact and sustainability of transport. According to the European Environmental Agency the external costs of transport accounted for 8% of the EU's GDP in 2002. The highest contributors to external costs are air pollution and climate change. The importance of environmental cost has been the focus of recent research including the Stern Report on the Economics of Climate Change (*HM Treasury, 2006*).

6.1.2 The study has sought to evaluate the cost of the environmental impact of north-south travel in general, and more specifically by air, focusing on CO₂ climate change. The objectives are:

- To calculate the CO₂ emissions of the air service and to provide a comparison against alternative modes for journeys between North and South Wales;
- To assess the CO₂ impact of introducing larger aircraft onto the route;
- To assess the absolute change in CO₂ emissions between North and South Wales as a result of the implementation of the air service; and
- To put the CO₂ emission data into context.

6.2 *Environmental Impacts*

6.2.1 The cost of emissions has been derived from the Stern Review, which provides a baseline figure consistent with the research currently being undertaken for the Ministerial Advisory Group. This report calculates the cost of CO₂ at £42.79 per tonne of carbon¹⁹.

6.2.2 CO₂ emissions for the existing aircraft (BAe Jetstream 31) have been compared to alternative modes of travel between north and south Wales as well as two alternative larger aircraft for comparative purposes. The baseline emissions data is shown in Table 6.1. The data sources are given in Appendix G.

¹⁹ DEFRA recently updated the cost of carbon. The key difference is the baseline cost of £25.50, which increases in subsequent years. A detailed EIA should consider this approach.

Table 6.1. Baseline CO₂ Data, by mode

| Mode | CO ₂ Emissions (kg/veh km) | Assumed Vehicle Occupancy |
|---------------------------------|---------------------------------------|---------------------------|
| Car | 0.21 | 1.68 |
| Rail (2-car 158) | 2.800 | 40 |
| Rail (2-car 175) | 2.300 | 40 |
| Rail (3-car 175) | 4.951 | 40 |
| Air 18 seats (BAe Jetstream 31) | 2.746 | 80% |
| Air 29 seats (BAe Jetstream 41) | 3.893 | 80% |
| Air 50 seats (ATR 42-500) | 4.558 | 80% |

6.2.3

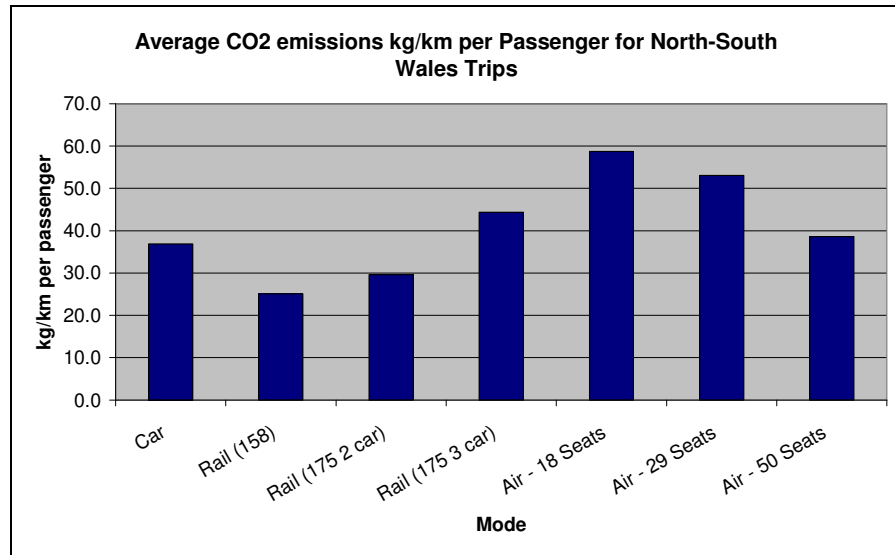
The results, shown in Figure 6.1, show the average CO₂ emissions for each passenger on a ‘typical’ trip²⁰ between northwest and south Wales. The existing air service is more than twice as harmful as the same trip by rail (two-car 158) at 57.6kg compared to 25kg. However, the effects of air travel are ameliorated if a larger aircraft is deployed. Provided the same level of occupancy is maintained at 80%, a larger capacity 29 seat aircraft would typically result in a drop of 5 kg per passenger. The effect is more pronounced if a 50 seat aircraft is introduced resulting in CO₂ emissions marginally above the car.

6.2.4

Converting the above figures into monetary values, the cost of rail (2-car 158) CO₂ emissions is typically £1.07 for a north-south journey as shown in Figure 6.2. A car journey would cost £1.58 whereas the flight would cost £2.46. The direct CO₂ cost of the aircraft would fall if a larger type was deployed; in this instance falling to £1.65 for the 50 seat aircraft.

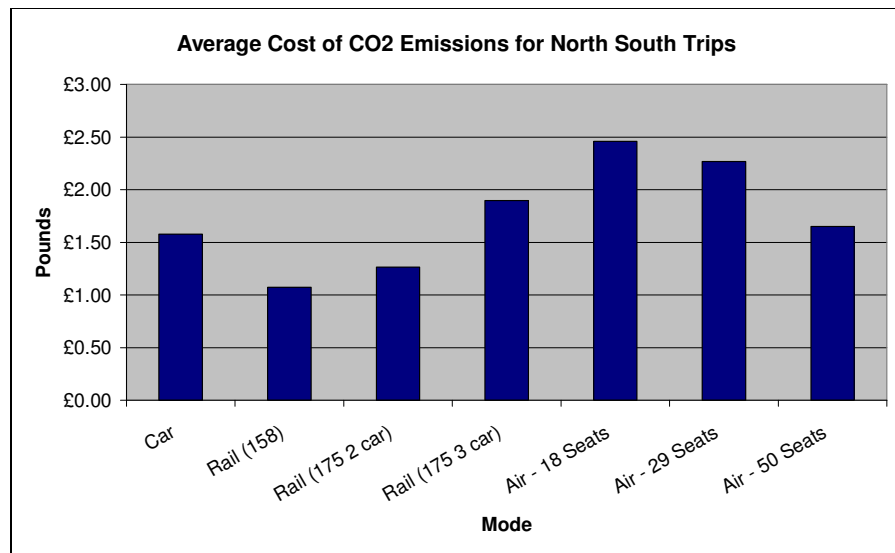
²⁰ A ‘typical’ trip is an average of the four most popular journeys between northwest and south Wales, as recorded by the rail passenger interviews. Details are given in Appendix G.

Figure 6.1 CO₂ Emissions for North South Trips



Source: Halcrow Group Ltd

Figure 6.2. Cost of CO₂ Emissions for North South Trips



Source: Halcrow Group Ltd

6.3

Absolute Change in Emissions

6.3.1

The air service emits 741,104kg of CO₂ per annum at 712.6kg per one-way flight²¹. A total of 14,133 passengers used the service in the year ending April 2008 which resulted in emissions of 52.4kg per passenger per flight. This increases to 57.6kg per passenger when transfers to/from the airports are considered²². However this data is not a true reflection of the net change in CO₂ as a result of the air service given that a proportion of passengers transferred to the air service from other modes. It can therefore be assumed that carbon emissions from alternative modes have reduced thus offsetting a proportion of CO₂ emitted by the air service. This section calculates the absolute change in carbon emissions across all modes of travel between North and South Wales to understand the net impact on emissions as a result of the implementation of the air service. The results are summarised in Table 6.2.

6.3.2

Passengers were asked if they would have made the journey by an alternative mode if the air service had not been available. A total of 12.2% of passengers would not have made the journey by other means which can be used as a proxy for newly generated trips. On this basis, 1,724 new one-way trips were generated by the air service in the year to April 2008 and 12,409 one-way trips transferred from other modes. An assumption is made that 76% of the 12,409 passengers who transferred to the air service would have made the journey by private car and 24% would have made the journey by rail. This is based on evidence provided in Table 2.4 regarding the mode split of north – south trips.

6.3.3

It is evident from Table 6.2 that the air service has generated a net increase of 367,783 kg of CO₂ per year which equates to 368 tonnes of CO₂ per year. To put this into context, Aberthaw power station emits 7,340,340 tonnes of CO₂ per year. The net increase in annual CO₂ emissions as a result of the air service is 0.005% of the annual CO₂ emissions for Aberthaw power station.

²¹ Based on two northbound and two southbound services per weekday for 52 weeks.

²² Transfers based on private car trips from each of the selected origin points to the origin airport and from the destination airport to the destination origin point.

Table 6.2. Net Change in CO₂ Emissions as a Result of the Air Service

| Alternative Mode | No. of Passengers per year travelling by alternative modes if air service was unavailable | CO ₂ emissions (kg/passenger) | Total CO ₂ emissions (kg/annum) |
|--|---|--|--|
| Car | 9,431 | 36.9 | 348,004 |
| Rail | 2,978 | 33.0 ²³ | 98,274 |
| Total | 12,409 | - | 446,278 |
| Annual CO ₂ emissions from the air service (kg) | | | 814,061 ²⁴ |
| Net Change in CO ₂ emissions | | | 367,783 |

6.4

Conclusions

6.4.1

The environmental monitoring has sought to demonstrate the emissions of the air service based on actual loading factors. This has been achieved by way of a comparison with alternative modes for selected journeys. There are limitations to this approach, which would be considered in a detailed appraisal of environmental impacts; principally that the figures relate to one type of environmental emission. There are other pollutants such as benzene, carbon monoxide, oxides of nitrogen butadiene, particulates and ozone. Also, there are additional costs relating to noise and landscape.

6.4.2

A comparison of modes shows that rail is the least harmful and the air service is the most harmful. However, the negative effects of the air service are reduced if a larger aircraft is deployed.

6.4.3

A reduction in CO₂ emissions could be a valuable component of a package of measures to promote mode shift to air. If a larger aircraft was adopted, it would be prudent to publicise environmental comparisons, particularly given the emphasis placed on the environment by passengers when considering mode choice.

²³ Average across three train types on the direct Cardiff – Holyhead route (2-car 158, 2-car 175 and 3-car 175).

²⁴ Includes an element for transfers to/from the airports.

7 Addressing the Objectives

7.1 *Introduction*

7.1.1 The objectives of the study were set out in *section 1.3*. The main aim of the study was to:

- Review the Intra-Wales Air Service; and
- Provide evidence for possible options for operating the service in the future.

7.1.2 A response to the objectives under each category, in turn, is presented in this Chapter.

7.2 *Intra-Wales Air Service Study*

7.2.1 In March 2004 the Welsh Assembly Government published the Intra-Wales Scheduled Air Services study setting out the options for Welsh internal air services. It was recognised that internal air services in Wales could not be commercially viable and would need to be supported under a Public Service Obligation.

7.2.2 It was identified that, although there are a number of airfields in Wales that could be adapted to use by scheduled services, only services between south Wales and north-west Wales have a surface alternative that takes long enough to allow funding under a Public Service Obligation.

7.2.3 There were two alternatives for the airport to be used in north-west Wales, Caernafon and Valley. Valley, being an operational RAF base had the advantage of Air Traffic Control and fire services provided by the RAF and the ability to offer all weather operations.

7.2.4 The main findings for a Cardiff to Valley air service are set out in Table 7.1 compared with the outcomes for the actual service²⁵. A summary of the evidence of future demand is shown in Table 7.2.

²⁵ The service would have included an interim stop at Swansea but Swansea is no longer available for scheduled services. The lack of an interim stop at Swansea has, however, reduced the journey time between Cardiff and Anglesey.

- 7.2.5 Passenger numbers have exceeded expectations to the extent that some passengers are experiencing difficulties in booking seats on their first or preferred choice of flight.
- 7.2.6 The annual subsidy paid to the operator has been in line with expectations but capital and revenue expenditure at Anglesey Airport have both been greater than expected. The original projections of capital expenditure at RAF Valley were based on the assumption that the existing building could be converted. However, it became clear that this approach would not meet operational and security requirements resulting in additional costs of constructing a new terminal building.
- 7.2.7 The air service has generated the expected savings in total journey times between north-west Wales and south Wales. The ability to conduct business in one day was particularly welcomed by passengers with consequent increases in productivity and savings in hotel costs. The journey by road was particularly disliked and the ability to travel by air reduced stress and tiredness and left passengers better able to work, not only on the day of travel, but also on subsequent days. Passengers felt that the ability to return home on the same day improved the quality of their home life.
- 7.2.8 There were a number of examples of how the air service was enhancing the cohesiveness of Wales. An ability to take part in national events was mentioned as well as improved access to cultural and sporting events in the capital. The 13.3% of passengers visiting friends and relatives shows that the air service is contributing to wards unifying the nation.
- 7.2.9 Not all air passengers appear for the flights that they have booked, hence occupancy levels of 100% are impossible to achieve. On an 18 seat aircraft, an 88% load factor, achieved in May 2008, means an average of only two empty seats on every flight. At these occupancy levels it would be expected that passengers are being turned away and this is the experience of more than one third of the passengers surveyed. The high number of regular passengers and any businesses that find Anglesey a more attractive business location because of the air service will need the reassurance that the service will continue and will have seats available on a regular basis. The dislike of the road journey and the increasing use of both rail and air shows that modal shift away from the roads can be achieved where an attractive alternative is provided.
- 7.2.10 Adding a third return service in the middle of the day would increase the share of the market taken by the air service. However, as business travellers have seen the benefit of being able to undertake day return journeys, in our judgement adding capacity to the existing morning and afternoon flight would be of more benefit to the business community.

- 7.2.11 The ability of passengers from Anglesey to return home on the same day would be greatly enhanced if the timings of the flights were improved. A later departure from Cardiff in the afternoon would be much appreciated by passengers, particularly on Fridays. Some passengers indicated that they would use weekend flights if the option was available. The current timetable is constrained by the opening times of RAF Valley. The RAF is unlikely to change the opening times of RAF Valley unless it was necessary for RAF operational reasons. The RAF would prefer civil air services to operate early in the morning and late in the afternoon and would be prepared to consider basing aircraft at RAF Valley but wouldn't be able to offer maintenance facilities or hangar space.
- 7.2.12 More passengers are motivated to use the air service because of time saving and convenience than those who are motivated by price. However demand for short haul air services is price sensitive where there are other modal options. Although passengers surveyed showed strong price resistance above £100, there were business passengers who were prepared to pay up to £100, double the original maximum fare, and more than rail passengers are prepared to pay, showing the value that they put on the time saving benefits of the air service. However, unless smaller businesses and those travelling for social reasons are to be priced off the air service, it is important that the fare structure still offers the cheaper fares that are available at the moment.
- 7.2.13 A larger aircraft will bring the air service within the scope of Air Passenger Duty. The Chancellor of the Exchequer announced in the 2007 Pre-Budget Report plans to replace Air Passenger Duty with a new tax chargeable per flight rather than per passenger, thereby ensuring that the tax payable is more in line with emissions and providing incentives for more efficient use of aircraft. UK Government will consider certain routes for exemption on social and economic grounds. Although it is hoped that this will include all PSO routes but at the present time it has to be assumed that the Cardiff/Anglesey air route will be subject to the new tax.

Table 7.1. Response to the Main Findings of the Intra-Wales Air Service

| Intra-Wales Air Service Study Findings | Actual Outcome |
|---|--|
| Year 1 passenger forecast of 12,900 | 14,133 passengers up to the end of April 2008 |
| Year 1 Network Loss of £0.8m | Annual subsidy paid to the operator of £0.8m |
| Capital expenditure at Valley of £390,000 | Capital expenditure at Valley of £1.5m |
| No revenue support required at Anglesey Airport | Revenue support of £0.4m per annum at Anglesey Airport |
| No significant environmental or land use planning impacts | No significant environmental or land use planning impacts |
| Intra-Wales scheduled air services would generate significant user benefits in terms of time savings for passengers | <ul style="list-style-type: none"> ○ Total journey times between Northwest Wales and South Wales are generally quicker when the air service is used as part of the journey. ○ Passengers welcomed the ability to conduct business in one day – however this benefit is more apparent to passengers starting their journey in Cardiff. Passengers from Anglesey find considerable difficulty with the length of the working day. ○ Passengers would prefer an earlier departure from Anglesey and a later return from Cardiff. ○ Passengers felt that they are considerably more rested and relaxed if they use the air service rather than drive and their productivity has been enhanced. The benefit of being able to return home rather than stay in a hotel improved ‘work-life balance’ |
| There are also potential intangible benefits from helping to enhance the social and political cohesiveness of Wales | <ul style="list-style-type: none"> ○ Passengers responded that they felt they could fully take part in national events ○ Passengers responded that their ability to attend sporting and cultural events has been improved ○ 13.3% of passengers responding to the survey were visiting friends and relatives ○ At least one business is considering options for a new office location in North |

| Intra-Wales Air Service Study Findings | Actual Outcome |
|--|---|
| | <p>Wales as a direct result of the air service</p> <ul style="list-style-type: none"> ○ It is also likely that investment in the leisure and tourism sectors in North and South Wales has benefited. ○ One air passenger commented on the fact that there was not a Welsh feeling to the aircraft or flight – the aircraft contained Highland Airways / visit Scotland literature and not Wales related literature. |

Table 7.2. Evidence Gathered Regarding the Potential Future Demand for the Air Service

| Intra-Wales Air Service Study Findings | Actual Outcome |
|--|--|
| <p>What is the growth in demand for the air service?</p> | <ul style="list-style-type: none"> ○ Occupancy figures of 88% in May 2008 demonstrate that the air service has been successful in attracting passengers. This is supported by passenger loading statistics which show that passenger volume has exceeded expectations: A total of 14,133 passengers have used the service up to the end of April 2008, compared to a 1st year prediction of 12,900; ○ There is evidence that demand for travel by air is not being met by the existing air service. Over a third of passengers stated that, on at least one occasion, they have tried to book seats but failed due to flights being at capacity. Also, frequent users of the air service could have used the service more than they have done over the past year; ○ Passengers unable to book on the service, in particular regular business passengers would have a detrimental effect on the development of the route; ○ There is little evidence to suggest significant growth in demand for travel between North and South Wales by rail or road. There is also little evidence to suggest a latent demand for travel due to capacity constraints on the rail network. |