

A40 St Clears to Haverfordwest Economic Activity & Location Impacts (EALI) Study

Final Report

On behalf of **Welsh Government**



Llywodraeth Cymru
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Executive Summary

Peter Brett Associates LLP was commissioned by the Welsh Government (WG) to undertake an Economic Activity and Location Impacts (EALI) study of proposed improvements to the A40 Trunk Road between St Clears in Carmarthenshire and Haverfordwest in Pembrokeshire.

The Story so Far

The proposed dualling of the A40 was considered in a detailed 2004 study. The final report found that there would not be a capacity-related case for dualling the A40 for another 30 years, whilst a wider economic assessment found little evidence of a socio-economic need for such a scheme. The proposed dualling was revisited in 2008 and confirmed the findings of the 2004 study.

In 2012, the Haven Waterway was declared an Enterprise Zone by the Welsh Government, due to its importance to the energy sector. Recognising the need for improved infrastructure to serve the area, the Minister for Economy, Science and Transport, published a written statement which affirmed the improvement of the A40 as a priority for the Haven Waterway Enterprise Zone Board.

The issue of the A40 was further brought into focus in November 2014 by the announcement of the closure of the Milford Haven Refinery and its conversion into a 'storage and distribution facility'. On 12 November 2014, in providing an update on the closure of the refinery, the Minister made an oral statement in plenary:

- *"In terms of transport links...I have instructed my officials to accelerate to the fullest extent possible the programme for delivering improvements at Llanddewi Velfrey. I have also asked my officials to conduct further urgent work to explore additional ways to improve the A40, including the potential for dualling."*

This study addresses the second part of the Minister's statement, considering the economic benefits from potential improvements to the A40.

Economic Activity & Location Impacts

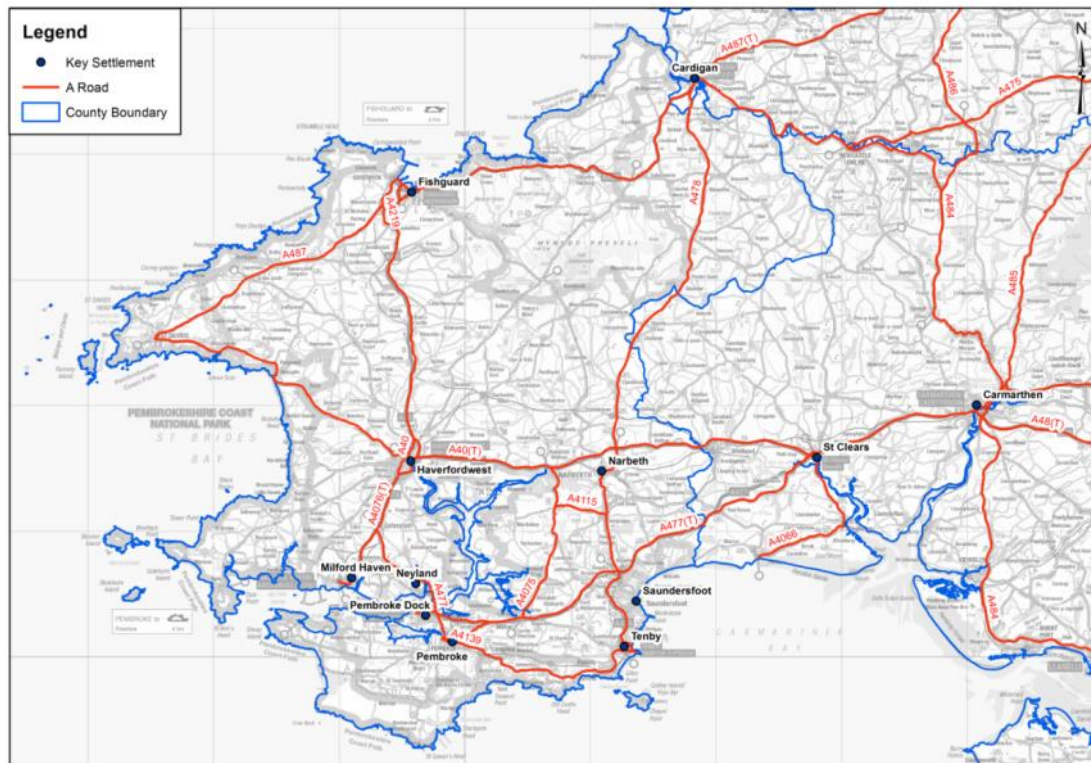
The Welsh Government commissioned Parsons Brinkerhoff to carry out a WelTAG Stage 1 Appraisal considering engineering options for the improvement of the A40 between St Clears and Haverfordwest. However, whilst the A40 may be seen as an important local issue, it is unlikely that a conventional Transport Economic Efficiency (TEE) analysis would generate a positive Net Present Value (NPV) and Benefit-Cost Ratio (BCR) for a scheme of this nature given the relatively low traffic volumes. This study therefore considers what are known as the Economic Activity and Location Impacts (EALI) of the proposed road upgrade in terms of the impact on local employment, Gross Value Added (GVA) and how these impacts are 'transmitted' to the real economy.

The Economic Activity and Location Impact (EALI) analysis provides an assessment of the impact of transport investment or policy measures on the economy, measured in terms of income (Gross Domestic Product (GDP) or GVA) and/or employment. The EALI analysis assesses the distribution of the national impacts captured through the Transport Economic Efficiency (TEE) and Wider Economic Benefits (WEB), identifying the impacts on different areas. The EALI does not generally identify additional economic impacts that could be added to the TEE or WEB results. However, where market failures exist (the impact of negative perceptions for example) the EALI analysis may capture the economic impacts that the TEE analysis may not have fully assessed. Note that the EALI Guidance also states that *"It is important to recognise that perceptions of problems with the transport system by users,*

operators, the public at large and politicians can be equally as important as problems that can be quantified through analysis of data”.

The A40

The A40 is a Trunk Road which runs from London to Fishguard in Pembrokeshire. Whilst a dual carriageway connects St Clears and Swansea (with subsequent motorway connections on the M4 to Cardiff, Newport, Bristol and London), the 22 mile stretch of the A40 between St Clears and Haverfordwest is a single carriageway which is poor in places.



The A40 forms the key road link between south-east Wales and Haverfordwest which itself is a gateway town for connections to the ports of Milford Haven and Fishguard. The A477 which runs to the south of the A40 near Saundersfoot and Tenby is of a similar standard to the A40 and offers an alternative route into the south of the County. At present, journey times to Pembroke Dock via the A477 are considerably quicker than the A40 whilst journey times to Milford Haven are approximately the same on either route. There is however a toll of 75p on the Cleddau Bridge (which adjoins the A477) connecting the south and north of the Haven Waterway.

Whilst providing a strategic link to the ports of Fishguard and Milford Haven, the section of the A40 west of St Clears is a relatively poor quality route. Part of the A40 forms a section of the (unsigned) Euroroute E30, which the former Welsh Assembly Government referred to as ‘one of the lowest standard sections of the Trans European Road Network in the United Kingdom’.

The main problems on the A40 are:

- A mix of traffic types including local motorists, HGVs, agricultural vehicles and tourists;
- The mix of traffic types can lead to platooning, particularly in and around ferry departure & arrival times. This issue is accentuated by tourist traffic during the summer and increased agricultural traffic at certain times of the year;

- Limited overtaking opportunities (particularly eastbound), which leads to poor journey time reliability and driver frustration (and thus safety issues); and
- A lack of strategic public transport connectivity in Pembrokeshire generally means there is a dependence on the private car for inter-urban connections.

The hypothesis being investigated through this study is that the above issues on the A40 are in some way constraining the economic performance and development of Pembrokeshire.

The Pembrokeshire Economy

In order to frame the above hypothesis, a detailed review of the Pembrokeshire economy and its strengths and weaknesses was undertaken (including comparing it with other west Wales local authorities, i.e. Anglesey, Ceredigion and Gwynedd). The following key points emerged:

- Pembrokeshire is one of the most rural counties in Wales, with a relatively low population density. The two largest settlements in the area are Haverfordwest and Milford Haven, with all other settlements below 10,000 people.
- Pembrokeshire has an uneven demographic mix compared to Wales as a whole with a **lower proportion of people of working age**, particularly those aged 30 and below, and a **higher proportion of people over the age of 65**. Examination of the age distribution across the county suggests that the over 65 population is concentrated in the more tourist focussed coastal communities in the north and south whilst the largest proportion of people of working age live in the key population centres of Haverfordwest and Pembroke Dock.
- A distinct geography can be identified in terms of occupational categories, with higher proportions of **skilled residents in the south-east and north-west** of the County. In contrast, employees in the **lower value sectors are concentrated in the south-west** of the County. The geographic breakdown of occupations also supports the theory of a 'two-speed' economy, whereby an affluent coastal community of in-migrants and retirees co-exists alongside less affluent areas, particularly inland.
- There are lower economic activity rates in the coastal communities in the south which is in part explained by the **higher proportion of retirees** in these areas. **Unemployment** is highest in the main industrial areas of Milford Haven and Pembroke Dock.
- Labour productivity as measured by GVA per filled job in South West Wales is below that of the Welsh average and grew at a slower rate than Wales as whole between 2007 and 2011. This suggests that since the recession the South West Wales region has **lagged behind the other areas in Wales in terms of productivity**.
- Average Household Income differs across the County with the lowest rates found within the south-west and Haverfordwest. Annual full time pay in Pembrokeshire fell between 2008 and 2013 whilst over the same time period full time pay in the comparison counties and Wales increased. This change in full time pay suggests that the County was **disproportionally impacted by the recession** and is lagging behind the rest of Wales in terms of its recovery.
- Educational attainment in Pembrokeshire is slightly **higher than the Welsh average** although lower than that of the comparison counties. The south-east and south-west of the County, particularly industrial Pembroke Dock and Milford Haven have the lowest levels of attainment reflecting the wider socio-economic profiles of these areas. The absence of higher education establishments in Pembrokeshire means that prospective students have to leave the County to study.

- There are concentrated **pockets of deprivation** in Haverfordwest, Milford Haven and Pembroke Dock (with a Communities First Cluster in Pembroke Dock). Overall, the proportion of Pembrokeshire's LSOAs (lower super output areas) in the category of 20% most deprived has remained fairly consistent since 2005.
- The Pembrokeshire labour market is relatively self-contained with **low levels of in and out commuting** to / from the county.
- Overall Pembrokeshire has a high concentration of jobs in the **tourism** and **public administration** sectors, with the former concentrated in the tourist communities in the south-east and north-west and the latter focussed on Haverfordwest. In contrast manufacturing and construction jobs (which are generally more transport intensive) are concentrated in the south west of the county. Whilst the data suggests that the largest concentration of manufacturing jobs are currently in Milford Haven, with the re-purposing of the Murco site, the focus for manufacturing in future will likely switch to Pembroke and Surroundings West.
- The number of active enterprises in Pembrokeshire has fallen at a faster rate than Wales as a whole since 2008, with declines in both the tourism and construction sectors. This suggests that the area has been more **adversely impacted by the recession** than elsewhere in Wales.
- The number of employee jobs in Pembrokeshire increased at a faster rate than the Welsh average between 2009 and 2013. However, much of this growth has been driven by part-time employment, which could suggest that there is an under-employment within the area.
- Pembrokeshire is **perhaps not receiving an equitable share of foreign direct investment** projects and this may, in part be due to perceptions of, or the reality of, its peripheral location which are exacerbated by the current standard of the A40.
- Pembrokeshire has a **large and well developed tourism economy**. However, visitor numbers tend to lag the other areas of Wales with national parks (particularly Snowdonia) whilst the overall economic impact of tourism in the area is lower than in other tourism driven economies such as Conwy and Powys. Moreover, the expenditure by day visit in Pembrokeshire is amongst the lowest of Welsh local authorities.
- Whilst there was a large decline in the rate of housing development in Pembrokeshire following the recession, since 2011/12 the market appears to have recovered somewhat, with the rate of growth climbing above the Welsh average from 2012/13.
- Overall house prices in Pembrokeshire are lower than the Welsh average and since the recession have declined at a faster rate than that of the comparison counties and Wales as a whole. Within the county, the lowest house prices are in Milford Haven, Pembroke Dock and Haverfordwest. Improved accessibility as a result of the A40 may increase the price of existing properties and stimulate demand for new residential development, particularly in Haverfordwest.

The economic geography of Pembrokeshire therefore suggests something of a '**two-speed economy**'. The industrial and market towns of Pembrokeshire tend to display higher levels of unemployment and deprivation; lower educational attainment; lower average wages; and lower house prices. This is in stark contrast to the more well-off coastal areas which host a more affluent, older demographic.

The evidence, although slightly mixed, does suggest that Pembrokeshire has **recovered more slowly from the recession** than Wales as a whole. Average annual full-time pay declined between 2008 and 2013, whilst Pembrokeshire also experienced a greater than average decline in the number of active enterprises in the area over a similar time period.

The arguments about a ‘two-speed economy’ and a slower than average recovery from the recession is core to this analysis. The 2004 economic study on the A40 and the addendum report in 2008 did not find a compelling case for the dualling of the road. Making the case for investment now therefore requires evidence that one or both of the above problems is being at least partly caused by poor transport connectivity.

The Transport Network and the A40

The consultation and business survey clearly identified a series of issues with transport connectivity in Pembrokeshire. The principal focus in both discussions was on the current standard of the road network, particularly the A40 and A477.

The research identified a series of constraints with the current Trunk Road network in Pembrokeshire. It was noted that whilst standard transport economic efficiency analysis captures journey time, safety etc impacts, it fails to capture the negative perceptions attached to these issues. A common theme to emerge during the consultation process is that Pembrokeshire is perceived to be ‘far away’ and that this is deterring inward investment, the development of the travel-to-work market within the Swansea Bay City Region, tourism and population retention.

The evidence collected through the baselining, consultation and business survey suggests that the main impact of improving the Pembrokeshire road network would be to **tackle the perception of remoteness**. Whilst the County will always be distant from the majority of large centres of population and markets, there is evidence that this remoteness is perceived to be greater than it actually is, particularly for tourists. Road improvements could also support Pembrokeshire in attracting additional inward investment to the area.

Whilst there was a generally held view that improvements to the strategic road network would assist Pembrokeshire in tackling perception-related issues facing the area, there was no clear consensus on the whether the focus of investment should be on the A40 or the A477.

In terms of evidence, there is a clear difference in the potential benefits of dualling the A40 between the north and south of the Haven Waterway. Whilst areas to the north such as Haverfordwest and Milford Haven would capture the full travel time benefit, Pembroke, Pembroke Dock, Tenby and the remainder of the south coast receive no travel time benefit, as the A477 would remain the route of choice. It is therefore particularly important to note that the most freight intensive area of Pembrokeshire – the area surrounding Pembroke Dock – would receive no benefit from dualling the A40.

A40 Dualling - Economic Activity & Location Impacts

The focus of the Brief for this study was specifically on the proposed dualling of the A40. The table below sets out the sectoral and overall EALI impacts of dualling the A40:

Summary Assessment Table

Year of Assessment	Summary of Impacts			
2015	Local		National	
Sector	Gains / Gainers	Losses / Losers	Gains / Gainers	Losses Losers
Manufacturing & Processing	Overall Minor Positive	Minor Negative Dilution of economic activity – disbenefits to firms south of the Haven	Overall Minor Positive	No Impact

Year of Assessment	Summary of Impacts			
		Waterway		
Locally Traded Services	None	Minor Negative – increased external competition	None	No Impact
Externally Traded Services	Overall Minor Positive	Minor Negative – firms south of the Haven Waterway become relatively less competitive	Overall Minor Positive	No Impact, unless economic benefits leak out of Wales
Inward/Mobile Investment	Moderate Positive	No Impact	Minor Positive	No Impact, except potential displacement from elsewhere in Wales
Tourism	Major Positive	No Impact, except perhaps redistribution of tourism activity from south to north of County	Major Positive	No Impact, except potential displacement from elsewhere in Wales
Day Trips / Shoppers	None	Minor Negative – increased external competition	None	No Impact
Residents	Minor Positive – enhanced employment opportunities & access to services	No Impact	No Impact	No Impact
Sector Interactions / Synergies	Moderate Positive – spin-off spending from increased economic activity	No Impact	Minor Positive – spin-off spending from increased economic activity	No Impact
Total Gross Impacts	Minor Positive	Minor Negative to some firms south of the Haven become relatively less competitive	Minor Positive	No Impact
Net Impact	Overall Impact <ul style="list-style-type: none"> Local – Overall positive driven by increased tourism and potential increased inward investment. National – Small increase in overall net tourism and potential inward investment in Wales. 		Summary of Distributional Impacts <ul style="list-style-type: none"> Local – Redistribution of economic activity from south of A477 corridor to A40 corridor. Potential dilution of economic activity in the Enterprise Zone. National – some potential displacement of tourism and inward investment. 	

Wider Infrastructure

The scope for this study was focussed on transport connectivity and the A40 in particular. Whilst a series of transport constraints were identified, consultees in particular stressed that wider non-transport infrastructures were at least as important if not more important than transport issues. These issues included poor broadband connectivity and mobile phone coverage; constraints on the electricity, water and gas pipeline network; and limited land-use development.

It was outwith the scope of this report to consider these issues in detail. However, the key point here is that future investment in Pembrokeshire should reflect the wider identified infrastructure problems and deficits.

Conclusion

In summary, the EALI analysis suggests that the main impact of dualling the A40 would be to **tackle the perception related issues** which are seen to be inhibiting inward investment and tourism. Road improvements would provide a promotional and marketing opportunity for the County, i.e. along the lines of 'opening up Pembrokeshire for business'. Dualling is unlikely to fundamentally change the cost base of doing business in Pembrokeshire and would only have a minor impact at the local level outwith tourism, although it would potentially make the area more attractive for inward investors. This is also likely to translate into a small national benefit, although there will be an element of displacement of tourism and potentially inward investment from elsewhere in Wales.

Whilst addressing the perception issue, it should be acknowledged that dualling the A40 would likely tilt the economic gravity of Pembrokeshire northwards. Benefits would accrue to Haverfordwest, Milford Haven and Fishguard at the expense of the industrial cluster in Pembroke Dock and the south-coast tourism destinations.

1 Introduction

1.1 Overview

- 1.1.1 Peter Brett Associates LLP was commissioned by the Welsh Government (WG) to undertake an Economic Activity and Location Impacts (EALI) study of proposed improvements to the A40 Trunk Road between St Clears in Carmarthenshire and Haverfordwest in Pembrokeshire.

1.2 The Story So Far

- 1.2.1 One of the perceived weaknesses of Pembrokeshire in particular is the poor road-based transport connectivity. Whilst a dual carriageway connects St Clears and Swansea (with subsequent motorway connections on the M4 to Cardiff, Newport, Bristol and London), the 22 mile stretch of the A40 between St Clears and Haverfordwest (a gateway town for connections to the strategically important ports of Fishguard and Milford Haven) is a relatively poor quality single carriageway.
- 1.2.2 In November 2001, the National Assembly for Wales published *The Transport Framework for Wales*. This stated that the east-west transport corridor in west Wales had been the subject of a multi-modal study, which concluded that the A40 west of St Clears needed improvement.

A40 West of St Clears Stage 1 Scheme Assessment Report

- 1.2.3 In March 2002, the *Trunk Road Forward Programme 2002 (TRFP)* was published. The following is an extract from the relevant section of the document:

"The multi-modal study concluded that improvements to public transport including rail, bus, freight and integrated bus and rail on the corridor could be implemented in the near future but the costs associated with enhanced passenger services are likely to exceed revenue, thus requiring an operating subsidy. Improvements to public transport will not reduce the amount of traffic on the A40 trunk road over this length or on the A477. Improvement of the A40 trunk road, whether it be to single or dual carriageway standard, is beneficial in economic terms. Improvement to the road would not affect the number of people travelling on public transport significantly.

The A40 in West Wales forms the lowest standard section of the Trans European Road Network in the United Kingdom and there are major problems associated with upgrading the freight carrying capacity of rail in this area which means that significant improvement in the foreseeable future is not viable.

We are therefore satisfied that improvement to the A40 between St Clears and Haverfordwest is needed and that economic benefits will accrue. Upgrading the road to dual carriageway standard is likely to be justified but before a decision is finally made, we need more information on the environmental implications associated with alternative standards.¹

- 1.2.4 The decision to pursue road based enhancements, particularly on the A40, was made very early in the process. In August 2002, the Transport Directorate, the arm of the then Welsh Assembly Government responsible for the delivery of TFRP, commissioned Parsons Brinckerhoff to investigate, assess, appraise and report on options for improving the A40 between St Clears and Fishguard.²

¹ A40 West of St Clears Stage 1 Scheme Assessment Report (Welsh Assembly Government, 2004), pp. 1-2.

² Ibid., p. 2

- 1.2.5 Following a review of various option packages for both single and dual carriageway options, the Stage 1 report found that:
- There were no environmental issues that would preclude either a single or dual carriageway improvement or give significant weighting in favour of either.
 - Improved journey time reliability and a reduction in road traffic accidents would be achieved with either standard of improvement but more so with dual carriageway.
 - Relief from the effects of community severance in the villages of Llanddewi Velfrey and Robeston Wathen would be achieved with either standard of improvement.
 - The existing trunk road does not currently suffer from significant congestion effects apart from a few isolated days in August.
- 1.2.6 The report concluded that, whilst there was likely to be a longer-term need to provide a dual carriageway between St Clears and Haverfordwest, the business case for dualling in 2004 could not be proven.³ On 7 December 2004, as part of his announcement of a 15 year programme to deliver a world class integrated transport system for Wales, Andrew Davies (AM), the Assembly Government Minister for Economic Development and Transport, announced that investment on the A40 west of St Clears would include the provision of bypasses for Robeston Wathen and Llanddewi Velfrey. The two separate improvements identified to deliver this were the:
- A40 Penblewin to Slebech Park Improvement (now completed); and
 - A40 Llanddewi Velfrey to Penblewin Improvement (under development).

The Order Process

- 1.2.7 In 2008, Welsh Ministers set out the draft London to Fishguard Trunk Road (A40) (Penblewin to Slebech Park Improvement) Order 200 - ("the draft Order"). The draft Order stated the intention of Welsh Ministers to construct a length of new and improved road which would be of three lane single carriageway (i.e. '2+1'), taking account of the likely need to upgrade to a dual carriageway at a future date (i.e. safeguarded). The purpose of the Order process is to obtain consent for construction, a key part of which is stakeholder and public consultation.
- 1.2.8 With the exception of a local access objection, the only other objection to the Order came from Pembrokeshire County Council. The Council contended that the public interest demanded that the road should be designed from the outset as a dual carriageway. The petition argued that a dual carriageway would be better value for money and, given the onus on Welsh Ministers to justify the draft Order, it also noted that the research to date failed to demonstrate that a dual carriageway would not be better value for money.
- 1.2.9 The Council's petition also argued that a single carriageway scheme would be contrary to the (then) Welsh Assembly Government's own policy on sustainability and that it would be contrary to the aim of stimulating the economic growth of Pembrokeshire by providing an adequate transport network, including a strategic dual carriageway route from St Clears to Haverfordwest of which the length of road proposed in the Order would form part. Finally, the Council argued that it would be financially unviable and economically undesirable, and contrary to the principle of sustainability, for the design of the scheme to require further upgrading to a dual carriageway at a future date when the single carriageway design reaches

³ Ibid., p. 41-42.

its capacity.⁴ The petition was placed in front of the Special Assembly Procedure (SAP) committee as Standing Order 25 in 2008.

- 1.2.10 Following an extensive review, including an addendum to the 2004 report considering the wider economic impacts of improvements to the A40, the Committee recommended the making of the draft Order.
- 1.2.11 Pembrokeshire County Council's petition was rejected in light of the Committee's findings that constructing the length of the A40 to which the order relates to dual carriageway standard would not represent better value for money than the Welsh Assembly Government's preferred wide single (WS) 2+1 option. The Committee noted that the dual carriageway option would involve spending a significant amount of public money on a road standard that would not be justified on capacity grounds for over 30 years.⁵
- 1.2.12 The A40 Penblewin to Slebech Park Improvement was completed in December 2011.

Background to this Study

- 1.2.13 In 2012, the Haven Waterway was declared an Enterprise Zone by the Welsh Government, due to its importance to the energy sector. Recognising the need for improved infrastructure to serve the area, the Minister for Economy, Science and Transport, published a written statement which affirmed the improvement of the A40 as a priority for the Haven Waterway Enterprise Zone Board.
- 1.2.14 The issue of the A40 was further brought into focus in November 2014 by the announcement of the closure of the Milford Haven Refinery and its conversion into a 'storage and distribution facility'.⁶
- 1.2.15 On 12 November 2014, in providing an update on the closure of the refinery, the Minister made an oral statement in plenary:
 - *"In terms of transport links...I have instructed my officials to accelerate to the fullest extent possible the programme for delivering improvements at Llanddewi Velfrey. I have also asked my officials to conduct further urgent work to explore additional ways to improve the A40, including the potential for dualling."*
- 1.2.16 This study addresses the second part of the Minister's statement, considering the economic benefits from potential improvements to the A40.

What has changed in Pembrokeshire?

- 1.2.17 The 2004 study and the subsequent research in 2008 were of the view that there was not a compelling case for dualling the A40, either from a transport economic efficiency perspective or in terms of wider economic benefits. In reconsidering this issue, this study starts from the position of the previous work and seeks to determine the extent to which changes since 2008 have materially affected the case for improving the A40.
- 1.2.18 The key developments which may have impacted on the case for improving the A40 are:
 - The recession, sustained global economic downturn and subsequent public sector spending reductions. The key question is whether these events have had a disproportionately large impact on Pembrokeshire and its key markets;

⁴ Standing Order 25: Special Assembly Procedure Committee, *The London to Fishguard Trunk Road (A40) (Penblewin to Slebech Park Improvement) Order 200-* (Welsh Assembly Government, 2008), pp. 3-7.

⁵ Ibid., p.19

⁶ http://en.wikipedia.org/wiki/Milford_Haven_Refinery

- The declaration of the Haven Waterway Enterprise Zone;
- The formation of the Swansea Bay City Region and Pembrokeshire's role within it; and, finally
- The closure of the Milford Haven Refinery and the wider problems and opportunities in the Pembrokeshire energy sector, which is key to the economic vitality of the area.

1.3 Economic Activity & Location Impacts

- 1.3.1 The Welsh Government commissioned Parsons Brinckerhoff to carry out a WelTAG Stage 1 Appraisal considering options for the improvement of the A40 between St Clears and Haverfordwest. This study is very much an engineering led assessment of three options:
- Reference Case – completion of existing funded commitments only – i.e. the A40 Llanddewi Velfrey to Penblewin Improvement (Option 1 in the Parsons Brinckerhoff Report);
 - Option 1 – Reference Case plus targeted stretches of '2+1' on the A40 (Option 2 in the Parsons Brinckerhoff Report; or
 - Option 2 – full dualling of the A40 between St Clears and Haverfordwest (Option 3 in the Parsons Brinckerhoff Report.
- 1.3.2 Outwith the core scheme (in whichever form it takes) there are also outline proposals for a southern bypass of Haverfordwest.
- 1.3.3 The purpose of a WelTAG study is to quantitatively appraise options for the A40 against the WelTAG criteria and the transport planning objectives for the study.
- 1.3.4 However, whilst the A40 may be seen as an important local issue, it is unlikely that a conventional Transport Economic Efficiency (TEE) analysis would generate a positive NPV and BCR for a scheme of this nature, given the relatively low traffic volumes. This study therefore considers what are known as the Economic Activity and Location Impacts (EALI) of the proposed road upgrade in terms of the impact on local employment, GVA and how these are 'transmitted' from scheme to the real economy.
- 1.3.5 It should be noted that this study will focus on the dualling option only as it is unlikely that the other options would give rise to significant EALI impacts. At Stage 1, the analysis should seek to identify the presence of EALIs and provide qualitative evidence of their existence. This study additionally attempts to provide quantitative estimates of dualling the A40 where robust data are available.

2 The A40 Corridor – St Clears to Haverfordwest

2.1 The A40

- 2.1.1 The A40 is a Trunk Road which runs from London to Fishguard in Pembrokeshire. Whilst a dual carriageway connects St Clears and Swansea (with subsequent motorway connections on the M4 to Cardiff, Newport, Bristol and London), the 22 mile stretch of the A40 between St Clears and Haverfordwest is a single carriageway, which is poor quality in places.

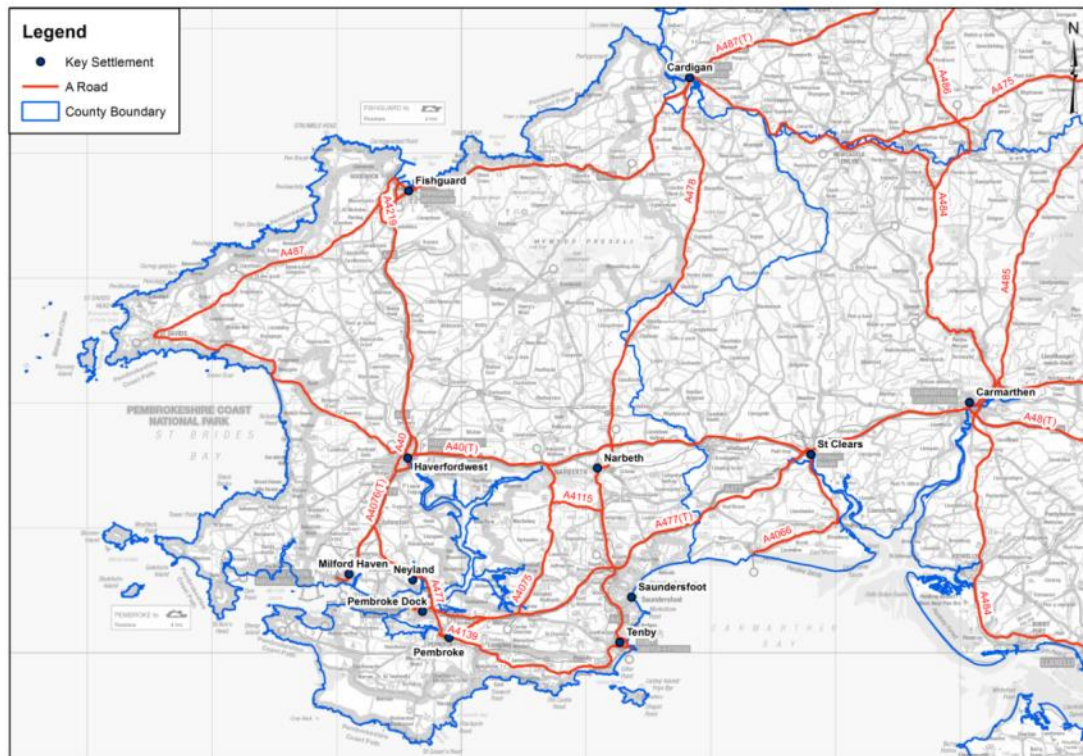


Figure 2.1: Study Area

- 2.1.2 The A40 forms the key road link between south-east Wales and Haverfordwest which itself is a gateway town for connections to the ports of Milford Haven and Fishguard. The A477, which runs to the south of the A40 near Saundersfoot and Tenby, is of a similar standard to the A40 and offers an alternative route into the south of the County. It is also the main road for accessing Pembroke Dock. Journey times to Pembroke Dock via the A477 are considerably quicker than the A40 whilst journey times to Milford Haven are approximately the same on either route. There is however a toll of 75p on the Cleddau Bridge, which connects the north and south of the Haven Waterway.
- 2.1.3 Whilst providing a strategic link to the ports of Fishguard and Milford Haven, the section of the A40 west of St Clears is of a relatively poor quality in places, combining a mix of 7.3 metre and 10 metre wide single carriageway and limited '2+1' sections to allow overtaking.
- 2.1.4 Part of the A40 forms a section of the (unsigned) Euroroute E30, which the former Welsh Assembly Government referred to as 'one of the lowest standard sections of the Trans European Road Network in the United Kingdom'.⁷

⁷ http://en.wikipedia.org/wiki/A40_road

2.2 Journey Times

- 2.2.1 The journey time, or rather journey time reliability, is perceived to be one of the key issues associated with the A40 between St Clears and Haverfordwest. The single carriageway form and alignment limits overtaking opportunities and causes platooning behind slow vehicles.
- 2.2.2 The original 2004 study which considered the case for dualling undertook a series of journey time surveys on the route. The analysis suggested that the average journey time between Haverfordwest and St Clears is approximately 30 minutes in both directions, with the average speed being 41 mph.
- 2.2.3 With the package of improvements implemented as a result of the original study, journey times are now approximately 26-28 minutes between Cartlett Road in Haverfordwest and the A477 roundabout in St Clears, a journey time improvement of 2-4 minutes over the course of the route⁸.
- 2.2.4 We would estimate that full dualling of the A40 between St Clears and Haverfordwest would lead to an average journey time reduction of around eight minutes for cars and five minutes for HGVs. This represents a 30% reduction in journey times for cars.
- 2.2.5 The approximately eight minute end-to-end journey time reduction could be seen as relatively insignificant in the context of a two hour journey from Haverfordwest to Cardiff. However, what a dual carriageway may assist in doing is reducing the perception of peripherality caused by the effective 'end' of the motorway and dual carriageway network at St Clears. This is an issue which is to be explored later in this report through the consultation and business survey.

2.3 Traffic on the A40

- 2.3.1 Traffic count data are available in annual average daily traffic (AADT) format for a number of locations along the A40 corridor and other connecting routes, including the A477, the other east-west Trunk Road in Pembrokeshire. The location of counts is shown in the figure below.

⁸ Source: Google Maps™ Journey Planner



Figure 2.2: AADT counts along the A40 and surrounding routes (2013)

- 2.3.2 In terms of average annual daily traffic flows along the section of the A40, the profile varies quite considerably from east to west, as shown in the table below:

Table 2.1: Traffic Counts on the A40

Current Location (east to west)	AADT (2013)	HGVs
A40 Carmarthen	40,011	6%
A40 St Clears – east of A477 roundabout	18,813	7%
A40 – 1.8km west of A477 roundabout	12,165	7%
A40 – Whitland	11,838	6%
A40 – Narberth junction with B4314	9,161	7%
A40 – 4km east of Haverfordwest	13,700	6%

- 2.3.3 The table above shows that the traffic flow on the final dual carriageway stretch of the A40 between Carmarthen and St Clears is more than double the AADT on the A40 to the east of St Clears. At Carmarthen, nine miles east of St Clears, the AADT is 40,000, which drops to approximately 18,000 at St Clears where the current dual carriageway ends. St Clears is a strategically important junction where motorists have a route choice between the A40 for central and northern Pembrokeshire and the A477 for southern Pembrokeshire.

- 2.3.4 Once onto the single carriageway, the flow is around 12,000 vehicles west of St Clears and only slightly lower at Whitland, five miles further west. The lowest flows on the route are on the section past Narberth, with an AADT of around 9,000. West of here, and five miles beyond the junction with the A4075, the flow is considerably higher at 13,700 on the approach towards Haverfordwest. This suggests significant local trip making in and around Haverfordwest, the County town in Pembrokeshire.
- 2.3.5 The AADT flow on the A477 immediately to the south west of St Clears Roundabout is around two thirds of the traffic on the A40 in the same area. The traffic flows on the two roads are similar around their mid-points (the Narberth junction on the A40 and Tenby junction on the A477). Significantly however, **traffic flows on the A477 in the Pembroke Dock area are well in excess of the A40 immediately to the east of Haverfordwest**. This is likely a result of local movements on the south-side of the Haven Waterway meeting the needs of the Pembroke Refinery and other businesses in the Pembroke Dock area.
- 2.3.6 Along the length of the A40 route, HGV volumes remain relatively constant at 6-7%.
- 2.3.7 The DMRB guidance on *Traffic Flow Ranges For Use In The Assessment Of New Rural Roads*⁹ provides the following indicative Congestion Reference Flows (CRFs) for rural roads:

Table 2.2: DMRB Rural Road Congestion Reference Flows

Carriageway Standard	Trunk Road CRF (AADT)
Single 7.3m (S2)	22,000
Wide Single 10m (WS2)	32,000
Dual 2 Lane All Purpose (D2AP)	68,000

- 2.3.8 Based on the figures in the table above, it can be concluded that the section of the A40 which is the focus of this study is some way from reaching capacity by this definition.
- 2.3.9 In terms of traffic on this section of the A40 during the last 10 years, there are no strong trends.
- 2.3.10 During the last five years, traffic has remained relatively constant, as is illustrated in the chart below:

⁹ DMRB Volume 5 Section 1 Part 3 - Traffic Flow Ranges for Use in the Assessment of New Rural Roads

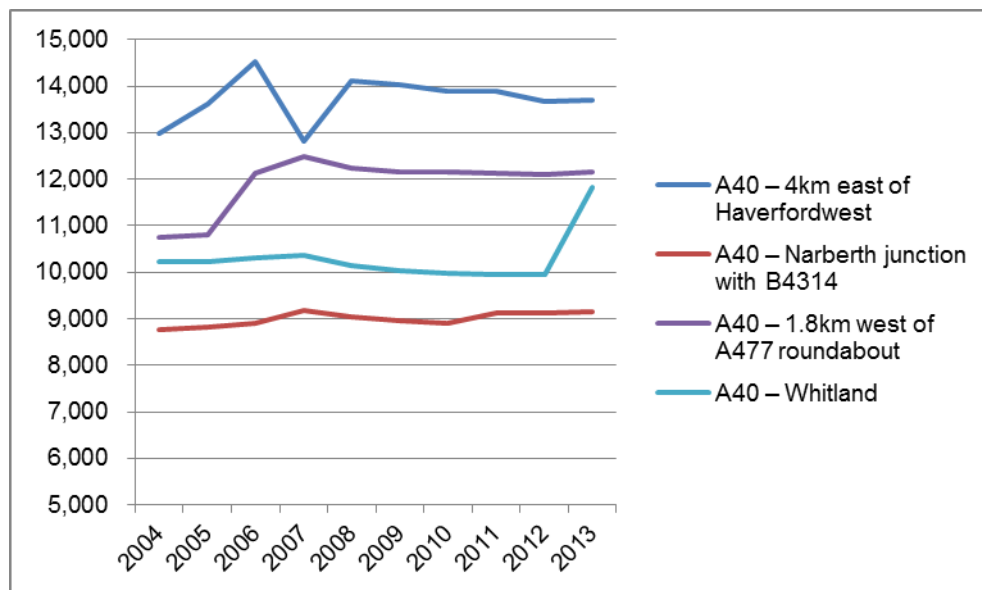


Figure 2.3: AADT on A40 – 10 year trends

- 2.3.11 This is an important finding as the 2004 study and subsequent review in 2008 found then that traffic levels on the A40 did not support the case for a dual carriageway and these have not materially changed.

Seasonality

- 2.3.12 Seasonality is an issue on the A40 given the prominence of Pembrokeshire as a tourism destination. As well as the Pembrokeshire Coast National Park, the area contains the City of St David's, the ecclesiastical and spiritual home of Wales, as well as many tourism centres such as Solva, Tenby and Saundersfoot. By way of context, the Pembrokeshire Coast National Park attracts 13 million visitor days per annum, the fifth largest of all UK National Parks.¹⁰

- 2.3.13 Seasonal spikes in traffic are an important issue on the A40 and indeed the A477, the extent of which will be quantified in the Parsons Brinckerhoff report.

Haverfordwest

- 2.3.14 There is localised congestion in Haverfordwest, particularly in the AM peak on the southern approach to the town on the A4076 (T) from Milford Haven. Whilst the congestion tends to occur in short concentrated periods of the day, it would nonetheless serve to reduce the proportional benefit of improvements to the A40.

How does the A40 compare with the A55?

- 2.3.15 The A55, which runs from the English/Welsh border at Chester to the major port of Holyhead, was like the A40, single carriageway, with numerous sections passing through busy and historic towns, Conwy for example. During the 1990s and early 2000s, the A55 was progressively dualled all the way through to Holyhead (with the exception of the short single carriageway sections over the Menai and Britannia Bridges). This provides a high quality dual carriageway connection between the gateway of Holyhead and the M56/M6 (onwards to Lancashire, the Midlands, the north and the south). The A55 is thus an interesting comparator and will be referred to at various points throughout this report.

¹⁰ <http://www.nationalparks.gov.uk/learningabout/whatisanationalpark/factsandfigures>

- 2.3.16 Comparing the trend in traffic along the A40 with the A55 in north Wales suggests that annual traffic fluctuations in the former are smaller than the latter. In particular, the A40 appears to have exhibited only a small reduction in traffic during the recession in 2008/2009, suggesting that it is less sensitive to economic activity than the A55 (and indeed less sensitive to the Irish market which suffered heavily during the global economic downturn). In general, traffic has grown faster on the A40 (and indeed the A55) than in Wales generally. This is illustrated in the figure below.

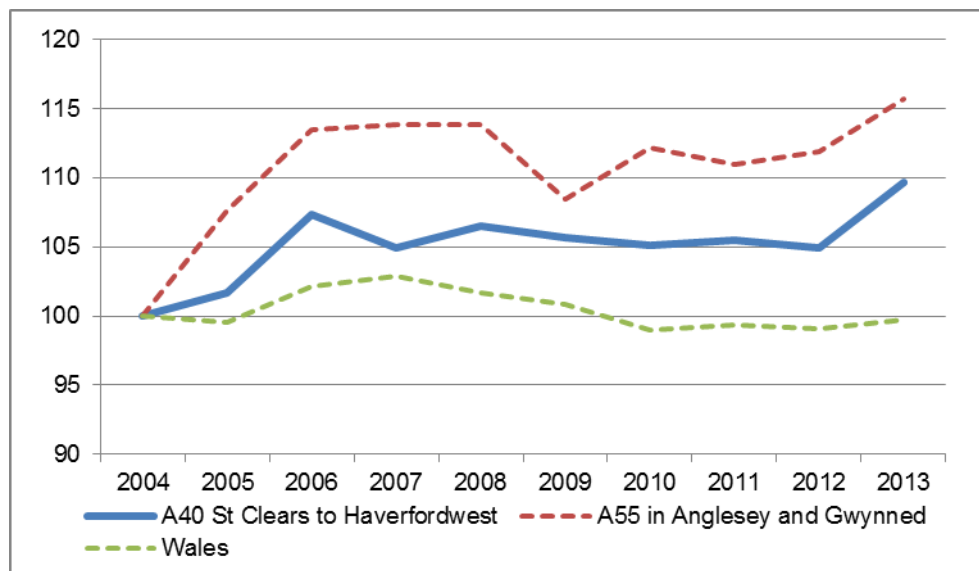


Figure 2.4: 2004 indexed trends in traffic – A40, A55 and nationally (2004=100)

- 2.3.17 The percentage of HGVs on the A40 is approximately 7%, which is slightly higher than the 5% of traffic on the A55 corridor (which is perhaps somewhat surprising given that the A55 forms the 'route to Dublin').

Key Point

The growth in traffic levels on the A40 has been modest over the last 10 years, lower than that seen on the A55. Current flows are well below DMRB 'dual carriageway' thresholds. The A477 carries significant traffic to south Pembrokeshire with volumes comparable to or higher than the A40 in places.

2.4 Accessibility & Connectivity

- 2.4.1 The A40 is the strategic road link from Fishguard, Milford Haven and Haverfordwest to Swansea, Cardiff, Bristol, London and the West Midlands. From Pembroke Dock, the A477 represents a considerably quicker route of similar standard.
- 2.4.2 In terms of public transport options, the major towns in Pembrokeshire all have rail connections. Service frequency on these lines is moderately low, and journey times are not competitive with road-based transport on the majority of routes. The table below shows rail journey times to Swansea (as a proxy for onwards connections on the South-Wales mainline).

Table 2.3: Journey times to Swansea by Rail

Station	Services per Day (Swansea & Connections)	Journey Time to Swansea	Equivalent Road Journey Times
Fishguard Harbour	6	~ 2:00	~ 1:30
Haverfordwest	10	~ 1:30	~ 1:20
Milford Haven	10	~ 1:50	~ 1:30
Pembroke Dock	8	~ 2:15	~ 1:15

2.4.3 With respect to coach services, connections are poor from Fishguard, Haverfordwest and Milford Haven, with almost all journeys requiring at least one change and being considerably slower than rail. As such, it does not offer a competitive alternative to car based travel.

2.4.4 The figure below shows current car-based drive times from Haverfordwest.

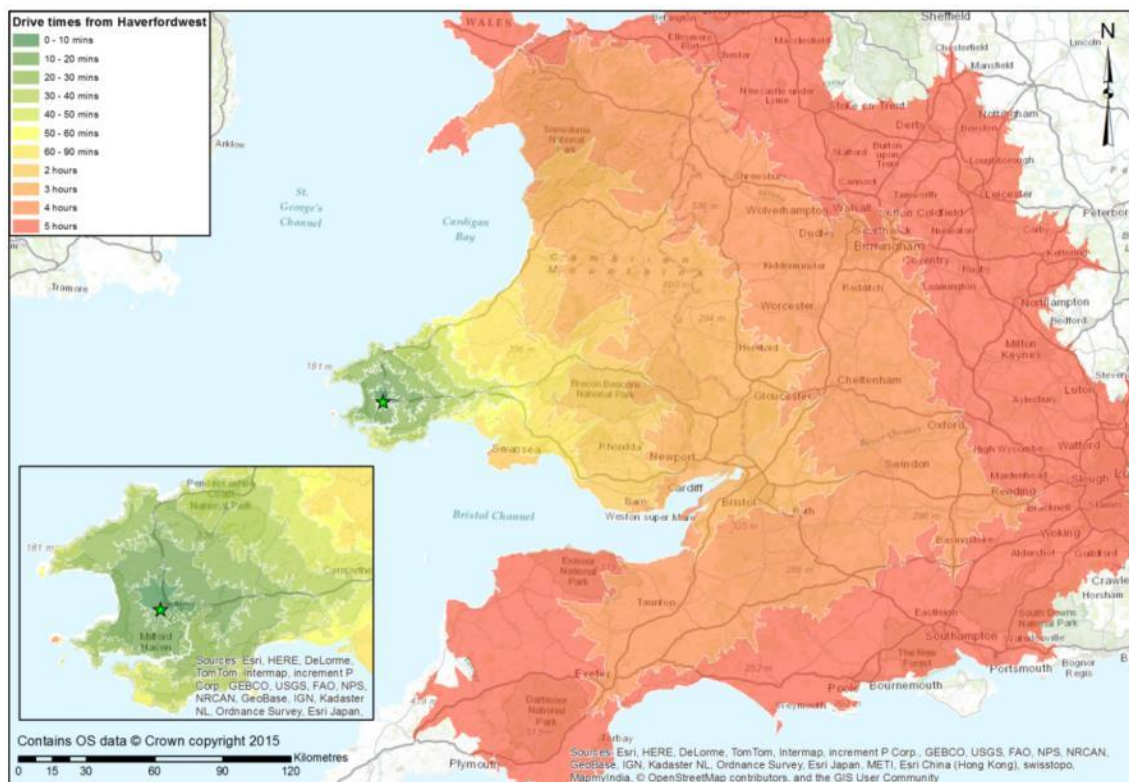


Figure 2.5: Car-Based Drive Times from Haverfordwest

2.4.5 The figure above shows that Carmarthen is the only settlement of a reasonable size which is within one hour's drive of Haverfordwest, highlighting the peripherality of Pembrokeshire. Swansea is just over an hour's drive, whilst Cardiff and Bristol are typically within a 2-3 hour drive. London is 4-5 hours drive, whilst the Channel Ports of Weymouth, Poole and Portsmouth also fall into this category (Dover and Newhaven being over five hours drive). The dualling of the A40 would provide an average journey time saving of around eight minutes which, whilst beneficial, may be relatively insignificant in terms of the overall journey time on key inter-urban movements.

- 2.4.6 The relative competitiveness of rail travel with car deteriorates rapidly once longer distance connections are considered. Journey times to selected destinations in the UK are presented for car and rail in Tables 2.4 and 2.5, with Table 2.6 showing the difference between the two modes.

Table 2.4: Travel times by car from Pembrokeshire to selected destinations (source Google Maps Journey Planner)

Origin	Fishguard	Haverfordwest	Milford Haven	Swansea	Cardiff	Newport	Bristol	Birmingham	London	Dover
Fishguard	N/A	00:23	00:38	01:34	02:13	02:14	02:48	03:55	04:40	05:37
Haverfordwest	00:23	N/A	00:19	01:18	01:56	01:58	02:32	03:38	04:23	05:20
Milford Haven	00:38	00:17	N/A	01:29	02:07	02:08	02:42	03:49	04:35	05:33
Pembroke Dock	00:42	00:21	00:16	01:17	01:54	01:55	02:29	03:36	04:21	05:20

Table 2.5: Travel times by public transport from Pembrokeshire to selected destinations (source Google Maps Journey Planner)

Origin	Fishguard	Haverfordwest	Milford Haven	Swansea	Cardiff	Newport	Bristol	Birmingham	London	Dover
Fishguard		00:42	01:28	02:11	03:14	03:30	04:29	05:16	06:03	08:15
Haverfordwest	00:42		00:33	01:37	02:37	02:55	03:53	04:48	05:19	07:30
Milford Haven	01:27	00:33		01:45	02:45	03:04	04:01	04:56	05:27	07:44
Pembroke Dock	01:34	00:41	00:37	02:20	03:23	03:39	04:41	05:25	06:09	07:42

Table 2.6: Difference between PT and car travel times (source Google Maps Journey Planner)

Origin	Fishguard	Haverfordwest	Milford Haven	Swansea	Cardiff	Newport	Bristol	Birmingham	London	Dover
Fishguard		+00:19	+00:50	+00:37	+01:01	+01:16	+01:41	+01:21	+01:23	+02:38
Haverfordwest	+00:19		+00:14	+00:19	+00:41	+00:57	+01:21	+01:10	+00:56	+02:10
Milford Haven	+00:49	+00:16		+00:16	+00:38	+00:56	+01:19	+01:07	+00:52	+02:11
Pembroke Dock	+00:52	+00:20	+00:21	+01:03	+01:29	+01:44	+02:12	+01:49	+01:48	+02:22

- 2.4.7 It can be seen that car travel is by far the quickest option in terms of connectivity between Pembrokeshire and the rest of the UK. Haverfordwest and Milford Haven are reasonably well served by rail to Swansea, and to a lesser degree to Cardiff. However, longer distance journeys involve one or more changes and therefore reduce in competitiveness.
- 2.4.8 It is worth highlighting that journey times to London are 50 minutes quicker by car, with the Pembrokeshire to Cardiff section representing the slower rail travel time; Cardiff to London is approximately 30 minutes faster by rail. As such, driving to Cardiff or an alternative park & ride facility and then travelling onwards by train to London is an option. The plans to upgrade Port Talbot Parkway station, including greater park & ride provision, will provide another option for longer distance trips from Pembrokeshire.

Key Point

Travel times by rail from Pembrokeshire are not competitive with road based journeys. This difference is exacerbated on longer distance trips. Long distance coach services are poor requiring a change for longer distance trips.

2.5 Port and Ferry Connectivity

2.5.1 The A40, along with the A55 in North Wales, provide the two strategic east-west links connecting major Welsh and English settlements with Ireland via ferry. There are two ferry routes connecting Pembrokeshire with Ireland:

- Fishguard to Rosslare – operated by Stena Line; and
- Pembroke Dock to Rosslare – operated by Irish Ferries.

2.5.2 The routes both offer twice daily sailings in either direction. Table 2.7 provides an overview of the key characteristics of each service.

Table 2.7 Ferry routes from Pembrokeshire to Ireland

	Fishguard to Rosslare	Pembroke Dock to Rosslare
Departure times from Pembrokeshire	02:30 14:30	02:45 14:45
Arrival times from Ireland	00:30 12:30	00:46 12:46
Crossing time	03:15 – 04:00	04:00
Example return fare – 2 adults + 1 car weekend	£270	£210

2.5.3 The two crossing options are very similar with regards to timings. The timetable is built around hauliers accessing key logistics hubs in both countries early in the morning. As a result, the sailing times are such that ferry traffic is generated at off-peak times of the day. For night time sailings, the A40 is quiet and therefore the platoons of ferry traffic will have little impact in terms of congestion. However, as demonstrated in the Welsh Government 2004 study¹¹, there are no clearly defined peaks and traffic is generally at its highest on the A40 during the afternoon, so the afternoon sailing from Fishguard will contribute to this.

2.5.4 The routing options to St Clears and eastwards from the respective ports are different. From Fishguard, there is an onward car journey of approximately 45 minutes to St Clears using the A40. When departing Pembroke Dock, the journey time to St Clears is approximately 30 minutes using the A477.

2.5.5 Passenger numbers on the two Pembrokeshire – Ireland routes were broadly similar in 2013, but much lower than the Holyhead – Dublin routes, which represent a far larger market.

¹¹ A40 West of St. Clears – Stage 1 Scheme Assessment Report - Figure 5.1

Table 2.8: Ferry passenger numbers in 2013

Route	Passengers 2013 (Thousands)
Fishguard - Rosslare	333
Pembroke Dock - Rosslare	328
Holyhead – Dublin/Dun Laoghaire	1,954

- 2.5.6 The trend in passenger numbers on these routes during the last 10 years (illustrated in the figure below) shows a significant decline on the Fishguard – Rosslare route (in part due to the rundown and subsequent withdrawal of Stena’s High Speed Service in the early 2010s), with 2013 patronage being around half the level of the figure experienced in 2004. The Pembroke Dock route has remained relatively stable throughout the period in comparison.

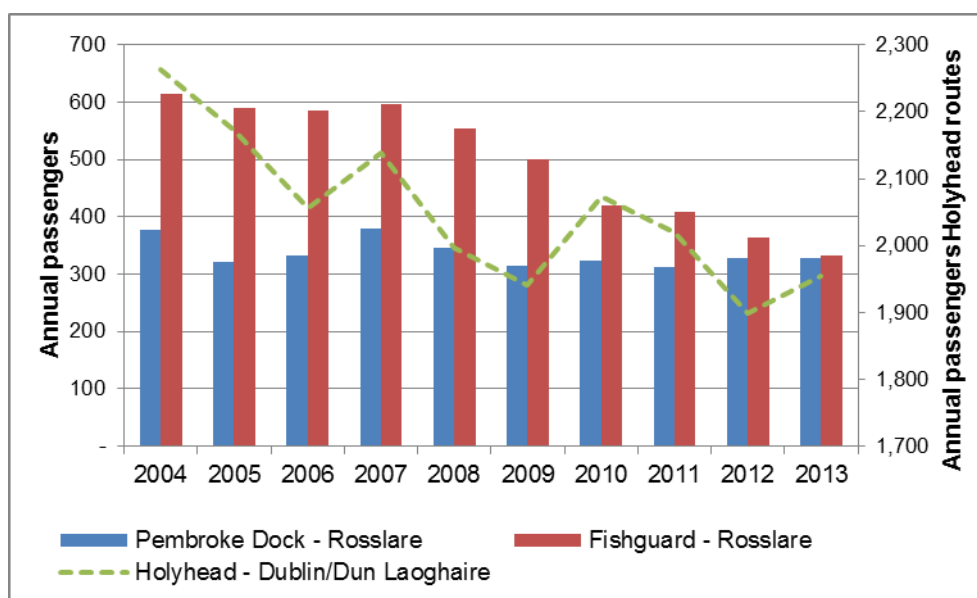


Figure 2.6: Trends in ferry passenger numbers

- 2.5.7 If the trends in passenger numbers were to continue, ferry related traffic on the A40 would be expected to decline in line with the Fishguard – Rosslare route.
- 2.5.8 It should be noted that around 65% of commercial vehicles travel on the Pembroke Dock – Rosslare route, which makes the A477 the more intensive route from a ferry freight perspective.

Freight at Pembrokeshire Ports

- 2.5.9 The DfT publish statistics¹² on total freight passing through UK ports. Volumes for Pembrokeshire ports, and Holyhead as a comparator, are shown in table 2.9 below.

¹² Source: DfT Port freight statistics TAB PORT0101 - UK major and minor ports, all freight traffic, by port and direction: 1965 - 2013

Table 2.9: Total Freight Tonnage at Selected Ports

Port	2013 All Freight (thousand tonnes)
Fishguard	342
Milford Haven/Pembroke Dock	41,105
Holyhead	3,212

2.5.10 The gas pipeline at Milford Haven will account for the large majority of tonnage passing through the port, and as such will not constitute road based freight.

2.5.11 In terms of trends through time, the figure below highlights a decline at Fishguard, with 2013 being 34% lower than 2004 levels; it experienced a 35% annual decline in 2009, most likely due to the impacts of the recession, particularly in Ireland. Conversely, Milford Haven is experiencing higher freight volumes than in 2004, likely driven by the new pipeline based LNG (Liquefied Natural Gas) terminals. For comparison, Holyhead also exhibits a significant decline in freight tonnage, with significant drop in 2009; 2013 was 19% lower than the volume experienced in 2004.

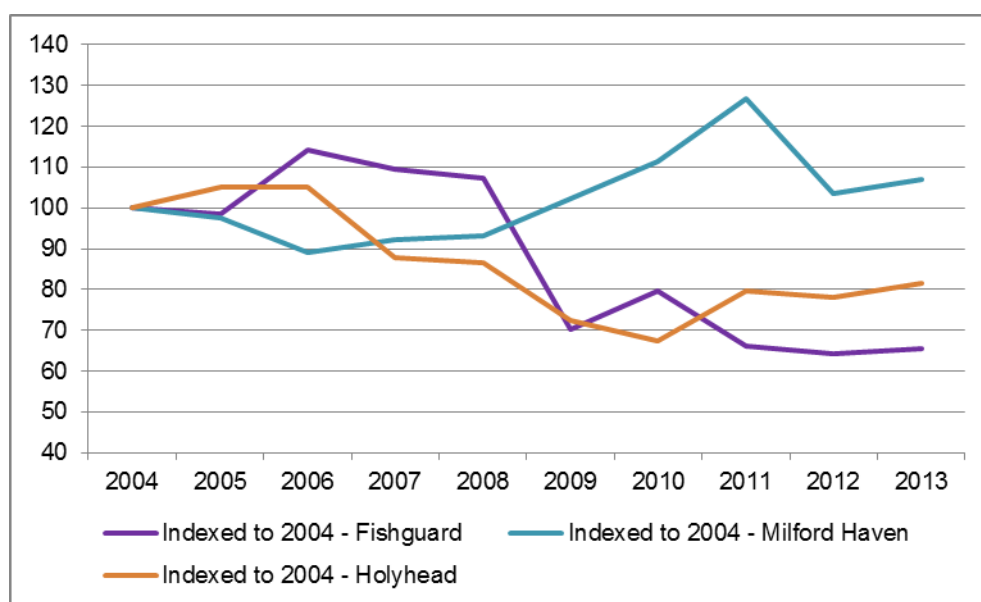


Figure 2.7: Trends in freight tonnage passing through ports – indexed to 2004 levels

2.5.12 The decline in both freight and ferry carryings suggests that the argument for dualling the A40 based on traffic levels alone has weakened since 2008.

Key Point

Fishguard and Pembroke Dock offer similar levels of ferry service but Fishguard based services have lost market share in recent years. Both routes see volumes far lower than Holyhead based services. Any improvements to the A40 would not benefit Pembroke Dock ferry services.

3 Socio-Economic Baseline

3.1 Data Geography

- 3.1.1 The discussion below focuses on Pembrokeshire and south-west Wales as this is the area which would be most impacted by any improvements to the A40. The most disaggregate data available for Pembrokeshire are focussed on the 16 district areas which make up the County. These are based on the Middle Layer Super Output Area (MSOA) boundaries and are shown in the map below.

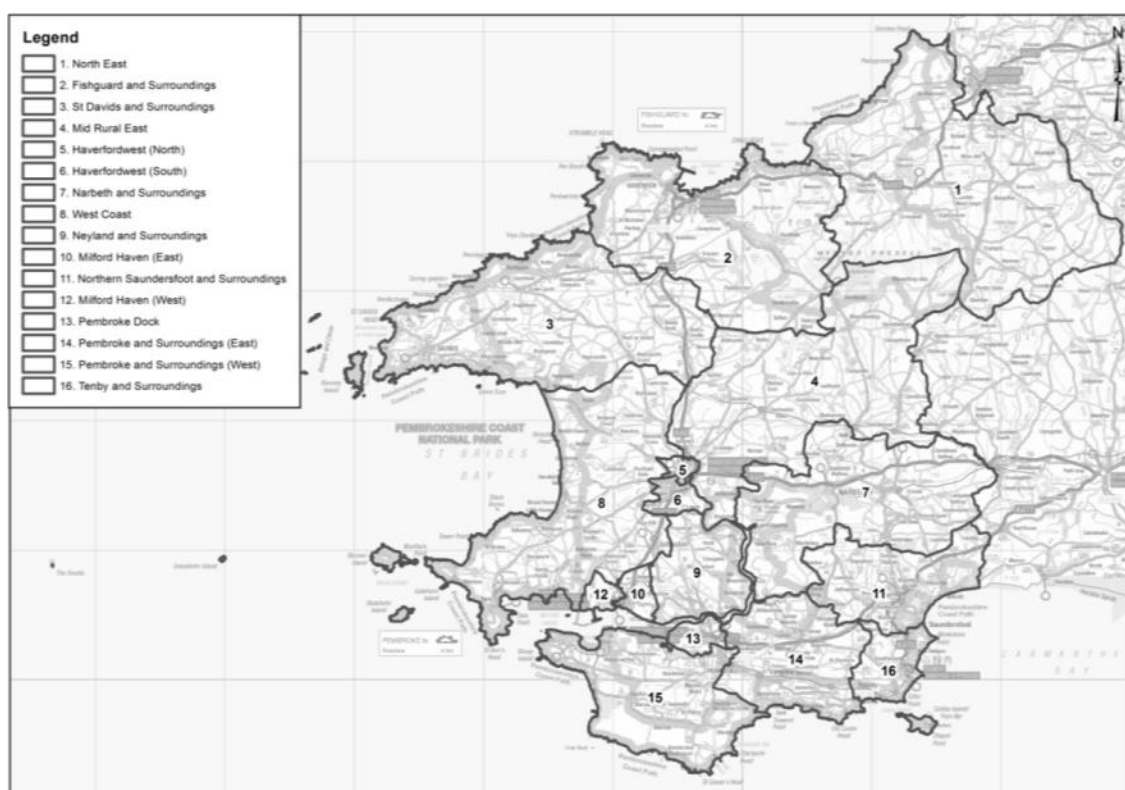


Figure 3.1: Area Boundaries

- 3.1.2 In order to provide some context and something of a control group, we also make various comparisons to Wales' other western coastal communities, namely Anglesey, Ceredigion and Gwynedd. Data for these local authorities are presented at the local authority level only.

3.2 Demographics & Socio-Economic Data

Population

- 3.2.1 Pembrokeshire had an estimated population of 123,300 in 2013 and is one of the most rural counties in Wales, with a population density of 76 people per km² compared to the Welsh average of 149. The table below provides details of the key settlements in the County and their 2011 population.

Table 3.1: Key Settlements, Source Census 2011

Settlement	2011 Population
Haverfordwest	14,596
Milford Haven	13,582
Pembroke Dock	9,753
Pembroke	7,552
Tenby	4,696
Neyland	3,708
Fishguard	3,419
Saundersfoot	3,361
Narberth	2,265

- 3.2.2 The two largest settlements are Haverfordwest and Milford Haven. Haverfordwest is the county town of Pembrokeshire and is the principal commercial and administrative centre. Milford Haven, combined with Pembroke Dock, is a nationally significant port and a key employment hub, with a substantial concentration of employment in the strategically important energy sector.

Key Point

Pembrokeshire is one of the most rural counties in Wales, with a relatively low population density. The two largest settlements in the area are Haverfordwest and Milford Haven, with all other settlements below 10,000 people.

Age Profile

- 3.2.3 The table below shows the age profile of the population of Pembrokeshire, the comparison counties and Wales as a whole.

Table 3.2: Mid-Year Population Estimates by Age 2013 (Source: ONS)

	Aged 0 – 14	Aged 15 - 19 years	Aged 20 - 29 years	Aged 30 - 44 years	Aged 45 - 64 years	Aged 65 and over	Aged 16 - 64
Anglesey	16.1%	5.4%	10.7%	16.5%	27.7%	23.7%	59.2%
Ceredigion	13.4%	7.6%	17.2%	13.8%	25.7%	22.0%	63.4%
Gwynedd	16.0%	6.5%	13.9%	16.1%	25.6%	21.9%	61.0%
Pembrokeshire	16.5%	6.0%	10.6%	15.7%	27.9%	23.4%	59.0%
Wales	16.8%	6.2%	13.2%	18.0%	26.3%	19.5%	62.5%

- 3.2.4 Pembrokeshire has a lower proportion of people of working age than the comparison counties and Wales as a whole. Whilst the percentage aged between 45 and 64 is above the Welsh average, the proportions in the lower age categories, particularly the 20-29 age bracket, are below the Welsh average. The lower proportion of people in their twenties could be explained by out-migration of this age group as a result of the lack of a significant higher education presence in the County, as well as people leaving in search of higher value employment opportunities.
- 3.2.5 The County also has a relatively high proportion of people over the age 65 (23.4%) compared to the Welsh average (19.5%). Whilst some of this is due to general aging of the population,

the majority is likely driven by net in-migration in the older cohorts. Of the over 65 category, there are significant proportions in the older age categories (10% are over the age 75 and 3% are over 85) which is likely to have significant impacts on social services in the County and the overall dependency ratio.

3.2.6 Table 3.3 and Figures 3.2 and 3.3 show the distribution of the population in different age categories across the County.

Table 3.3: Resident Population by Age Category (Source: Census 2011)

	Aged 0 - 15	Aged 16 - 29 years	Aged 30 - 44 years	Aged 45 - 64 years	Aged 65 and over	Aged 16 - 64 years
Fishguard and Surroundings	17%	14%	15%	29%	25%	58%
Haverfordwest	21%	19%	19%	24%	17%	63%
Mid Rural East	17%	12%	17%	30%	23%	59%
Milford Haven	19%	18%	17%	26%	20%	61%
Narbeth and Surroundings	16%	14%	15%	31%	23%	61%
Neyland and Surroundings	18%	13%	18%	30%	21%	61%
North East	17%	13%	15%	33%	23%	60%
Northern Saundersfoot and Surroundings	15%	13%	14%	30%	28%	57%
Pembroke and Surroundings (East)	17%	12%	15%	31%	25%	58%
Pembroke and Surroundings (West)	21%	16%	17%	27%	19%	61%
Pembroke Dock	21%	19%	18%	25%	17%	62%
St Davids and Surroundings	17%	15%	17%	29%	22%	61%
Tenby and Surroundings	15%	14%	15%	29%	27%	58%
West Coast	16%	13%	16%	31%	23%	60%
Wales	17%	14%	15%	29%	25%	58%

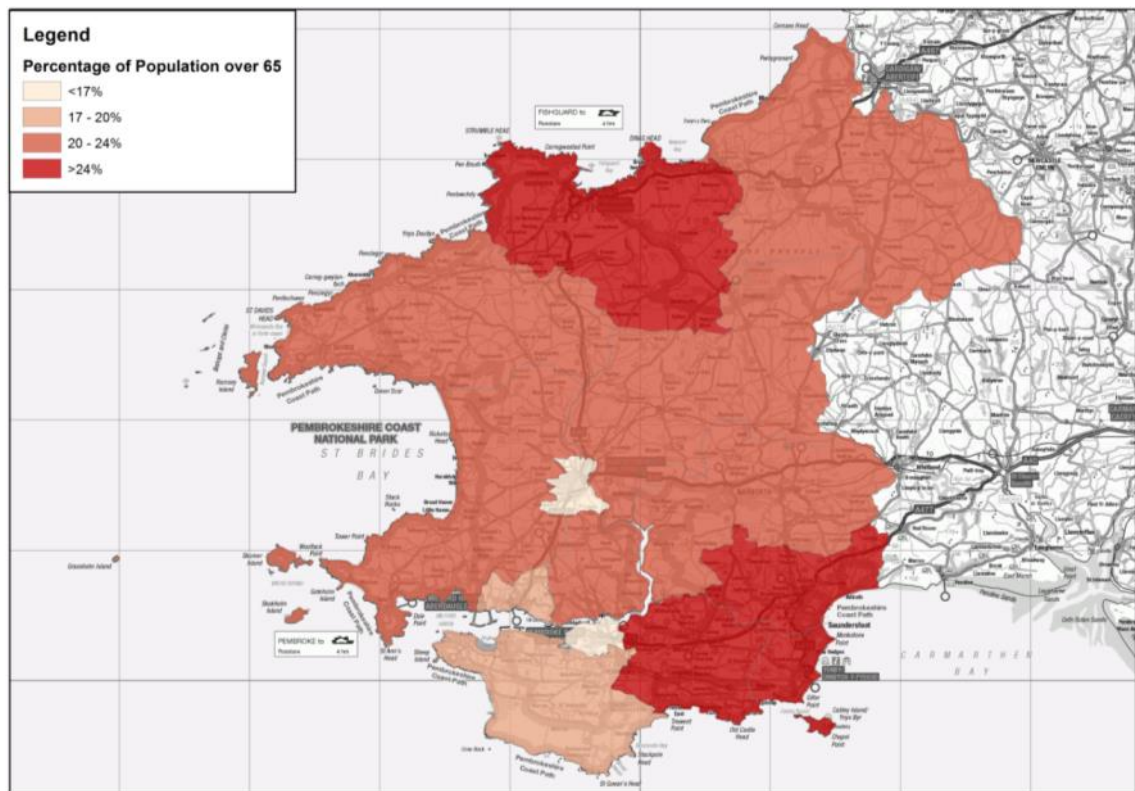


Figure 3.2: Percentage of Population over 65 (Source: Census 2011)

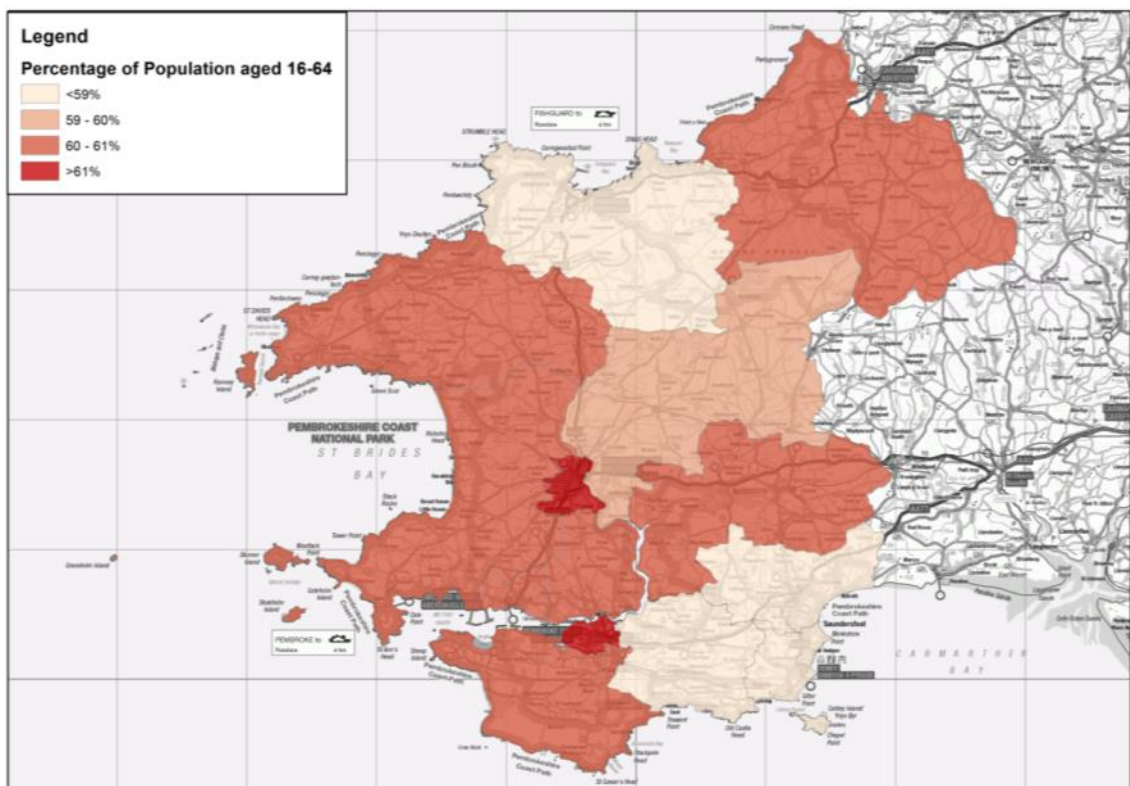


Figure 3.3: Percentage of people aged 16-64 (Source: Census 2011)

3.2.7 As shown, the over 65 population is concentrated in the more tourist focused coastal communities in the north and south of the County. In contrast, the highest proportions of

working age people are within the key towns of Haverfordwest (63%) and Pembroke Dock (62%).

- 3.2.8 This suggests that Pembrokeshire may be something of a 'two-speed economy', with a relatively affluent retired population concentrated around the coast and a younger and more indigenous population concentrated inland.

Key Point

Pembrokeshire has an uneven demographic mix compared to Wales as a whole with a lower proportion of people of working age, particularly those aged 30 and below, and a higher proportion of people over the age of 65.

Examination of the age distribution across the County shows that the over 65 population is concentrated in the more tourist focussed coastal communities in the north and south whilst the largest proportion of people of working age live in the key population centres of Haverfordwest and Pembroke Dock.

Occupations

- 3.2.9 Table 3.4 shows the range of occupations in Pembrokeshire in 2014. It is useful to examine occupation categories as they provide an indication of the main sectors of the economy and the skills held in an area. For instance, those employed within the occupational categories of managers, and senior officials; professional occupations; and associate professional and technical occupations are typically highly skilled, whereas those employed within the occupational categories of elementary occupations; and process, plant and machine operatives typically possess a lower skill level.

Table 3.4: Occupation Categories by County, % (Source Annual Population Survey 2014)

%	Managers, directors and senior officials	Professional occupations	Associate professional and technical occupations	Administrative and secretarial occupations	Skilled trades occupations	Caring, leisure and other service occupations	Sales and customer service occupations	Process, plant and machine operatives	Elementary occupations
Anglesey	8.1	19.3	10.9	9	15.4	10.8	7.8	6.2	11.8
Ceredigion	8.7	17.4	9.9	9.2	17.6	9.1	8.8	5.4	13.4
Gwynedd	13	16	10.3	9	15.7	9.1	6.1	5.7	14.7
Pembrokeshire	11.3	16	10.5	8.8	16.5	10.9	8.5	6.6	10.3
Wales	9.2	17.9	12.4	10.6	12.8	10.1	8.3	6.7	11.3

- 3.2.10 The table above highlights that Pembrokeshire has a particularly high concentration of employees in the 'Managers, Directors and Senior Officials' employment category (11.3%) and a low proportion of employees in the 'Elementary Occupations' category (10.3%) compared to the comparison counties and Wales as a whole (9.2% and 11.3% respectively).
- 3.2.11 Interestingly, the picture in Pembrokeshire closely resembles that of Gwynedd (the county in which much of Snowdonia National Park is located). This suggests that these areas are successful in attracting high value in-migrant labour which potentially has access to flexible working arrangements (e.g. working from home). The key benefit in this respect is that such

individuals bring significant income into the area but, at the same time, employment is less likely to be local.

- 3.2.12 Table 3.5 and Figure 3.4 below show the distribution of occupations of residents aged 16 and over across Pembrokeshire. As shown 'Tenby and Surroundings' and 'Northern Saundersfoot and Surroundings' have a proportionately higher number of residents concentrated in the 'Manager, Directors and Senior Officials' employment category. This is perhaps to be expected given the attractiveness of these areas as places to live and further emphasises the point about a potential 'two-speed economy'.
- 3.2.13 In contrast, Pembroke Dock, Milford Haven and 'Pembroke and Surroundings (West)' have a high concentration of residents in the 'elementary' and 'process plant and machine operative' occupation categories. This reflects the wider socio-economic profile of these areas and the dominance of manufacturing and the energy sector in the south of the County.

Table 3.5: Occupation Categories within Pembrokeshire (Source: Census 2011)

	Managers, directors and senior officials	Professional occupations	Associate professional and technical occupations	Administrative and secretarial occupations	Skilled trades occupations	Caring, leisure and other service occupations	Sales and customer service occupations	Process, plant and machine operatives	Elementary occupations
Fishguard and Surroundings	10%	13%	9%	8%	23%	12%	7%	6%	12%
Haverfordwest	8%	14%	10%	9%	14%	13%	11%	7%	13%
Mid Rural East	10%	18%	10%	10%	24%	9%	5%	5%	9%
Milford Haven	8%	9%	9%	9%	17%	13%	11%	10%	14%
Narbeth and Surroundings	13%	17%	10%	8%	20%	10%	7%	6%	10%
Neyland and Surroundings	9%	14%	12%	9%	16%	11%	9%	9%	10%
North East	11%	13%	9%	7%	27%	10%	5%	7%	10%
Northern Saundersfoot and Surroundings	14%	14%	8%	10%	18%	11%	8%	7%	10%
Pembroke and Surroundings (East)	12%	15%	11%	11%	18%	11%	6%	8%	9%
Pembroke and Surroundings (West)	9%	9%	9%	9%	19%	12%	8%	11%	14%
Pembroke Dock	7%	9%	8%	9%	16%	15%	11%	10%	15%
St David's and Surroundings	12%	13%	16%	7%	22%	10%	5%	5%	9%
Tenby and	17%	11%	10%	8%	15%	12%	8%	5%	13%

	Managers, directors and senior officials	Professional occupations	Associate professional and technical occupations	Administrative and secretarial occupations	Skilled trades occupations	Caring, leisure and other service occupations	Sales and customer service occupations	Process, plant and machine operatives	Elementary occupations
Surroundings									
West Coast	12%	15%	10%	9%	20%	11%	7%	7%	10%
Pembrokeshire	10%	13%	10%	9%	19%	12%	8%	7%	11%
Wales	9%	16%	11%	11%	14%	10%	9%	8%	12%

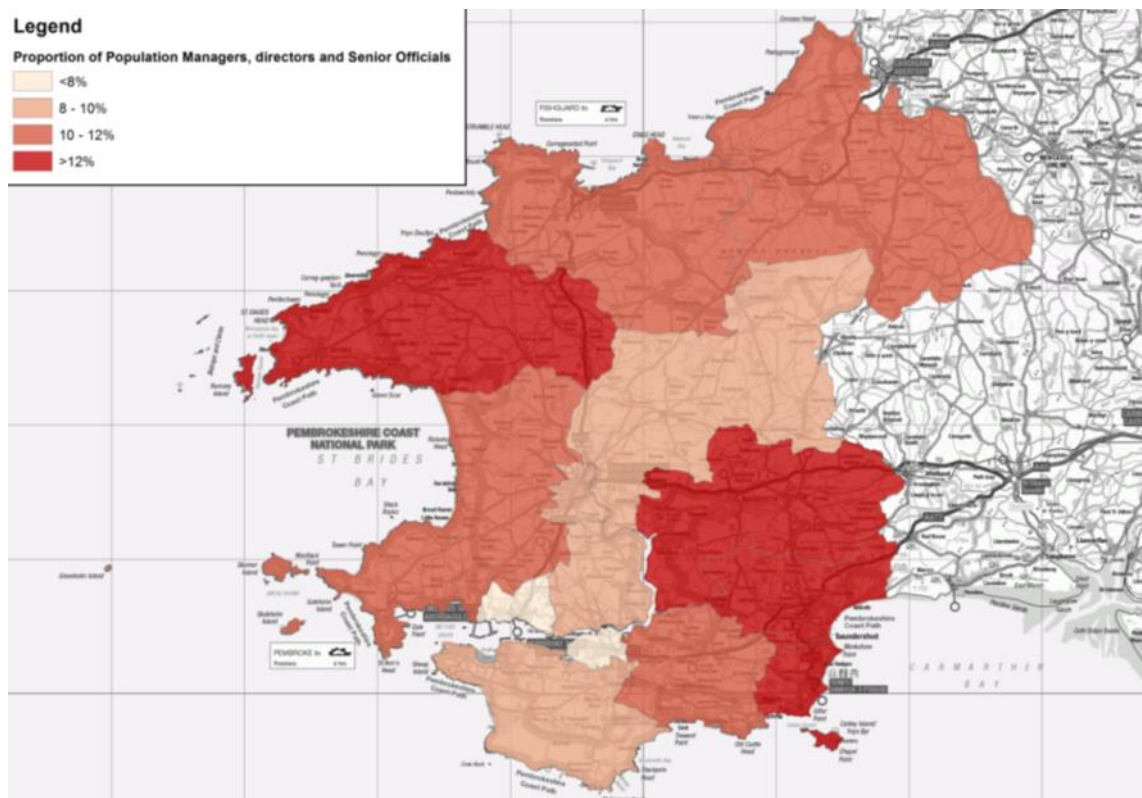


Figure 3.4: Proportion of Manager, Director and Senior Official Employee Jobs (Source: Census 2011)

Key Point

A distinct geography can be identified in terms of occupational categories, with higher proportions of highly skilled residents in the south-east and north-west of the County. In contrast, employees in the lower value sectors are concentrated in the south-west of the County.

The geographic breakdown of occupations also adds further weight to the theory of a 'two-speed' economy, whereby an affluent coastal community of in-migrants and retirees co-exists alongside less affluent areas, particularly inland.

Economic Activity Rate

- 3.2.14 The tables below compare the economic activity rate in Pembrokeshire, expressed as the ratio between the number of economically active people (i.e. people in or looking for employment) and the total number of people aged 16 and over, with the comparison counties and Wales as a whole. This is a key metric in determining the relative economic health of a location – areas with comparatively lower rates of economic activity tend to perform less well and experience various pressures on service delivery.

Table 3.6: County Economic Activity (Source: Census 2011)

	Economically active: Total	In employment: Total	Employee: Total	Employee: Part-time (including full-time students)	Employee: Full-time (including full-time students)	Self-employed: Total	Self-employed: Part-time (including full-time students)	Self-employed: Full-time (including full-time students)	Unemployed (including full-time students)
Anglesey	58%	53%	44%	13%	30%	9%	3%	7%	4%
Ceredigion	55%	51%	37%	14%	24%	13%	3%	10%	4%
Gwynedd	58%	54%	43%	15%	28%	11%	3%	8%	4%
Pembrokeshire	58%	55%	42%	15%	27%	12%	3%	9%	4%
Wales	59%	55%	47%	14%	32%	8%	2%	6%	5%

Table 3.7: County Economic Inactivity (Source: Census 2011)

	Economically inactive: Total	Retired	Student (including full-time students)	Looking after home or family	Long-term sick or disabled	Other
Anglesey	42%	29%	4%	3%	5%	2%
Ceredigion	45%	25%	12%	3%	4%	2%
Gwynedd	42%	25%	8%	3%	4%	2%
Pembrokeshire	42%	28%	3%	4%	5%	2%
Wales	41%	24%	5%	3%	6%	2%

- 3.2.15 As shown, the economic activity rate for Pembrokeshire in 2011 (58%) was slightly lower than the Welsh average (59%) but similar to that of the comparison counties. In addition, the proportion of the Pembrokeshire population in employment equalled that of Wales as a whole (55%) and the level of unemployment (4%) fell slightly below the Welsh average (5%).
- 3.2.16 In terms of the economically inactive segments of the population, the County has a higher proportion of retirees (28%) than Wales (24%) and a lower proportion of students (3%) compared to both Wales (5%) and the comparison counties. This again lends credence to the

theory that the area is comparatively well-off but where the affluence is concentrated amongst retiree and prosperous in-migrants.

3.2.17 The tables and figures below examine the levels of economic activity at a more disaggregate level within Pembrokeshire.

Table 3.8: Economic Activity (Source: Census 2011)

	Economically active: Total	In employment: Total	Employee: Total	Employee: Part-time (including full-time students)	Employee: Full-time (including full-time students)	Self-employed: Total	Self-employed: Part-time (including full-time students)	Self-employed: Full-time (including full-time students)	Unemployed (including full-time students)
Fishguard and Surroundings	56%	53%	38%	14%	23%	15%	4%	11%	3%
Haverfordwest	63%	58%	51%	17%	33%	7%	2%	5%	5%
Mid Rural East	61%	59%	41%	14%	27%	18%	5%	13%	2%
Milford Haven	58%	51%	45%	16%	30%	6%	2%	4%	7%
Narbeth and Surroundings	61%	59%	42%	14%	28%	17%	5%	12%	2%
Neyland and Surroundings	59%	55%	46%	16%	30%	9%	3%	7%	3%
North East	60%	58%	35%	12%	23%	23%	6%	17%	2%
Northern Saundersfoot and Surroundings	58%	50%	44%	15%	29%	6%	2%	4%	7%
Pembroke and Surroundings (East)	55%	53%	41%	15%	26%	12%	3%	9%	3%
Pembroke and Surroundings (West)	56%	50%	41%	14%	27%	8%	2%	6%	6%
Pembroke Dock	59%	53%	47%	17%	30%	6%	2%	4%	6%
St Davids and Surroundings	61%	59%	40%	14%	27%	18%	5%	14%	3%
Tenby and Surroundings	56%	53%	41%	16%	25%	12%	3%	9%	3%
West Coast	60%	57%	42%	15%	28%	15%	4%	11%	3%
Pembrokeshire	58%	55%	42%	15%	27%	12%	3%	9%	4%
Wales	59%	55%	47%	14%	32%	8%	2%	6%	5%

Table 3.9: Economic Inactivity (Source: Census 2011)

	Economically inactive: Total	Retired	Student (including full-time students)	Looking after home or family	Long-term sick or disabled	Other
Fishguard and Surroundings	44%	30%	3%	4%	5%	2%
Haverfordwest	37%	22%	3%	4%	5%	2%
Mid Rural East	39%	28%	4%	3%	3%	1%
Milford Haven	42%	26%	3%	5%	6%	2%
Narbeth and Surroundings	39%	27%	4%	3%	4%	2%
Neyland and Surroundings	41%	28%	3%	4%	5%	2%
North East	40%	27%	4%	4%	4%	2%
Northern Saundersfoot and Surroundings	42%	25%	4%	5%	6%	3%
Pembroke and Surroundings (East)	45%	33%	3%	4%	4%	1%
Pembroke and Surroundings (West)	44%	26%	4%	6%	7%	2%
Pembroke Dock	41%	23%	4%	5%	8%	2%
St Davids and Surroundings	39%	26%	3%	3%	5%	2%
Tenby and Surroundings	44%	31%	3%	3%	5%	2%
West Coast	40%	29%	3%	3%	4%	2%
Pembrokeshire	42%	28%	3%	4%	5%	2%
Wales	41%	24%	5%	3%	6%	2%

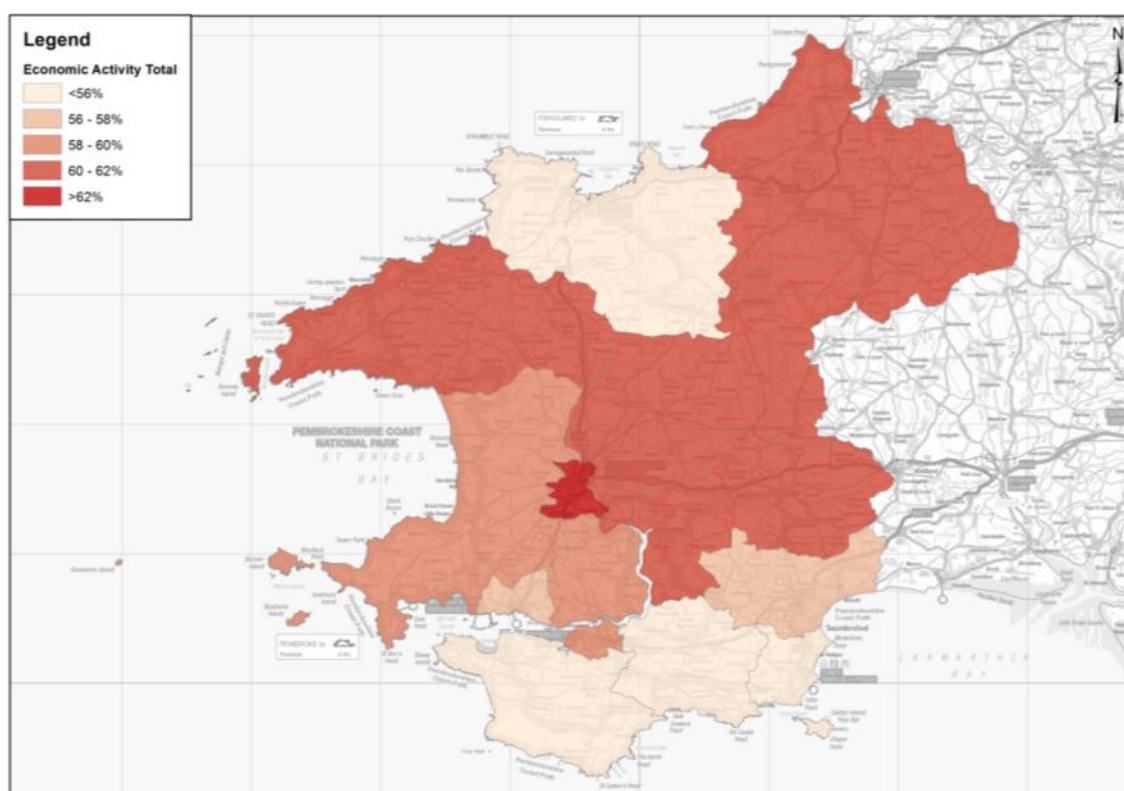


Figure 3.5: Economic Activity Rate (Source: Census 2011)

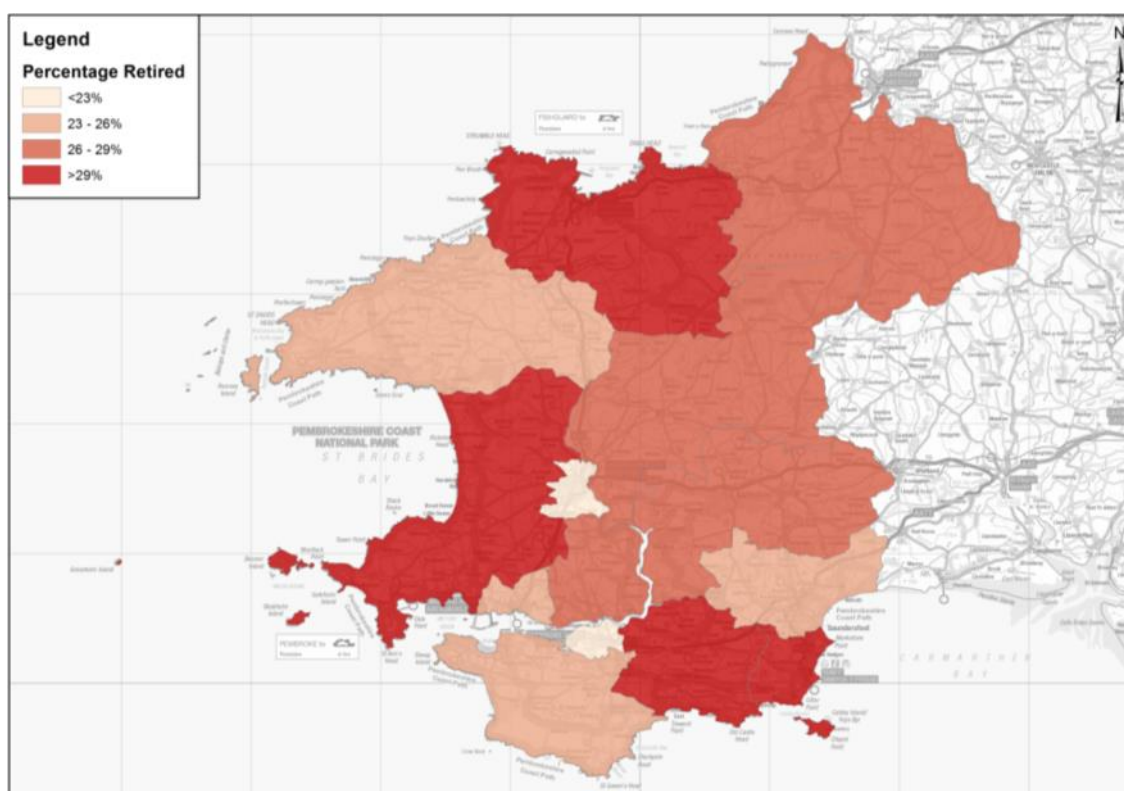


Figure 3.6: Percentage of Population Retired (Source: Census 2011)

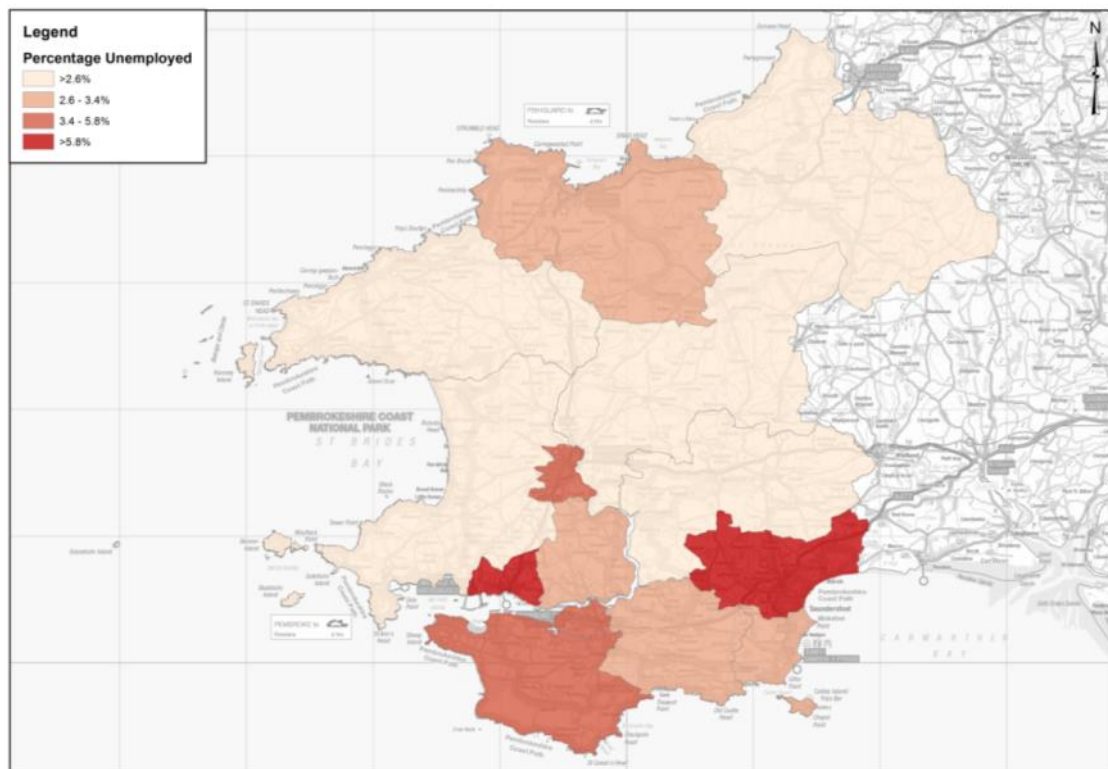


Figure 3.7: Percentage Unemployed (Source: Census 2011)

- 3.2.18 The highest levels of economic activity are found in Haverfordwest and the north and central areas whilst the coastal communities in the south and the area surrounding Fishguard in the north fall below that of Pembrokeshire as a whole. The lower levels of economic activity in Pembroke and Surroundings (East), Tenby and Surroundings, and Fishguard and Surroundings in the north is partly explained by the higher proportion of retirees in these areas.
- 3.2.19 In terms of unemployment the highest levels were in industrial Milford Haven (7%), Northern Saundersfoot and Surroundings (7%), Pembroke Dock (6%), and Pembroke and the Surroundings West (6%). Much of the unemployment in the area is concentrated in the industrial hubs around the Haven Waterway, notably Milford Haven and Pembroke Dock.

Key Point

There are lower economic activity rates in the coastal communities in the south which is in part explained by the higher proportion of retirees in these areas. Unemployment is highest in the main industrial areas of Milford Haven and Pembroke Dock. The extent to which transport acts as an inhibitor to employment creation / retention and indeed inward investment is a key question for this study.

Gross Value Added

- 3.2.20 Gross Value Added (GVA) is a measure of economic activity in a region and is measured at current basic prices, which include the effect of inflation, excluding taxes (less subsidies). The lowest geography for which data on GVA are available from the ONS is the South West Wales region which encompasses Pembrokeshire, Carmarthenshire and Ceredigion. Table 3.10 shows the change in workplace based GVA per head of population for this area as well as Anglesey, Gwynedd and Wales as a whole.

Table 3.10: Workplace based GVA per head (Source: ONS)

	2007	2013	Percentage Change 2007-2013
Isle of Anglesey	10,959	11,368	3.7%
Gwynedd	15,473	17,889	15.6%
South West Wales	12,949	13,715	5.9%
Wales	15,572	16,893	8.5%

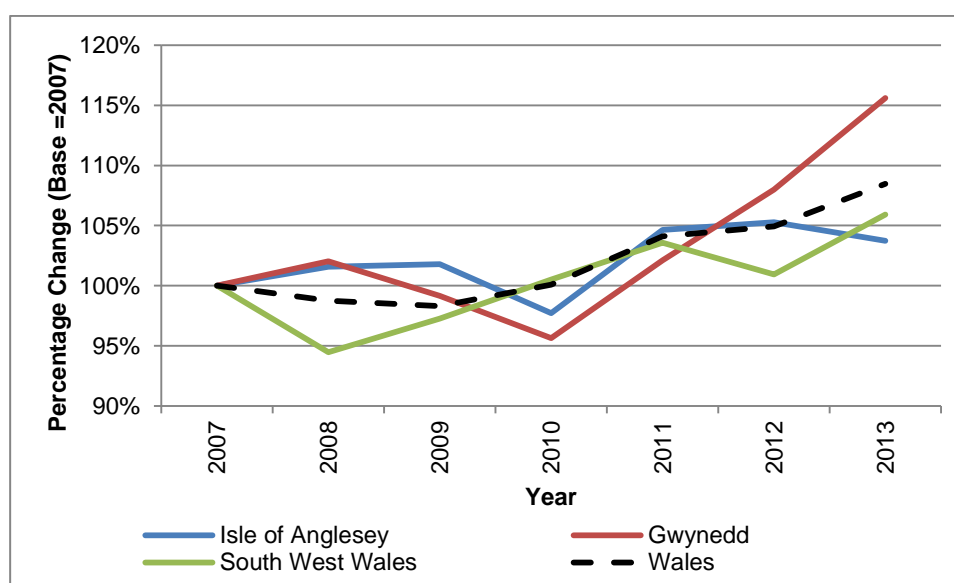


Figure 3.8: Percentage Change in Workplace based GVA per head (Source: ONS)

- 3.2.21 GVA per head of population in South West Wales in 2013 was below that of Wales with the rate of growth over the 2007-2013 period consistently tracked below that of the Welsh average.
- 3.2.22 An alternative measure of productivity is GVA per filled job. This only counts the input of those directly employed in the production process and is also a workplace based measure and therefore takes account of the impact of commuting. The table below shows the change in GVA per filled job in South West Wales, Anglesey, Gwynedd and Wales as a whole between 2007 and 2011.

Table 3.11: GVA per filled job and % Change in (Source: ONS)

	2007 £	2011 £	Percentage Change 2007-2011
Isle of Anglesey	31,604	35,305	12%
Gwynedd	30,055	29,122	-3%
South West Wales	29,615	30,379	3%
Wales	33,758	35,700	6%

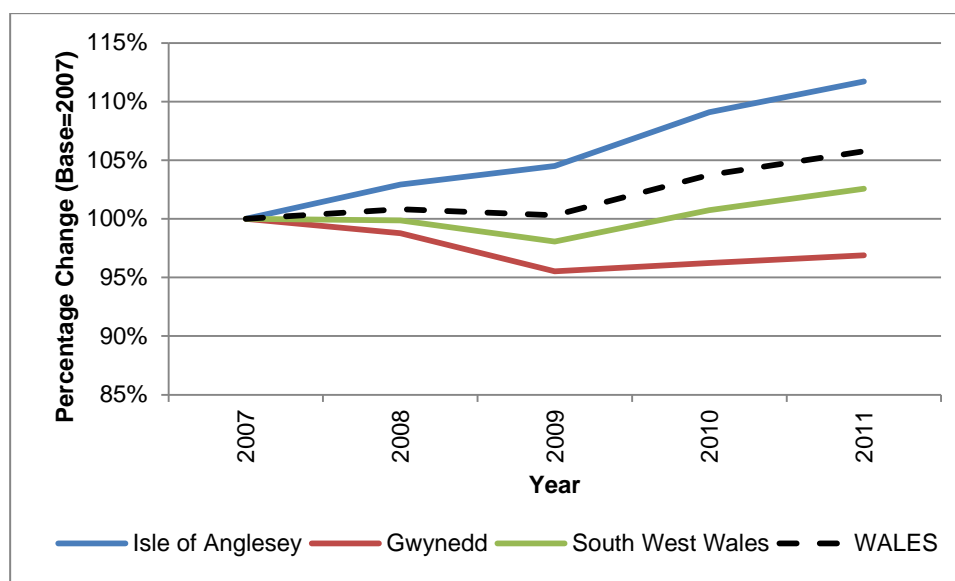


Figure 3.9: Percentage Change in GVA per filled job (Source: ONS)

- 3.2.23 GVA per filled job in South West Wales in 2011 was below that of Anglesey and the Welsh average, indicating lower productivity levels. In addition, whilst the GVA per filled job increased in South West Wales between 2007 and 2011, the rate of growth was slower than that for Wales as a whole.
- 3.2.24 This suggests that this area of Wales has been performing less well in terms of productivity growth, which is perhaps surprising given the concentration of residents in the higher occupational classifications which tend to demonstrate higher productivity growth. The driver of this trend is a critical question for this study – we need to determine the extent to which any infrastructure deficit is inhibiting investment and productivity growth.

Key Point

Labour productivity as measured by GVA per filled job in South West Wales is below that of the Welsh average and grew at a slower rate than Wales as whole between 2007-2011. This suggests that since the recession the South West Wales region has lagged behind the other areas in Wales in terms of productivity. However, it is noted that South West Wales also encompasses Ceredigion and Carmarthenshire and therefore the extent to which this pattern reflects changes in Pembrokeshire alone is unclear.

Gross Disposable Household Income

- 3.2.25 Gross Disposable Household Income (GDHI) per head is the amount of money that each individual has available for spending or saving after income distribution measures (for example taxes, social contributions and benefits) have taken effect.
- 3.2.26 The lowest geography for which data on GDHI is available is the South West Wales region. The table and figure below show the change in GDHI per head for this area as well as Gwynedd, Anglesey and Wales as a whole between 2007-2012.

Table 3.12: GDHI (£) per head at current basic prices 2007-2012 (Source: ONS)

	2007	2012	Percentage Change 2007-2012
Isle of Anglesey	12,222	15,022	23%
Gwynedd	12,070	13,874	15%
South West Wales	11,902	14,621	23%
Wales	12,388	14,623	18%

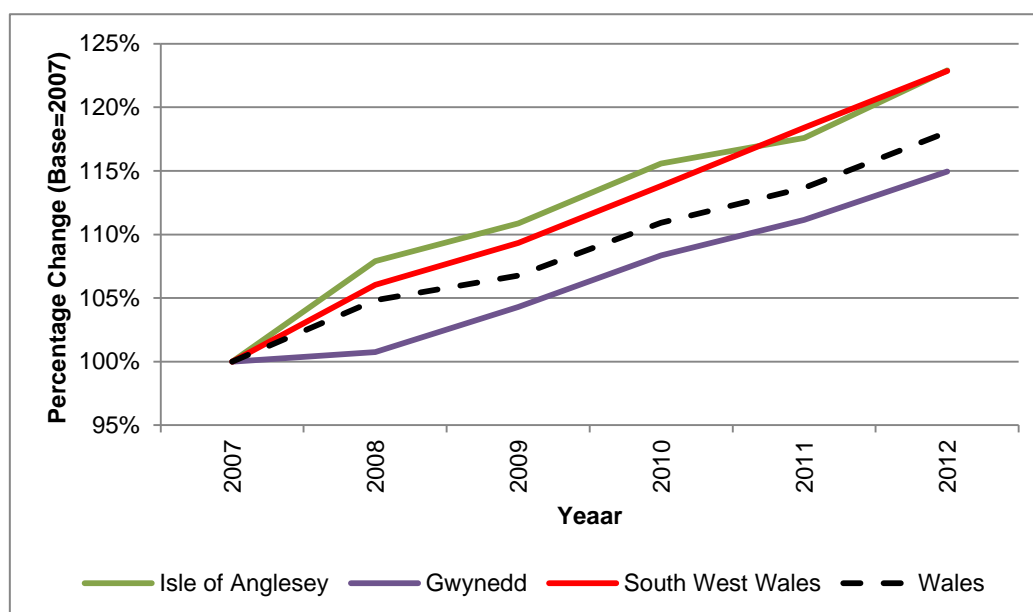


Figure 3.10: Percentage change in GDHI per head at current basic prices 2007-2012 (Source: ONS)

- 3.2.27 The average GDHI per head has increased across all these areas, with the fastest rate of growth occurring in Anglesey (23%) and South West Wales (23%) both of which surpassed the overall growth rate for Wales as a whole (18%). Whilst GDHI per head in South West Wales in 2007 was below the Welsh average (£11,902 and £12,388 respectively), by 2012 this had increased to £14,621 and was broadly equivalent to the total for Wales as a whole. The extent to which this is being driven is by the in-migration of affluent labour and / or retirees is an important question.

Key Point

GDHI per head grew at a faster rate in South West Wales than Wales between 2007-2012, with the South West Wales average being broadly equivalent to the Welsh average by 2012. This suggests that the South West Wales region has recovered well since the recession. However, it is noted that South West Wales also encompasses Ceredigion and Carmarthenshire and therefore the extent to which this pattern of growth reflects changes in Pembrokeshire alone is unclear.

Household Income

- 3.2.28 Model based estimates of average household weekly income at the MSOA level for 2007/08 are presented in the table and figure below.

Table 3.13: Average Household Income Estimates 07/08 (Source: ONS)

MSOA	Description	Estimated Average Weekly Household Income (07/08)
12	Milford Haven (West)	£470
13	Pembroke Dock	£470
5	Haverfordwest (North)	£480
10	Milford Haven (East)	£480
15	Pembroke and Surroundings (West)	£480
2	Fishguard and Surroundings	£490
11	Northern Saundersfoot and Surroundings	£490
16	Tenby and Surroundings	£490
1	North East	£500
7	Narbeth and Surroundings	£520
3	St Davids and Surroundings	£530
6	Haverfordwest (South)	£530
8	West Coast	£540
4	Mid Rural East	£550
9	Neyland and Surroundings	£560
14	Pembroke and Surroundings (East)	£560

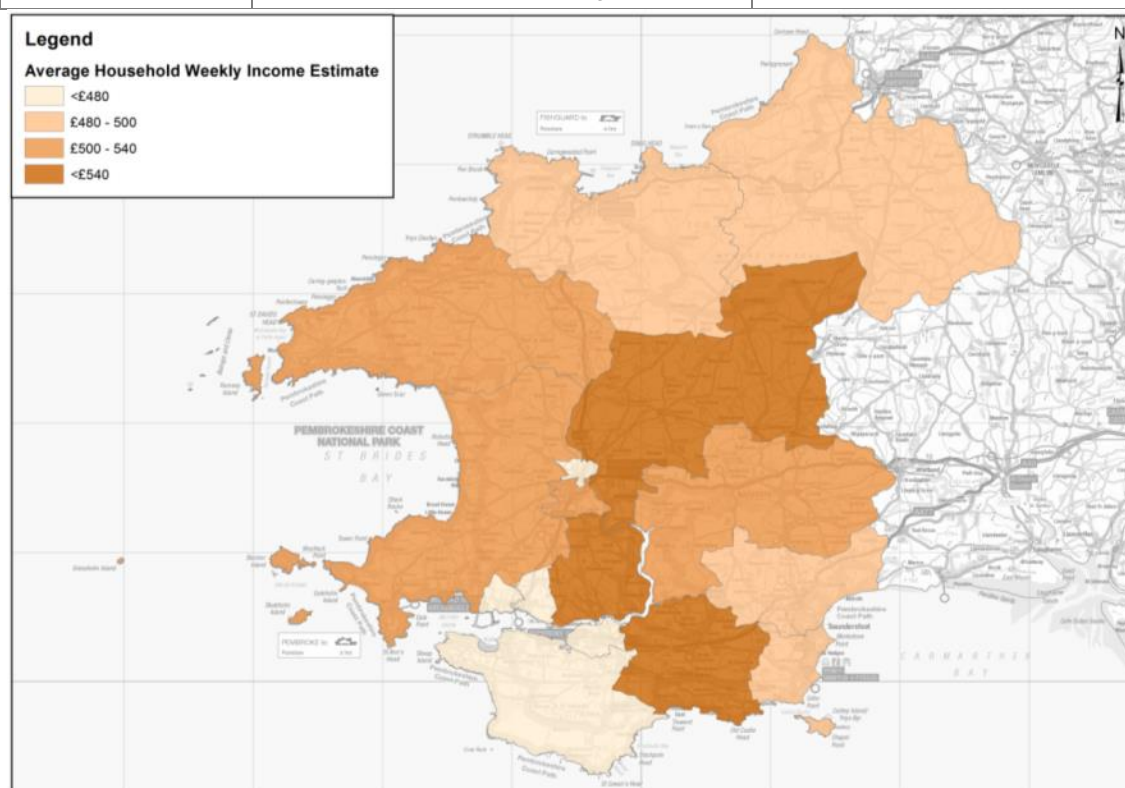


Figure 3.11: Average Household Weekly Income Estimate 2007/08 (Source: ONS Model Estimates)

3.2.29 Whilst these data are necessarily limited given the timeframe involved, it does highlight clear differences in income across the County, with the lowest income levels found in industrial Milford Haven, Pembroke Dock, Pembroke and Surroundings West and to a lesser extent

Haverfordwest. This may be expected given the wider socio-economic profile of these areas and in particular the higher prevalence of elementary occupations.

Key Point

Average Household Income differs across the County with the lowest rates found within the south-west and Haverfordwest. Improving the A40 could stimulate development and employment opportunities, particularly in Haverfordwest which in turn could support a growth in wages. However, given the journey times involved such impacts may be less likely in Pembroke Dock and Pembroke and Surroundings West.

Annual Pay and Hours Worked

- 3.2.30 Tables 3.14 and 3.15 below show the median gross annual pay for full time and part time workers in Pembrokeshire, the comparison counties and Wales as a whole.

Table 3.14: Median Gross Annual Pay for Full Time Workers (Source: Annual Survey of Hours and Earnings)

	2008	2009	2010	2011	2012	2013	2014	Change 2008-2014
Anglesey	21,170	23,165	22,871	21,079	23,640	23,076	23,517	11%
Ceredigion	19,313	21,387	21,181	21,951	21,354	22,822	21,708	12%
Gwynedd	20,237	21,162	-	22,262	22,903	23,700	-	-
Pembrokeshire	23,572	22,987	23,786	23,671	21,911	23,208	22,956	-3%
Wales	22,324	23,124	23,490	23,606	23,918	24,427	24,786	11%

Table 3.15: Median Gross Annual Pay for Part Time Workers (Source: Annual Survey of Hours and Earnings)

	2009	2010	2011	2012	2013	Change 2009-2013
Anglesey	-	-	-	-	-	-
Ceredigion	-	7,967	8,505	7,473	7,870	-
Gwynedd	8,424	-	-	8,334	8,597	2%
Pembrokeshire	7,930	-	-	8,112	9,016	14%
Wales	8,558	8,459	8,393	8,380	8,906	4%

- 3.2.31 Overall there was a 3% decline in full time pay in Pembrokeshire between 2008 and 2013. This compares to an 11% increase in Anglesey, a 12% increase in Ceredigion and an 11% increase in Wales as a whole. This change in full time pay is significant as it suggests that the County has been disproportionately impacted by the recession and is lagging behind both Wales and the comparison counties in terms of its recovery.
- 3.2.32 Over the same time period, annual part time pay in the County increased by 14% compared to a 2% increase in Gwynedd and a 4% increase in Wales as a whole.

Key Point

Annual full time pay in Pembrokeshire fell between 2008 and 2013 whilst over the same time period full time pay in the comparison counties and Wales increased. This change in full time pay suggests that the County was disproportionately impacted by the recession and is lagging behind the rest of Wales in terms of its recovery.

Educational Attainment

- 3.2.33 The level of qualifications held by the population of an area is seen to be an indicator of economic performance. Areas with a high proportion of well qualified people tend to perform comparatively better (in terms occupational classification, average wages etc) than areas characterised by low educational attainment.
- 3.2.34 The table and figure below show the qualification attainment amongst the population aged 16 and over in Pembrokeshire, the comparison counties and Wales as a whole according to the 2011 Census.

Table 3.16: Highest Level of Qualification (Source: Census 2011)

	No Qualifications	Level 1 Qualifications	Level 2 Qualifications	Apprenticeship	Level 3 Qualifications	Level 4 Qualifications and Above	Other Qualifications
Fishguard and Surroundings	24%	13%	16%	4%	11%	27%	4%
Haverfordwest	24%	16%	18%	4%	12%	23%	4%
Mid Rural East	22%	12%	17%	4%	11%	31%	4%
Milford Haven	29%	16%	17%	6%	12%	17%	4%
Narbeth and Surroundings	23%	12%	16%	4%	11%	30%	4%
Neyland and Surroundings	23%	13%	17%	5%	12%	26%	4%
North East	23%	13%	17%	4%	11%	28%	4%
Northern Saundersfoot and Surroundings	27%	13%	16%	4%	10%	25%	4%
Pembroke and Surroundings (East)	20%	13%	16%	5%	12%	30%	4%
Pembroke and Surroundings (West)	29%	14%	17%	5%	12%	19%	5%
Pembroke Dock	30%	15%	18%	5%	13%	15%	4%
St Davids and Surroundings	20%	12%	17%	4%	12%	30%	4%
Tenby and Surroundings	24%	14%	16%	4%	11%	26%	5%
West Coast	23%	11%	16%	4%	12%	29%	4%
Pembrokeshire	25%	14%	17%	4%	12%	25%	4%
Anglesey	24%	13%	16%	5%	12%	26%	4%
Ceredigion	20%	11%	15%	3%	19%	28%	4%
Gwynedd	23%	12%	16%	4%	15%	26%	4%
Wales	26%	13%	16%	4%	12%	24%	4%

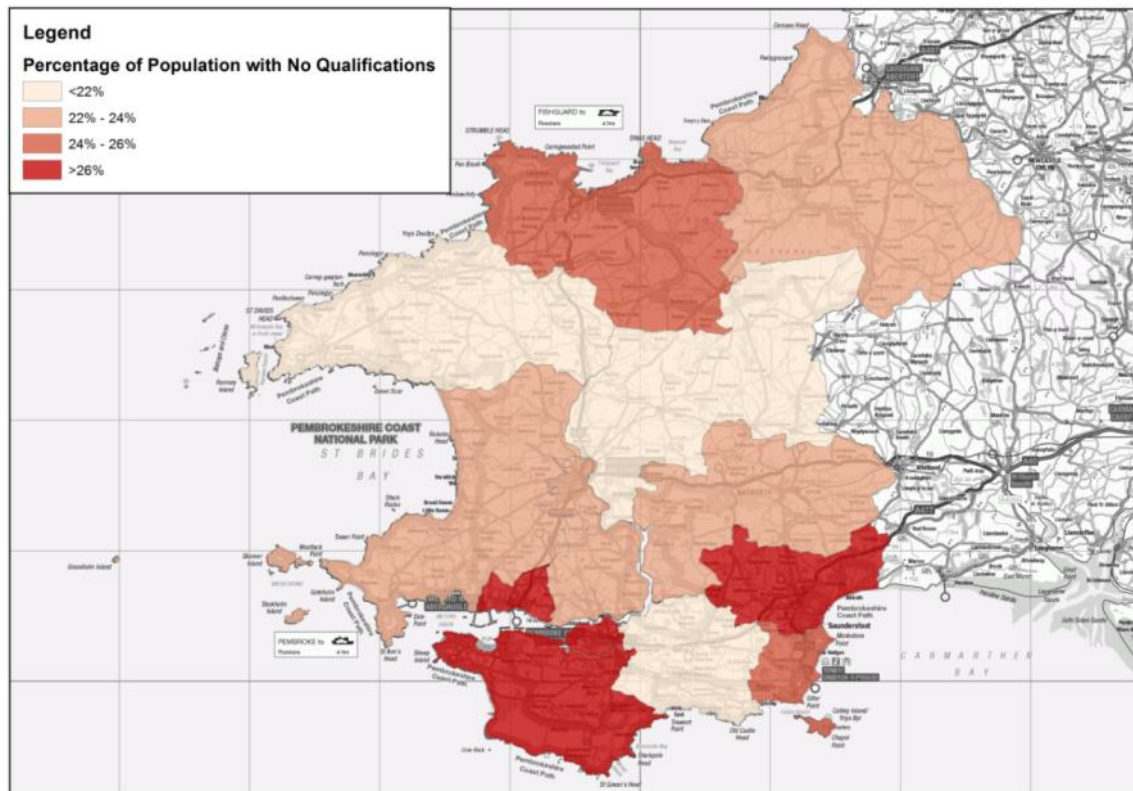


Figure 3.12: Percentage of Population with No Qualifications (Source: Census 2011)

- 3.2.35 Overall Pembrokeshire has a higher percentage of people with no qualifications (25%) compared to the comparison counties but a slightly lower proportion than the Welsh average (26%). Similarly, the County has a lower proportion of people with qualifications at level 4 and above (25%) than the comparison counties albeit a higher rate than Wales as a whole (24%).
- 3.2.36 Below the county level, educational attainment tends to be lower in the south-west and south-east of the County. Industrial Pembroke Dock and Milford Haven in particular have high levels of residents with no qualifications (30% and 29% respectively) and a low proportion of residents with 'Level 4 and above' qualifications (15% and 17% respectively).

Key Point

Educational attainment in Pembrokeshire is slightly higher than the Welsh average although lower than that of the comparison counties. The south-east and south-west of the County, particularly industrial Pembroke Dock and Milford Haven, have the lowest levels of attainment reflecting the wider socio-economic profiles of these areas.

Deprivation

- 3.2.37 The Welsh Government produces the Welsh Index of Multiple Deprivation (WIMD) which is the official measure of relative deprivation for small areas in Wales. The WIMD measures deprivation at the Lower Super Output Area (LSOA) level and is made up of eight separate domains (or types) of deprivation namely: income; employment; health; education; access to services; community safety; physical environment and housing.
- 3.2.38 The generally accepted point at which an area is defined as deprived is when it is classified in the '20% most deprived'. The figure below shows the levels of deprivation in Pembrokeshire in WIMD 2014 by quintile. The figure highlights concentrated pockets of deprivation in

Haverfordwest, Milford Haven, and Pembroke Dock. The deprivation in the latter of these areas is likely to be at least partly driven by structural unemployment, possibly caused by the decline in the energy industry.

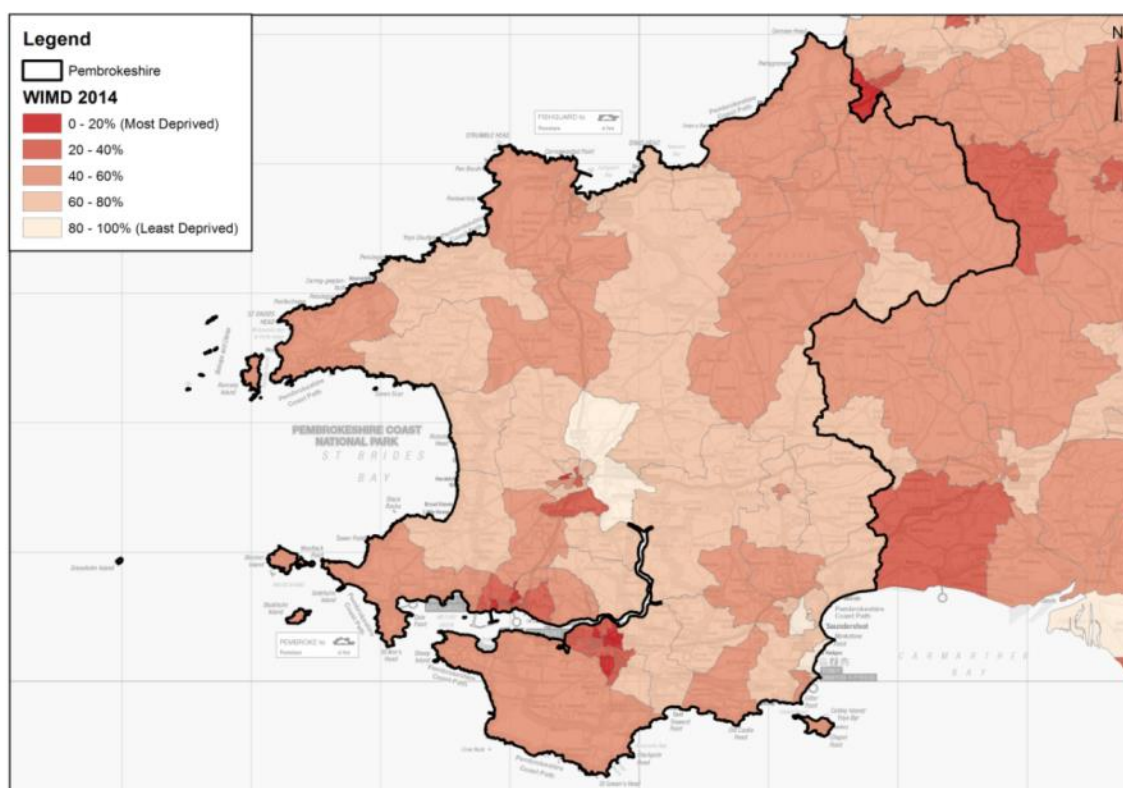


Figure 3.13: Pembrokeshire WIMD 2014

3.2.39 In terms of the change in deprivation over time, Table 3.17 shows the proportion of Pembrokeshire's LSOAs in different categories of deprivation for WIMD 2005 to WIMD 2014. As shown the proportion of the study area's LSOAs in the '20% most deprived' category has remained relatively constant since 2005.

Table 3.17: Number of Pembrokeshire's LSOAs in different Categories of Deprivation

	2005	2008	2011	2014
0 - 20% (most deprived)	8%	7%	8%	8%
20 - 40%	14%	13%	17%	18%
40 - 60%	42%	42%	37%	31%
60 - 80%	35%	38%	37%	38%
80 - 100% (Least deprived)	0%	0%	1%	4%

3.2.40 The issue of tackling deprivation is a key one for the Welsh Government. Of particular significance in this regard is the *Communities First Tackling Poverty Programme*, which supports the most disadvantaged people in the most deprived areas of Wales with the aim of contributing to the alleviation of persistent poverty.

3.2.41 Communities First is focussed on 52 clusters which are eligible for support under this programme. Pembrokeshire has one of the 52 Communities First clusters, largely focussed around a group of LSOAs in Pembroke and Pembroke Dock¹³ and a single LSOA in Haverfordwest¹⁴, as is illustrated in the map below:

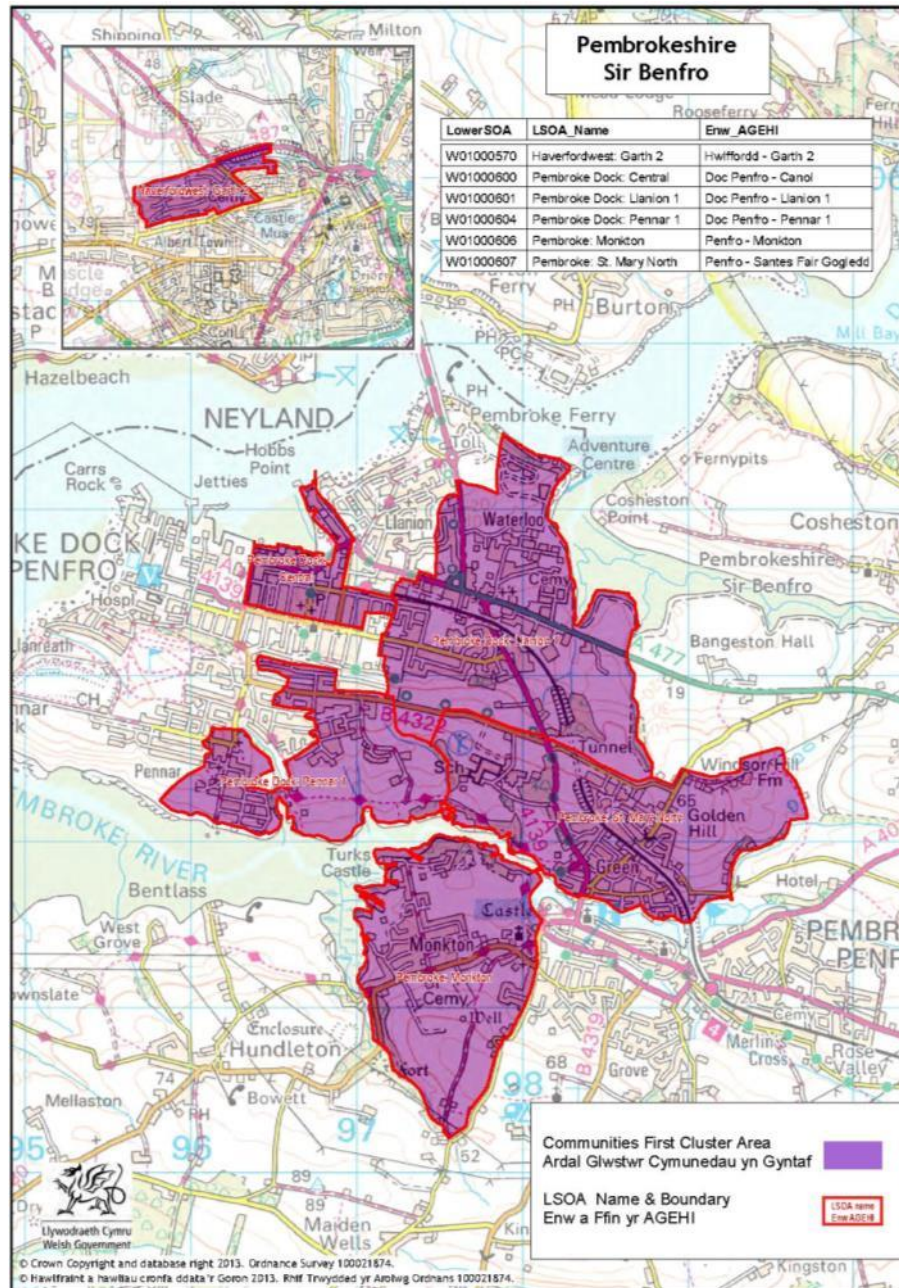


Figure 3.14: Communities First Cluster Pembrokeshire

¹³ These are Pembroke Dock Central; Pembroke Dock Llanion 1; Pembroke Dock Penner 1; Pembroke Monkton; and Pembroke St Mary North.

¹⁴ This is Haverfordwest Garth 2.

Key Point

There are concentrated pockets of deprivation in Haverfordwest, Milford Haven and Pembroke Dock. Of particular importance is the Communities First Cluster largely focussed on Pembroke and Pembroke Dock. Overall, the proportion of Pembrokeshire's LSOAs in the category of 20% most deprived has remained fairly consistent since 2005.

Travel to Work

3.2.42 Figures 3.15 to 3.22 show the 2011 travel-to-work flow patterns from, and to each of the key settlements in Pembrokeshire.

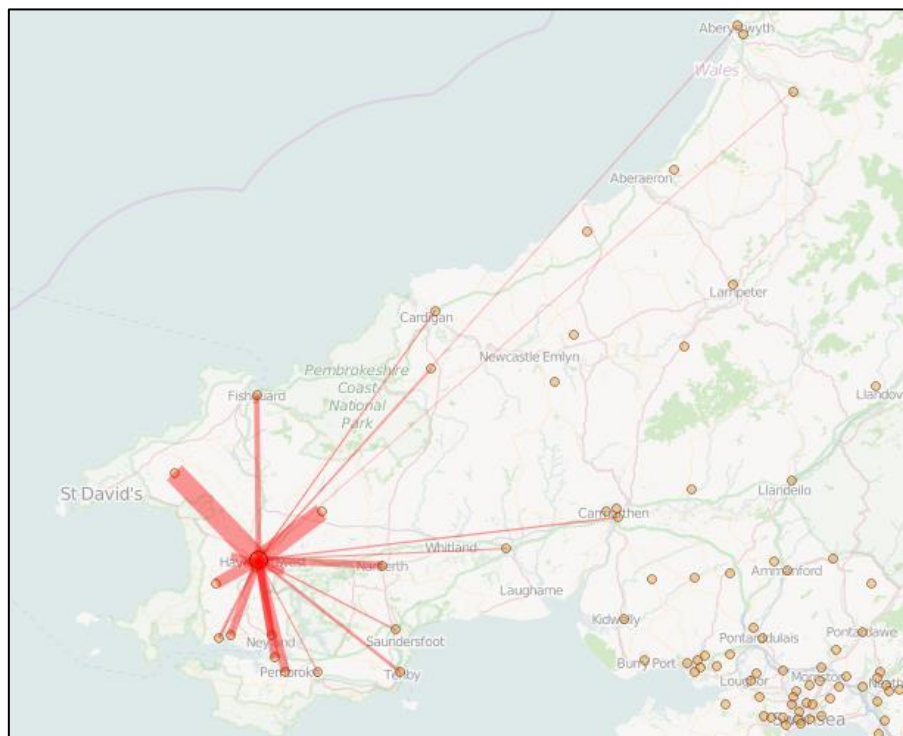


Figure 3.15: Travel to Work Flows from Haverfordwest North (Source: Datashine)

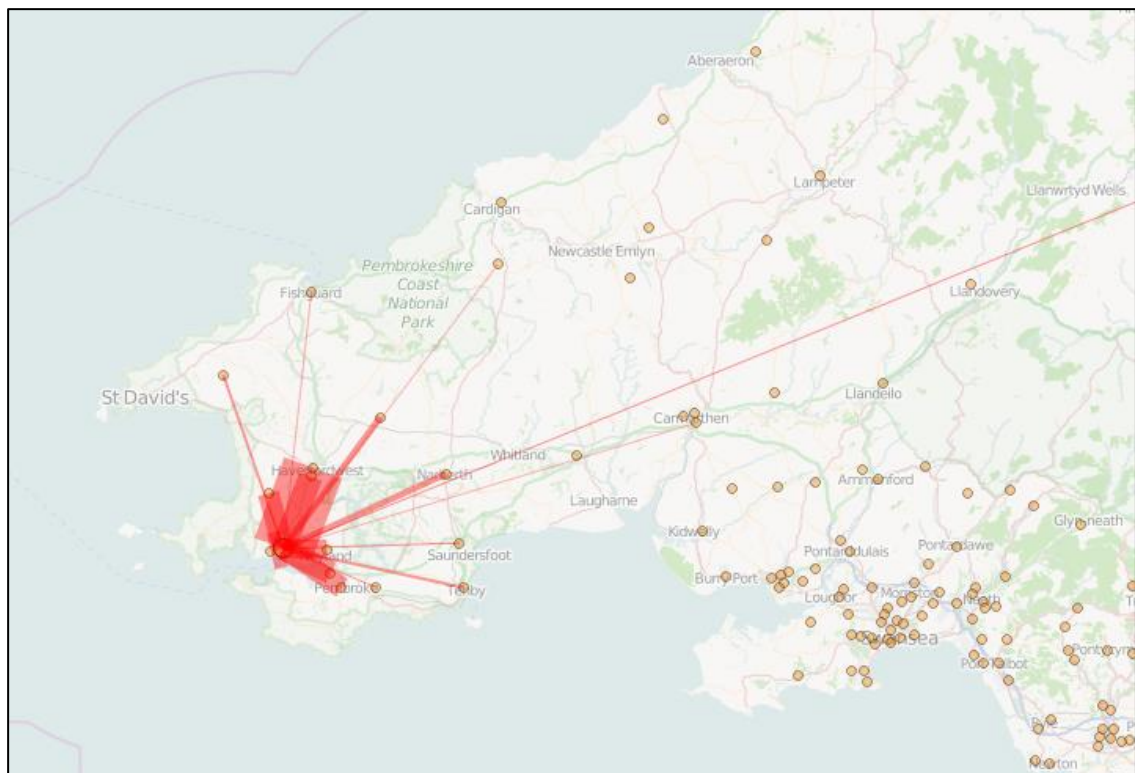


Figure 3.16: Travel to Work Flows from Milford Haven (East) (Source: Datashine)

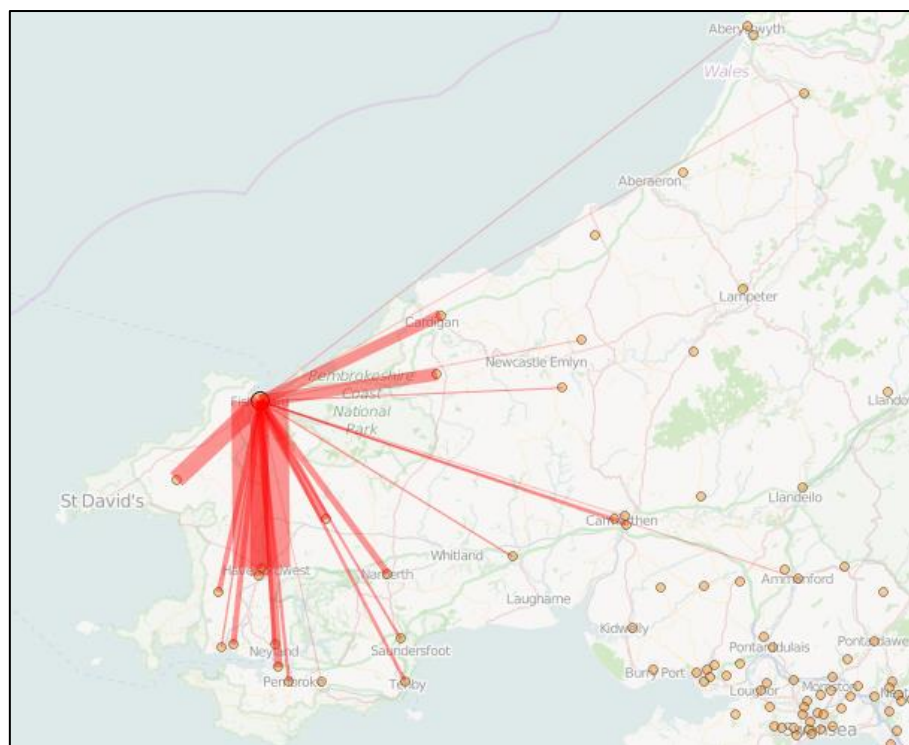


Figure 3.17: Travel to Work Flows from Fishguard (Source: Datashine)

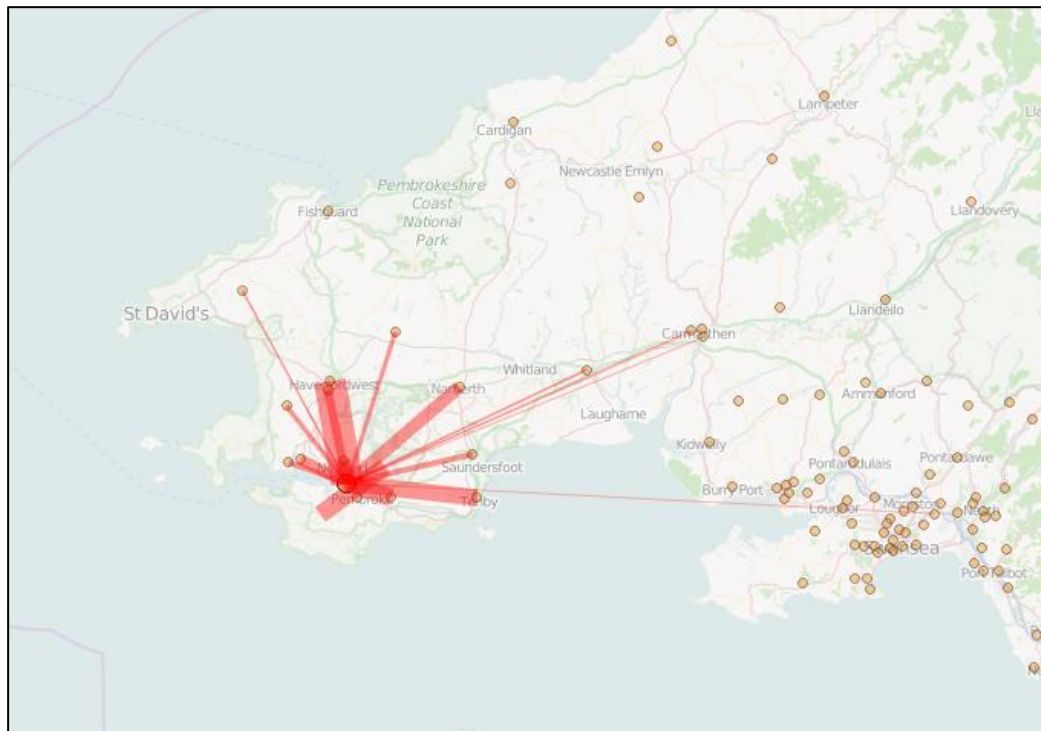


Figure 3.18: Travel to Work Flows from Pembroke Dock (Source: Datashine)

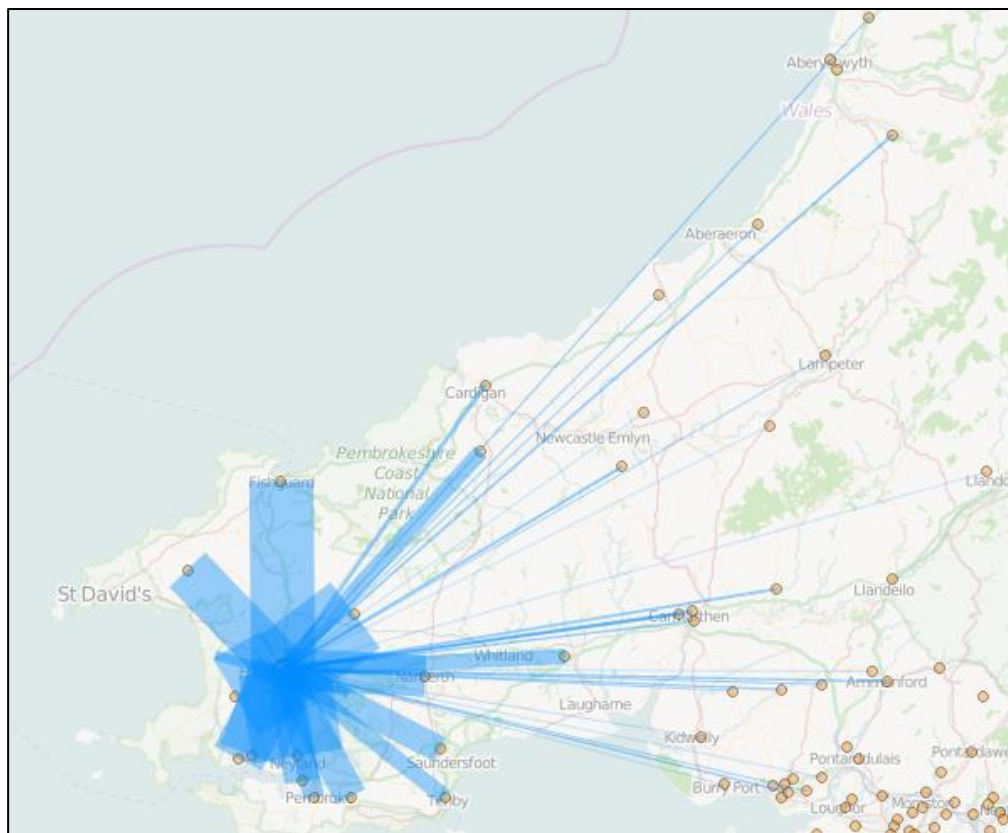


Figure 3.19: Travel to Work Flows to Haverfordwest (North) (Source: Datashine)

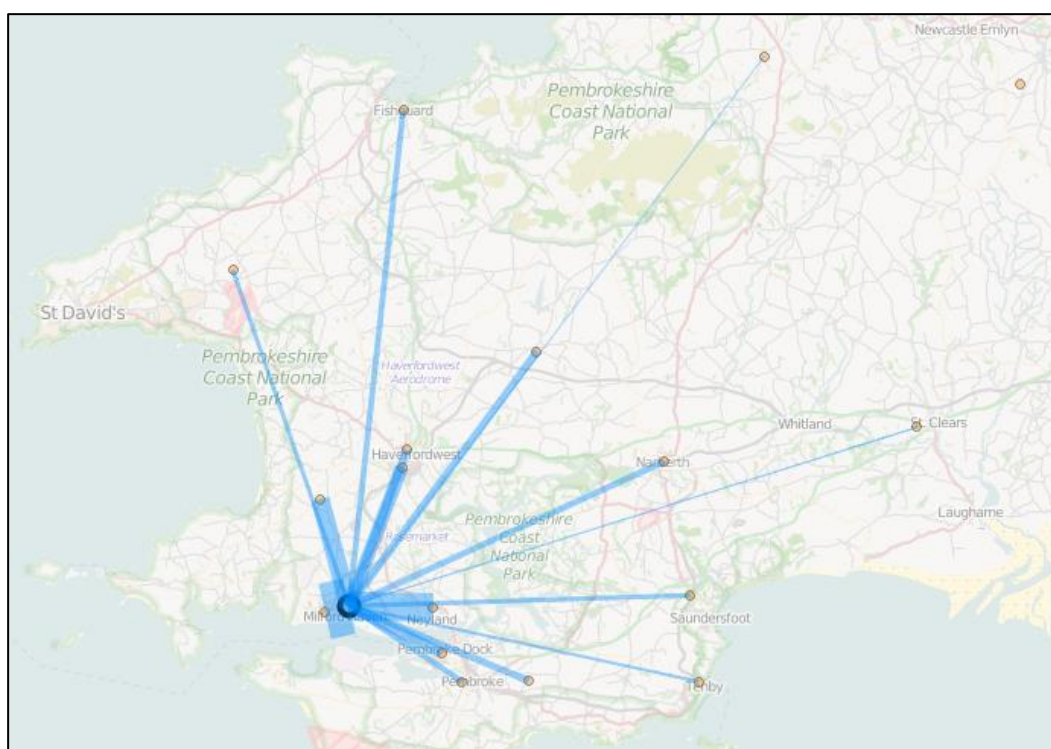


Figure 3.20: Travel to Work Flows to Milford Haven (East) (Source: Datashine)

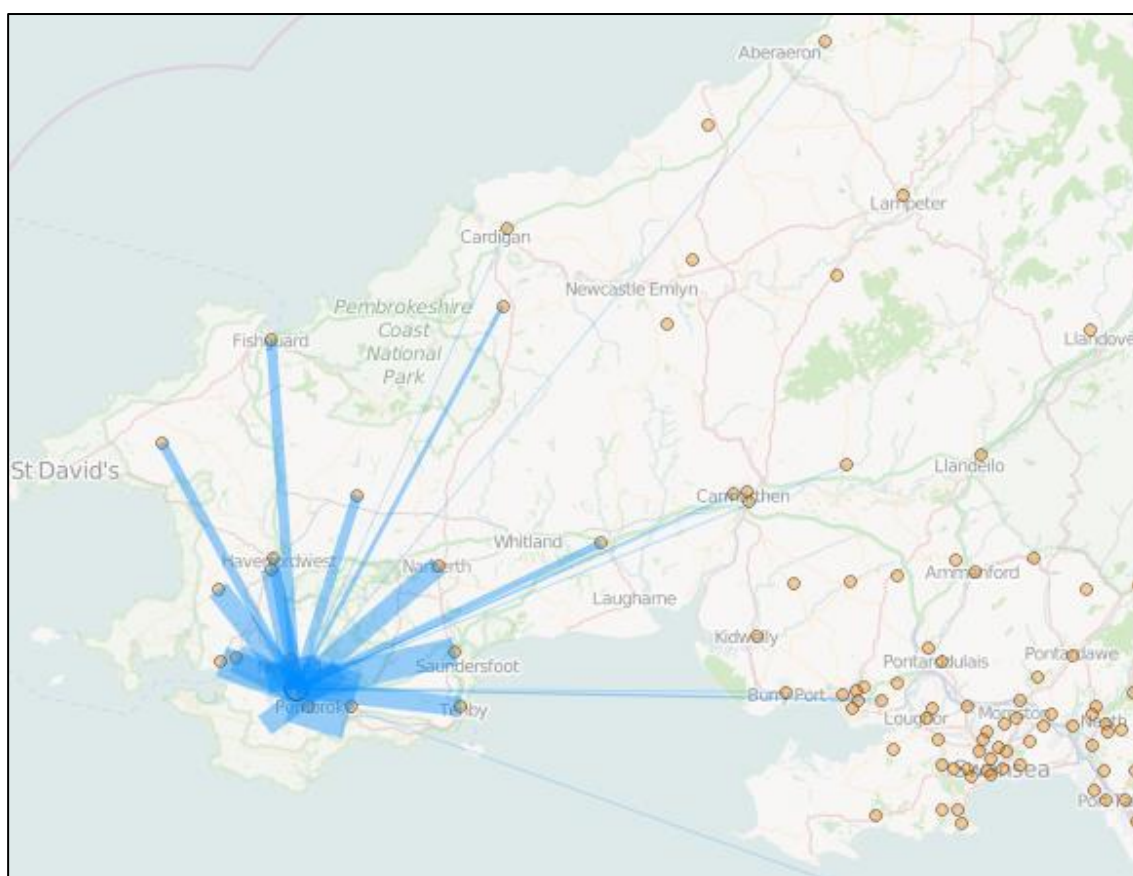


Figure 3.21: Travel to Work Flows to Pembroke Dock (Source: Datashine)

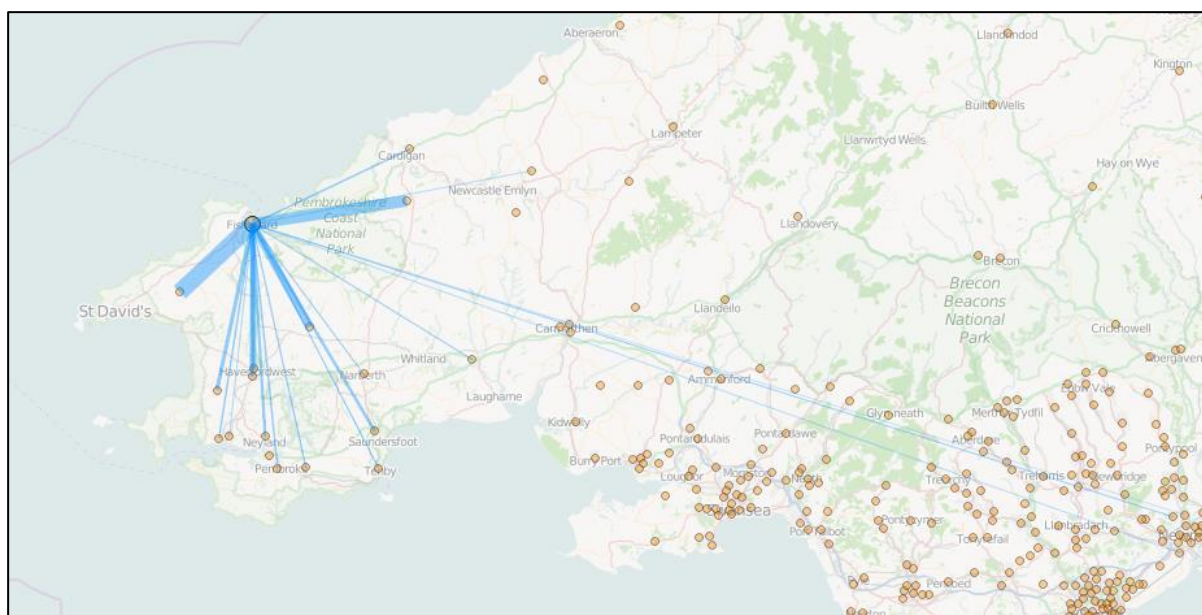


Figure 3.22: Travel to Work Flows to Fishguard (Source: Datashine)

- 3.2.43 The graphs above highlight that the Pembrokeshire labour market is relatively self-contained with low levels of commuting into and out of the County. In total in 2011, just 8% of Pembrokeshire's population commuted outside of the County for work. This pattern of self-containment is not replicated in the neighbouring County of Carmarthenshire where the equivalent figure for 2011 was 21%.
- 3.2.44 A key question is whether this differential between Pembrokeshire and neighbouring Carmarthenshire is a product of poor transport connections.

Key Point

The Pembrokeshire labour market is relatively self-contained with low levels of in and out commuting to / from the County.

Improving the A40 between St Clears and Haverfordwest would act to enhance transport links to the wider South Wales region which in turn could contribute to greater levels of productivity as a result of enhanced access to the labour market. The validity of this argument depends on the extent to which the quality of the A40 connection is currently constraining the Pembrokeshire travel-to-work market.

3.3 Economic Performance

Employment Structure

- 3.3.1 Table 3.18: Percentage Employee Jobs by Industry (Source: BRES 2013)**Error! Reference source not found.**8 shows the approximate percentage employee jobs by industry in Pembrokeshire, the comparison counties and Wales as a whole.

Table 3.18: Percentage Employee Jobs by Industry (Source: BRES 2013)

	Anglesey	Ceredigion	Gwynedd	Pembrokeshire	Wales
Primary Services (A-B: Agriculture and Mining)	0.4	1	0.7	0.8	0.3
Energy and Water (D-E)	3.8	1	2.4	1.2	1.6
Manufacturing (C)	10.1	4.7	6.2	7.7	11.8
Construction (F)	5.9	4.4	4.2	6.2	4.3
Services (G-S)	79.8	88.9	86.5	84	81.9
Wholesale and Retail, Including Motor Trades (G)	17.7	15.6	15.7	16.3	15.5
Transport Storage (H)	7.8	2.9	2	4.6	3.2
Accommodation and Food Services(I)	11.9	10.6	13.8	13.6	7.6
Information and Communication (J)	0.4	1.2	1.6	0.8	1.8
Financial and Other Business Services(K-N)	11.4	8.6	9.2	9.6	14.3
Public Admin, Education and Health (O-Q)	26.3	44.4	39.2	33.4	35.2
Other Services (R-S)	4.2	5.5	4.9	5.7	4.3

- 3.3.2 Pembrokeshire has a higher proportion of employee jobs in the 'accommodation and food services' sector (13.6%) compared to the Welsh average (7.6%) reflecting the overall importance of the tourism sector for the Pembrokeshire economy. There is also a slightly higher proportion of jobs within the primary services (0.8%) and construction sectors (6.2%, likely driven by the Haven Waterway) compared to the Welsh average (0.3% and 4.3% respectively).
- 3.3.3 Note that the manufacture of refined petroleum products is included within the manufacturing sector. Whilst the overall proportion of manufacturing jobs in Pembrokeshire is below that of Wales as a whole, the majority of the 7.7% manufacturing jobs in Pembrokeshire are in the refining industry.
- 3.3.4 Overall, a high proportion of employee jobs in Pembrokeshire (33.4%) fall in the public admin, education and health sector, which is not uncommon in rural areas. However, the proportion in this category is lower than that in the comparison counties of Ceredigion (44.4%) and Gwynedd (39.2%) and Wales as a whole (33.4%).
- 3.3.5 The table and figures below examine how employee jobs by industry are distributed across the different geographical zones within the County.

Table 3.19: Employee Jobs by Sector in 2013 (Source: BRES)

	Agriculture, forestry & fishing	Mining, quarrying & utilities	Manufacturing	Construction	Motor trades	Wholesale	Retail	Transport & storage (inc postal)	Accommodation & food services	Information & communication	Financial & insurance	Property	Professional, scientific & technical	Business administration & support services	Public administration & defence	Education	Health	Arts, entertainment, recreation & other services
North East	-	3%	10%	8%	4%	4%	7%	16%	8%	1%	1%	2%	3%	2%	1%	19%	6%	7%
Fishguard and Surroundings	-	-	4%	7%	2%	2%	12%	17%	14%	2%	2%	1%	9%	2%	2%	-	17%	8%
St Davids and Surroundings	1%	-	4%	6%	1%	1%	8%	3%	34%	1%	0%	1%	2%	4%	3%	15%	9%	6%
Mid Rural East	1%	8%	4%	9%	7%	7%	15%	7%	4%	2%	-	0%	6%	9%	0%	8%	4%	5%
Haverfordwest	-	1%	1%	2%	1%	1%	15%	-	5%	0%	2%	2%	3%	1%	14%	15%	34%	3%
Narbeth and Surroundings	-	2%	4%	4%	4%	4%	15%	6%	29%	1%	1%	1%	5%	2%	1%	4%	8%	9%
West Coast	1%	11%	-	6%	4%	4%	4%	4%	20%	1%	-	-	4%	2%	1%	9%	27%	3%
Neyland and Surroundings	-	10%	14%	9%	5%	5%	7%	2%	9%	2%	7%	0%	5%	5%	-	7%	11%	3%
Milford Haven	1%	0%	11%	16%	2%	2%	14%	5%	6%	1%	1%	1%	6%	4%	4%	11%	9%	5%
Northern Saundersfoot and Surroundings	0%	1%	1%	3%	1%	1%	12%	2%	35%	0%	-	1%	3%	3%	-	8%	16%	12%

	Agriculture, forestry & fishing	Mining, quarrying & utilities	Manufacturing	Construction	Motor trades	Wholesale	Retail	Transport & storage (inc postal)	Accommodation & food services	Information & communication	Financial & insurance	Property	Professional, scientific & technical	Business administration & support services	Public administration & defence	Education	Health	Arts, entertainment, recreation & other services
Pembroke Dock	0%	-	15%	10%	3%	3%	15%	9%	5%	0%	1%	-	2%	5%	9%	7%	12%	5%
Pembroke and Surroundings (East)	0%	0%	8%	9%	2%	2%	7%	2%	24%	2%	0%	1%	5%	3%	-	20%	4%	11%
Pembroke and Surroundings (West)	0%	-	-	10%	0%	0%	8%	-	12%	1%	2%	2%	8%	9%	-	25%	14%	8%
Tenby and Surroundings	-	-	2%	2%	2%	2%	16%	3%	43%	1%	1%	1%	2%	3%	2%	-	12%	8%
Pembrokeshire	0%	2%	8%	6%	2%	2%	12%	5%	14%	1%	1%	1%	4%	3%	5%	12%	16%	6%
Wales	1%	2%	12%	4%	3%	3%	11%	3%	7%	2%	3%	1%	5%	6%	7%	11%	16%	4%

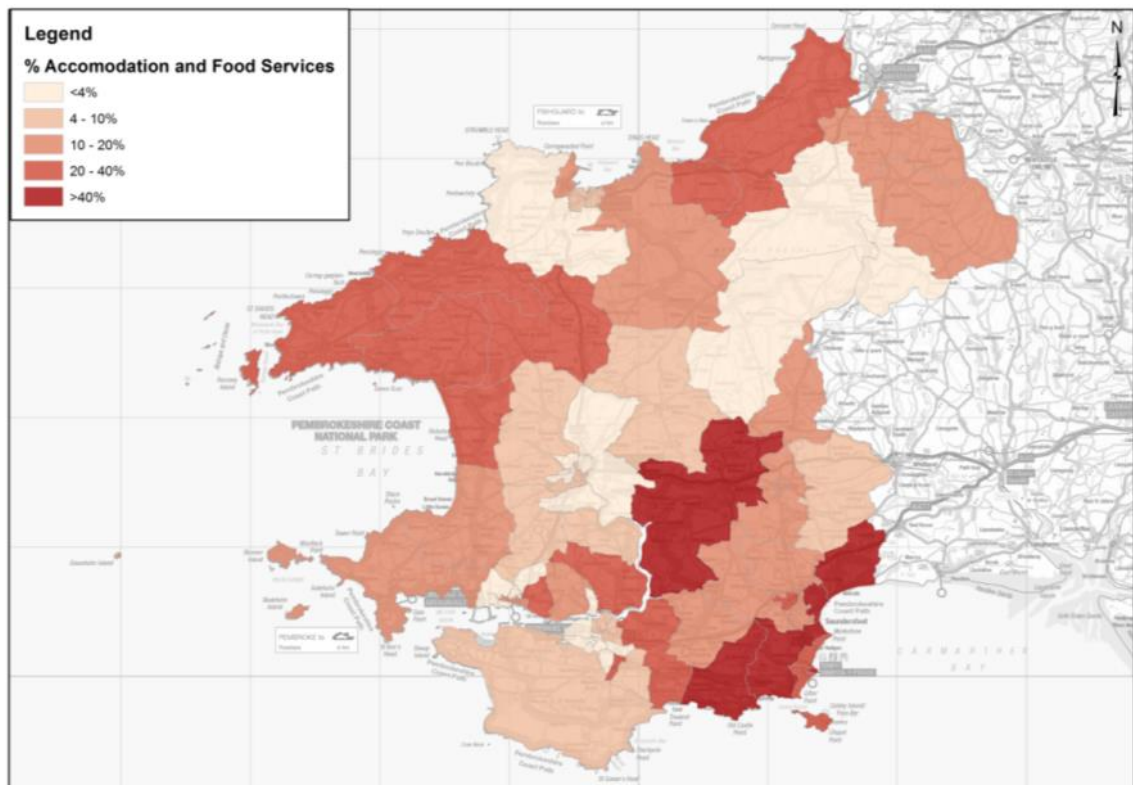


Figure 3.23: Percentage of Employee Jobs in Accommodation and Food Services in 2013 LSOA (Source: BRES)

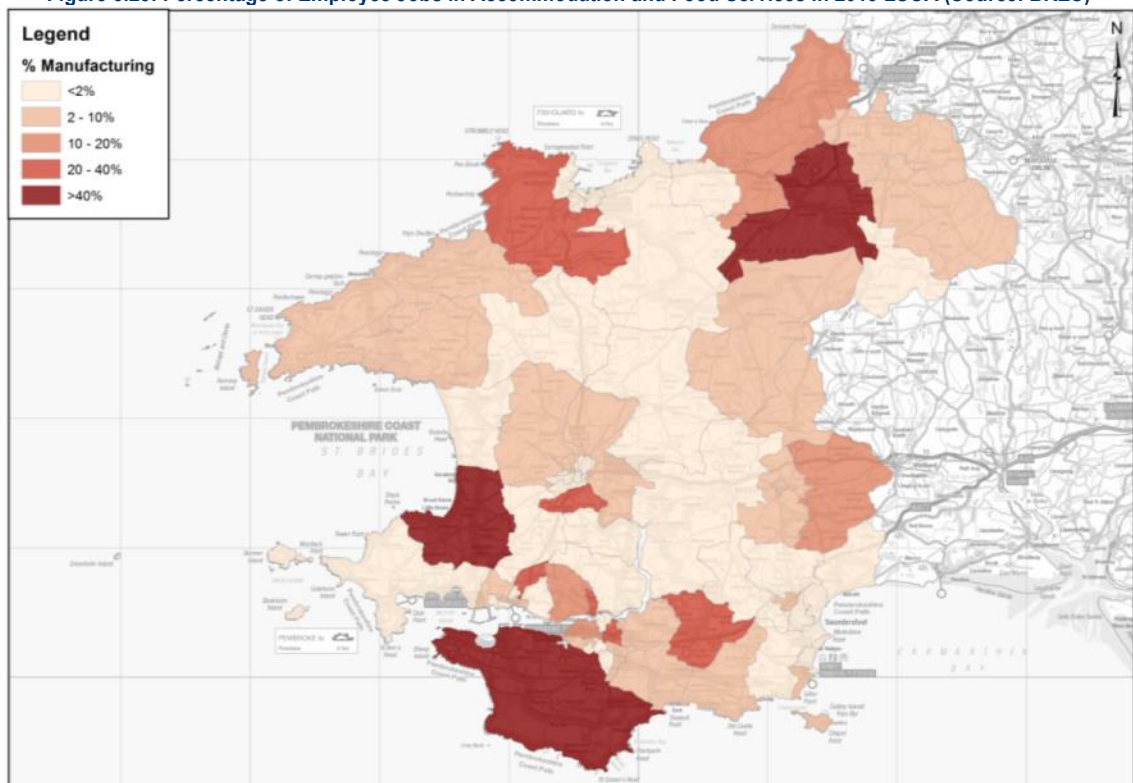


Figure 3.24: Percentage of Employee Jobs in Manufacturing in 2013 at LSOA Level (Source: BRES)

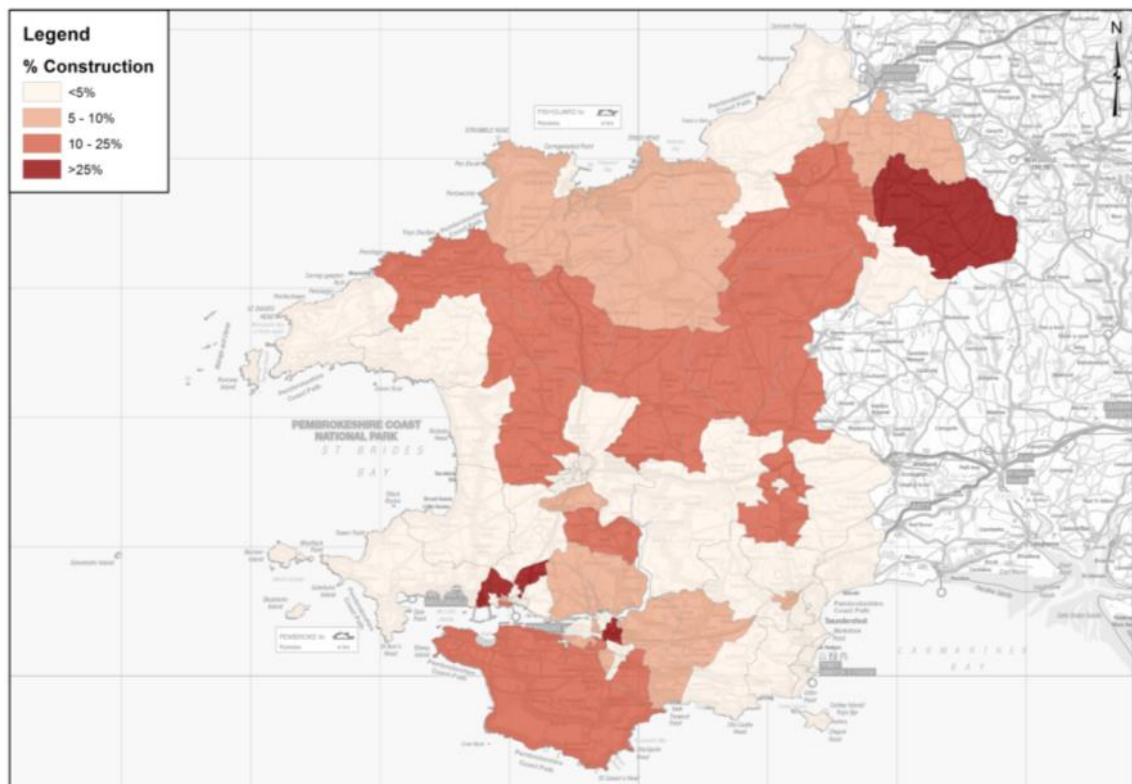


Figure 3.25: Percentage of Employee Jobs in Construction in 2013 at LSOA Level (Source: BRES)

- 3.3.6 As shown in Figure 3.23, accommodation and food service jobs are concentrated in the more tourist focused areas on the south-east coast as well as St David's and the Surroundings.
- 3.3.7 Conversely manufacturing and construction jobs are concentrated in the south-west and north-east of the County. This is an important point as these industries are generally more transport intensive, which contrasts with service and public sector jobs.
- 3.3.8 As discussed above the majority of the manufacturing jobs fall in the 'manufacture of petroleum products' category and their dominance in specific locales can be explained by the distribution of the major oil refineries. For example, the only remaining operational oil refinery (the Pembroke Refinery operated by Valero) is located in Pembroke and Surroundings East, whilst the Milford Haven Oil Refinery is in the 'West Coast' category. As discussed above, it was announced in 2014 that the latter would be converted into a storage and distribution centre in 2014 and therefore the proportion of manufacturing jobs in this area will likely be considerably lower now. The area with the high percentage of manufacturing to the north-east of the county is focussed on glass production.
- 3.3.9 Finally, as may be expected given the concentration of public services in the town, there is a high proportion of employee jobs in the public administration and health sectors in Haverfordwest.

Key Point

Overall Pembrokeshire has a high concentration of jobs in the tourism and public administration sectors, with the former concentrated in the tourist communities in the south-east and north-west and the latter focussed on Haverfordwest.

In contrast manufacturing and construction jobs (which are generally more transport intensive) are concentrated in the south-west of the County. Whilst the data suggests that the largest concentration of manufacturing jobs are currently in Milford Haven, with the repurposing of the Milford Haven Refinery, the focus for manufacturing will likely switch to Pembroke and Surroundings West.

Active Businesses

3.3.10 Table 3.20 and Figure 3.26 show the change in the number of active enterprises over the 2008-2013 period.

Table 3.20: Change in number of Active Enterprises 2008-2013 (Source: StatsWales)

	2008	2009	2010	2011	2012	2013	Change 2008-2013
Isle of Anglesey	2,090	2,065	2,100	2,015	2,000	1,995	-5%
Gwynedd	4,565	4,500	4,455	4,405	4,385	4,365	-4%
Ceredigion	4,870	4,790	4,640	4,525	4,455	4,480	-8%
Pembrokeshire	3,120	3,030	2,990	2,945	2,890	2,865	-8%
Wales	91,740	91,125	90,435	88,595	88,000	89,750	-2%

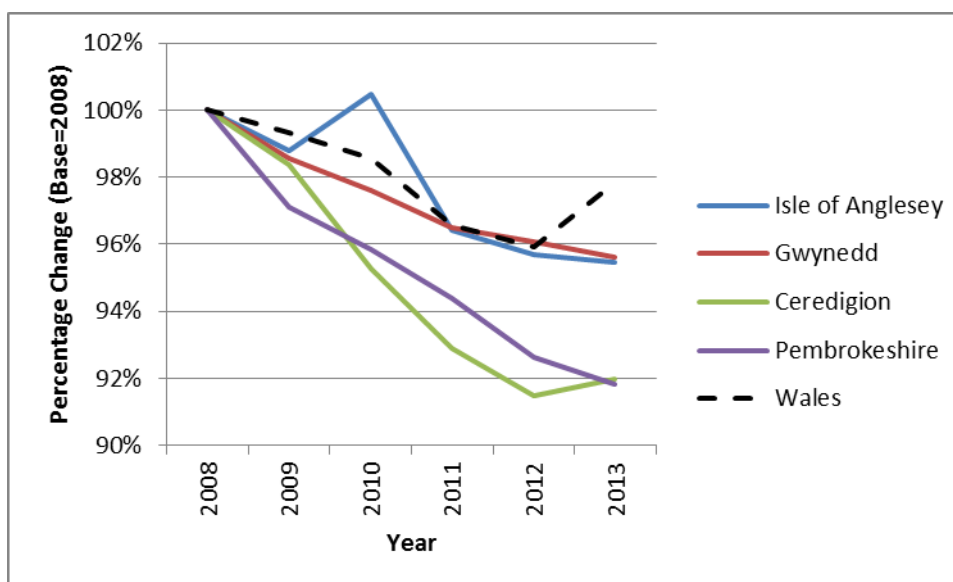


Figure 3.26: Change in the number of Active Enterprises 2008-2013 (Source: StatsWales)

3.3.11 Overall the number of active enterprises in Pembrokeshire declined by 8% over the 2008-2013 period compared to a 2% decline in Wales as a whole. This strongly suggests that the area has suffered disproportionately as a result of the recession.

3.3.12 Table 3.21 shows the change in the number of active enterprises by industry type in Pembrokeshire between 2008-2013. The two largest sectors in the County (accommodation and food services and construction) have both experienced a decline over the period.

Table 3.21: Change in number of Active Enterprises by Industry Type in Pembrokeshire 2008-2013 (Source: StatsWales)

	2008	2009	2010	2011	2012	2013	Change 2008-2013
Production	305	310	300	290	290	300	-2%
Construction	835	825	775	750	735	700	-16%
Motor Trades	190	195	180	175	175	175	-8%
Wholesale	180	180	165	165	145	150	-17%
Retail	580	575	560	530	515	500	-14%
Transport & storage (inc. postal)	150	150	140	145	135	135	-10%
Accommodation & food services	775	755	735	710	720	715	-8%
Information & communication	160	150	135	125	125	135	-16%
Finance & insurance	35	40	40	35	40	40	14%
Property	100	95	90	90	100	100	0%
Professional; scientific & technical	460	445	460	485	490	535	16%
Business administration and support services	470	450	455	435	410	415	-12%
Education	50	50	40	40	40	45	-10%
Health	195	190	195	190	190	190	-3%
Arts; entertainment; recreation and other services	385	380	370	360	345	345	-10%
Pembrokeshire	4870	4790	4640	4525	4455	4480	-8%

Key Point

The number of active enterprises in Pembrokeshire has fallen at a faster rate than Wales as a whole since 2008, with declines in both the tourism and construction sectors. This suggests that the area has been more adversely impacted by the recession than elsewhere in Wales.

Employment Change

3.3.13 Tables 3.22–3.24 Table 3.22 compare the change in employment in Pembrokeshire over the last five years to that of the comparison counties and Wales as a whole.

Table 3.22: Employee Jobs (Source: BRES)

Year	Anglesey	Ceredigion	Gwynedd	Pembrokeshire	Wales
2009	19,700	26,200	47,500	39,900	1,171,100
2010	18,800	26,200	46,300	39,600	1,165,500
2011	19,100	26,400	46,400	40,500	1,170,500
2012	19,400	25,500	50,100	40,800	1,178,200

Year	Anglesey	Ceredigion	Gwynedd	Pembrokeshire	Wales
2013	18,800	25,800	50,000	41,300	1,186,900
% Change	-5%	-2%	5%	4%	1%

Table 3.23: Full Time Employee Jobs (Source: BRES)

Year	Anglesey	Ceredigion	Gwynedd	Pembrokeshire	Wales
2009	13,100	15,000	29,400	23,800	765,700
2010	11,900	14,900	28,400	23,300	750,100
2011	12,300	15,000	28,200	24,200	761,100
2012	12,300	14,500	30,800	23,600	761,300
2013	12,000	15,400	30,800	24,300	769,100
% Change	-8%	3%	5%	2%	0%

Table 3.24: Part Time Employee Jobs (Source: BRES)

Year	Anglesey	Ceredigion	Gwynedd	Pembrokeshire	Wales
2009	6,600	11,100	18,100	16,200	405,400
2010	6,900	11,300	17,800	16,300	415,400
2011	6,800	11,400	18,200	16,300	409,300
2012	7,100	11,000	19,200	17,200	416,900
2013	6,800	10,400	19,200	17,100	417,800
% Change	3%	-6%	6%	6%	3%

- 3.3.14 The number of employee jobs in Pembrokeshire has increased by 4% since 2009 whilst the number of employee jobs in Wales as a whole has grown by just 1% over the same period. Whilst the number of both full and part time jobs has increased, the latter has grown at a faster rate and accounts for a greater proportion of the overall growth. This may suggest that there is an element of 'under-employment', whereby people wish to work more hours or in higher paid jobs. Indeed, it is likely that much of this part-time employment could be driven by the tourist trade and, if that is the case, would be low value and potentially seasonal.

Key Point

The number of employee jobs in Pembrokeshire increased at a faster rate than the Welsh average between 2009 and 2013. However, much of this growth has been driven by part-time employment, which could suggest that there is an under-employment within the area.

3.4 Property

- 3.4.1 Property prices and levels of development are barometers of the economic desirability of an area. Locations with significant planned development and higher than average house prices provide an indication of high demand, which itself is driven by employment opportunities and quality of life factors. This section considers the residential property market in Pembrokeshire (note that systematic information on commercial property was not available).

New Dwellings

- 3.4.2 The table and figure below show the number new dwellings built in Pembrokeshire, the comparison counties and Wales as a whole over the period 2007/08 - 2013/14.

Table 3.25: Number of New Dwellings 2007/08 – 2013/14

	2007-08	2008-09	2010-11	2011-12	2012-13	2013-14
Isle of Anglesey	197	119	34	79	36	32
Gwynedd	217	132	136	157	161	233
Ceredigion	173	141	176	133	150	112
Pembrokeshire	447	220	277	170	285	347
Wales	10,199	4,910	5,798	4,971	5,291	5,786

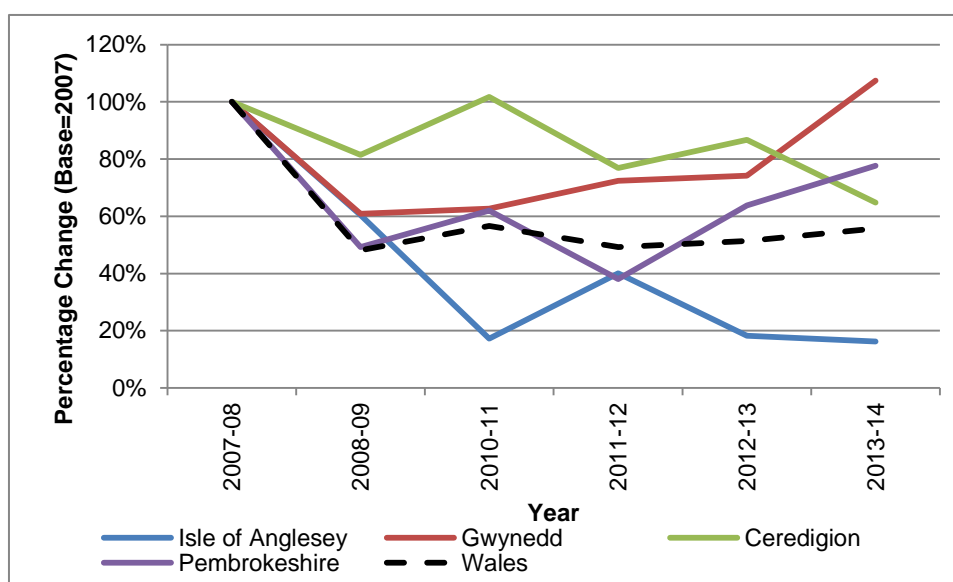


Figure 3.27: Percentage Change in the number of New Dwellings 2007/08 – 2013/14

- 3.4.3 There was a general decline in the number of new homes built in Pembrokeshire following the recession, with the rate of decline between 2007/08 and 2010/11 being faster than the Welsh average, Gwynedd and Ceredigion. However, since that point there appears to have been some recovery in the market with the rate of housing development in the County between 2011/12-2013/14 being above that of the Welsh average. This suggests an increasing demand to live in the area, although the extent to which this is dominated by wealthy and potentially inactive in-migrants is an important question.

Key Point

Whilst there was a large decline in the rate of housing development in Pembrokeshire following the recession, since 2011/12 the market appears to have recovered somewhat, with the rate of growth climbing above the Welsh average from 2012/13.

Housing Values

- 3.4.4 Table 3.26 shows the average house prices in Pembrokeshire compared to the comparison counties and Wales as a whole and Figure 3.28 shows house prices within Pembrokeshire.

Table 3.26: Median House Price 2007 – 2013 (Source: ONS)

	2007	2013	Change
Isle of Anglesey	155,000	142,750	-8%
Ceredigion	177,500	162,000	-9%
Gwynedd	147,000	135,500	-8%
Pembrokeshire	169,950	151,000	-11%
Wales	170,000	169,000	-1%

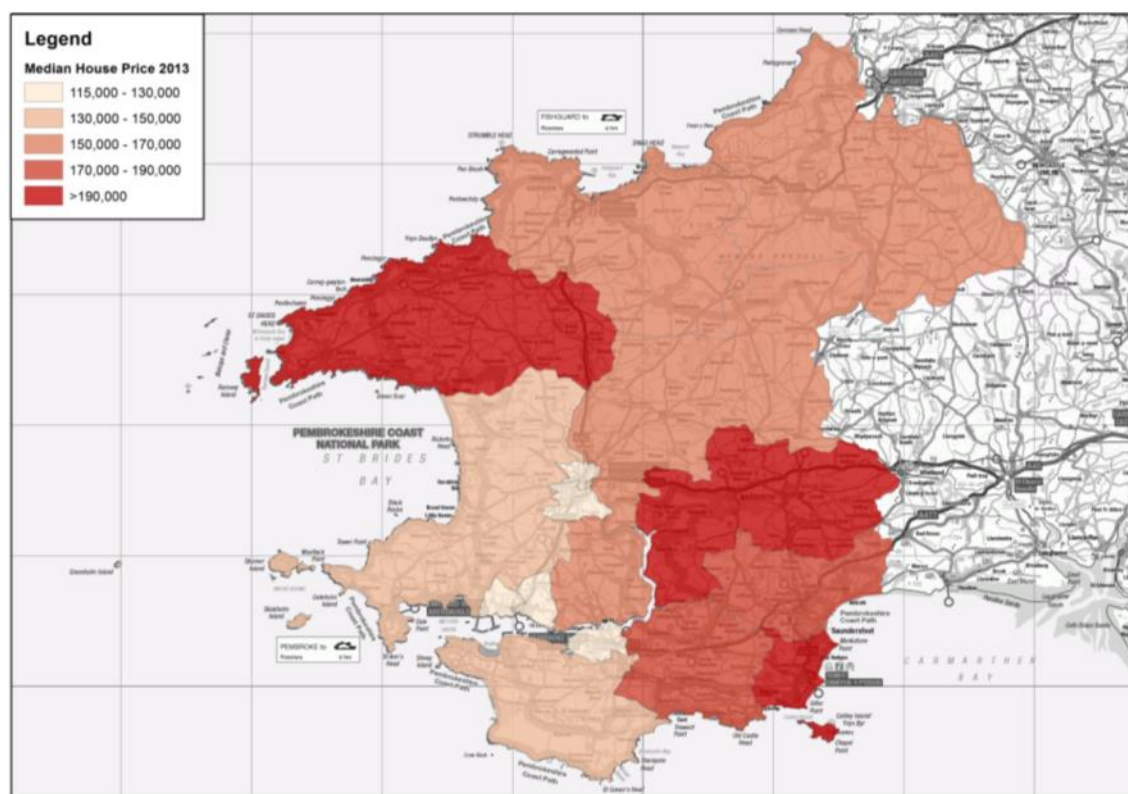


Figure 3.28: Median House Price 2014 (Source: ONS)

- 3.4.5 Average house prices in Pembrokeshire in 2013 were lower than the Welsh average and between 2007 and 2013 declined at a faster rate than both the comparison counties and Wales as a whole. Within Pembrokeshire, Milford Haven, Pembroke Dock and Haverfordwest have the lowest house prices whilst the south-east (particularly the areas surrounding Tenby and Narberth) and the north-west have the highest average house prices.

Key Point

Overall house prices in Pembrokeshire are lower than the Welsh average and since the recession have declined at a faster rate than that of the comparison counties and Wales as a whole. Within the County, the lowest house prices are in Milford Haven, Pembroke Dock and Haverfordwest and prices vary significantly across the area. Improved accessibility as a result of the A40 may increase the price of existing properties and stimulate demand for new properties, particularly in Haverfordwest.

3.5 Inward Investment

- 3.5.1 Foreign Direct Investment (FDI) data were received from Welsh Government at the local authority level covering the period 2008-09 to 2013-14. These data cover 325 projects

accounting for 34,000 jobs (split roughly evenly between new and safeguarded jobs). The breakdown of these 325 projects by local authority area is shown in Figure 3.29 below:

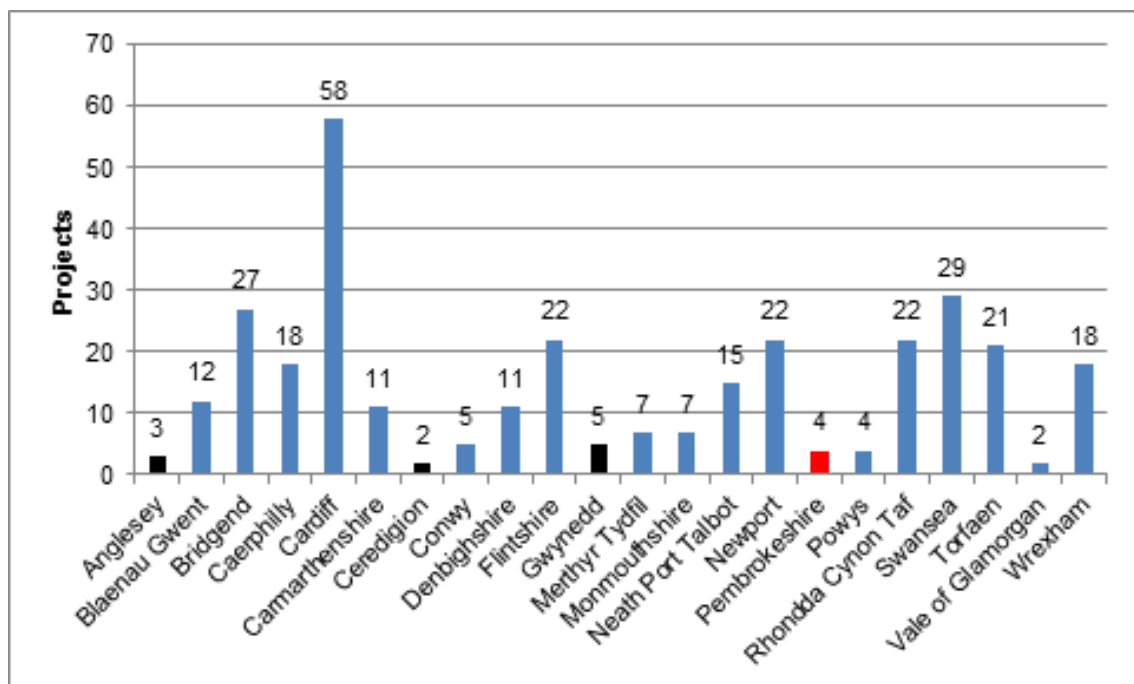


Figure 3.29: FDI Projects by Local Authority, 2008/09, to 2013/14

- 3.5.2 It is notable that the four most westerly counties, Anglesey, Gwynedd, Ceredigion and Pembrokeshire are amongst the lowest recipients of FDI projects, having each received five or fewer FDI projects over this six year period. Whilst it would be expected that most FDI would be located in existing areas of concentrated economic activity, i.e. Cardiff and Swansea City Regions, it is possible to infer that the peripheral nature of rural Wales, and the relatively poor connectivity of some of these areas into the core by road, may be having an impact on the distribution of FDI projects across Wales.
- 3.5.3 In the case of Pembrokeshire, it accounts for only 1% of these FDI projects over the period, yet is home to 4% of Wales's population. In terms of jobs, Pembrokeshire accounts for only 1.5% of new FDI-related jobs and 2.3% of overall jobs (i.e. new + safeguarded). So by all measures of FDI, projects and jobs (new and safeguarded), Pembrokeshire receives a lower per-capita share of FDI than other areas of Wales.

Key Point

Pembrokeshire is perhaps not receiving an equitable share of FDI projects and this may, in part, be due to perceptions of, or the reality of, its peripheral location which are exacerbated by the current standard of the A40.

3.6 Tourism

- 3.6.1 The previous sections identified the importance of the tourism sector to the Pembrokeshire economy (note that this covers leisure and business tourism). This section reviews the key tourism data for the area in the context of Wales more generally and is informed by the STEAM tourism model which the Welsh Government maintains.
- 3.6.2 By way of context, the figure below shows the total visitor numbers to Pembrokeshire, other Welsh local authorities and the national average:

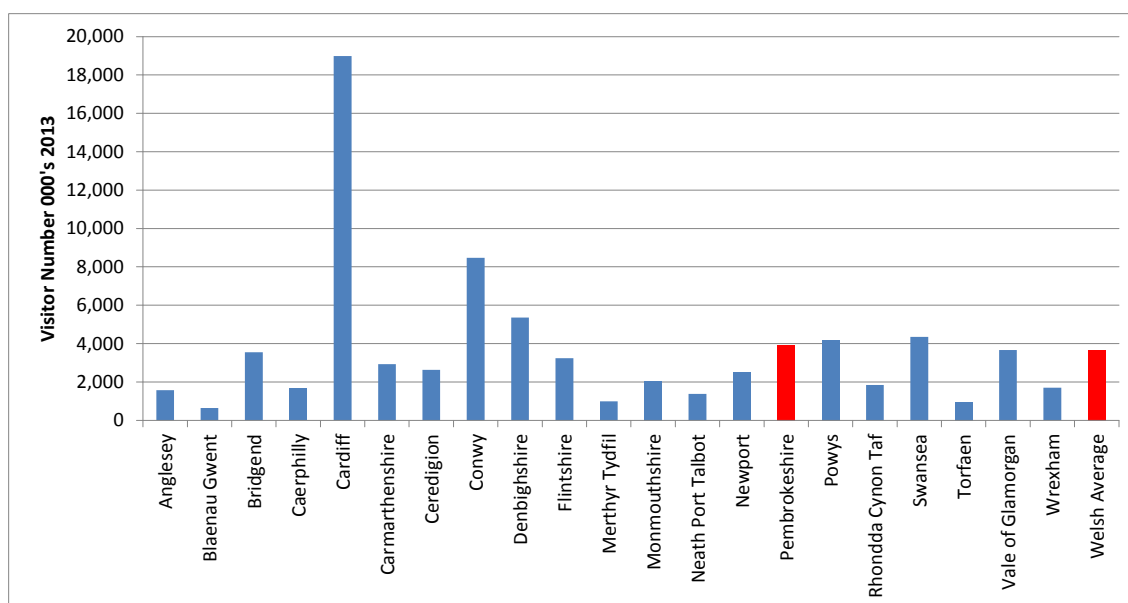


Figure 3.30: Total Visitor Numbers to Welsh Local Authorities (Source STEAM 2013)

3.6.3 The figure above shows that Pembrokeshire has one of the larger tourist economies in Wales, attracting some 4 million visitors in 2013, slightly higher than the Welsh average. Whilst this number is clearly healthy, it is interesting to note that the area significantly lags North Wales in terms of visitor numbers. Whilst Gwynedd is not included in the STEAM data, Conwy alone attracts more than double the number of tourists that Pembrokeshire attracts which, when combined with neighbouring authorities such as Denbighshire and Anglesey (not to mention the unrepresented Gwynedd in which most of Snowdonia National Park is contained) suggests that the tourist economy in the north is far larger than in the south-west. The extent to which poor transport connectivity contributes to this is explored in greater detail in the consultation and business survey reported later in this document.

3.6.4 Figure 3.31 below shows the economic impact of tourism in Wales:

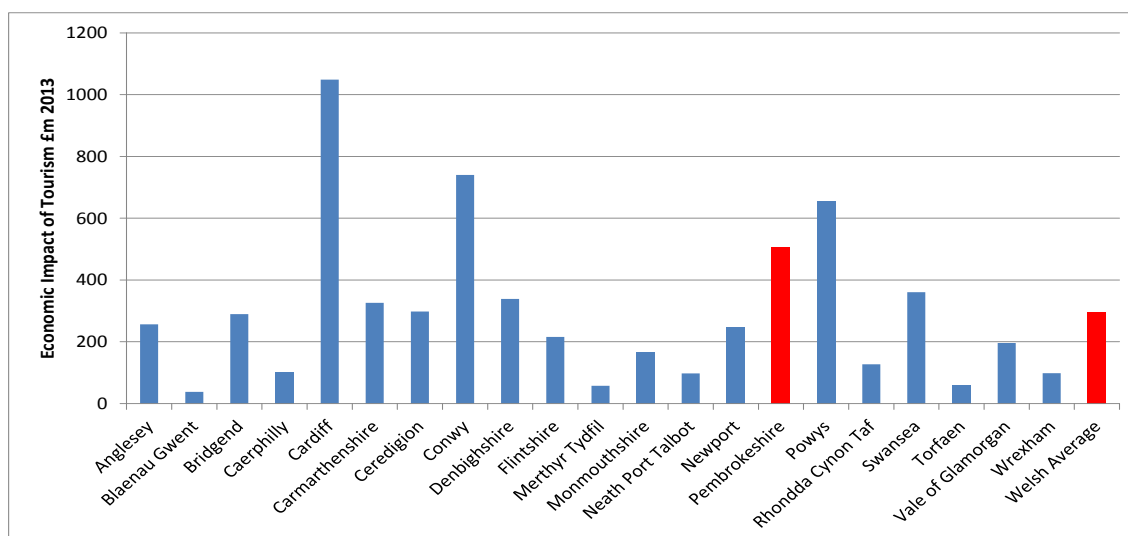


Figure 3.31: Economic Impact of Tourism (£m) by Welsh Local Authority (Source STEAM 2013)

3.6.5 The figure above clearly demonstrates the importance of tourism to the Pembrokeshire economy. Excluding Cardiff (which is dominated by business tourism), Pembrokeshire has

the third largest tourism economy in Wales (although note again that Gwynedd, which likely has the largest tourism economy, is not included in the figures). Again, however, it is notable that Pembrokeshire lags the other two main tourist areas in Wales, Conwy (taken as a proxy for Snowdonia in the absence of Gwynedd) and Powys (where the Brecon Beacons National Park is located).

3.6.6 Figure 3.32 provides an indication of the total employment FTEs supported by the tourism sector:

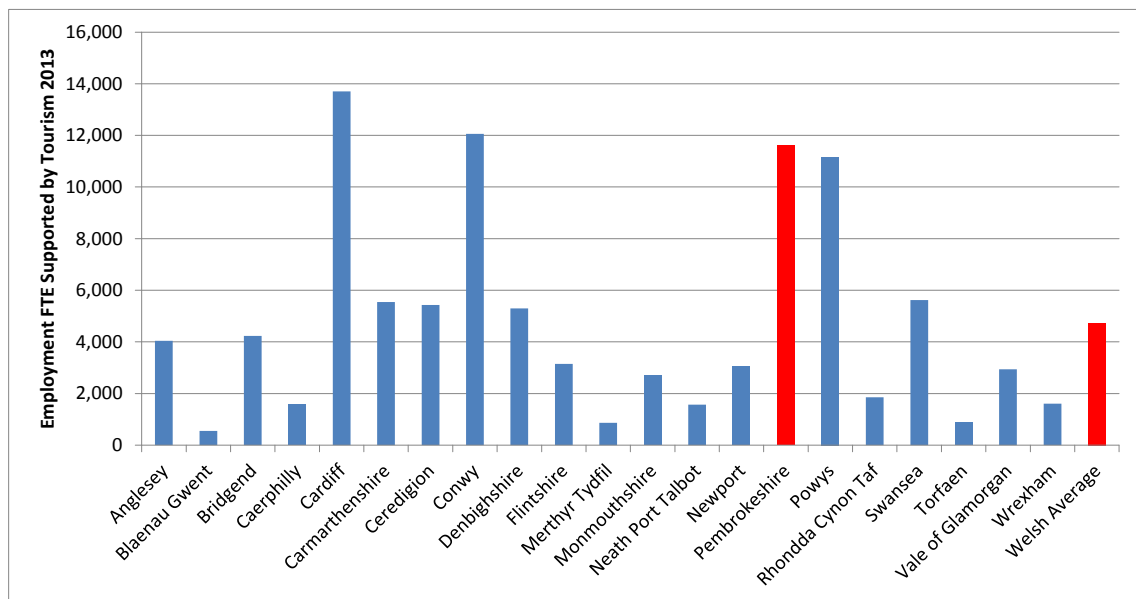


Figure 3.32: FTE Employment Supported by Tourism by Welsh Local Authority (Source STEAM 2013)

3.6.7 The figure highlights the critical importance of tourism employment to Pembrokeshire. Outwith Cardiff and likely Gwynedd, Pembrokeshire has the second largest employment in the tourism industry after Conwy. Indeed, outwith the aforementioned local authorities and Powys, Pembrokeshire has more than double the number of residents employed in tourism compared to all other local authorities.

3.6.8 Finally, figure 3.33 shows the expenditure by day visit in Pembrokeshire in 2013:

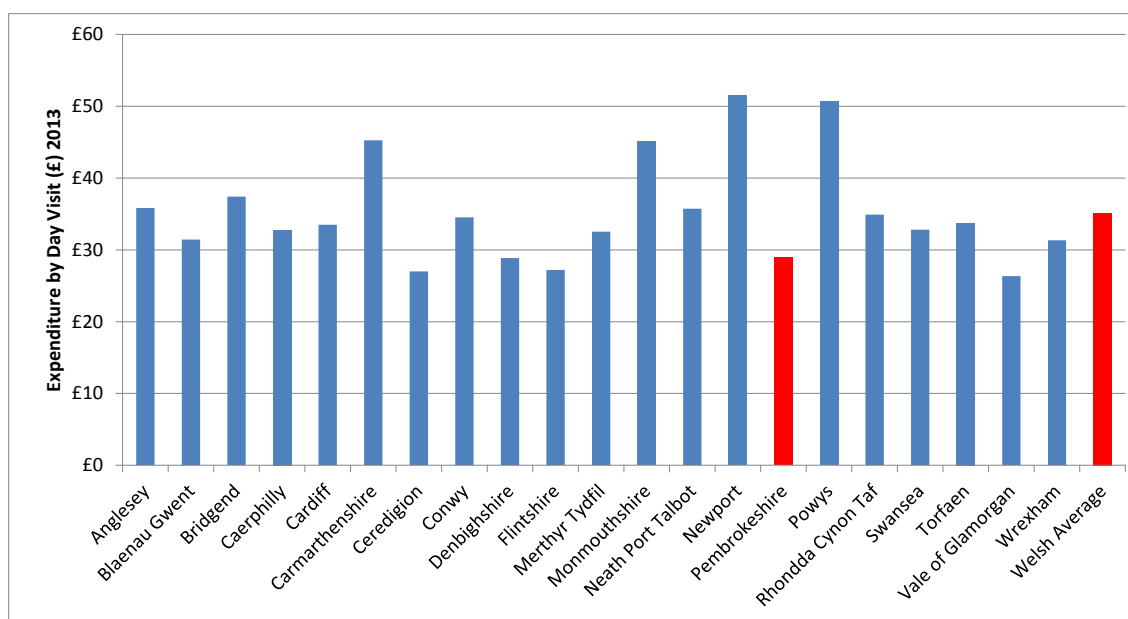


Figure 3.33: Expenditure by Day Visit Welsh Local Authorities (Source STEAM 2013).

- 3.6.9 The above chart demonstrates that whilst Pembrokeshire has a large tourist economy, the expenditure per day visitor is the fifth lowest in Wales, lagging even local authorities with a very limited tourism product (Blaenau Gwent and Torfaen for example). This may in part be driven by the composition of the tourism market but is nonetheless significant in that a high level of tourism employment combined with relatively low levels of tourist expenditure suggests that productivity (and hence wages) in the sector is low.

Key Point

Pembrokeshire has a large and well developed tourism economy. However, visitor numbers lag the other areas of Wales with national parks (particularly Snowdonia) whilst the overall economic impact of tourism in the area is lower than in other tourism driven economies such as Conwy and Powys. Moreover, the expenditure by day visit in Pembrokeshire is amongst the lowest of Welsh local authorities.

A key question which this study explores is the extent to which the current transport infrastructure in the area is constraining the important tourism sector. In particular, it will be important to explore whether the above trends are driven by the perception that Pembrokeshire is 'far away' and the extent to which current transport infrastructure is seen as a cause of this.

3.7 Summary

- 3.7.1 This chapter has provided a detailed profile of the often contrasting Pembrokeshire economy. The key point of note is that Pembrokeshire appears to be very much a 'two-speed economy', with an affluent, well qualified and in many cases in-migrant older population concentrated in coastal areas together with a less well-off, indigenous and more poorly qualified population in industrial areas like Pembroke Dock and Milford Haven.
- 3.7.2 The economic geography of the area reflects this dichotomy. The industrial and market towns of Pembrokeshire tend to display higher levels of unemployment and deprivation; lower educational attainment; lower average wages; and lower house prices. This is in stark contrast to the more well-off coastal areas.

- 3.7.3 The evidence, although slightly mixed, does suggest that Pembrokeshire has recovered more slowly from the recession than Wales as a whole. Average annual full-time pay declined between 2008 and 2013, whilst Pembrokeshire also experienced a greater than average decline in the number of active enterprises in the area over a similar time period. Inward investment levels were also particularly low.
- 3.7.4 The arguments about a 'two-speed economy' and a slower than average recovery from the recession is central to this analysis. The 2004 economic study on the A40 and the addendum report in 2008 did not find a compelling case for the dualling of the road. Making the case for investment now therefore requires evidence that one or both of the above problems is being at least partly caused by poor transport connectivity.
- 3.7.5 The next two chapters review the findings of the stakeholder consultation and business survey undertaken as part of this research with a view to identifying EALI impacts.

4 Consultation

4.1 Overview

- 4.1.1 In order to more fully explore the economic and transport issues identified in the previous chapters, in-depth stakeholder consultation was undertaken. The purpose of the consultation was to engage directly with the key stakeholders and seek their views on the economic problems and opportunities affecting Pembrokeshire and the extent to which infrastructure, and in particular transport infrastructure, is acting as a constraining factor on economic development in the area.

4.2 The Consultation Process

- 4.2.1 The consultation process involved a combination of face-to-face meetings and telephone consultations with stakeholders. A full week of face-to-face consultations was undertaken in Pembrokeshire in week beginning 16th March 2015, with the telephone-based approach adopted to consult with those stakeholders who were unavailable in that week or not located in or near to Pembrokeshire.
- 4.2.2 The consultation meetings were loosely structured around a pre-prepared topic guide, although meetings were allowed to take their own course and often reflected the specific remit of a given consultee, ferry companies and tourist bodies for example.
- 4.2.3 The key points from each meeting were documented in a note and sent individually to each consultee for amendment and approval. The main points emerging from the consultation notes were used as the basis of this chapter and other analysis contained within the report. However, it should be noted that these meeting records do not form part of the deliverable for this study as the project duration did not allow for the papers to be ratified by e.g. Elected Members, senior management of companies etc. They have simply been used to inform the study team on the key issues in the area.
- 4.2.4 The table below identifies the organisations with whom we consulted and the form of the consultation for each.

Table 4.1: Consultation Meetings Held

Organisation / Individual	Consultation Approach
Austwel Ltd (the consultee Chris Davies also sits on the Haven Waterway Enterprise Zone Board)	Face-to-Face
Farmers Union of Wales	Face-to-Face
Federation of Small Businesses - Carmarthenshire	Face-to-Face
Federation of Small Businesses - Pembrokeshire	Face-to-Face
Freight Transport Association	Face-to-Face
Irish Ferries	Face-to-Face
Jane James – Chevron & Haven Waterway Enterprise Zone Board	Face-to-Face
Marine Energy Pembrokeshire	Telephone
Milford Haven Port Authority	Face-to-Face
Murco (the consultee John Llewellyn also sits on the Haven Waterway Enterprise Zone Board)	Face-to-Face
Pembrokeshire County Council - Regeneration	Face-to-Face

Organisation / Individual	Consultation Approach
Pembrokeshire County Council – Tourism Marketing & Development	Telephone
Pembrokeshire National Park Authority	Face-to-Face
Ted Sangster – Haven Waterway Enterprise Zone Board	Face-to-Face
Stena Line / Stena Ports	Face-to-Face
Swansea Bay City Region	Telephone
Valero (the consultee Stephen Thornton also sits on the Haven Waterway Enterprise Zone Board)	Face-to-Face
Visit Wales	Telephone

- 4.2.5 The following table sets out the organisations which we were unable to obtain a consultation with:

Table 4.2: Organisations Contacted but not Consulted

Organisations Contacted but not Consulted
Bluestone
Carmarthenshire County Borough Council
Pembrokeshire College
Road Haulage Association
South Wales Chamber of Commerce

Approach to Consultation

- 4.2.6 In keeping with best practice, the initial stage of each consultation meeting was based on the problems, issues, opportunities and constraints within the local economy and transport system. Rather than starting with a discussion of a pre-conceived solution, we attempted to draw out the main economic issues in the area and understand the extent to which transport and infrastructure more generally is constraining economic development or otherwise. Having established the economic situation, we then discussed the transport issues in the area.
- 4.2.7 The following sections summarise the key points from the consultation and the emerging consensus. It is important to bear in mind that what is reported here are views as presented by the consultees. Where possible, we have tried to evidence these points using secondary data but, as is always the case with such consultation, there will be an element of anecdote and opinion in the following sections.

4.3 The Pembrokeshire Economy

- 4.3.1 This section provides a brief review of some of the key macroeconomic issues in Pembrokeshire and considers their potential relevance in the context of this study.

Economic Base

- 4.3.2 A key point to emerge during the consultation process was the structure and diversity of the local economy. A number of stakeholders explained that private sector employment in the Pembrokeshire economy is almost entirely concentrated in energy and tourism and it was felt that this was an inherent weakness in the area.

- 4.3.3 The BRES data bear this point out – whilst the averages for the County as a whole bear some resemblance to the Welsh average, there are clear sectoral concentrations of employment. For example, manufacturing (which includes the energy sector) in Neyland and Pembroke Dock are 14% and 15% respectively (compared to the Welsh average of 12%). Similarly, 'Tenby & Surroundings' and 'Northern Saundersfoot & Surroundings' have concentrations of employment in the 'accommodation & food services' sector of 43% and 35% respectively.
- 4.3.4 Outwith these industries, only public sector employment and retail (which will also experience positive multiplier effects from the tourism and energy sectors) demonstrate employment concentrations of any significance.
- 4.3.5 Of particular importance is the energy sector, which is the critical private sector employer in the area in terms of providing permanent, full-time, skilled and high value employment. As well as direct employment, there is significant direct spin-off employment in, for example, construction and transport & storage, and indirect spin-off employment in, for example retail. Whilst tourism employment is a key part of the economy, it is generally seasonal and low wage, with a number of consultees explaining that Pembrokeshire residents often hold two or three jobs (although this study cannot verify this point except to acknowledge the issue of under-employment previously raised). Agriculture, whilst significant from an economic perspective, is a relatively low employer.
- 4.3.6 Whilst valuing the positive contribution these industries make to the area, consultees expressed significant concern about the dependence on a small subset of industries for employment. This concern has been heightened by the recent Milford Haven Refinery closure and the loss of employment associated with it. It was explained that the impact of this closure has not fully worked through as yet because:
- Redundancy packages provided ex-employees with a lump sum of money to start another business or support them whilst they looked for alternative employment;
 - The Valero operated Pembroke Refinery recruited a number of ex-Murco staff; and
 - Former Murco staff have moved to other UK refineries or abroad but by and large have kept their family in Pembrokeshire.
- 4.3.7 Consultees explained that if the Pembroke Refinery was also to close or scale back its activities over time, the impact on the local area would be dramatic – over 1,200 staff and contractors are employed at the refinery, with Valero reportedly paying more than £1 million per week in wages to a largely local workforce. There would also be very significant knock-on impacts in the supply-chain and in, for example, retail businesses and restaurants. This weakness within the economy is seen to be of great significance and there was a strong view that maintaining the Pembroke Refinery should be the key objective of the Haven Waterway Enterprise Zone Board.

What role could enhanced transport connectivity play?

The key question in this regard is the extent to which the current transport network is constraining the economy of Pembrokeshire, and whether this is a question of perception or reality. It will be particularly important to understand whether transport connections are:

- an inhibitor for the current energy sector; and
- are acting as a barrier to inward investment, particularly in energy related growth industries.

Property

- 4.3.8 A key issue related to the above point raised during the consultation was the lack of housing development and the high levels of second home ownership in some parts of the County. A combination of higher house prices driven by lifestyle in-migrants and limited housing development means that house prices are artificially inflated and are seen to be a 'push' factor in young people and families leaving the area.
- 4.3.9 A small number of consultees explained that there is limited take-up of land zoned for residential development, with only one major UK house builder active in the area (note we do not have firm evidence of this). The small scale of private sector development also limits the number of affordable housing limits.
- 4.3.10 When pressed on why developers do not see Pembrokeshire as an attractive area to build, consultees explained that this may in part be due to the limited employment opportunities in Pembrokeshire and poor connectivity to the wider Swansea Bay City Region in the east (with older in-migrants preferring existing or bespoke new coastal property).
- 4.3.11 We do not have firm evidence to support the above point, although the highly self-contained nature of the Pembrokeshire travel-to-work market lends some credence to this theory.

What role could enhanced transport connectivity play?

Enhanced transport connectivity to employment opportunities within the Swansea Bay City Region and even potentially the Cardiff Capital Region could reduce the insularity of the Pembrokeshire travel-to-work market. If the actual or perceived change was such that it created a demand for in-migration to the area (or indeed increased population retention), it is possible that this could enhance the commercial viability of land zoned for residential development and stimulate increased development of both private and affordable housing.

In addition, by increasing commuting opportunities and attracting economically active residents, it is likely that the economic base of the area would become more diversified as residents look further afield for work, whilst the dependency ratio would also decline (see next section).

Note – evidence on the exact characteristics of this market would need to be sought if this were to be used a rationale for transport investment in the area.

Public Services

- 4.3.12 A high profile issue raised during the consultation was the recent changes to service provision within Pembrokeshire, particularly in terms of health and education.
- 4.3.13 Of greatest relevance are the enacted and proposed cuts in service provision at Withybush Hospital in Haverfordwest. In January 2014, the Hywel Dda Health Board announced, as part of a reorganisation and centralisation programme, that:
- The specialist baby care services unit would be closed, with neo-natal care becoming midwife led; and
 - The 24-hour paediatric care unit at Withybush Hospital would be cut to 12 hours.¹⁵
- 4.3.14 Specialist neo-natal care and out of hours paediatric care is now provided at Glangwili Hospital in Carmarthen, at the other end of the A40 from Haverfordwest.

¹⁵ <http://www.bbc.co.uk/news/uk-wales-south-west-wales-25826077>

- 4.3.15 The potential need to get a patient from Withybush to Glangwili in an emergency led to a number of consultees stressing the need for a high quality road link between Haverfordwest and Carmarthen. That said, it was acknowledged that the Air Ambulance would play a key role in particular emergencies.
- 4.3.16 There is also a rationalisation of secondary schools in Pembrokeshire, although the extent to which this is likely to have any meaningful effect on the A40 is questionable.

What role could enhanced transport connectivity play?

Whilst the campaign to maintain local public services would not be addressed with improvements to transport connectivity, enhanced connections between Pembrokeshire and Glangwili Hospital in Carmarthen may at least address some of the concerns about reliable links in the event of an emergency.

4.4 Key Economic Sectors

- 4.4.1 In order to understand the future business transport needs of Pembrokeshire, we undertook a series of detailed consultations with key players in Pembrokeshire's principal economic sectors, namely energy, agriculture and tourism. This section sets out the key findings from these consultations.

Energy

- 4.4.2 The Pembrokeshire energy sector is of critical importance, both locally and nationally. A 2010 study by Cardiff University found that energy (combining oil refining, gas processing and power generation) directly employs almost 1,200 people in the Haven Waterway area in highly skilled, well-paying and long-term jobs. The energy sector in the Haven alone is believed to generate around £194 million per annum in GVA, although this number is likely to have declined to some extent as a result of the Milford Haven Refinery closure.¹⁶
- 4.4.3 Outwith the energy sector, the Pembrokeshire economy is relatively small and self-contained (as evidenced in Chapter 3) and thus the vibrancy of energy related industries will be a key determinant of the future economic performance, and hence transport needs, of the area. The following sections consider the views of consultees on the prospects of each of the local elements of this sector.

Refining

- 4.4.4 Refining has been the backbone of the Pembrokeshire economy for many years – the Haven Waterway was an ideal landfall for imported Brent crude in the 1950s, leading to the largest concentration of refining capacity in the UK. However, in recent years, the UK and indeed European refining industry has become increasingly unprofitable. A combination of stringent regulatory controls (i.e. environmental and health & safety) combined with the development of larger refineries located closer to the point of extraction is making Europe uncompetitive. Indeed, the world's largest refineries are now based in countries like Saudi Arabia, China, India, South Korea etc.
- 4.4.5 In addition to regulatory costs, the large scale adoption of fracking, cheap feedstock and gas has driven down the oil price, with the US, a traditional market for refined product from Europe now entirely self-sufficient in terms of its energy needs. Indeed, the US is now a net exporter of finished product into Europe and its competition with OPEC has led to a flooding of the European market with finished product (as opposed to unrefined crude which refineries depend on).

¹⁶ Milford Haven Port Authority, *The Haven Economy* (Cardiff University, 2010), p. 4.

Milford Haven Refinery Closure

- 4.4.6 The Milford Haven Refinery, located on the north side of the Waterway, was the smaller of the two remaining refineries in the area. Operated by Murco and with a refining capacity of 135,000 barrels per day (bbl/d), the refinery was of a significantly lower capacity than the Pembroke refinery operated by Valero (circa 215,000 bbl/d)¹⁷. Nonetheless, it played a major role in the Pembrokeshire economy.
- 4.4.7 Murco expressed an interest in selling the refinery in 2010. As explained earlier in this report, the refining business could not be sold as a going concern and was closed in November 2014, with the loss of around 330 direct jobs and 180 contractor jobs. The Murco site has now been sold to Puma as a storage facility (see below).

Pembroke Refinery

- 4.4.8 The Pembroke Refinery, which is located on the south side of the Haven Waterway, was purchased by Valero from Chevron in 2011. The Pembroke Refinery employs 1,200 staff (contractors and employees) and is believed to contribute around £1-£1.5 million per week to the local economy.
- 4.4.9 The Pembroke Refinery is facing the same challenges as others across the UK. Research by Purvin & Gertz for the Department of Energy & Climate Change conducted in 2011 highlights the serious threat to the long-term survival of UK oil refining. The report found that whilst long-term net refining margins are projected to average around \$2.60 per barrel of oil, this masks the significant potential cash impact of an additional required £11.4 billion of capital and operating expenditure in the 2013-30 period to meet UK and EU legislative measures, most of which would generate no return and would not be recoverable from customers. In addition, the report explained that, to keep pace with changing product demands, refineries would also need to invest some £1.5-£2.3 billion over the same timeframe, an investment which is perceived to be unlikely in view of the low profitability and legislative compliance costs.¹⁸
- 4.4.10 It is widely anticipated that there will be a further rationalisation in UK refining capacity, with an estimate that as many as three of the six remaining UK refineries (Stanlow, Fawley, Grangemouth, Pembroke, Lindsay and Humber) are at risk of closure. It is estimated that investment of the nature and scale explained above is required in the Pembroke Refinery over the next fifteen years if it is to survive in the long-term.
- 4.4.11 It is believed that around 90% of the Valero workforce is based in Pembrokeshire and that any rundown or closure of this site would be hugely detrimental to Pembrokeshire and indeed the Welsh economy. It was explained by a number of consultees that the initial focus of the Haven Waterway Enterprise Zone should be on protecting and developing this key asset.

What are the transport needs of this industry?

Both the Milford Haven and Pembroke Refineries continue to transport significant quantities of product.

At the larger Pembroke Refinery, crude oil is brought to the site by ship with approximately 100 ships arriving per month. The site exports approximately 80% of the product it refines by ship to markets all over the world. The remaining 20% is transported within the UK market with the company responsible for supplying much of the south west of England and Wales with diesel, petrol and kerosene. Approximately 15% is transported by a pipeline network

¹⁷ http://en.wikipedia.org/wiki/List_of_oil_refineries#United_Kingdom

¹⁸ Purvin & Gertz, *Developments in the International Downstream Oil Markets and their Drivers: Implications for the UK Refining Sector* (DECC, 2011) and http://www.ukpia.com/news_press/2013/05/10/Independent_report_highlights_serious_threat_to_UK_oil_refining.aspx

which runs to Cardiff, Birmingham and Manchester and from these locations it is then transported onwards by tanker. The remaining 5% is taken directly by road from the Valero site, mainly on the A477. The tanker network primarily serves the Welsh market although there are terminals in Cardiff, Bristol and Plymouth. There is a constant turnover of tankers leaving the site on a daily basis.

Despite the closure of the former Milford Haven Refinery, it is still used to support Murco's inland commercial businesses and it is anticipated that this will continue to be the case. This involves feeding inland terminals in Basingstoke, Bristol and Bedworth from the rail terminal at the Murco site, with roughly 12 outbound train movements per week. There are also around 40 outbound road tanker movements per day (mainly on the A40) to retail operators, mainly throughout south and west Wales.

Storage Terminals

- 4.4.12 The rationalisation of refinery sites around the UK is leading to a growth in petroleum storage facilities (also known as oil depots and tank farms), a secondary use for which redundant refineries can be converted. A storage facility is a comparatively unsophisticated facility in that (in most cases) there is no processing or other transformation on site. The products which reach the depot are generally in their final form suitable for delivery to customers.
- 4.4.13 The storage market currently offers a number of opportunities; some will be used to take advantage of the current low price of crude oil and therefore purchase and store crude and refined products for future profit, while others will distribute the refined products to the UK inland market.
- 4.4.14 At present, the main storage facility is the SEM Logistics site, which was the former Gulf Refinery. Whilst the site is rail connected, the majority of product movements is either by sea or pipeline. The former Murco refinery, which was recently purchased by Puma Energy will also be converted into a storage facility. As noted above, it is anticipated that the site will likely continue to serve Murco's inland commercial business.

What are the transport needs of this industry?

In comparison to refining, the storage sector is not particularly transport intensive (at least from a land-transport perspective). The majority of product is moved by sea or pipeline.

Liquefied Natural Gas (LNG) Terminals

- 4.4.15 The Haven Waterway has the capacity to handle around 25% of the UK's natural gas requirement, accommodated through the large LNG terminal at South Hook (on the site of the former Esso Refinery) and the smaller Dragon LNG terminal, which cohabits the former Gulf Refinery site with SEM Logistics.
- 4.4.16 The South Hook and Dragon sites import LNG by ocean tanker and re-gassify the product before dispatching it onwards through a high pressure gas pipeline.

What are the transport needs of this industry?

Whilst key facilities within the Haven Waterway, the LNG terminals are not intensive from a land-based transport perspective, with the product being imported by tanker and moved onwards by pipeline.

Power Generation

- 4.4.17 Pembroke Power Station is a combined cycle gas turbine (CCGT) plant which began full commercial operation in September 2012. The station is capable of generating over

2,000MW, enough to power around 4 million homes - more than twice the number of households in Wales. The state-of-the-art CCGT technology means that Pembroke is one of the largest and most efficient plants of its kind in Europe and produces less than half the CO₂ emissions of a coal-fired power station.¹⁹

What are the transport needs of this industry?

Whilst Pembroke Power Station is an important local employer, it is again not a transport intensive industry as it based on a gas pipeline. This is particularly true compared to coal-fired power stations which require large quantities of coal to be delivered, typically by rail.

Renewables

- 4.4.18 Whilst hydrocarbon industries continue to dominate the energy activity in the Haven Waterway, there is a growing renewable energy presence in the area.
- 4.4.19 Pembrokeshire, and Pembroke Dock in particular, is seen to be a promising location for fabrication, ship-out and ongoing maintenance of wind turbines, marine renewables and, perhaps most significantly for the proposed Swansea Bay tidal lagoon. Indeed, on 3rd June 2015, a deal was announced to build the six mile wall which will forms the first phase of the lagoon. The wall will be built by China Harbour Engineering Company, which plans to open a base in the UK and spend half of the contract's value on a British workforce, partners and supply chain.²⁰
- 4.4.20 This is particularly the case in the marine renewables sector where there has been a trade body / working group, Marine Energy Pembrokeshire, established which brings together all of the wave and tidal developers in Wales (around 20 in total) plus the Welsh Government, Pembrokeshire County Council, Milford Haven Port Authority and the Crown Estate.
- 4.4.21 The aim of the group is to promote, facilitate and develop a marine energy cluster, specifically in Pembrokeshire but throughout Wales more generally. Marine energy is seen to be a significant opportunity for Pembrokeshire. An experimental tidal device is being installed and piloted off the coast of Pembrokeshire at Ramsay Sound in mid-2015. This area is also one of seven Marine Renewable Demonstration Zones which have the necessary consents for the installation of devices on the sea bed for testing purposes. The Haven Waterway is seen to be well placed to act as the logistical base for these facilities.
- 4.4.22 The Welsh European Funding Office (WEFO) has committed to invest £100 million in marine renewables demonstration zones, whilst the sector itself has already directly invested £34 million in the country, with a forecast upward spend profile. The existing energy focussed supply chain in the area provides a local competitive advantage (over and above the favourable conditions for marine energy generation generally) and this is therefore seen as an important growth area.
- 4.4.23 Whilst renewables offer promise for the future, this sector remains in its relative infancy. In all likelihood the Haven will, for the foreseeable future continue to be dominated by the hydrocarbon industry.

What are the transport needs of this industry?

The transport needs of the renewables industry will vary by the type of activity undertaken. It is however likely that if any of the renewable sectors are to be commercialised using Pembrokeshire as a base, the landside activity would likely occur in concentrated bursts (e.g. fabrication, mobilisation, installation and maintenance) with low levels of activity in between.

¹⁹ <http://www.rwe.com/web/cms/en/1628694/rwe-npower/about-us/our-businesses/power-generation/pembroke/>

²⁰ <http://www.bbc.co.uk/news/uk-wales-south-west-wales-32993437>

The extent to which this will impact on the strategic transport network will be dependent on whether supply chain services and labour are sourced locally or imported from elsewhere.

Engineering Supply Chain

- 4.4.24 The significant concentration of firms in the energy sector has, over many years, led to the development of a highly skilled supply chain in and around the Haven Waterway. The consultations suggested that the considerable volume of high margin contracts emerging from the energy sector in the Haven have almost wholly sustained these ancillary industries. The local supply chain is believed to have historically been relatively insular – one consultee explained that their company employs largely local staff and local suppliers, with an estimated 95% of its supplies coming from local sources.
- 4.4.25 The concentration of engineering skills in the Haven Waterway is a huge advantage to the area. However, a number of consultees explained that the ready availability of local work has meant that firms have not had to look further afield for opportunities. However, this is believed to be changing – the declining scale of the refining industry is impacting negatively on order books and Pembrokeshire firms are now looking further afield for opportunities, including in the refining industry abroad.

What are the transport needs of this industry?

The engineering supply chain in Pembrokeshire is likely to be relatively transport intensive, with inbound and outbound movement of labour and goods (a number of which will be wide or unconventional loads). However, the movements will typically be local in nature and thus are likely to make minimal use of the strategic road network, except in and around the Haven Waterway. This may however change if the local supply chain does become more internationalised.

Agriculture

- 4.4.26 Pembrokeshire is traditionally an agrarian economy, with a combination of small and large firms combining to create the most diverse agricultural county in Wales. The agricultural economy in the area covers all of the main sectors:
- Cash crops – Pembrokeshire has a high level of production in potatoes (around 35% of the Welsh total) and other such crops, the majority of which is consolidated through Puffin Produce, a local cooperative.
 - Dairy production – the County accounts for around 25% of total Welsh dairy production, which is mainly processed at First Milk in Haverfordwest. Cheese is also produced in the area.
 - Livestock – Pembrokeshire also produces cattle, sheep and poultry. The County also hosts large numbers of store cattle and sheep, whilst sheep are also imported into the area for grazing over the winter months.
- 4.4.27 In terms of business structure, there is a wide range of scale in the agricultural sector, with some very large dairy herds through to individual small holdings. As with the agricultural sector throughout the UK, farming businesses (regardless of size) are generally price takers, all the more so in Pembrokeshire where peripherality makes the area relatively less competitive. This issue has been magnified by the long-term impact of the economic downturn on prices and the current supermarket price war, which is putting further downward pressure on prices.

- 4.4.28 In terms of future prospects, the consultation identified that whilst agriculture can be profitable, there is very much a reliance on Common Agricultural Policy subsidies. It appears that traffic levels in this sector will remain significant but there does not appear to be a clear trend towards growth.

What are the transport needs of this industry?

The large scale agriculture industry in Pembrokeshire and the limited local demand means that the area is a significant net exporter of goods. Indeed, the agricultural sector is highly transport intensive, requiring a combination of local movements (often on trunk roads) and longer-distance travel. Added to this, the majority of product inputs have to be imported into the County.

Whilst cash crops are largely consolidated in Pembrokeshire, they still have to be shipped to the main distribution hubs, particularly in Newport and the West Midlands, creating an ongoing demand for lorry movements. Liquid milk and dairy produce are also largely exported.

In terms of livestock, there is an abattoir in Haverfordwest but again the majority of stock is moved out of the area to destinations including south-east Wales, south-west England, the Midlands and further afield. In addition, whilst there is a small livestock market in Haverfordwest, the majority of cattle are moved to Whitland and Carmarthen for sale – this is a year round traffic with peaks in the autumn and spring. Sheep are moved to Whitland and Crymych. Given the location of the main farming area in Pembrokeshire, much of the livestock will move on the A40 in dedicated floats.

There are also numerous farms where the same farmer owns land north & south of the A40, which means that farmers need to use the road when travelling between their different holdings. Whilst they are believed to try and make such movements at off-peak times, this is not always possible, particularly at harvest leading to traffic disruption.

In all, the agricultural sector has significant and varied transport needs, with the A40 being an important element of the overall infrastructure for this sector.

Tourism

- 4.4.29 Pembrokeshire is a key part of the Welsh visitor economy. The National Park combined with the high quality coastal scenery and prominent attractions like St David's draw a significant number of annual visitors.
- 4.4.30 At the national level, the Welsh Tourism Strategy 2013-2020 has an ambition to 'grow tourism earnings in Wales by 10% or more by 2020'.²¹ Each local authority area in Wales is required to develop a Destination Management Plan (DMP) which sets out how they will work towards this goal. The DMP is developed at the County Council level and in partnership with the sector.
- 4.4.31 The consultations suggested that the tourism market in Pembrokeshire is very diverse, with the Council noting that there are approximately 100,000 bed spaces, a large proportion of which are self-catering and caravan sites. Whilst tourism providers are spread across the County, the largest concentrations are focussed on the coast. According to the Council's bed stock database, there are 51,535 (52%) bed spaces in north Pembrokeshire (which will mainly use the A40) and 47,476 (48%) in south Pembrokeshire (which will mainly use the A477).
- 4.4.32 The majority of tourism businesses are SME, with a large number of lifestyle businesses and individually owned holiday cottages and lets. However, the County also has a small number of larger providers such as Bluestone and some of the larger holiday parks.

²¹ Partnership for Growth: The Welsh Government Strategy for Tourism 2013-2020.

- 4.4.33 The tourism industry in Pembrokeshire is extremely seasonal. Serviced accommodation percentage occupancy peaks in August when it climbs above that of Wales as a whole (approximately 71% and 76% respectively). However, through the remaining months of the year, levels are much lower, particularly in January, February and November when average occupancy falls below 30% in Pembrokeshire compared to 40%-50% in Wales overall (likely driven by a small business tourism cohort). This extreme seasonality impacts on the overall profitability of businesses and, importantly, it drives the temporary and seasonal nature of employment within the sector. Reducing this extreme seasonality is a key aim of the Council.

Pembrokeshire Coast National Park

- 4.4.34 The Pembrokeshire Coast National Park Authority (PCNPA) cares for the scenic and diverse national park and has both a social and economic duty as well as its statutory conservation duties. It is one of three National Parks in Wales and one of 15 across the UK. Its main statutory function is to act as the planning authority and promote conservation within the National Park.
- 4.4.35 The PCNPA conserves and preserves the built and natural environment, including 840km of public rights of way and the 300km of the popular Pembrokeshire Coastal Path. The paths network provides a range of access opportunities to the countryside & coast and the amenities it offers. Leisure walking is by far the dominant activity in the area and is of major benefit to the tourism industry. Overall, the park is believed to generate around £600 million of GVA within the Pembrokeshire economy each year and does a significant amount to promote the area.
- 4.4.36 The National Park is unsurprisingly a key visitor attraction in the area, with visitor surveys on the Pembrokeshire Coast Path finding that some 70% of users are visitors, the majority of which are staying visitors putting money into the local economy.

Cruise Tourism

- 4.4.37 Attracting cruise vessels is an objective of both Milford Haven Port Authority and Fishguard, but it is likely that market penetration in this sector will be limited to a handful of calls each year. It is unlikely that public sector investment to create purpose built cruise facilities would represent value for money and there are unlikely to be any other significant infrastructure implications of marginally increased cruise tourism.

Target Market, Competitors and Visitor Perceptions

- 4.4.38 The geographic target market for Pembrokeshire is principally settlements along and to the south of the M4 corridor, including London. The Midlands are also a key target market, whilst ferry connections with Ireland open up opportunities in this market. In terms of visitor demographic, Pembrokeshire combines mass market tourism with the 'Independent Explorer' demographic. The main competitors for Pembrokeshire are Devon and Cornwall.
- 4.4.39 An important point raised by a number of consultees was that Pembrokeshire is seen to be "a long old way away", even in areas relatively proximate to the County, such as in the M4 corridor. This may be a case of perception over reality however, as the table shows indicative travel times between Bristol (a notional start point) and tourist destinations in Pembrokeshire, Devon and Cornwall:

Table 4.3: Distance & Drive Time from Bristol to Selected Destinations in Pembrokeshire, Devon and Cornwall²²

Destination	Area	Distance from Bristol (Miles)	Drive Time from Bristol
Tenby	Pembrokeshire	131	2h 28 mins
St David's	Pembrokeshire	150	3 h 5 mins
Torquay	Devon	99	1h 59 mins
Ilfracombe	Devon	111	2h 28 mins
Newquay	Cornwall	163	3h 18 mins

- 4.4.40 The table above shows that drive times from a notional start point of Bristol are broadly similar whether one is travelling to Pembrokeshire, Devon or Cornwall. However, consultees explained that the perception that Pembrokeshire is 'far away' has become a negative reality which impacts on the tourism sector. PCNPA explained during the consultation that the park was previously ranked 14th out of fifteen national parks in terms of visitor awareness (although innovative and dynamic marketing, quality experience and prestigious awards have tackled this issue, with the PCNP now ranked 7th). Similarly, the South-West Wales Tourism Partnership's study *Pembrokeshire Perceptions Research with Non-Visitors* found that travel time to Pembrokeshire is a key consideration, particularly in the Midlands where distance and travel time are perceived as a barrier to visiting the area.

What are the transport needs of the industry?

There is evidence to suggest that the travel time to Pembrokeshire and the perception that the area is remote is acting as a barrier to growing the tourism market, and hence the contribution of the area towards the Welsh Tourism Strategy 2013-20.

In reality, the geographic location of Pembrokeshire means that it is always likely to be distant from its main markets. For example, even if the A40 were to be dualled between St Clears and Haverfordwest, the journey time would only be reduced by around eight minutes on average, a small reduction in the journey time of over three hours from Bristol to St David's. That said, there was a strong view amongst a number of consultees that an improvement of this nature would help to tackle the perception that Pembrokeshire is 'far away' by connecting it to the dual carriageway network, thus attracting more visitors.

A challenge with regards to the above point is that the two main routes into Pembrokeshire diverge at the St Clears Roundabout. Evidence would have to be sought on the extent to which improvements to the A40 improve perceptions of the south-coast and indeed vice versa with the A477.

Enhanced transport connectivity is likely to do little to tackle the marked seasonality in the area. In addition, a number of consultees did suggest that part of the reason people come to places like Pembrokeshire is because they like to get off the beaten track.

Other Activities in the Haven Waterway

- 4.4.41 Whilst the Haven Waterway is principally focussed on the energy sector, it is worth considering other potential developments within area. The focus on industrial land-uses within the Haven means that any future developments are likely to be relatively transport intensive.

²² <http://www.theaa.com/route-planner/index.jsp>

Fishing

- 4.4.42 There are a number of opportunities in the fishing sector in Pembrokeshire. Milford Haven is Wales' largest fishing port, landing some 5,000 tonnes per annum from UK, Spanish, French and Belgian flagged trawlers. The Port Authority is investing in a processing unit to try and develop a new critical mass in this sector. The Haven Waterway also has significant potential for aquaculture (seaweed, oysters, mussels etc.) in the sheltered narrower bays around the Haven. All of these businesses would need infrastructure onshore and the onward movement of goods, most likely by road.

Ship Repair

- 4.4.43 Milford Haven Port Authority is currently exploring opportunities in the ship repair sector. They are currently looking at expanding the apron at Pembroke Dock to create a hardstanding for a specialist facility for repairing small boats (principally the Haven tug fleet but also yachts, pilot boats, fishing boats etc). This would involve the installation of a boat lift and would replace the drydocking capacity on the north side of the waterway, freeing up capacity for tourism and fishing projects.
- 4.4.44 As with the energy sector, it is likely that the majority of the supply chain needs would be fulfilled locally and thus there is likely to be a limited impact on the strategic transport network.

4.5 Transport Infrastructure Problems & Opportunities

Road

- 4.5.1 As this study is strategic in nature, the focus of the consultation was largely on the A40 (and A477), although both wider and local issues raised by consultees were also considered.

The East-West Trunk Roads

- 4.5.2 Whilst this study is specifically focussed on the A40, consultees explained that the road connectivity issues also tended to relate to the A477. This section therefore considers issues common to both roads before considering the A40 specifically.
- 4.5.3 The key on both Trunk Roads in Pembrokeshire is the mix of traffic types using the road. In the core winter months, both routes carry:
- Local residents (typically car-based traffic);
 - Commercial vehicles, particularly in and around ferry arrival and departure times; and
 - Agricultural vehicles (although it is our understanding that the A40 is dominant in this regard).
- 4.5.4 In the summer months, the above mix is supplemented by a high volume of tourist traffic, whilst agricultural markets also introduce a smaller peak in traffic levels on certain days of the year. This combination of different traffic types leads to a range of problems including:
- Unreliable journey times caused by slow moving vehicles, a lack of overtaking opportunities and vehicle platooning; and
 - This problem is made more acute, particularly on the A40, by the lack of right-turn lanes, farmers moving between fields north & south of the road and farmers moving their own product to market.
 - Safety issues caused by irresponsible overtaking borne out of driver frustration.

- 4.5.5 Whilst the above points are important, their impact is captured in standard cost-benefit analysis, which suggests that the case for dualling the A40 does not stack-up when focussed on these issues alone.
- 4.5.6 A significant number of consultees did however note that the current road network and the problems associated with it are having a **negative impact on the perception of Pembrokeshire and that this perception transmits into reality**. Appraisal guidance confirms that perceived problems are every bit as relevant as actual problems. The argument is that Pembrokeshire is perceived as 'far away' because it is off the end of the dual carriageway network. Consultees pointed to the following problems as evidence of this:
- Pembrokeshire receives a lower share of inward investment when compared to other Welsh local authorities, which may be attributable in part to its perceived peripherality.
 - The issues with the road network are believed to limit cross boundary travel-to-work opportunities, a point borne out by the evidence which shows a highly self-contained travel-to-work market (although causality has not been proven).
 - Skill shortages have emerged in public sector and lower paid jobs, which may link to the small cross-boundary travel-to-work market.
 - Young people who do not enter the energy industry are encouraged to leave the area in search of employment elsewhere (again the extent to which a lack of inward investment and a limited travel-to-work market are the main causal factor driving this is unproven).
 - Tourists choose not to come to Pembrokeshire because it is perceived as distant compared to other areas, evidence of which was provided in a survey of non-visitors to the area.
- 4.5.7 As alluded to in the bullets above, there is some evidence that the Trunk Roads in Pembrokeshire are constraining economic development. Whilst it is acknowledged that the journey time savings on offer even through full dualling of the A40 will not fundamentally change the connectivity of Pembrokeshire, it was argued by a number of consultees that the positive impact on perceptions (and hence reality) could be significant. Evidence of this is explored in more detail through the business survey, which is reported in the next chapter.
- 4.5.8 When consultees who supported enhancement to the current road network were asked about the trade-off between full dualling and targeted stretches of '2+1', the almost universal response was that '2+1' represented a lack of commitment and faith in the future of the area.
- 4.5.9 In terms of opportunities, the freight organisations explained that the recent change of the speed limit for commercial vehicles in excess of 7.5 tonnes from 40mph to 50mph on single carriageway roads (50mph to 60 mph on dual carriageway) may assist in reducing the journey time issues associated with low HGV speeds.
- 4.5.10 Whilst consultees overall would welcome improvements to the road network and believe that the current roads are constraining the economy to some extent, there was a relatively widely held view that the road network is not necessarily the main infrastructure constraint in Pembrokeshire.

The A40

- 4.5.11 It should be noted that Pembrokeshire County Council and the Swansea Bay City Region Advisory Board have both identified improvements to the A40 between St Clears and Haverfordwest as a priority for the local authority area and City Region more generally.

- 4.5.12 Given the scope of this study, a specific portion of each consultation meeting was allocated to discussing the issues on the A40. As well as those issues common to both the A40 and A477 (reported above), there were a number of A40 specific issues raised by consultees.
- 4.5.13 The A40 is seen to be the main route for the agriculture sector and it is acknowledged that this does present some specific problems in terms of tractors moving between fields, tractors towing trailers and the movement of agricultural produce and livestock in standard commercial vehicles.
- 4.5.14 The lack of HGV parking on the A40 was cited as a problem by the haulage industry and it was also argued that this prevents lorry drivers stopping in the area and spending money locally.
- 4.5.15 A point made by one consultee is that the A40 in its current form makes it easier to get into rather than out of Pembrokeshire. In the eastbound direction, there is a stretch of '2+1' on the steep uphill section east of Haverfordwest. However, once a motorist passes the roundabout at Canaston Bridge, there are no further stretches of eastbound '2+1' but there are several westbound stretches.
- 4.5.16 A consistent point made during the consultation is that whilst the proposed A40 improvements would better connect the county town of Haverfordwest to the dual carriageway network, there would still be lengthy single carriageway links between Haverfordwest and Fishguard and a shorter single carriageway link to the Haven Waterway. A number of consultees explained that the A40 north of Haverfordwest is of a poorer quality with fewer overtaking opportunities than the St Clears to Haverfordwest stretch. Similarly, the route around Haverfordwest connecting with the A4076 to Milford Haven is punctuated by traffic lights and can experience peak period congestion. A number of consultees were concerned that a proportion of the benefits from dualling the A40 would be offset by the network problems in and to the north and south of Haverfordwest.
- 4.5.17 In terms of opportunities, a number of stakeholders argued that more should be made of the A40's status as a Trans-European Network (TEN) route. As a key route linking Ireland, the UK and the Continent, a number of stakeholders argued that the road should be a standard associated with such a designation. Note however that there are no 'minimum standards' in relation to TEN routes, with other UK TEN routes such as the A75 in south-west Scotland being of comparable quality to the A40.
- 4.5.18 It is interesting to note that consultations with key players in the haulage and freight industry did not identify the current A40 as a major issue. Whilst they acknowledged the identified problems on the route, they noted that these problems are of lesser magnitude than those experienced elsewhere in Wales, particularly in terms of north-south connectivity.

A40 / A477 Trade-Off

- 4.5.19 A challenge in building a case for Trunk Road investment in Pembrokeshire is that there are two routes which diverge at St Clears – to recap:
- The A40 serves the county town of Haverfordwest, Fishguard ferry port, the tourist economy of central and north Pembrokeshire and the town of Milford Haven in the south; and
 - The A477 serves the industrial hub at Pembroke Dock, the Pembroke refinery, much of the Haven Waterway supply chain and the south-coast tourism destinations from Amroth to Manorbier.
- 4.5.20 Whilst there was a moderate consensus amongst consultees that enhanced road connectivity would be of value, views on the beneficiaries of such investment depended on which corridor the consultee was located in. Consultees who supported improvements to the:

- A40 cited connections with the county town and Withybush Hospital; the agriculture sector, Fishguard and the key tourist destinations to the west and north of Haverfordwest.
- A477 explained that this route best supports the critical industrial cluster and energy sector in the Pembroke Dock area. There was concern amongst proponents of the A477 that enhancing the A40 would dissipate rather than concentrate industrial activity in the area. In addition, the A477 serves freight traffic bound for Pembroke Dock and the mass market tourist areas on the south coast.

4.5.21 To complicate matters further, it should be borne in mind that there are competing ferry operators to Rosslare at the 'end' of each route. A concern raised during the consultation was that any decision of the Welsh Government to improve one road at the expense of the other could distort the ferries market in Pembrokeshire.

Cleddau Bridge

4.5.22 The tolls on the Cleddau Bridge, which is part of non-trunk section of the A477 linking the north and south of the Haven Waterway, were also raised as an issue by consultees. The tolls, at 75p for a car and £1.50 for an HGV, with discounted books also on offer, are low in comparison to other tolled bridges in the UK. Nonetheless, for a motorist travelling to work across the Haven Waterway each day, they would incur an additional travel-to-work cost of £24 a month (based on a discounted ticket book).

4.5.23 It was therefore argued by consultees that the bridge tolls act as a constraint in effectively combining the economic potential of both sides of the Haven Waterway. As with the issue of road links in the area generally, it is possible that the negative perception created by the tolls also transmits through into labour flexibility, with people looking for employment on their 'own side' of the Haven. We do not have firm evidence to prove this point but it is an issue worth considering in more detail.

M4 Port Talbot

4.5.24 A small number of consultees, particularly in the energy sector, noted that the biggest transport issue impacting on Pembrokeshire is actually outwith the County – congestion on the M4 at Port Talbot.

A487 Newgale

4.5.25 A number of consultees identified threats to the A487 at Newgale from coastal erosion as an important transport issue. This is the main road link from Haverfordwest to St David's. Whilst of significance, this issue is outwith the scope of this study.

Summary

The consultation identified a series of constraints with the current Trunk Road network in Pembrokeshire. It was argued that whilst standard transport economic efficiency analysis captures journey time, safety etc impacts, it fails to capture the negative perceptions attached to these issues. A common theme to emerge during the consultation process is that Pembrokeshire is perceived to be 'far away' and that this is deterring inward investment, the development of the travel-to-work market within the Swansea Bay City Region, tourism and population retention.

That said, road transport was not seen as the most significant constraint by a number of consultees and there are questions as to the extent of the causal links between the problems on the road network the wider economic issues in the area – for example, whilst poor connectivity may be one factor discouraging the retention of young people, there is only limited evidence on its importance relative to other factors.

Rail

- 4.5.26 Whilst Pembrokeshire is connected to Swansea and hence the South Wales mainline by three branch lines (from Fishguard, Milford Haven and Pembroke), rail connectivity is poor. A combination of long stretches of single track, low service frequency, long-journey times and limited quality rolling stock mean that the rail network is lightly used by both business people and tourists (a visitor survey found that 98% of tourists come to Pembrokeshire by car).
- 4.5.27 Enhancements to the rail network were a popular theme amongst consultees. However, it was acknowledged by those familiar with railway economics that the investment costs required to bring the railway up to a standard where it would offer a genuine travel choice are prohibitive.
- 4.5.28 A number of consultees suggested that the forthcoming Welsh rail franchise (in 2018) should be used as a mechanism for securing incremental enhancements to services, particularly in terms of:
- Enhanced rolling stock with first class compartments;
 - More tables onboard the trains and the installation of power points and WiFi; and
 - An enhanced catering offer.
- 4.5.29 Whilst such improvements would not fundamentally alter the road / rail market share in Pembrokeshire, the train could perhaps become more attractive for businesspeople, who could turn 'non-work' time in the car into 'in-work' time on the train.

Summary

It was widely acknowledged by consultees that enhancements to the rail service will be limited to incremental improvements in journey quality, although these are still seen as valuable, particularly if it allows for working on the train.

Ferry

- 4.5.30 The issues related to accessing the two ports of Fishguard and Pembrokeshire Dock are covered in the discussion of the A40 and A477 above. The two key points in the context of the ferry services from Pembrokeshire are the:
- Extent to which any improvement in either the A40 or A477 would 'distort' the market in favour of one operator over another (an issue covered above); and
 - Long-term proposals to consolidate the two Pembrokeshire ports into a single ferry port at either Fishguard or Pembroke Dock.
- 4.5.31 The latter point is a longer-term objective of the public sector. The specifics of this debate are not entirely relevant to this study except to state that investment in the road network should take cognisance of emerging plans.

Air

- 4.5.32 Withybush Airport to the north of Haverfordwest is owned by the local authority and is included in the Haven Waterway Enterprise Zone. It is a small airfield with two short asphalt runways (1,524 & 1,095 metres respectively²³) which can only accommodate small propeller driven aircraft such as the Twin Otter or Britten-Normen Islander. There are no navigational aids and

²³ http://en.wikipedia.org/wiki/Haverfordwest_Aerodrome

fire cover is limited. The airport is not licenced to handle scheduled passenger flights and cannot accommodate jet aircraft.

- 4.5.33 Whilst a rural area, the presence of the energy sector (particularly related to oil) attracts a number of executive international visitors. At present, these visitors fly into London, Bristol or Cardiff and a number of them have apparently expressed concern at the time it takes to get to Pembrokeshire.
- 4.5.34 A recurring comment during the consultation is that options should be considered for the upgrading of Withybush airfield to accommodate small jet aircraft, providing international connectivity, particularly for private jets. Whilst supported in principle, a number of consultees did raise concerns that such an investment would not benefit the area at large, rather a small handful of companies and executives.
- 4.5.35 There is also currently potential for the development of short-hop local routes on small aircraft, such as between Withybush and Cardiff, Bristol and London. This model of a rural area being connected by air is widely used in Scotland and has also been successful in Newquay in Cornwall. In addition, there are also daily flights from Anglesey to Cardiff, a model which could perhaps be replicated.

Summary

There was a general view amongst consultees that Withybush Airport represents a potential opportunity for Pembrokeshire, hence its inclusion in the Haven Waterway Enterprise Zone. Opportunities included extending the runways and improving the capability of the airport for handling small private jets, whilst the development of short internal UK routes was seen as a possible means of tackling the perception of peripherality.

4.6 Other Infrastructure Issues

- 4.6.1 Whilst the study was specifically framed in the context of transport and the A40, consultees were asked about any other (i.e. non-transport) infrastructure issues potentially inhibiting the economic performance of Pembrokeshire. The purpose of this was to contextualise the discussion on transport infrastructure and identify other non-transport issues that could be considered in future. The main issues highlighted are touched on below.

Digital

- 4.6.2 Evidence from across the UK suggests that good digital connectivity can significantly support the development of rural economies. As well as tackling the perception of remoteness, digital connectivity supports home-based and small businesses as well as reducing the costs of larger firms through, for example, video conferencing.

Broadband

- 4.6.3 The poor broadband connectivity in Pembrokeshire was perhaps the most cited infrastructure issue throughout the consultation. Current connectivity is slow, intermittent and unreliable. Consultees explained that negative impacts included:
- Higher business costs driven by reduced opportunities for remote meetings and a greater requirement for travel. This is a particularly pertinent point in the energy sector, which is global in nature (for example, Valero is headquartered in San Antonio, Texas);
 - a negative impact on attracting inward investment;
 - Limitations on the ability to work from home and / or adopt flexible working practices;

- Inhibiting SMEs – examples included the impact of poor broadband on home-based business start-ups; accommodation marketing & booking; and completing largely online forms such as tax returns or, for the agricultural sector, Common Agricultural Policy paperwork; and
- Not having at least the option of reliable internet / wi-fi access is seen as a detractor for tourists.

4.6.4 It should be noted that superfast broadband will be rolled-out across Wales in 2016 and thus this issue should be addressed in the near future.

Mobile Phone Signal / 3G / 4G

4.6.5 The poor phone signal (particularly in the more remote parts of Pembrokeshire) and inability to access mobile data services are seen to be further inhibitors of the economy, with many of the negative impacts being similar to those set out for broadband.

Physical

Water Network

4.6.6 One consultee explained that the water supply network in Pembrokeshire is a key constraint from a land-use development point of view. This limits the number of new homes and compounds the pressure put on the housing stock by high levels of second home ownership.

Electricity Grid & Pipeline Capacity

4.6.7 The capacity of the electricity grid to accommodate electricity generated by marine renewables was seen to be a constraint and one consultee recommended an electricity grid capacity study.

4.6.8 It was also noted that there is limited spare pipeline capacity within the Haven Waterway. This could act to constrain further development in the energy sector.

Other

Access to Finance

4.6.9 Chapter 3 highlighted the dominance of SMEs in Pembrokeshire, particularly in the agriculture and tourism sectors. One point raised by a number of consultees was the ongoing challenge of accessing bank and other finance. This issue is seen to limit business growth and discourage new business formation.

Higher Education

4.6.10 Finally, the lack of a university presence in Pembrokeshire was seen as a weakness of the area and one of the main reasons underlying the out-migration of younger people. The nearest universities are Swansea and Trinity St David's.

4.6.11 Human capital particularly that associated with the energy sector is the key asset of Pembrokeshire and a number of stakeholders stressed the need to capitalise on these skills by making Pembrokeshire a centre of excellence for the energy sector.

Summary

Pembrokeshire has a range of wider physical, digital and other infrastructure needs outwith investment in the transport. It is outwith the scope of this report to consider these issues in detail. However, the key point here is that investment in Pembrokeshire should reflect the identified and evidenced infrastructure problems and deficits.

5 Business Survey

5.1 Overview

- 5.1.1 In order to obtain a wider understanding of how transport connectivity generally and the A40 specifically both supports and constrains the Pembrokeshire economy, an important task in this research was the carrying out of a business survey with firms in the area. The business survey was intended to supplement the consultation process, providing a wider cross section of views from firms in the area.
- 5.1.2 This chapter reports on the findings of the business survey and, taken together with the consultation, informs the discussion of transmission mechanisms in Chapter 6 and the EALI analysis in Chapter 7.

5.2 The Business Survey

- 5.2.1 The business survey was carried out in an online format, although a copy of the final paper survey (which was transcribed for online use) is included in Appendix A to this report for reference.
- 5.2.2 The survey went live on 17th March 2015 and was left open until Monday 4th May 2015. The survey was promoted directly by Welsh Government through various departments including Facebook and Twitter feeds. PBA also circulated the survey to the membership based consultees with whom we engaged (e.g. the Freight Transport Association, Farmers Union of Wales, the Haven Waterway Enterprise Zone etc) and requested that it be sent on to members. It is acknowledged that this could have introduced an element of bias into the survey results, although it was felt that this was outweighed by the benefits of maximising the same.
- 5.2.3 The business survey had 94 respondents in total. However, not all respondents provided an answer to all survey questions which implies that the sample size varies per question. The main findings of the business survey are laid out below.

5.3 About Your Business

- 5.3.1 The majority of businesses that responded to the survey have principal offices located in West Wales, with only two located outside of Wales in the vicinity of Manchester and London. Figure 5.1 shows the geographical distribution of respondents, with the colour of the dots indicating when the location of the respondent business was different from the location of its principal office and when the same location was specified by more than one respondent business.



Figure 5.1: Location of respondents and principal offices

5.3.2 A significant proportion of respondents (65% or 60 businesses) have been at their current location for more than 10 years as shown in Figure 5.2. The main reasons for choosing this location by businesses that have been at the specified location for 1 to 3 years or less than 1 year (% or 8 businesses) were:

- being able to find available / appropriate office space (*“Ideal building for my business”, “We moved from smaller premises in Milford Haven”*); and
- the area’s tourism potential (*“Excellent tourism attraction”, “The idea that property is more affordable here (more value for money), being close to Stena Line and the environment being largely unspoilt and a unique “getaway” for potential increase in tourism through coastal path walkers, retirement and family visits and gateway to Southern Ireland and Europe”*).

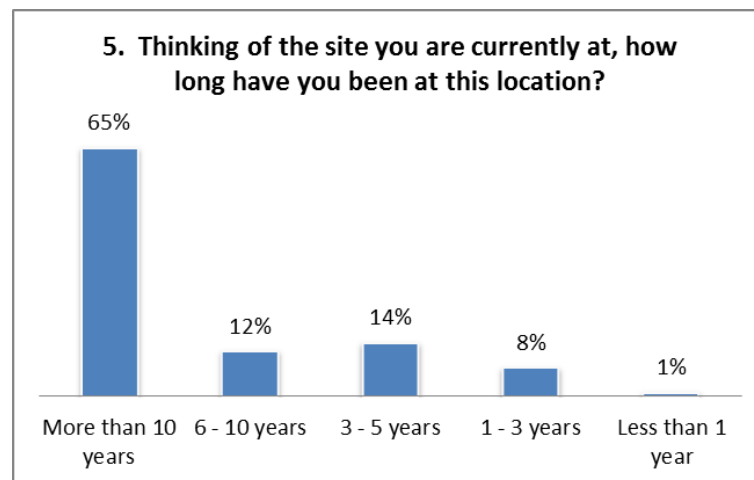


Figure 5.2: Length of time at current location

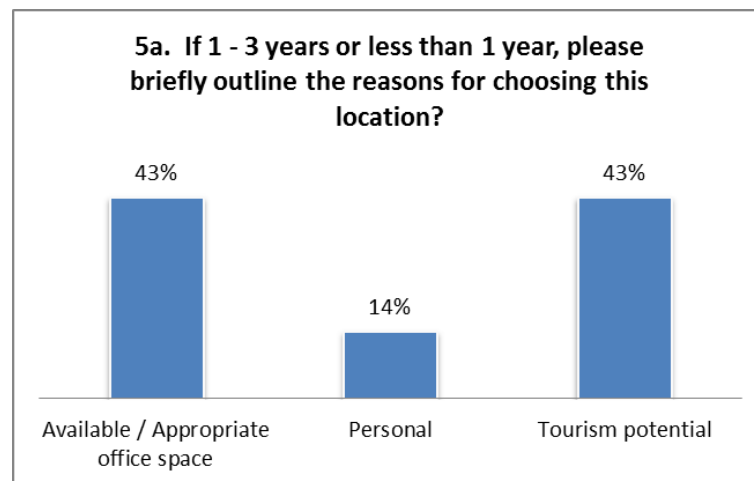


Figure 5.3: Reasons for location choice

- 5.3.3 Figure 5.4 **Error! Reference source not found.** shows a breakdown of the future plans of all respondents. The majority of businesses (78% or 72 businesses) intend to maintain the businesses as at present, 17% or 16 businesses intend to expand operations on their current site and only 4% or 4 businesses plan to relocate to other areas such as Pembroke, Pembroke Dock, Narberth or Haverfordwest.
- 5.3.4 Most respondent businesses (53% or 49 businesses) operate in the 'Accommodation & Food Services (including tourism)' sector. The proportion is even higher (75%) if we also consider the 20 businesses that answered 'Other (please specify)' but indicated they operated in the tourism sector. This is unsurprising given the dominance of family and SME tourism businesses / accommodation providers in Pembrokeshire.

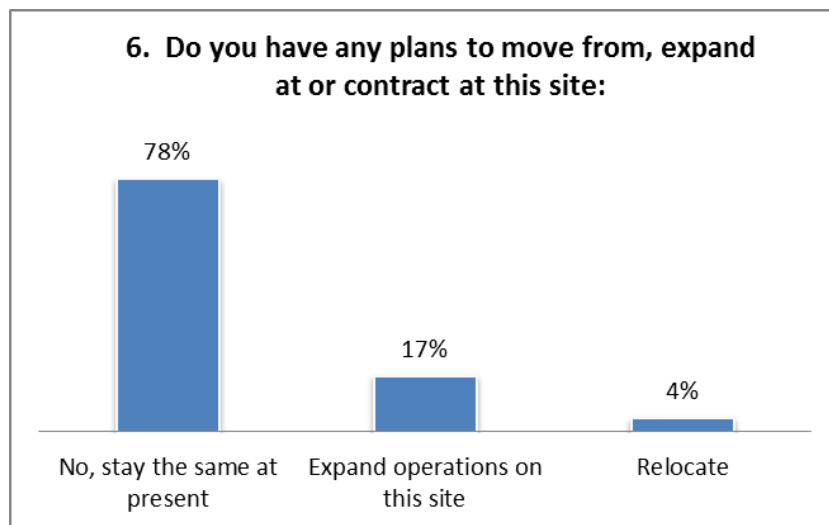


Figure 5.4: Future intentions regarding business location

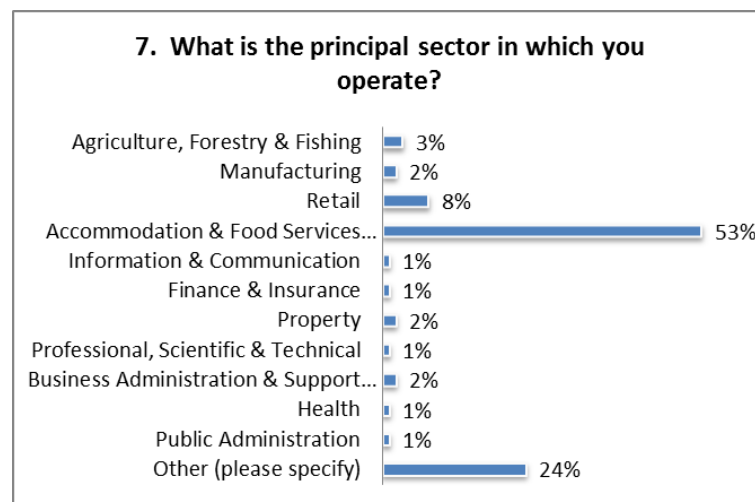


Figure 5.5: Breakdown of respondent businesses by principal sector

- 5.3.5 For the purpose of this analysis, the principal sectors were split into Freight Intensive (FI) and Non-Freight Intensive (NFI) and the answers to some of the survey questions are broken down by this definition. The FI sectors were Agriculture, Forestry & Fishing, Manufacturing and Retail. The NFI sectors were Accommodation & Food Services (including tourism), Information & Communication, Finance & Insurance, Property, Professional, Scientific & Technical, Business Administration & Support Services, Health and Public Administration. The representation of FI and NFI sectors in the survey sample was disproportionate with considerably more businesses operating in the Non-Freight Intensive sectors (again unsurprising given the dominance of SME tourism businesses) as shown in Table 5.1.

Table 5.1: Breakdown of Responded Businesses by Type of Sector

Type of sector	Number of Respondent Businesses	Percentage of total
Freight Intensive (FI)	13	14%
Non Freight Intensive (NFI)	79	86%
TOTAL	92²⁴	

Key Point: The majority of businesses responding to the survey were local in nature, dominated by the SME tourism enterprises (typically accommodation providers). Non-freight intensive businesses therefore dominate the Pembrokeshire economy (in terms of number of businesses although not necessarily number of employees). This finding is in keeping with the conclusions of the baseline analysis, which highlighted that the Pembrokeshire business base is dominated by tourism based SMEs.

5.4 Your Employees

- 5.4.1 When estimating the average number of people employed by respondent businesses at their current location by principal sector, the answers to the 'Accommodation & Food Services (including tourism)' and the 'Other' categories were aggregated because, as previously explained, the majority of 'Other' answers were tourism related. Figure 5.6 shows that the majority of respondent businesses are micro and small companies with the exception of those in the Manufacturing sector which are medium to large companies.

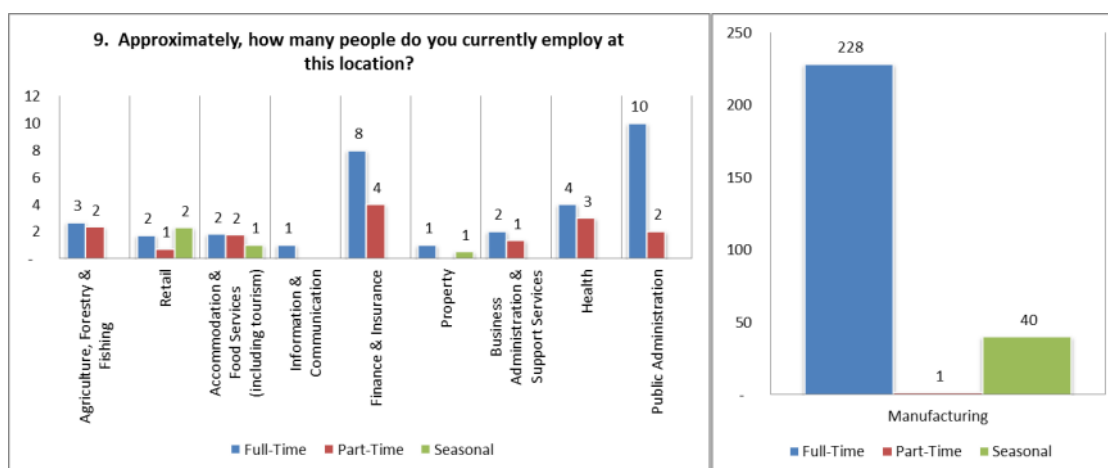


Figure 5.6: Average number of employees by sector

- 5.4.2 Figure 5.7 displays the main mode of commute for the businesses' employees as an average proportion of total by sector type. Most employees depend on the car to travel to work, with approximately 73% of total employees on average across the businesses in the NFI sector and 82% across the businesses in the FI sector. However, a significant proportion of employees walk to work, more specifically 19% on average for the NFI sector and 17.5% on average for the FI sector.

²⁴ Note two businesses failed to respond to this question.

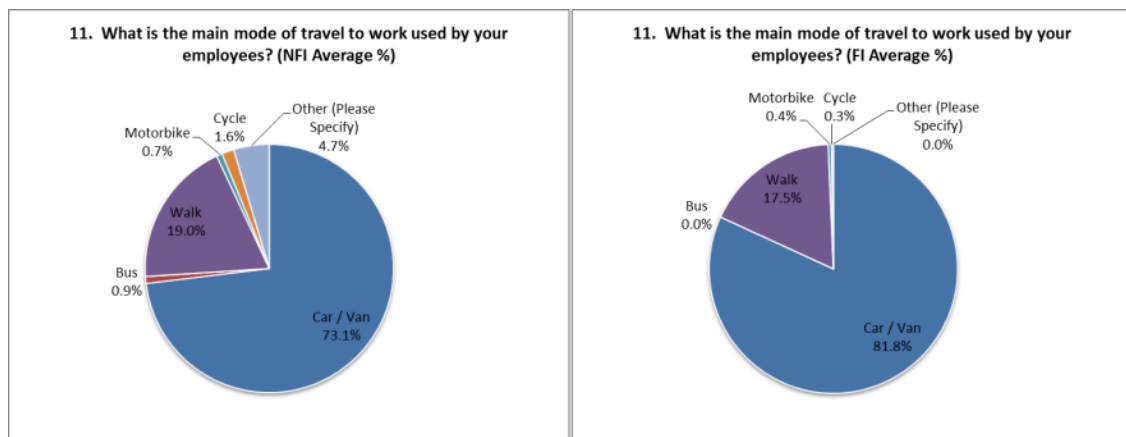


Figure 5.7: Main mode of commute by sector type (Average proportions)

Key Point: The travel-to-work market in the business survey was dominated by the private car. This is particularly so in the FI businesses as these are likely to be located in car-dependent industrial estates rather than more accessible town centre locations.

5.5 Markets Served and Suppliers

- 5.5.1 Figure 5.8 shows that 54% of the markets served by businesses in the FI sector are located within Pembrokeshire, Carmarthenshire and Ceredigion compared to 44.5% on average in the NFI sector. The top three markets served by the businesses operating in the Freight Intensive sector are 'Within Pembrokeshire', 'Other UK' and 'Other Overseas'. The top three markets served by businesses operating in the NFI sector are 'Within Pembrokeshire', 'Other UK' and 'Other Wales'.

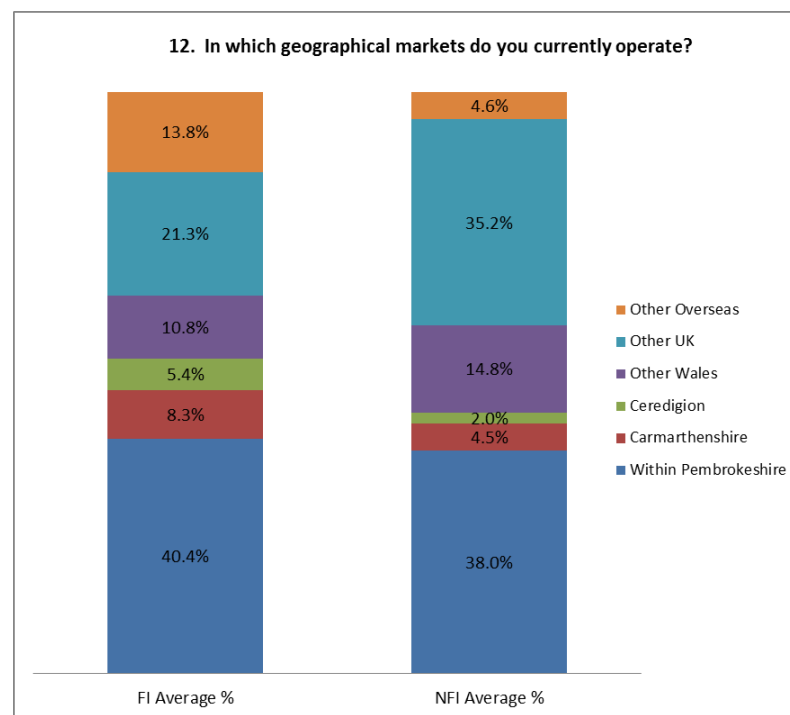


Figure 5.8: Geographical markets by sector type (Average proportions)

- 5.5.2 The suppliers of NFI businesses are mostly located in areas that would gain from the improvements to the A40 (Haverfordwest (23%), Milford Haven (2%), Fishguard (5%), Narberth (5%) and Other Pembrokeshire (14%)) and in other parts of the UK (28%). On the

other hand, businesses that operate in the FI sector have suppliers that are located in other areas of the UK (41%), other areas of Wales (22%) and overseas (11%).

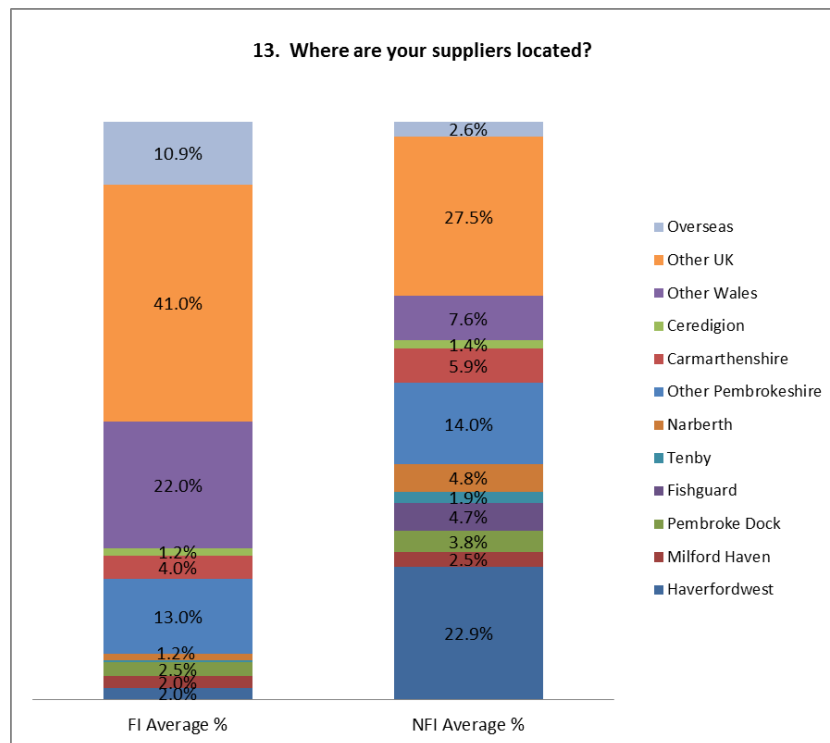


Figure 5.9: Geographical distribution of suppliers by sector type (Average proportions)

Key Point: The customers of FI businesses tend to be more local than NFI businesses. This likely reflects both the extensive supply-chain which has built up around the Haven Waterway to serve largely local needs and, at the same time, the tourist orientation of NFI businesses. On the other hand, 52% of suppliers to the FI industries are outwith Wales, which likely reflects the specialist nature of components required by many of the manufacturing and energy related businesses.

5.6 Staff Travel in the Course of Work

- 5.6.1 The most frequent destinations for business travel for staff working at businesses in the NFI sector is Haverfordwest and Other Pembrokeshire (which includes Milford Haven, Narberth, Tenby etc.). Business travel for staff of respondent businesses in the FI sector is less frequent and most staff travel on average once a month to Carmarthen, other areas in Carmarthenshire and other areas in Wales.
- 5.6.2 In terms of the main mode of travel used by employees in the course of work, virtually all of the employees of the businesses operating in the FI sector use the car compared to 88% of the employees of the businesses operating in the NFI sector. Moreover, 7% of staff from NFI businesses walk to get to their destinations in the course of work as opposed to no staff from FI businesses.

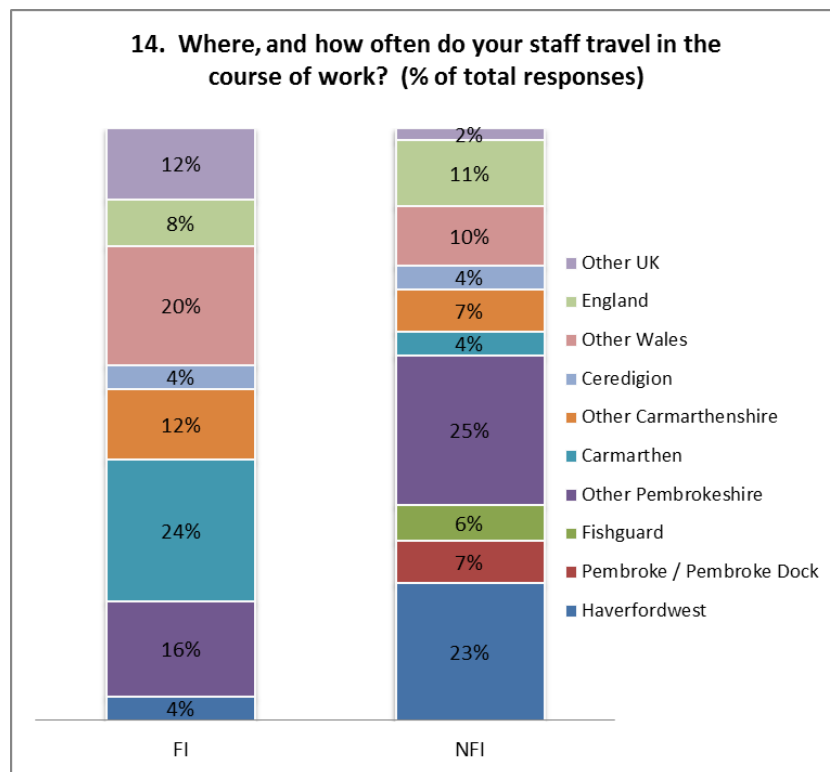


Figure 5.10: Business travel destinations by sector type (Percentage of total responses)

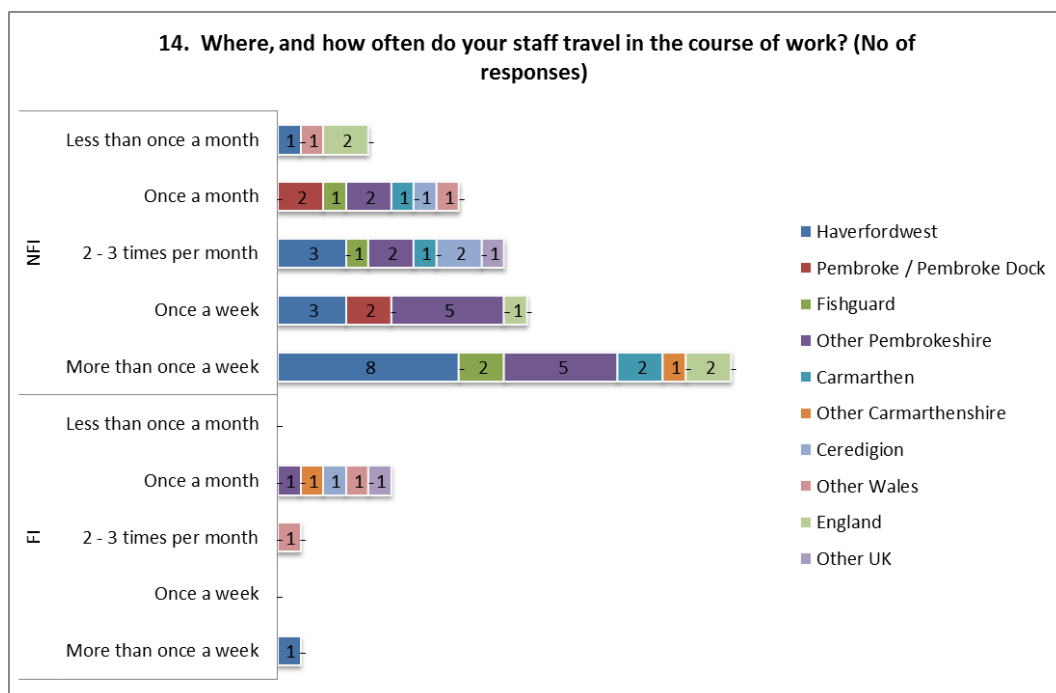


Figure 5.11: Business travel frequency by destination and sector type (Total number of responses)

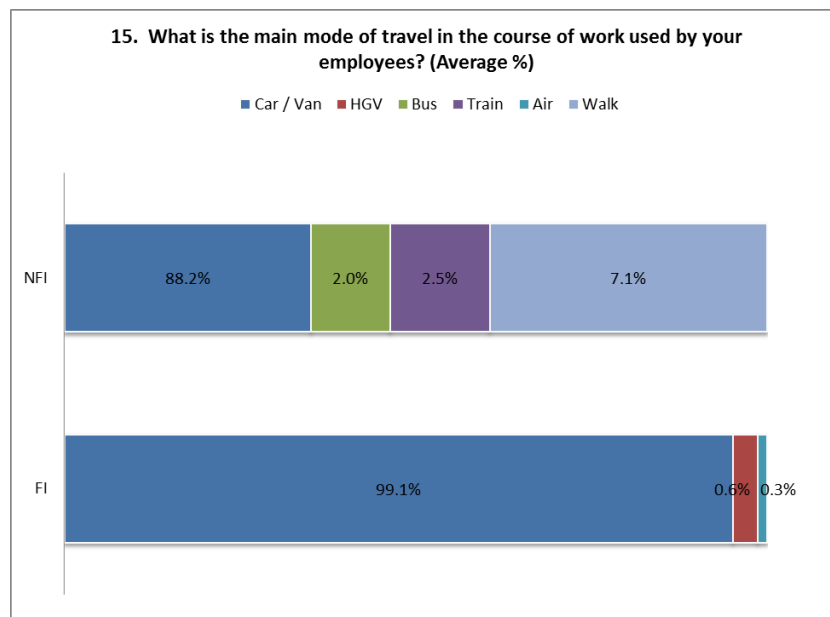


Figure 5.12: Main mode of business travel by sector type (Average proportions)

Key Point: In keeping with the markets served, business travel in the FI industries tends to have a much more widely dispersed destination set than NFI industries (40% outwith South-West Wales compared to 23% for NFI). The car is by far and away the dominant travel mode, particularly in the FI sector, accounting for all travel.

5.7 Movement of Goods

- 5.7.1 As expected, more FI businesses (90%) than NFI businesses (53%) that participated in the survey considered the physical movement of goods to be 'Very significant' or 'Significant' to their business.

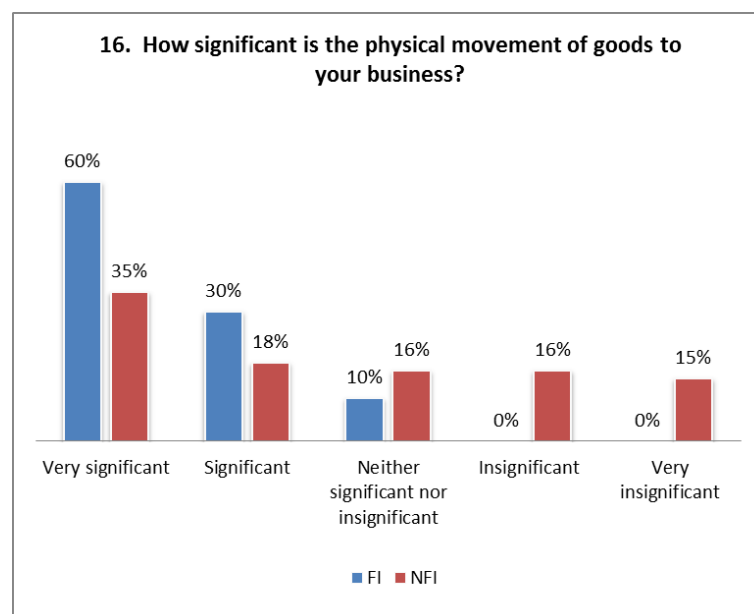


Figure 5.13: Significance of movement of goods by sector type (Proportion of total responses)

- 5.7.2 The most frequently mentioned freight related activities for respondent businesses in the FI sector were outbound delivery of finished goods, inbound delivery of raw / intermediate

materials, inbound delivery of finished goods and parcel delivery. These were mainly transported by LGVs / Vans using a combination of own vehicles and haulage firms.

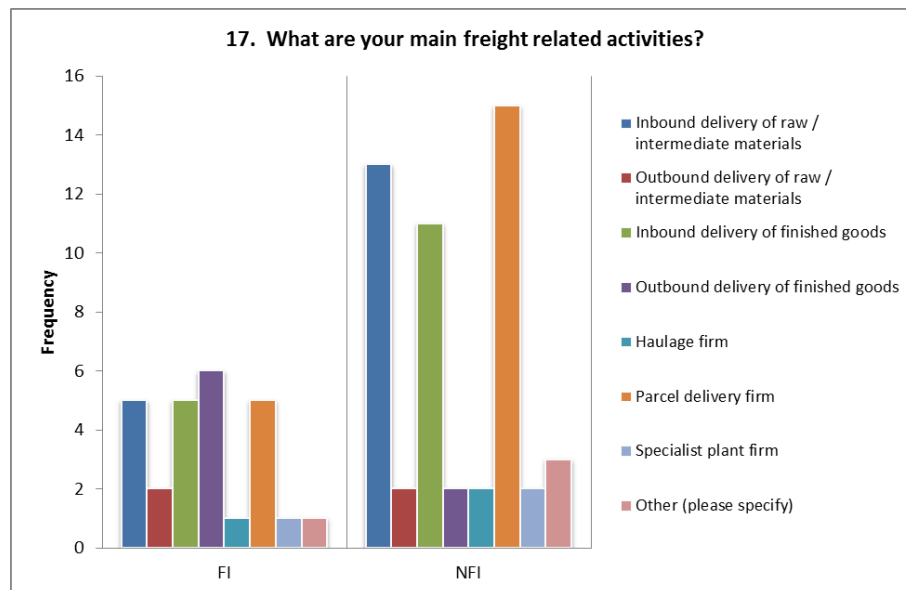


Figure 5.14: Main freight related activities for FI sectors (Frequency of responses)

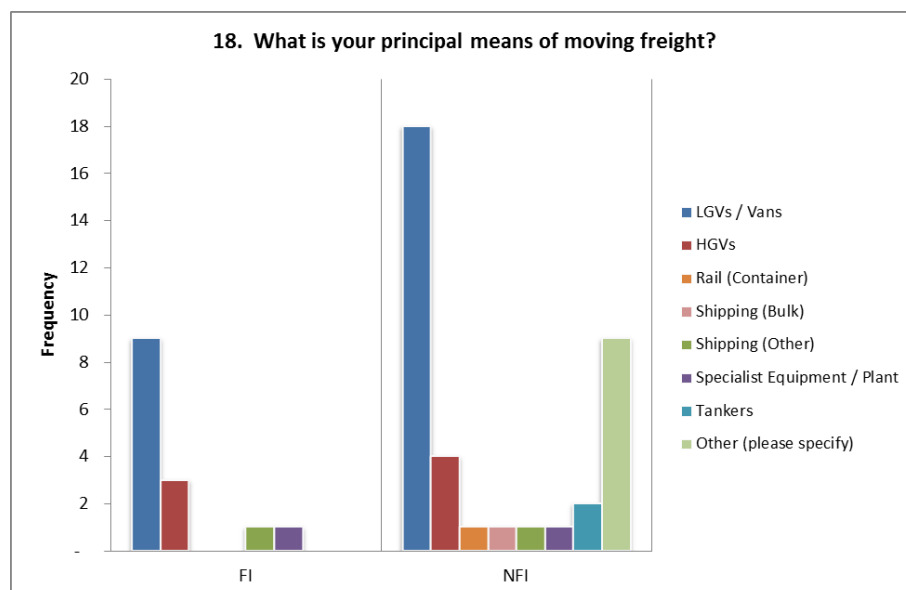


Figure 5.15: Principal means of moving freight for FI sectors (Frequency of responses)

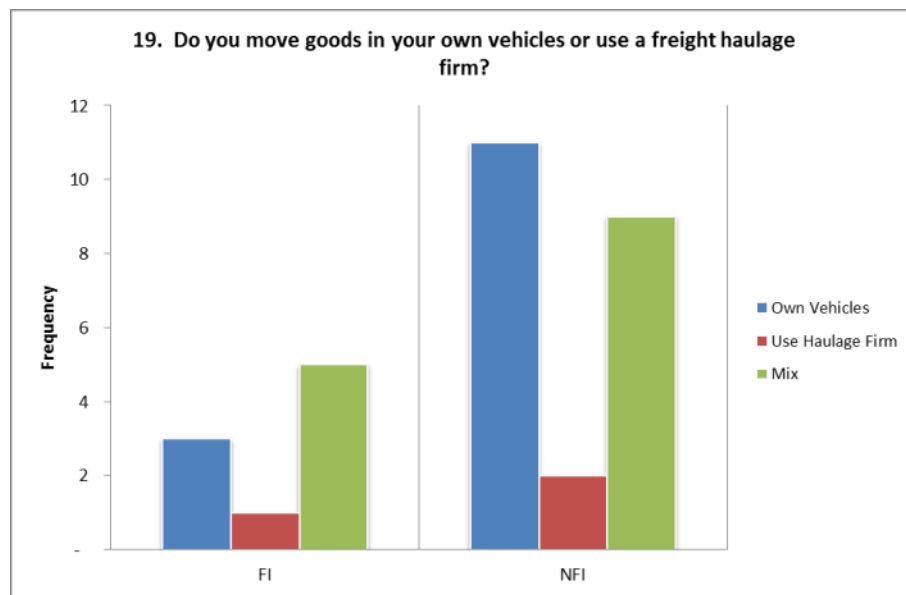


Figure 5.16: Method of moving freight in the FI sectors (Frequency of responses)

Key Point: 90% of FI businesses and 53% of NFI businesses responded that the physical movement of goods was either significant or very significant. LGVs / Vans are the dominant mode of travel.

5.8 Recent Business Conditions

- 5.8.1 The majority of respondents to the question displayed in Figure 5.17 described the current business trading conditions as Good or Fair. Only 4 respondents or 7% considered the current business trading conditions to be Poor or Very Poor.

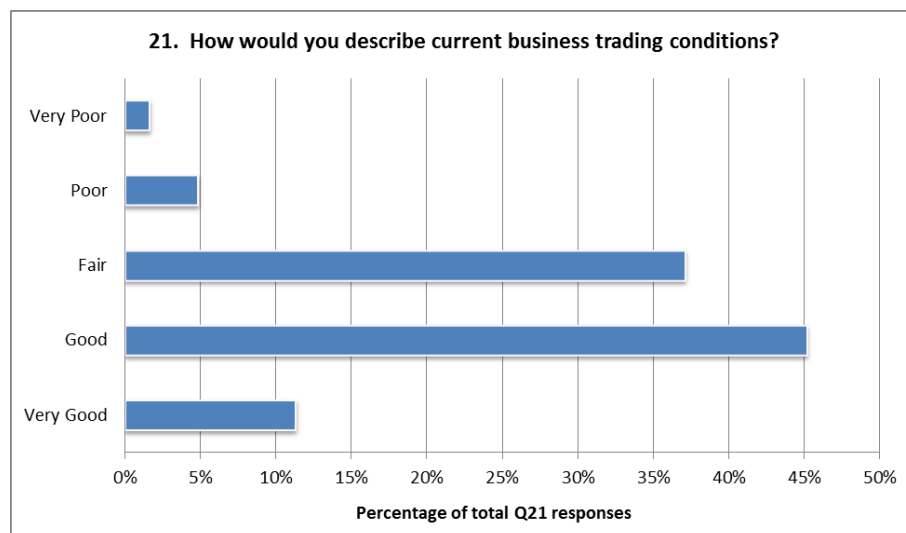


Figure 5.17: Perception of current business trading conditions (Percentage of total responses)

- 5.8.2 In terms of the performance of their businesses' turnover in the last 3 years, the respondents' answers are similar. A slightly higher proportion of businesses in the NFI sector (15%) than in the FI sector (11%) have said that their business turnover has increased significantly. Also, fewer businesses from the NFI sector have experienced a stable turnover over the last 3 years than the number of businesses from the FI sector.

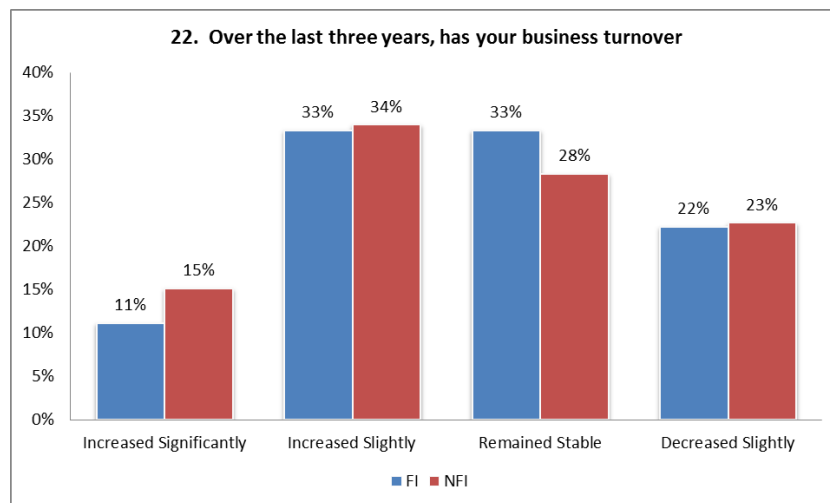


Figure 5.18: Performance of businesses' turnover in the last 3 years by sector type

5.8.3 Figure 5.19 shows that 44% and 56% of total businesses that took part in the survey from both the FI and NFI sectors respectively experienced stable levels of employment over the last three years. Also, more businesses in the NFI sector reported significant or slight increases in employment while a higher percentage of businesses in the FI sector reported significant or slight decreases in employment.

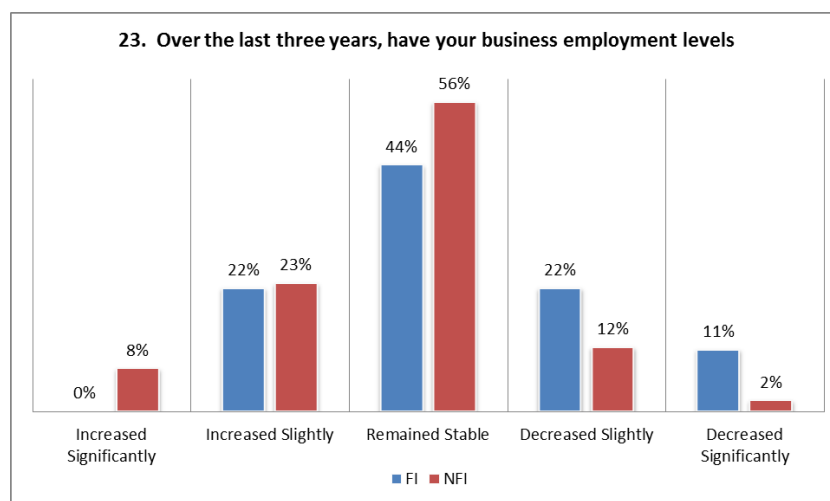


Figure 5.19: Performance of businesses' employment levels in the last 3 years by sector type

5.8.4 The top three things that have influenced the recent business trends as shown in Figure 5.20 are 'Marketing of the area' (46% of respondents ranked it 1 or 2), 'The Recession' (37% of respondents ranked it 1 or 2) and 'Changing market trends' (32% of respondents ranked it 1 or 2). Amongst the least influential factors were 'Access to Bank Finance' and 'Availability of Labour', with the majority of respondents giving these factors a rank of 4 or 5 or not assigning any rank to them.

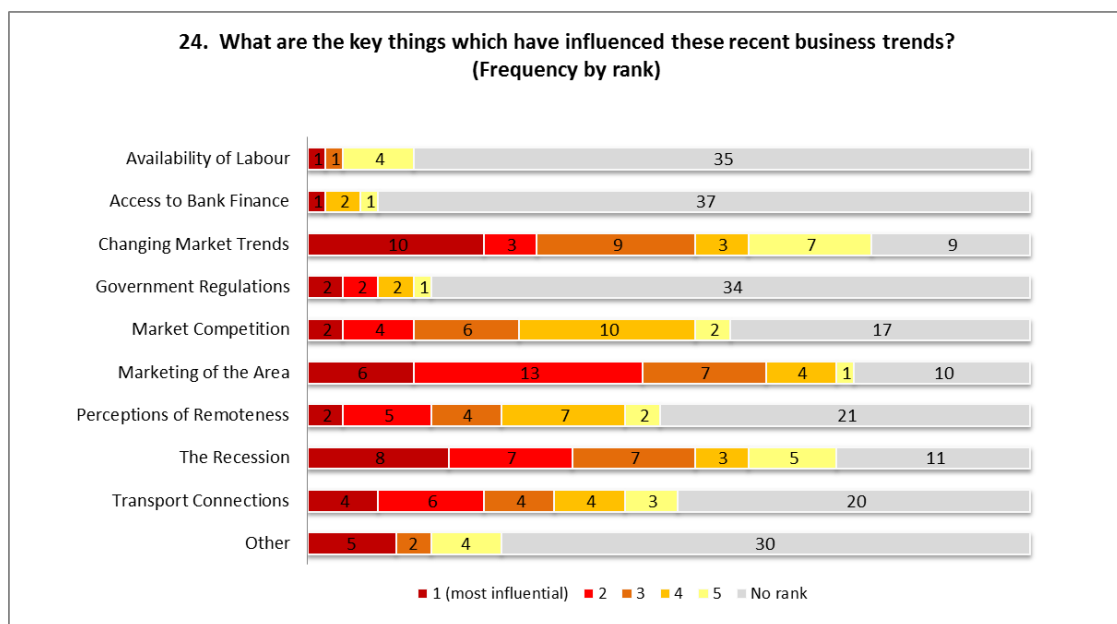


Figure 5.20: Key factors that have influenced recent business trends

Future Business Prospects

- 5.8.5 NFI businesses have a more optimistic view of the future business prospects in terms of turnover for the next 3 years than FI businesses with 65% believing that their turnover will increase significantly or slightly and only 4% believing turnover will decrease slightly or significantly. The same is true in terms of employment, with 22% of FI businesses indicating that they think employment will decrease slightly compared to only 4% of NFI businesses.

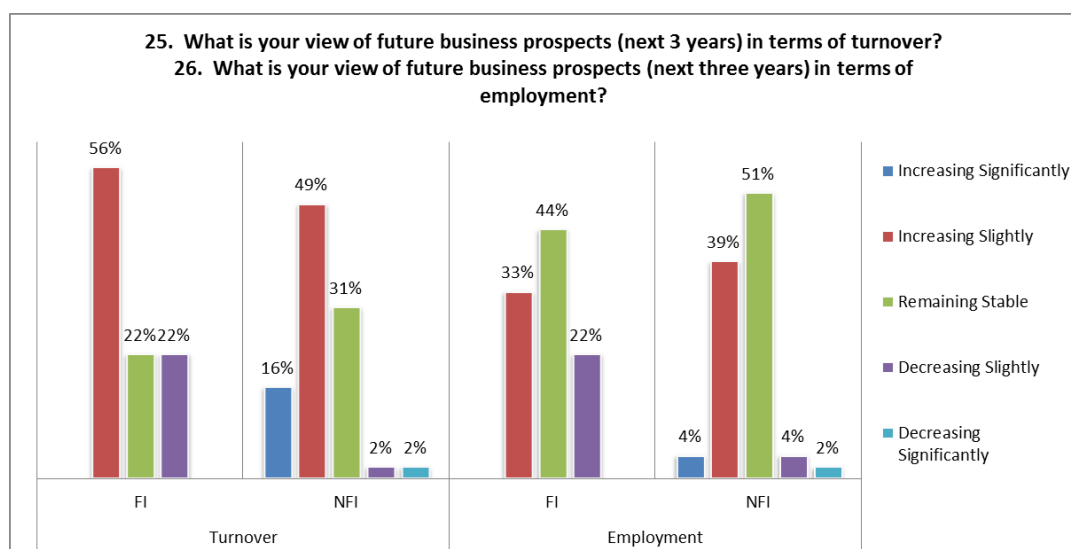


Figure 5.21: Views on future business prospects by sector for the next 3 years

- 5.8.6 More businesses operating in the FI sector indicated a medium and high scale of planned investment over the next five years. Only 2% of NFI businesses are planning a very high level of investment in the future while 47% are planning low levels of investment.

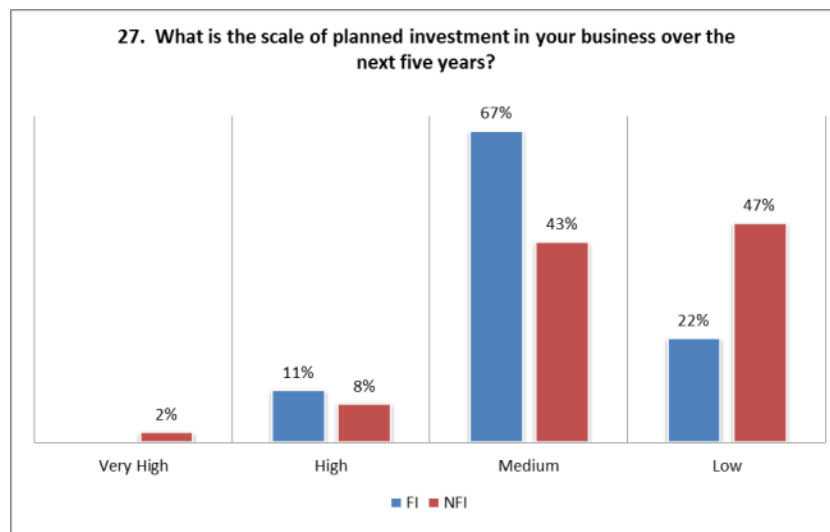


Figure 5.22: Scale of planned investment over the next five years by sector

Key Point: The business survey suggests relatively stable / slightly growing market conditions. It is unlikely that any major new pressures on the transport network will emerge unless new activity comes on-stream in Pembrokeshire (e.g. securing investment from the Swansea Bay Tidal Lagoon project, the proposed waste transhipment service through Pembroke Dock etc).

The main issues affecting business performance identified in the survey also bear out both the consultation findings and the hypothesis in this report that the recession, poor perceptions of Pembrokeshire and the marketing of area are negatively impacting on economic performance.

5.9 Your Business's Use of the A40

- 5.9.1 The A40 west of St Clears was most significant to businesses that responded to the survey in the following top three respects: 'Customers accessing the site' (48 high / medium significance responses), 'Deliveries to this site (vans, couriers)' (44 high / medium significance responses) and 'Other business travel to this site' (38 high / medium significance responses).
- 5.9.2 The A40 was found to be the least significant to the respondent businesses in terms of their employees accessing the site, underling current commuting trends.

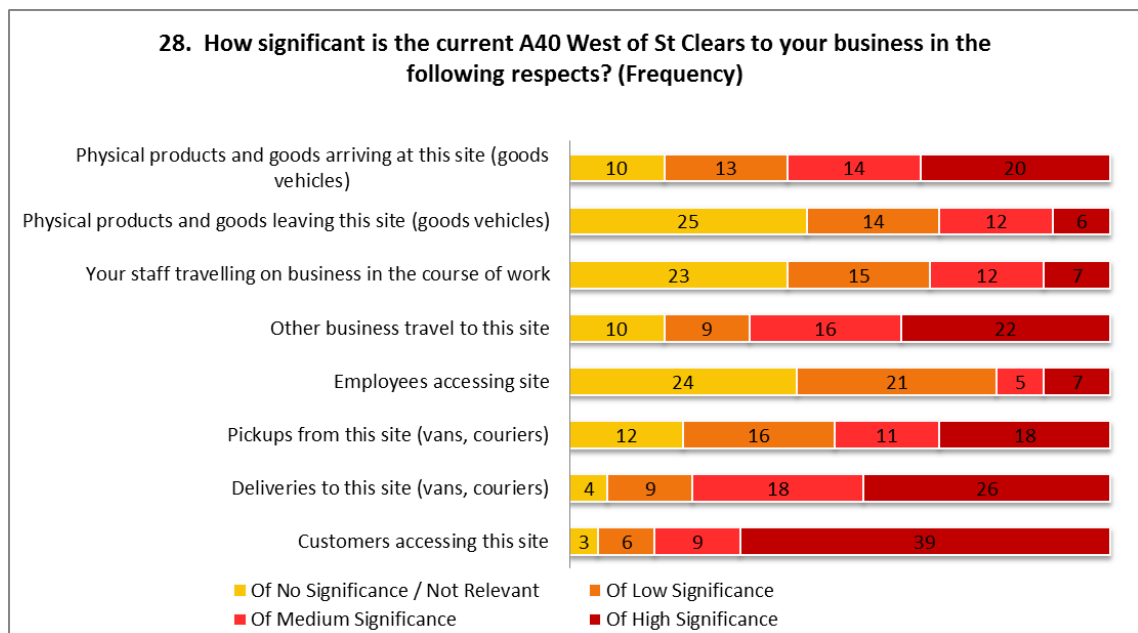


Figure 5.23: Significance of A40 for all respondent businesses

What are the problems with the A40?

- 5.9.3 The top three issues experienced by businesses that responded to the survey were 'Poor journey time reliability – summer only' (42 high / medium adverse impact responses), 'Vehicle platooning & lack of overtaking opportunities' (41 high / medium adverse impact responses) and 'Other congestion on the A40 in West Wales' (38 high / medium adverse impact responses). Abnormal load restrictions were not considered an issue by the highest number of businesses (45 responses).

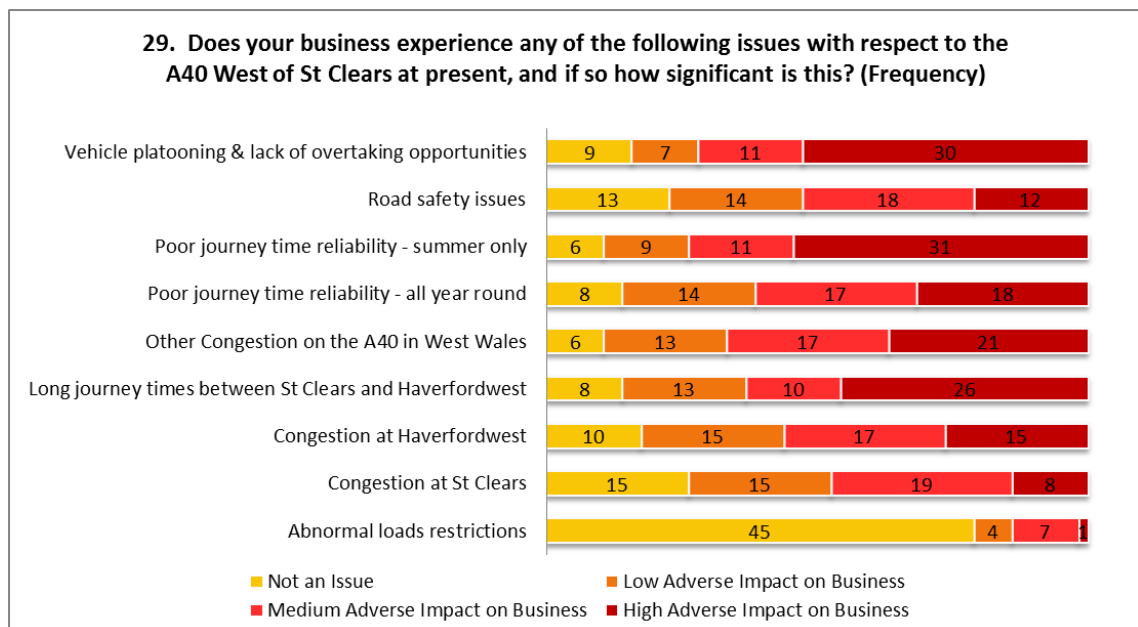


Figure 5.24: Issues with the A40 experienced by respondent businesses

Key Point: The A40 appears to be of greatest significance in terms of inbound custom and deliveries, which is unsurprising given the dominance of tourism businesses in the sample. The main issues with the road identified in the survey bear out the evidence from the consultation, namely issues surrounding journey time reliability and seasonal peaks in traffic flows.

5.10 How might your business be impacted?

- 5.10.1 The survey found that the businesses in the study area believed that the upgrade of the A40 between St Clears and Haverfordwest to dual carriageway standard would have a high positive impact especially on customer / visitor numbers, marketing & promotion of their business and future investment plans in Pembrokeshire. Most businesses considered the upgrade would have no impact on stock & inventory levels, access to labour market and delivery of final products to market.

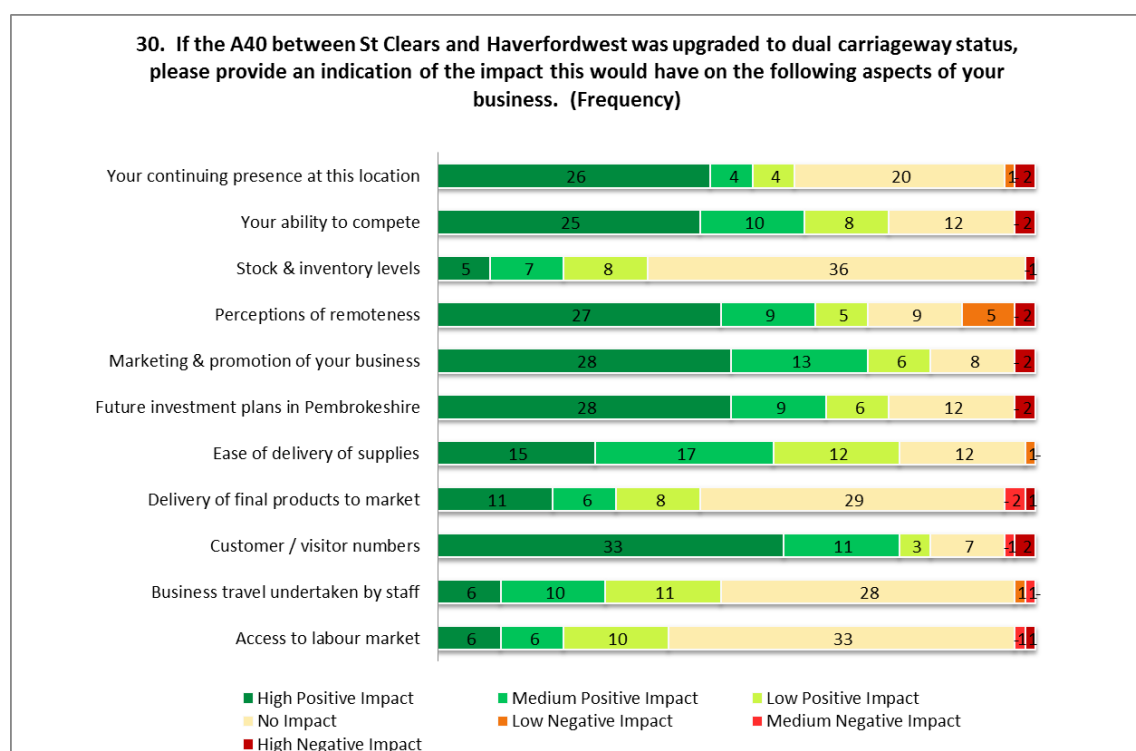


Figure 5.25: Impact of A40 improvements on respondent businesses

- 5.10.2 More businesses in the NFI sector believed that the current standard of the A40 West of St Clears has a material impact on the financial performance or operation of their company. When asked to explain in more detail the nature of the impact, the majority of respondents who were mainly tourism companies mentioned that poor accessibility has a negative influence on the number of visitors to the area who are deterred by long journey times and poor public transport links. Sample comments included:

"We are currently less likely to receive holiday customers from Ireland via Fishguard because they perceive the drive to be too time consuming."

"If our customers, who have been travelling for hours, and who are often towing caravans, are slowed down in the final part of their journey they complain when they get to us and may not consider returning to Pembrokeshire again."

"Many customers compare our product with those available in Devon and Cornwall and they cite transport links /travelling times as a major consideration in choosing destination especially"

for weekend/short breaks which can extend our season significantly leading to employing more staff over a longer period. Lack of fast roads means lost bookings!”

“Longer journey times, congestion, lack of overtaking possibilities make for expensive travel. For deliveries to us too. I have been refused accounts with suppliers because we are too far from a dual carriageway.”

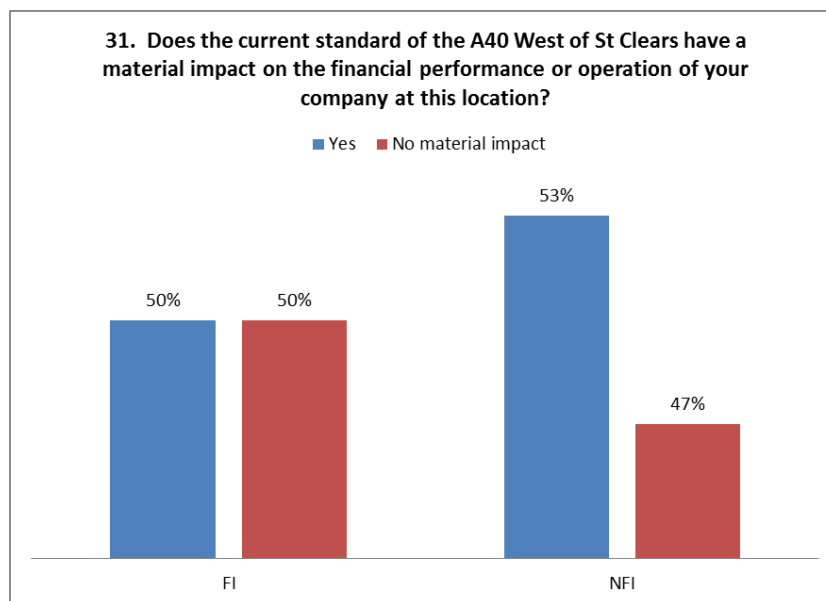


Figure 5.26: Impact of the current standard of the A40 on respondent businesses' financial performance or operation

5.10.3 The survey found that most businesses in the NFI sector that provided a positive answer to the question above believed that the upgrade of the A40 will have a high or medium positive impact on their turnover / customer base but a low or no impact on their employment levels, as shown below.

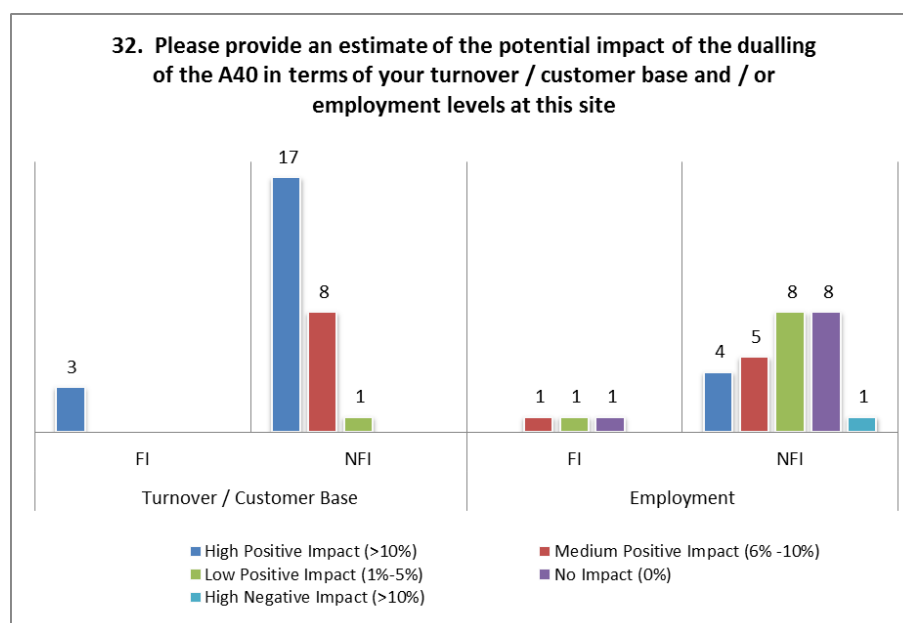


Figure 5.27: Impact of A40 dualling on respondent businesses' turnover / customer base and employment

5.10.4 The top three aspects that were regarded by the respondents as being the most important in terms of sustaining and growing their business are 'Enhanced marketing and promotion of

Pembrokeshire' (50% of respondents ranked it 1 or 2), 'Improved road transport links' (48% of respondents ranked it 1 or 2) and 'Faster / higher capacity broadband' (38% of respondents ranked it 1 or 2). Amongst the least important factors were 'More extensive local supply chain' and 'Availability of higher quality premises', with the majority of respondents giving these factors a rank of 4 or 5 or not assigning any rank to them.

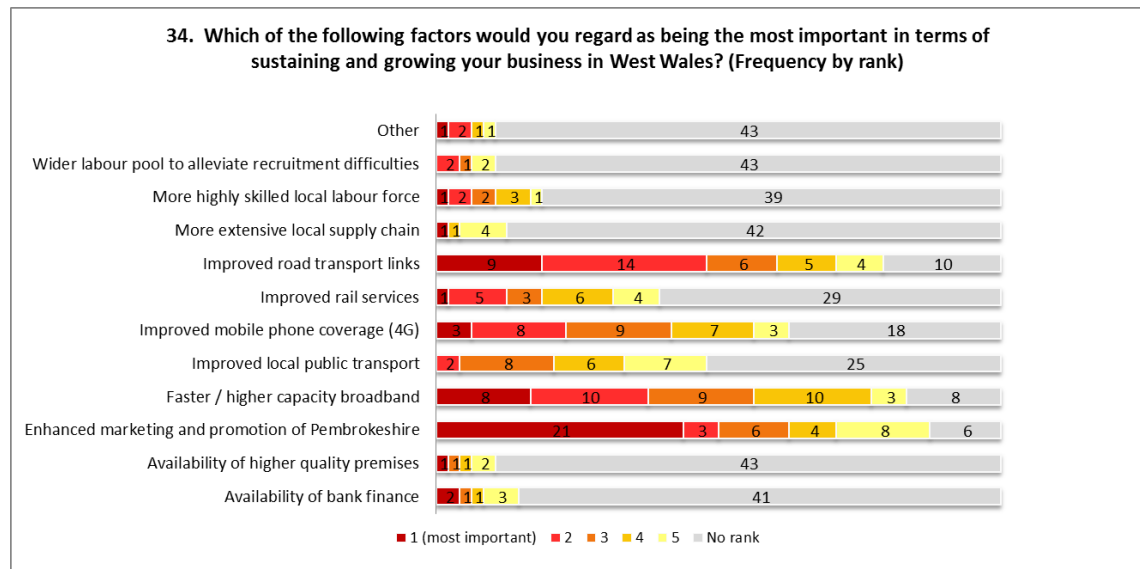


Figure 5.28: Influential factors for business support and growth

Key Point: The business survey strongly reinforced the view expressed in the consultation that the current standard of the A40 is negatively impacting on perceptions of Pembrokeshire. This perception appears to be transmitted into a reality, particularly for tourism related business. The survey also supports the consultation view that dualling the A40 would have little impact on actual business costs, although there are potentially some positive revenue impacts.

5.10.5 The majority of businesses operating in the FI and NFI sectors have an annual turnover of less than £500,000. This reflects the dominance of SMEs in Pembrokeshire.

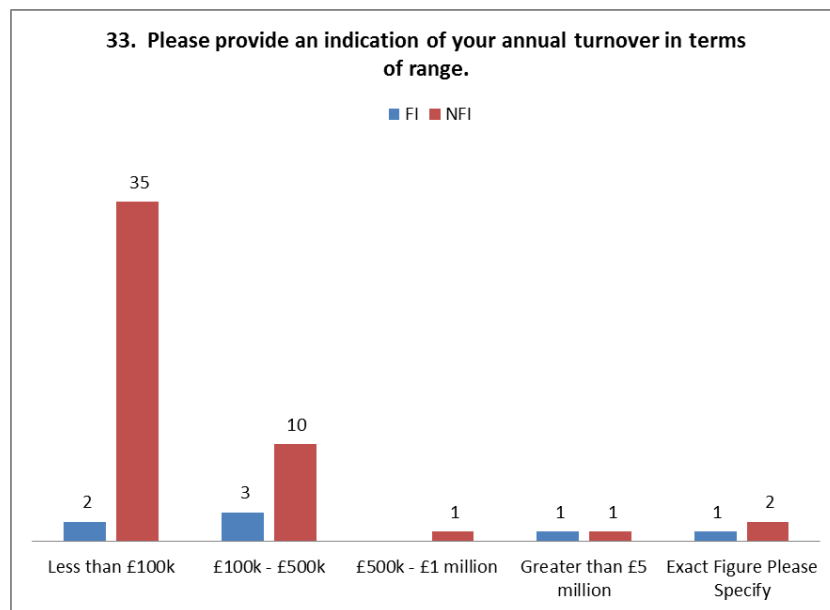


Figure 5.29: Annual Turnover

5.11 Summary

- 5.11.1 In summary, whilst only 94 businesses responded to the survey, the findings were similar to the findings from the consultation. The survey found that the main issue associated with the A40 and indeed transport connections generally in Pembrokeshire is that there the perception of remoteness is having a negative impact on businesses in the area, particularly for those whose customers come from elsewhere.
- 5.11.2 It was widely acknowledged that the dualling of the A40 would have little impact on actual business costs, but it is believed that improvements could transform the way in which Pembrokeshire is viewed by external customers and suppliers.

6 Transmission Mechanisms

6.1 Overview

- 6.1.1 The rationale for the proposed improvements to the A40 is focussed on supporting and developing the Pembrokeshire economy. The 2004 study and 2008 addendum report were clear that the case for dualling the road would not demonstrate a positive benefit-cost ratio based on Transport Economic Efficiency (TEE) analysis alone for another three decades (presumably reflecting a traffic growth projection). The decision to reconsider the scheme was driven by the formation of the Haven Waterway Enterprise Zone and the Milford Haven Refinery closure, on the grounds that enhanced transport connectivity would improve the economic performance of Pembrokeshire.
- 6.1.2 In all cases, but especially where EALIs are central to the case for the proposals, it is necessary to be able to demonstrate how the economic development or regeneration outcomes can be attributed to the transport option. This chapter therefore explores the potential 'transmission mechanisms' through which investment in the A40 could support and develop the economy of Pembrokeshire.
- 6.1.3 For reference, a brief literature review considering the links between transport and economic performance is provided in Appendix B.

6.2 Recapping the Problem

- 6.2.1 In considering any transport scheme, it is important to always bear in mind that transport is a means to an end rather than an end in itself. When making the case for investment, it is important to frame this within the context of the problem that the policymaker is trying to address, ensuring that the 'solution' achieves its intended outcome.
- 6.2.2 Chapters 3-5 summarised the main economic problems of Pembrokeshire as being:
- The **narrow concentration of economic activity** in the energy, tourism, agriculture and public sectors;
 - The **perception of remoteness**, which the evidence suggests is limiting both inward investment and tourism;
 - Having a **'two-speed economy'** with an affluent, well qualified and in many cases in-migrant older population concentrated in coastal areas alongside a less well-off, indigenous and more poorly qualified population in industrial areas like Pembroke Dock and Milford Haven; and
 - A **slower recovery from the recession** compared to equivalent counties and indeed Wales as a whole.
- 6.2.3 These problems appear to be very closely linked. A combination of lower than average wages, low productivity, an ageing population and lower than average rates of economic activity together with possible under-employment hints at a relatively stagnant local economy, further impacted by recent developments at Milford Haven Refinery. There is also a clear reliance on the energy sector for higher value non-public sector employment.
- 6.2.4 There are a number of ways in which these problems could be addressed, including:
- Increased productivity of local businesses;
 - Expansion of local businesses;

- Increased inward investment (one of the purposes of the Enterprise Zone);
- Enhanced commuting into and out of Pembrokeshire (implying a more flexible labour market); and
- Increased tourism.

6.2.5 The rationale for carrying out this study is that transport infrastructure in Pembrokeshire, particularly the A40 could be constraining each of the above. The self-contained nature of the travel-to-work patterns and low levels of inward investment do lend some credence to this argument. The following sections consider how improved transport connectivity could 'transmit' through to improved performance in the wider Pembrokeshire economy (i.e., in EALI terms, how the economic development outcomes sought could be attributed to the proposed project).

6.3 Geographic Distribution of Benefits

6.3.1 In advance of setting out the potential means through which improvements to the A40 could support improved economic performance, it is worth firstly considering the potential geographic distribution of the benefits.

6.3.2 It is important to note that any improvement to the Trunk Road network in Pembrokeshire could assist in tackling the overall perception of peripherality from which the area suffers and which the evidence in this report suggests is having a negative impact on both inward investment and tourism. However, outwith the perception related impacts, it is important to note that a dualled A40 would only directly benefit a distinct geographic area of Pembrokeshire. The figure below shows the travel time savings of different areas of Pembrokeshire if the A40 were to be fully dualled and the 'sphere of influence' of the dualled road.

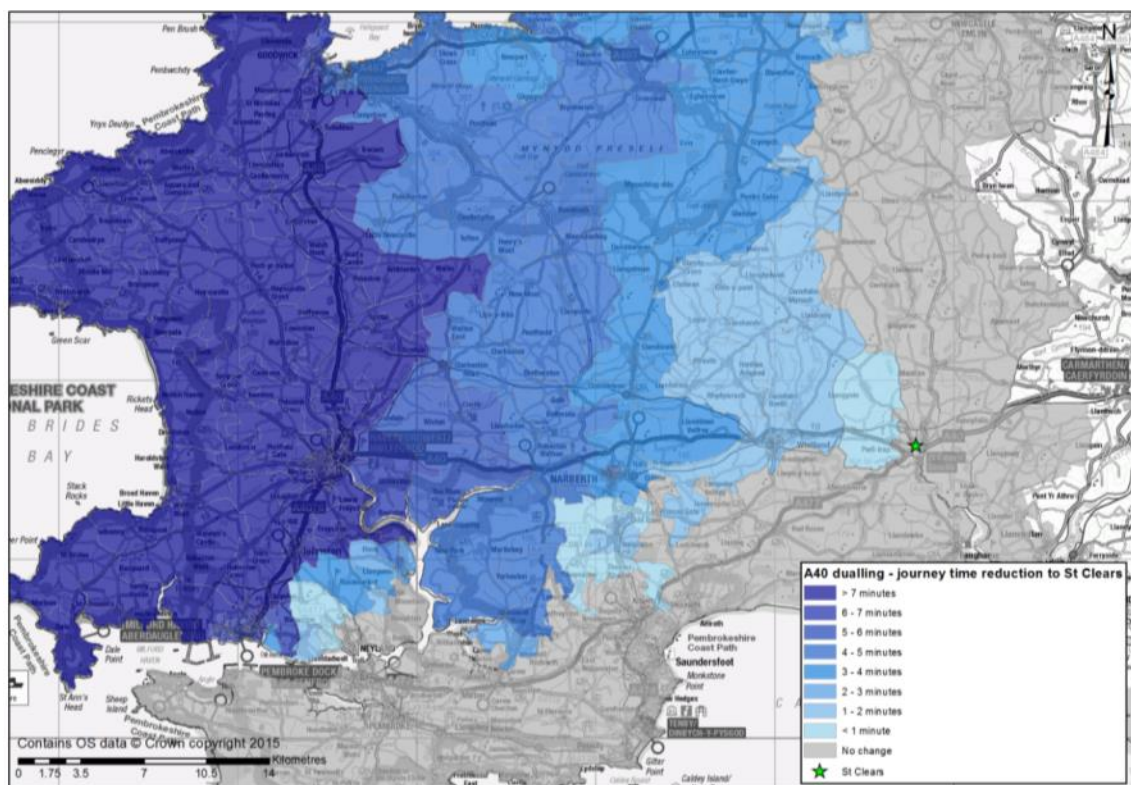


Figure 6.1: A40 Dualling – Travel Time Savings and 'Sphere of Influence'

- 6.3.3 The first point of note from the above map is that the travel time savings from the A40 dualling increase the further west one travels from St Clears. The full benefit accrues to Haverfordwest, Fishguard, Milford Haven and areas to the west, including St David's. The journey time benefit dissipates gradually moving east along the corridor, first to the Narberth junction and then onwards to St Clears.
- 6.3.4 Of greater significance is the clear difference in benefits between the north and south of the Haven Waterway. Whilst areas to the north such as Haverfordwest and Milford Haven capture the full travel time benefit, Pembroke, Pembroke Dock, Tenby and the remainder of the south coast receive no travel time benefit, as the A477 would remain the route of choice.
- 6.3.5 Strategic transport connectivity is of greatest importance for freight intensive businesses and the figure below maps the freight intensity of areas (based on the number of employees in 'freight-intensive' sectors) of Pembrokeshire based on the BRES data.

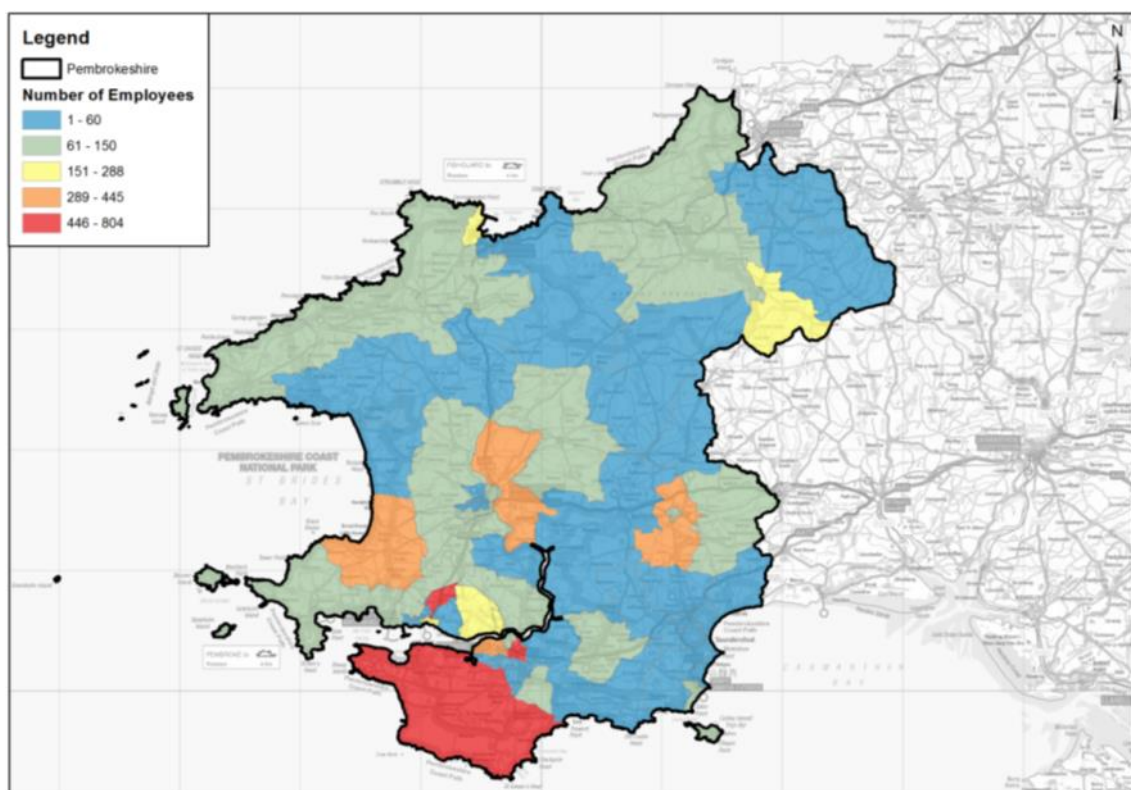


Figure 6.2: Freight Intensive²⁵ Employment in Pembrokeshire by Number of Employees

- 6.3.6 As a headline figure, 35% of all freight intensive industry is located on the south side of the Haven Waterway and would not receive any travel time benefits from the dualling of the A40. In particular, 47% of Pembrokeshire manufacturing businesses; 34% of construction businesses; and 29% of transportation and storage businesses would draw no benefit from the dualling of the A40.
- 6.3.7 It is particularly important to note that the most freight intensive area of Pembrokeshire – the area surrounding Pembroke Dock – would receive no direct benefit from dualling the A40. Therefore, when considering the transmission mechanisms set out below, it should be borne in mind that they refer only to areas north of the Haven Waterway (except when discussing

²⁵ Freight intensive is defined as the sum of employment in the following industries (as classified by BRES): Agriculture, Forestry & Fishing; Mining & Quarrying; Manufacturing; Electricity, Gas, Steam & Air Conditioning Supply; Water Supply, Sewerage, Waste Management & Remediation Activities; Construction; and Transportation & Storage.

issues of perception where any improvement may benefit the County as a whole, although there may still be redistribution within the area).

6.4 Transmission Mechanisms

- 6.4.1 The dualling of the A40 would reduce journey times between St Clears and Haverfordwest by around eight minutes for cars, and five minutes for HGVs. In addition to these direct journey time improvements, journeys times would also be more reliable and the stress / frustration of driving on the single carriageway section would be removed. We have identified a number of potential transmission mechanisms by which this improvement could impact on the Pembrokeshire economy. These mechanisms are not mutually exclusive; indeed they may well be complimentary.

Wider Labour Market

- 6.4.2 The travel-to-work analysis undertaken in Chapter 3 clearly demonstrated that Pembrokeshire is a highly self-contained economy from this perspective. There is very little cross-County boundary movements compared to neighbouring Carmarthenshire. The consultation and business surveys suggest that the A40 is inhibiting a more expansive travel-to-work market, causing an imperfection within the labour market. A wider labour pool makes it more likely to find an efficient match between positions and resources, and a better 'match' between roles and staff improves efficiency.
- 6.4.3 If improvements to the A40 unlocked new commuting opportunities for Pembrokeshire, it would potentially allow local people to take up more productive jobs elsewhere, increasing the 'GVA per filled job' and reducing, for example, unemployment, underemployment and deprivation. This in turn could provide a more buoyant local consumer market and address the dualism within the local economy.
- 6.4.4 Given the limited scale of the Pembrokeshire economy, it is more likely that commuting would initially be outbound, although this could change over time if inward investment in Pembrokeshire increased.

Population Retention & In-Migration

- 6.4.5 The increased opportunities brought about by improved accessibility could bring about reduced outmigration of working age and more highly educated members of the population. It could also address the current in-migration trends which tend to be dominated by older cohorts, by encouraging in-migration of more highly skilled younger working age adults, perhaps on return from leaving Pembrokeshire for higher education. Any move in this direction would also address the relatively the high dependency ratio in Pembrokeshire and the implications in terms of service delivery.

Business Performance

- 6.4.6 The low productivity in Pembrokeshire and the recent faster than average decline in the number of active enterprises suggests that south-west Wales is a relatively high cost and uncompetitive business location. Improvements to the A40 may help to tackle this issue by improving journey time reliability thus lowering inventory costs and, linked to the point above, increasing the extent of the local labour pool for a given travel time.
- 6.4.7 Increased productivity may over time allow for high wages and more job creation. However, it is also important to acknowledge here that, even in fairly transport intensive companies, the transport element of total costs is relatively small. This, compounded by a small overall time saving on typically long journeys, suggests that any productivity benefits will be small overall.

Scheduling benefits

- 6.4.8 A key issue surrounding the current A40 is the uncertainty of journey times. Improving or dualling the A40 would bring far greater certainty of journey times between Haverfordwest and St Clears (and by extension Fishguard & Milford Haven and St Clears). Not having to allow for the current level of uncertainty could bring scheduling benefits to companies (and individuals), which are of greater value than the average time saving would suggest, e.g. you may only be saving around eight minutes on average but to be certain of making an appointment at present you have to add say a 10 minute contingency to the journey. This saving may also bring about a step change in connectivity, e.g. a vehicle / driver can now do one additional run within their drivers hours, bringing further benefits in excess of the average time saving.

Perceptions of Remoteness

- 6.4.9 The consultation and business survey, coupled with other evidence, strongly suggests that stakeholders, businesses and individuals perceive Pembrokeshire to be remote, largely because it is beyond the 'end' of the dual carriageway network.
- 6.4.10 Whilst intangible, the issue of perceptions of remoteness has been raised in many studies of this nature, most notably in northern Scotland where the city of Inverness is connected to the economic centre of the country by single carriageways of varying quality. The dualling of the A9 between Perth and Inverness is not anticipated to bring dramatic reductions in journey times but it has long been argued that the dualling of the A9 (to be completed by 2030) will transform the way in which Inverness and the Highlands generally are perceived.
- 6.4.11 It could be argued that this may also happen with the A40 in Pembrokeshire. Whilst the journey time saving would be small overall, the change in perception could be substantial. As such, the A40 dualling could remove a key barrier to tourist visits and (inward) investment in west Wales by addressing the (real or perceived) competitive disadvantage of this location. Removing this barrier could have the impact of bringing Pembrokeshire into the 'choice set' of locations being considered during an inward investment decision making process in particular. This in turn has the potential to bring higher value jobs to the area together with the resulting multiplier effects of new 'external' economic activity in the area.

Inward Investment

- 6.4.12 Improved connections on the A40 may also increase levels of inward investment, particularly if there are indeed improvements to the size and quality of the labour market, perceptions of the area etc. The research by Bradley & Best in the Irish Border area highlighted the potential benefits for combining transport improvements with the creation of an Enterprise Zone, which is precisely what would happen in Pembrokeshire.
- 6.4.13 Inward investment would create employment and potentially tackle deprivation and under-employment. In addition, it could also create something of a critical mass effect (particularly in the Enterprise Zone) if enough firms were to move into the area. This was what happened when the A470 to Merthyr Tydfil was dualled.

Enhanced Prospects for the Enterprise Zone

- 6.4.14 The Enterprise Zone is marketed as providing '*a first class business infrastructure and compelling incentives*'. Current travel times from St Clears to Milford Haven are around 47 minutes via the A40 and 44 minutes via the A477. Either approach from St Clears involves around 30 miles of travel on single carriageway roads (with limited 2+1 sections) at speeds of around 45mph. This low quality route is not in keeping with the image being projected for the Enterprise Zone and may be a significant deterrent to investment there.

Residential Development

- 6.4.15 If improvements to the A40 were to attract inward investment and / or increase the potential for commuting, it may be that housing developers see opportunities to combine improved employment opportunities with new residential developments taking advantage of the high quality of life in the area. Were this to happen, there may be an in-migration / retention of younger and more economically active people, reducing the dependency ratio and the apparent dualism within the area's economy.
- 6.4.16 This would likely be something of a longer-term impact but would nonetheless be positive providing the demand for new stock existed.

Increased Trade

- 6.4.17 Pembrokeshire serves two of Wales' three ferry routes to Ireland (and two of the UK's seven routes) to Ireland. Improvements to the A40 may lead, at the margin, to a very small redistribution of through trade, particularly from Holyhead and Liverpool. There may also be increased direct trade between Pembrokeshire and Ireland.
- 6.4.18 Whilst this would potentially be beneficial, it is important to bear in mind that much of this trade is simply through traffic and the direct effects on Pembrokeshire would be limited. However, this would bring more people through Pembrokeshire, a proportion of whom will stop, spending money in the area.

Improved Strategic Rail Access

- 6.4.19 The South-Wales Mainline will be electrified by 2018, bringing new trains, more capacity, faster journey times etc between Swansea, Cardiff, Bristol and London. Port Talbot Parkway is currently being redeveloped to accommodate large scale car parking and is around an 80 minute drive from Haverfordwest – current rail journey times are longer at 110 minutes. Dualling the A40 would reduce this travel time, allowing improved strategic rail access onwards to Cardiff and London.

6.5 Strength of Transmission Mechanisms

- 6.5.1 Having identified the means by which dualling the A40 could potentially 'transmit' through to improved economic performance, this section considers the strength of each transmission mechanism based on the findings of the consultation, business survey and our own research.
- 6.5.2 The table below considers the strength of each transmission mechanism at a high level using a five point scale and comment on each.

Table 6.1: Comparative Strength of Transmission Mechanisms

Transmission Mechanism	Scale of Impact	Comment
Widening the labour market	✓✓	Dualling the A40 may support increased travel-to-work movements between north & central Pembrokeshire and the wider Swansea Bay City Region.
Population retention and in-migration	✓✓	It is unlikely that dualling the A40 would fundamentally change the balance of the Pembrokeshire economy. The transmission in this regard would be contributing to increased opportunities for commuting.
Improved business performance	✓	Whilst dualling of the A40 may offer small reductions in

Transmission Mechanism	Scale of Impact	Comment
		transport costs, they are unlikely to be transformative.
Scheduling benefits	✓	Whilst dualling of the A40 may offer some benefits in this regard, it is unlikely to be transformative.
Perceptions of remoteness	✓✓✓✓✓	The evidence suggests that the perception of remoteness and the means by which it translates into a reality is an inhibitor to inward investment and tourism in Pembrokeshire. Dualling the A40 could fundamentally change this perception to the benefit of the area.
Inward investment	✓✓✓	By tackling the perceptions of remoteness, dualling the A40 may bring Pembrokeshire into the 'choice set' of locations being considered during an inward investment decision, although the extent to which this translates into actual investment is less clear.
Enhanced prospects for the Enterprise Zone	✓✓	The current Enterprise Zone is relatively self-contained. The dualling of the A40, combined with the other location benefits on offer, may make it a more attractive location for investing. However, improvements to the A40 would not support the larger concentration of economic activity on the south side of the Haven and indeed may even dilute economic activity.
Increased residential development	✓	If the dualling of the A40 were to significantly enhance the economy of the area, it is possible that it would improve the commercial viability of developments. However, this is a very long-term outcome.
Increased trade	✓✓	There is little suggestion that the current A40 is restricting trade. The only exceptions appear to be the competitiveness of agricultural businesses and the loss of tourism to Devon & Cornwall due to perceptions of remoteness.
Improved strategic rail access	✓	Improved access to Port Talbot Parkway from the northern & central areas of the County would be beneficial for business travellers in particular. However, the County has a very self-contained labour market so any impact would be marginal at best.

Key

- ✓ Very Small Impact
- ✓✓ Small Impact
- ✓✓✓ Medium Impact
- ✓✓✓✓ Large Impact
- ✓✓✓✓✓ Very Large Impact

6.5.3 In summary, the evidence collected through the baselining, consultation and business survey suggests that the main impact of dualling the A40 would be to tackle the perception of remoteness. Whilst the County will always be distant from the majority of large centres of population and markets, there is evidence that this remoteness is perceived to be greater than it actually is, particularly for tourists. The dualling of the A40 could also support Pembrokeshire in attracting additional inward investment to the area by connecting it into the dual carriageway network and providing a major marketing and promotional opportunity for the County and Enterprise Zones.

- 6.5.4 Whilst the proposed dualling of the road could transmit through to the economy in other ways, it seems unlikely that any of these transmission mechanisms (even when combined) would fundamentally change or improve the economic performance or structure of the area.

6.6 Risks

- 6.6.1 It is important to remember that transport is ultimately a 'two-way street' and impacts can be negative as well as positive.

- 6.6.2 From a local perspective, key risks include:

- The potential dilution of economic activity within the Haven Waterway by providing an advantage to the less industry-intensive north over the more industry-intensive south;
- Wider displacement of economic activity from the south of the County to the central and northern areas (tourism for example);
- The potential opening up of Pembrokeshire to increased outside competition, which could have an impact on the sustainability of local firms;
- Increased in-migration amongst the elderly cohort (thus increasing the impact of the two-speed economy), who now see the area as being 'closer' and thus more attractive; and
- A lack of affordable housing if increased demand to live in the area is not satisfied by the rate of new housing development.

- 6.6.3 From a Welsh Government perspective, the key risks are:

- 'Deadweight' – the investment in the A40 and Haven Waterway Enterprise Zone facilitates investment which would have occurred in any case;
- 'Displacement' – improvements to the A40 displace investment from other areas of Wales, resulting in no net gain overall; and
- 'Leakage' – benefits from improving the A40 are captured by non-Welsh firms (known as rent extraction).

- 6.6.4 EALI specifically recognises these issues in that it accepts that displacing investment from one area to another may still be beneficial if that investment transfers economic activity in a positive way. However, there is no guarantee that this would be the case. It may be that investment is displaced from, for example, deprived areas in the Valleys or even more remote areas of Wales, such as neighbouring Ceredigion. In addition, the analysis suggests that the bulk of the benefits of the dualling the A40 would accrue to the central & northern areas of the County, which appear to be relatively more affluent.

7 Economic Activity & Location Impacts

7.1 Why carry out an EALI?

7.1.1 The Economic Activity and Location Impact (EALI) analysis provides an assessment of the impact of transport investment or policy measures on the economy, measured in terms of income (GDP or GVA) and/or employment. The EALI analysis assesses the **distribution of the national impacts captured through the Transport Economic Efficiency (TEE) and Wider Economic Benefits (WEB), identifying the impacts on different areas**. The EALI does not generally identify additional economic impacts that could be added to the TEE or WEB results. However, where market failures exist (the impact of negative perceptions for example), the EALI analysis may capture the economic impacts that the TEE analysis may not have fully assessed.

7.1.2 The Welsh Government has pan-Wales responsibilities and is therefore interested in economic impacts at both the national and local level. Accordingly, in looking at impacts on the economy it is necessary to assess these at both the Wales and Pembrokeshire level.

Gross and Net Impacts

7.1.3 The net impact of a transport option on the Welsh economy is captured by the TEE and WEB analysis. In WelTAG, EALIs are reported in two ways:

- As a net impact at the Wales level; and
- In terms of its gross components, which will distinguish impacts on particular areas and/or on particular groups in society.

EALIs as the Rationale for a Transport Project

7.1.4 In developing the case for a transport project, it is necessary to consider the extent to which that case rests on economic development or regeneration impacts, rather than on direct transport impacts.

7.1.5 Where the objectives of an option are solely or substantially concerned with economic development or regeneration (as is largely the case in this study), the reasons for preferring a transport option rather than other economic development measures needs to be clearly articulated. Where there is a development or regeneration agenda for a particular area, it is likely that in most instances the transport investment will be only one component of a strategy. In this case, alternative transport inputs should be tested against total (economic development / regeneration) outcomes.

The Basis of Analysis of EALIs

Links between EALIs and a Transport Option

7.1.6 In order to identify and assess the scale of any potential EALIs, it is necessary to develop an understanding of how the transport option will generate impacts in terms of GDP (or GVA) and employment. This can be thought of as developing a credible chain of cause and effect, linking the transport option (inputs) to its final economic outcomes, namely output and employment impacts.

Assessing Gross and Net Impacts

7.1.7 As discussed above, it is necessary to consider:

- How individual (gross) impacts arise;
- How these affect particular areas and/or groups; and
- How these combine to give net impacts at "local" and Welsh levels.

7.1.8 In undertaking this analysis, it is necessary to consider how the transport option potentially affects economic activity, first at a local level and then at the Welsh level.

7.2 EALI Assessment Tables

7.2.1 The suggested way of bringing together an EALI is to analyse the potential impact on an option on individual 'sectors', namely:

- Manufacturing and Processing
- Locally Traded Services
- Externally Traded Services
- Inward Investment
- Tourism
- Day Trippers and Shopping
- Residents; and
- Sectoral Interactions / Synergies.

7.2.2 The following sections provide the summary tables for the above sectors. Given available data, we have not further segmented these sectors, rather discussed specific intra-sector issues within each table.

7.2.3 The analysis in the EALI tables below is based on a combination of the consultation and business survey results, as well as the original baselining analysis. Due to the nature of the sample obtained in the business survey, we have only been able to provide a quantified estimate of employment and GVA impacts on the tourism sector. Elsewhere, we have used professional judgement in applying the information at our disposal and believe that the data collected provide a consistent 'story' on the potential impacts of the proposed dualling of the A40.

7.2.4 Note that a more detailed modelling exercise based on transport and regional economic models would be required to provide a comprehensive and consistent estimate of the impacts of A40 dualling across all sectors of the Pembrokeshire economy.

7.2.5 Note – quantitative impacts are assessed on the following seven point scale: Major Positive – Positive – Minor Positive – No Impact – Minor Negative – Negative – Major Negative.

Table 7.1: Manufacturing & Processing Summary Table

Sector		Manufacturing & Processing	
Sources / Type of Impact		Qualitative	Quantitative
Market Competitiveness / Context		<p>The manufacturing sector is largely focussed around the Haven Waterway & is quite self-contained. Businesses on the north side of the Haven may benefit from marginally reduced journey times and costs but these are unlikely to be significant. In addition, the largest manufacturing firms are located on the south side of the Haven in the A477 corridor and thus would not benefit directly from dualling the A40.</p> <p>The agriculture sector would experience small increases in competitiveness from being able to move produce to market more quickly and at a marginally lower cost.</p>	Minor Positive
Labour Market Impacts		The Pembrokeshire labour market is very self-contained at present, with a significant concentration of employment around the Haven. Dualling the A40 would expand the potential travel-to-work market but there is little evidence of labour supply issues in the manufacturing sector so any benefit will be minor at best.	Minor Positive
Land / Property Impacts		Dualling the A40 would have no material impacts on land and property in this sector.	No Impact
Product Market Impacts	Local	Improvements to the A40 would facilitate a small increase in the efficiency of product markets, particularly in the agriculture sector.	Minor Positive
	National	The road tanker traffic from the Milford Haven Refinery would realise a gain in efficiency in terms of accessing sites throughout Wales.	Minor Positive
Overall Impacts	Local Gainers	Improved competitiveness would have a small impact on the cluster of manufacturing firms to the north of the Haven. Gainers are owners / shareholders of these firms.	Minor Positive
	Local Losers	Manufacturing firms on the south of the Haven would become comparatively less competitive.	Minor Negative
	National Gainers	None expected.	No Impact
	National Losers	None expected. The only small issue which may emerge is a potential dilution of the manufacturing cluster around Pembroke Dock which could transmit through to national GVA.	No Impact

Table 7.2: Locally Traded Services Summary Table

Sector		Locally Traded Services	
Sources / Type of Impact		Qualitative	Quantitative
Market Competitiveness / Context		<p>There is a relatively small market in locally traded services, with most products exported from Pembrokeshire. However, there may be a small benefit where goods are consolidated in Pembrokeshire for export, agricultural produce for example.</p> <p>Enhanced accessibility may potentially attract more firms to locate in the area. That said, there is a potential 'two-way street' effect where enhanced connectivity to the east may lead to an element of economic leakage of locally traded services to Carmarthen & Swansea (and evidence across the UK suggests that the larger settlements tend to dominate in this regard).</p>	Minor Negative
Labour Market Impacts		None expected	No Impact
Land / Property Impacts		The land & property impacts depend on the extent to which the scheme draws business into the area or gives rise to leakage. Either way, the impact is likely to be negligible.	No Impact
Product Market Impacts	Local	None expected	No Impact
	National	None expected	No Impact
Overall Impacts	Local Gainers	None expected	No Impact
	Local Losers	Potential increased competition for local firms within Pembrokeshire.	Minor Negative
	National Gainers	None expected	No Impact
	National Losers	None expected	No Impact

Table 7.3: Externally Traded Services Summary Table

Sector		Externally Traded Services	
Sources / Type of Impact		Qualitative	Quantitative
Market Competitiveness / Context		<p>Pembrokeshire is a very 'open' economy, with a significant dependence on imports (i.e. food, raw materials for manufacturing & agriculture etc) and exports (e.g. refined product, agricultural produce etc).</p> <p>From an import perspective, reducing the generalised cost of serving Pembrokeshire could potentially reduce the cost of imported goods. However, our experience in rural areas suggests that, for a variety of reasons, such benefits are rarely passed on by suppliers, with the benefits leaking out of the area.</p> <p>From an export perspective, the reduced generalised cost would marginally improve efficiency and could lead to an increase in output and / or size of firm. The incidence of this benefit depends on:</p> <ul style="list-style-type: none"> Who is moving the product and whether they are passing the benefit on to Pembrokeshire customers; and The extent to which the level of output is responsive to a reduction in cost – for example, a very small cost reduction of this nature is unlikely to influence the volume of refined product being moved from the area. <p>Dualling the A40 could potentially displace activity from the south of the County, particularly in the manufacturing, tourism and ferries markets.</p>	Minor Positive (depending on the extent to which benefits are passed on to Pembrokeshire firms)
Labour Market Impacts		<p>The small scale cost reduction brought about by dualling is unlikely to have significant labour market impacts within Pembrokeshire.</p> <p>However, if labour itself is counted as an externally traded service, the dualling of the A40 could potentially enhance connectivity to key employment areas within the Swansea Bay City Region.</p>	Minor Positive
Land / Property Impacts		None expected	No Impact
Product Market Impacts	Local	The product market (particularly in terms of imports) would become marginally more competitive. However, this depends on the extent to which cost savings are passed on to local firms.	Minor Positive
	National	If benefits are not passed on to local firms, there may be small efficiency gains for firms supplying Pembrokeshire from elsewhere.	Minor Positive (depending on local impacts)
Overall Impacts	Local Gainers	From an import perspective, there may be small efficiency gains if the benefits from the reduced	Minor Positive

Sector		Externally Traded Services	
		<p>cost of serving Pembrokeshire are passed on, although this seems unlikely.</p> <p>From an export perspective, reduced transport costs may improve the competitiveness of indigenous firms and lever a small increase in output. Gainers would be owners / shareholders and any labour benefitting from new jobs created (although such impacts are likely to be very small).</p>	
	Local Losers	<p>Firms in the south of Pembrokeshire could lose out as the cost reduction in the north could lead to a redistribution of activity. This is particularly the case for Irish Ferries as Pembroke Dock would experience a worsening of its comparative accessibility <i>vis a vis</i> Fishguard.</p> <p>In addition, in the agriculture sector where 'open-book pricing' is often used, farmers may be forced to accept a lower price for produce as it is not unknown for large buyers to insist that cost savings are fully reflected in a reduced price.</p>	Minor Negative
	National Gainers	There may be small competitiveness gains for firms trading with Pembrokeshire, although this will only occur if the cost benefits of dualling are retained rather than passed on.	Minor Positive
	National Losers	Wales as a whole could lose if non-Welsh firms extract the benefit of dualling from Pembrokeshire. For example, if a large English headquartered supermarket chain benefitted from the dualling by capturing the economic benefit of reduced costs (this is known as 'rent extraction'), the benefits would leak outwith Wales.	Minor Negative

Table 7.4: Inward / Mobile Investment Summary Table

Sector		Inward / Mobile Investment	
Sources / Type of Impact		Qualitative	Quantitative
Market Competitiveness / Context		<p>The evidence collected as part of this study demonstrates that Pembrokeshire does not attract a proportionate amount of inward (or at least foreign) investment. Transport improvements would increase the attractiveness of the area for inward investment, although the extent to which it would actually lever in investment is unproven. The A40 could be promoted as connecting Pembrokeshire into the national economy.</p> <p>The evidence suggests that good transport connectivity will help an area make it onto a shortlist of locations for inward investment but it is not in itself the decisive factor. That said, the consultation did suggest that perceptions of remoteness are a key detracting factor for Pembrokeshire and it is believed that transport improvements could assist in tackling this issue.</p>	Moderate Positive
Labour Market Impacts		An increase in inward investment would create an additional demand for labour, which could be a key benefit given other recent developments in Pembrokeshire (e.g. the Milford Haven Refinery closure and public sector spending reductions).	Moderate Positive
Land / Property Impacts		<p>The evidence collected suggests that there is sufficient development land (although the size and quality of premises varies) to accommodate inward investment.</p> <p>However, a combination of Pembrokeshire's historically limited attractiveness for residential development, a lack of affordable housing and high second home ownership in some areas means that any large uplift in labour associated with inward investment could increase house prices and exacerbate existing problems in this sector. There would therefore be a certain reliance on such investment increasing developer confidence in the area.</p>	Minor Positive (if new land is opened up for development)
Product Market Impacts	Local	Potentially increased demand for local products. It is likely that inward investment would be concentrated in the energy sector, which would support the existing supply chain.	Moderate Positive
	National	Investment which comes from outwith Wales could lead to a net additional demand in products at the national level.	Minor Positive
Overall Impacts	Local Gainers	Inward investment would assist in increasing employment and both directly and indirectly support the local supply chain.	Moderate Positive
	Local Losers	If any labour migration was not accompanied by additional residential development, increased	No Impact

Sector		Inward / Mobile Investment	
		house prices could negatively impact on the low paid and those who do not own a property. This is however an unlikely scenario as the local labour market would likely have sufficient slack to absorb new investment in the area.	
	National Gainers	Wales as a whole would gain if the country benefitted from net additional foreign direct investment.	Minor Positive
	National Losers	None expected, although there may be displacement of inward investment from within Wales.	No Impact

Table 7.5: Tourism Summary Table

Sector		Tourism	
Sources / Type of Impact		Qualitative	Quantitative
Market Competitiveness / Context		Evidence collected as part of this study clearly demonstrates that the perception of Pembrokeshire as remote is acting as a deterrence to tourists, with the area losing bed nights to Devon and Cornwall in particular. Improvements to the A40 could go a long way to tackling the negative perceptions of the area, drawing in more tourists.	Major Positive
Labour Market Impacts		Tourism tends to provide seasonal employment, mainly in low skill and low-paid sectors. However, such jobs are nonetheless important in the Pembrokeshire context and it is reasonable to assume that an increase in tourism would stimulate job creation.	Major Positive in terms of additional job creation.
Land / Property Impacts		If tourism were to increase significantly, it is possible that Pembrokeshire would: <ul style="list-style-type: none"> • Attract more lifestyle in-migrants who would purchase a property and set up a small tourism business; and • Further encourage the recent trend towards converting agricultural properties to holiday lets. Whilst increased tourism overall is important, there may be small negative impacts in terms property ownership and prices.	No Impact / Minor Negative
Product Market Impacts	Local	Potential increase in demand for locally produced products, especially in food and catering.	Moderate Positive
	National	For tourism which is not displaced, there may potentially be an increase in demand for Welsh produced products.	Minor Positive
Overall Impacts	Local Gainers	Local tourism businesses and retail firms which would benefit from spin-off expenditure.	Major Positive
	Local Losers	None expected, although there is a risk in terms of the impact on property availability and prices.	No Impact
	National Gainers	The evidence suggests that Pembrokeshire is losing tourism to Devon and Cornwall as a result of its perceived remoteness. By bringing net additional tourists to Wales, there would be a benefit for the country overall, in line with the Wales Tourism Strategy 2013-20.	Proportion of the local GVA and jobs benefit (i.e. non-displaced elements).
	National Losers	Possible displacement of tourism from elsewhere in the country.	Minor Negative if displacement occurs

Table 7.6: Day Trippers / Shoppers Summary Table

Sector		Day Trippers / Shoppers	
Sources / Type of Impact		Qualitative	Quantitative
Market Competitiveness / Context		At present, the Pembrokeshire retail market is relatively insulated and self-contained. By improving connectivity to larger retail centres (Carmarthen and Swansea), retail businesses in Pembrokeshire would experience increased competition.	Minor Negative
Labour Market Impacts		Possible closure of smaller retail outlets in Pembrokeshire leading to job losses.	Minor Negative
Land / Property Impacts		None expected, although small risk of reduced land-use intensity.	No Impact
Product Market Impacts	Local	Likely to have a negative impact as a result of economic leakage.	Minor Negative
	National	None expected	No Impact
Overall Impacts	Local Gainers	None expected	No Impact
	Local Losers	Local SME retail businesses.	Minor Negative
	National Gainers	None expected	No Impact
	National Losers	None expected	No Impact

Table 7.7: Residents Summary Table

Sector		Residents	
Sources / Type of Impact		Qualitative	Quantitative
Market Competitiveness / Context		<p>Pembrokeshire would become more integrated with the Swansea Bay City Region and would be better placed to share in the benefits emerging from City Region initiatives.</p> <p>With recent rationalisation in services at Withybush Hospital, improvements to the A40 would be important in offering enhanced connectivity to Glangwili Hospital in Carmarthen. That said, enhanced connectivity could also support the case for further centralisation.</p>	Minor Positive
Labour Market Impacts		Enhanced road connections to other settlements in the Swansea Bay City Region could open opportunities for out-commuting to higher value employment.	Minor Positive
Land / Property Impacts		If Pembrokeshire were to be better connected into other City Region employment hubs, there may be some in-migration to the County, particularly amongst higher-paid individuals keen to combine higher wages with the high standard of living offered in Pembrokeshire. This in turn could support the financial viability of residential developments.	Minor Positive
Product Market Impacts	Local	None expected	No Impact
	National	None expected	No Impact
Overall Impacts	Local Gainers	<p>Enhanced employment opportunities for Pembrokeshire residents and, in the longer-term, potentially increased housing development in the area.</p> <p>Enhanced access to Glangwili Hospital.</p>	Minor Positive
	Local Losers	None expected	No Impact
	National Gainers	None expected	No Impact
	National Losers	None expected	No Impact

Table 7.8: Sector Interactions / Synergies Summary Table

Sector		Sector Interactions / Synergies	
Sources / Type of Impact		Qualitative	Quantitative
Market Competitiveness / Context		Enhanced tourism and inward investment would foster higher spending in the Pembrokeshire economy, with consequent multiplier impacts. This may partly or entirely offset the competitive challenge facing businesses as a result of improving connectivity to larger scale retail areas.	Moderate Benefit
Labour Market Impacts		Increased employment as a result of an overall increase in economic activity, although this is likely to be marginal.	Minor Benefit
Land / Property Impacts		Potentially increased development viability stemming from increased economic activity and enhanced connectivity to key employment hubs in the Swansea Bay City Region.	Minor Benefit
Product Market Impacts	Local	As per market competitiveness / context.	Moderate Benefit
	National	Potentially increased demand in national product markets if net additional inward investment and tourism is attracted to Wales.	Minor Benefit
Overall Impacts	Local Gainers	Local SMEs would benefit from enhanced economic activity in the area.	Moderate Benefit
	Local Losers	None expected	No Impact
	National Gainers	Wales as a whole would benefit from net additional tourism and inward investment. National housing developers could also benefit from increased development viability.	Minor Benefit
	National Losers	None expected	No Impact

7.2.6 Table 7.9 below brings together the above sectoral tables into an overall EALI Summary Table for the proposed dualling of the A40:

Table 7.9: Summary Assessment Table

Year of Assessment	Summary of Impacts			
2015	Local		National	
Sector	Gains / Gainers	Losses / Losers	Gains / Gainers	Losses Losers
Manufacturing & Processing	Overall Minor Positive	Minor Negative Dilution of economic activity – disbenefits to firms south of the Haven Waterway	Overall Minor Positive	No Impact
Locally Traded Services	None	Minor Negative – increased external competition	None	No Impact
Externally Traded Services	Overall Minor Positive	Minor Negative – firms south of the Haven Waterway become relatively less competitive	Overall Minor Positive	No Impact, unless economic benefits leak out of Wales
Inward/Mobile Investment	Moderate Positive	No Impact	Minor Positive	No Impact, except potential displacement from elsewhere in Wales
Tourism	Major Positive	No Impact, except perhaps redistribution of tourism activity from south to north of County	Major Positive	No Impact, except potential displacement from elsewhere in Wales
Day Trips / Shoppers	None	Minor Negative – increased external competition	None	No Impact
Residents	Minor Positive – enhanced employment opportunities & access to services	No Impact	No Impact	No Impact
Sector Interactions / Synergies	Moderate Positive – spin-off spending from increased economic activity	No Impact	Minor Positive – spin-off spending from increased economic activity	No Impact
Total Gross Impacts	Minor Positive	Minor Negative to some firms south of the Haven become relatively less competitive	Minor Positive	No Impact
Net Impact	Overall Impact <ul style="list-style-type: none"> Local – Overall positive driven by increased tourism and potential increased inward investment. National – Small increase in overall net tourism and 		Summary of Distributional Impacts <ul style="list-style-type: none"> Local – Redistribution of economic activity from south of A477 corridor to A40 corridor. Potential dilution of economic activity in the Enterprise Zone. National – some potential 	

Year of Assessment	Summary of Impacts	
	potential inward investment in Wales.	displacement of tourism and inward investment.

8 Conclusion

8.1 Overview

- 8.1.1 This report has considered the potential economic activity and location impacts of the proposed dualling of the A40 between St Clears and Haverfordwest. It supplements the WeITAG Stage 1 being undertaken separately.
- 8.1.2 The EALI analysis has been based on a combination of secondary data, consultation with key stakeholders and a business survey with Pembrokeshire firms.

8.2 The Pembrokeshire Economy

- 8.2.1 The research undertaken in this study has identified four key economic issues in the Pembrokeshire economy, namely:
- The **narrow concentration of economic activity** in the energy, tourism, agriculture and public sectors;
 - The **perception of remoteness**, which the evidence suggests is limiting both inward investment and tourism;
 - Having a **‘two-speed economy’** with an affluent, well qualified and in many cases in-migrant older population concentrated in coastal areas alongside a less well-off, indigenous and more poorly qualified population in industrial areas like Pembroke Dock and Milford Haven; and
 - A **slower recovery from the recession** compared to equivalent counties and indeed Wales as a whole.
- 8.2.2 These problems appear to be very closely linked. A combination of lower than average wages; low productivity, an ageing population and lower than average rates of economic activity together with possible under-employment hints at a relatively stagnant local economy, further impacted by recent developments at Milford Haven. There is also a clear reliance on the energy sector for higher value non-public sector employment.
- 8.2.3 The key question in the context of this study was the extent to which current transport connectivity is constraining the productive capacity of the Pembrokeshire economy.

8.3 Transport Connectivity

- 8.3.1 The consultation and business survey clearly identified a series of issues with transport connectivity in Pembrokeshire. The principal focus in both discussions was on the current standard of the road network, principally the A40 and A477.
- 8.3.2 In particular, the research identified a series of constraints with the current Trunk Road network in Pembrokeshire. It was argued that whilst standard transport economic efficiency analysis captures journey time, safety etc impacts, it fails to capture the negative perceptions attached to these issues. A common theme to emerge during the consultation process is that Pembrokeshire is perceived to be ‘far away’ and that this is deterring inward investment, the development of the travel-to-work market within the Swansea Bay City Region, tourism and population retention.
- 8.3.3 The evidence collected through the baselining, consultation and business survey suggests that the main impact of improving the Pembrokeshire road network would be to tackle the

perception of remoteness. Whilst the County will always be distant from the majority of large centres of population and markets, there is evidence that this remoteness is perceived to be greater than it actually is, particularly for tourists. Road improvements could also support Pembrokeshire in attracting additional inward investment to the area.

- 8.3.4 In terms of evidence, there is a clear difference in the benefits of dualling the A40 between the north and south of the Haven Waterway. Whilst areas to the north such as Haverfordwest and Milford Haven capture the full travel time benefit, Pembroke, Pembroke Dock, Tenby and the remainder of the south coast receive no direct travel time benefit, as the A477 would remain the route of choice. It is particularly important to note that the most freight intensive area of Pembrokeshire – the area surrounding Pembroke Dock – would receive no direct benefit from dualling the A40.

8.4 A40 Dualling - Economic Activity & Location Impacts

- 8.4.1 The focus of the Brief for this study was specifically on the proposed dualling of the A40. The table below sets out the sectoral and overall EALI impacts of dualling the A40:

Year of Assessment	Summary of Impacts			
2015	Local		National	
Sector	Gains / Gainers	Losses / Losers	Gains / Gainers	Losses Losers
Manufacturing & Processing	Overall Minor Positive	Minor Negative Dilution of economic activity – disbenefits to firms south of the Haven Waterway	Overall Minor Positive	No Impact
Locally Traded Services	None	Minor Negative – increased external competition	None	No Impact
Externally Traded Services	Overall Minor Positive	Minor Negative – firms south of the Haven Waterway become relatively less competitive	Overall Minor Positive	No Impact, unless economic benefits leak out of Wales
Inward/Mobile Investment	Moderate Positive	No Impact	Minor Positive	No Impact, except potential displacement from elsewhere in Wales
Tourism	Major Positive	No Impact, except perhaps redistribution of tourism activity from south to north of County	Major Positive	No Impact, except potential displacement from elsewhere in Wales
Day Trips / Shoppers	None	Minor Negative – increased external competition	None	No Impact

Year of Assessment	Summary of Impacts			
Residents	Minor Positive – enhanced employment opportunities & access to services	No Impact	No Impact	No Impact
Sector Interactions / Synergies	Moderate Positive – spin-off spending from increased economic activity	No Impact	Minor Positive – spin-off spending from increased economic activity	No Impact
Total Gross Impacts	Minor Positive	Minor Negative to some firms south of the Haven become relatively less competitive	Minor Positive	No Impact
Net Impact	Overall Impact <ul style="list-style-type: none"> Local – Overall positive driven by increased tourism and potential increased inward investment. National – Small increase in overall net tourism and potential inward investment in Wales. 		Summary of Distributional Impacts <ul style="list-style-type: none"> Local – Redistribution of economic activity from south of A477 corridor to A40 corridor. Potential dilution of economic activity in the Enterprise Zone. National – some potential displacement of tourism and inward investment. 	

8.4.2 In summary, the EALI analysis suggests that the main impact of dualling the A40 would be to tackle the perception related issues which are seen to be inhibiting inward investment and tourism. Dualling is unlikely to fundamentally change the cost base of doing business in Pembrokeshire and will only have a minor impact at the local level outwith tourism and potentially making the area more attractive for inward investors. This is also likely to translate into a small national benefit, although there will be an element of displacement of tourism and potentially inward investment from elsewhere in Wales.

8.4.3 Whilst addressing the perception issue, it should be acknowledged that dualling the A40 would likely tilt the economic gravity of Pembrokeshire northwards. Benefits would accrue to Haverfordwest, Milford Haven and Fishguard at the expense of the industrial cluster in Pembroke Dock and the south-coast tourism destinations.

8.5 Wider Infrastructure

8.5.1 The scope for this study was focussed on transport connectivity and the A40 in particular. Whilst a series of transport constraints were identified, consultees in particular stressed that wider non-transport infrastructures were at least as important if not more important than transport issues. These issues included poor broadband connectivity (soon to be addressed) and mobile phone coverage; constraints on the electricity, water and gas pipeline network; and limited land-use development.

Appendix A Business Survey

A40 St Clears to Haverfordwest Improvements Business Survey

Peter Brett Associates LLP (PBA) has been commissioned by the Welsh Government to undertake analysis of the potential impacts of improving the A40 west of St Clears into Pembrokeshire on the local economy. As part of this, we are undertaking a programme of business surveys to:

- Provide us with a full understanding of how the A40 fits within the local economy at present; and
- Provide us with an indication of how firms in Pembrokeshire would be affected by any upgrade.

Your response will provide valuable information to the team in understanding the local and wider economic impacts of any improvement to the A40.

Thank you in advance for your involvement in this survey.

About Your Business

1. What is the name of your business?

.....

2. Please provide the postcode of your business

.....

3. Is this your principal office?

Yes ☐

No ☐

IF YES, GO TO Q5, IF NO, GO TO Q4

4. Please provide the postcode of your principal office

.....

5. Do you have any other premises in Pembrokeshire and / or the rest of the UK?

Yes, Pembrokeshire - please specify where	
Yes, rest of UK - please specify where	
No	

6. Thinking of the site you are currently at, how long have you been at this location?

More than 10
years

6-10 years

3-5 years

1-3 years

Less than 1
year

1

2

3

4

5

6a If 1-3 years or <1 year, please briefly outline the reasons for choosing this location?

.....
.....

7. Do you have any plans to move from, expand at or contract at this site:

- No, stay the same as at present
- Expand operations on this site
- Contract operations on this site
- Relocate
 - If so where to?.....

8. What is the principal sector in which you operate?

Agriculture, Forestry & Fishing	
Mining, Quarrying & Utilities	
Manufacturing	
Construction	
Motor Trades	
Wholesale	
Retail	
Transport & Storage	
Accommodation & Food Services (including tourism)	
Information & Communication	
Finance & Insurance	
Property	
Professional, Scientific & Technical	
Business Administration and Support Services	
Education	
Health	
Public Administration	
Other (please specify)	

9. Please briefly outline the nature of your business.

.....

Your employees

10. Approximately, how many people do you currently employ at this location?

Full-Time			Part-Time		
Seasonal					

11. Roughly where do your employees live? *(Please provide an approximate % by area with answers summing to 100%)*

Haverfordwest			Milford Haven	
Pembroke Dock			Fishguard	
Tenby			Narberth	
Carmarthenshire			Other Pembrokeshire	
Ceredigion			Please Specify.....	
Other Wales			Other UK	
Please Specify.....			Please Specify.....	

12. What is the main mode of travel to work used by your employees? *(Please provide an approximate % by area with answers summing to 100%)*

Car			Bus	
Train			Motorbike	
Walk			Cycle	
Other				
Please Specify.....				

Markets Served and Suppliers

13. Which markets do you currently serve? *(Please provide an approximate % by area with answers summing to 100%)*

Within Pembrokeshire			Carmarthenshire	
Ceredigion			Other Wales	
Other UK			Republic of Ireland	
Other Overseas				

14. Where are the majority of your **suppliers** located? *(Please provide an approximate % by area with answers summing to 100%)*

Haverfordwest			Milford Haven	
Pembroke Dock			Fishguard	
Tenby			Narberth	
Carmarthenshire			Other Pembrokeshire	
Ceredigion			Other Wales	
Other UK			Republic of Ireland	
Overseas			NA	

Staff Travel in the course of work

15. How often do your staff travel in the course of work, and to where? *(Please provide approximate frequency and general nature of travel undertaken)*

.....

16. What is the main mode of travel in work used by your employees? *(Please provide an approximate % by area with answers summing to 100%)*

Car			Bus	
Train			Motorbike	
Walk			Cycle	
Other				
Please Specify.....				

Movement of Goods

17. How significant is the physical movement of goods to your business *(Please circle one number only)*.

Very Significant	Significant	Neither Significant nor Insignificant	Insignificant	Very Insignificant
1	2	3	4	5

[if 3-5 go to Q22]

18. What are your main freight related activities *(please tick all that apply)*

Inbound delivery of raw / intermediate materials			Outbound delivery of raw / intermediate materials	
Inbound delivery of finished goods			Outbound delivery of finished goods	
Haulage Firm			Parcel Delivery Firm	
Specialist Plant Firm			Other	
			Please Specify.....	

19. What is your principal means of moving freight *(please tick all that apply)*

LGVs / Vans	
HGVs	
Rail (Container)	
Rail (Other)	
Shipping (Bulk)	
Shipping (Other)	
Specialist Equipment/Plant	
Tankers	
Other Please Specify.....	

20. Do you move goods in your own vehicles or use a freight haulage firm?

Own vehicles	
Use haulage firm	
Mix	
Other (specify)	

21. Approximately what percentage of your **total costs** can be attributed to the movement of goods?

.....%

Recent Business Conditions

22. What is your level of satisfaction with current business trading conditions (*Please circle one number only*).

Very Good	Good	Fair	Poor	Very Poor
1	2	3	4	5

23. Over the last three years, has your business turnover (*Please circle one number only*).

Increased Significantly	Increased Slightly	Remained Stable	Decreased Slightly	Decreased Significantly
1	2	3	4	5

24. Over the last three years, have your business employment levels (*Please circle one number only*).

Increased Significantly	Increased Slightly	Remained Stable	Decreased Slightly	Decreased Significantly
1	2	3	4	5

25. What has influenced these recent business trends (*Please assign a priority of 1 to 5 for the top 5 issues, with 5 being the most influential*)

Availability of labour	
Access to Bank Finance	
Changing market trends	
Government Regulations	
Market competition	
Marketing of the area	
Perceptions of Remoteness	
The recession	
Transport connections	
Other.....	

Future Business Prospects

26. What is your view of future business prospects (next 3 years) in terms of turnover? *(Please circle one number only).*

Increasing
Significantly
1

Increasing
Slightly
2

Remaining
Stable
3

Decreasing
Slightly
4

Decreasing
Significantly
5

27. What is your view of future business prospects (next 3 years) in terms of employment? *(Please circle one number only).*

Increasing
Significantly
1

Increasing
Slightly
2

Remaining
Stable
3

Decreasing
Slightly
4

Decreasing
Significantly
5

28. What is the scale of planned investment in your business over the next five years? *(Please circle one number only).*

Very High
1

High
2

Medium
3

Low
4

Very Low
5

Your Business's Use of the A40

29. How significant is the current A40 west of St Clears to your business in the following respects?:

	Of no Significance / Not relevant	Of Low Significance	Of Medium Significance	Of High Significance
Customers accessing this site				
Deliveries to this site (vans, couriers)				
Employees accessing site				
Other business travel to this site				
Our staff travelling on business in the course of work				
Physical products and goods leaving this site (goods vehicles)				
Physical supplies coming into this site (goods vehicles)				
Pickups from this site (vans, couriers)				
Other (specify)				

What are the problems?

30. Does your business experience any of the following issues with respect to the A40 west of St Clears at present, and if so how significant is this?

	Not an Issue	Low Adverse Impact on business	Medium Adverse Impact on business	High Adverse Impact on business
Abnormal loads restrictions				
Congestion at St Clears				
Congestion in Haverfordwest				
Long journey times between St Clears and Haverfordwest				
Other Congestion – please specify				
Poor journey time reliability –				

all year round				
Poor journey time reliability – summer only				
Road safety issues				
Vehicle platooning & Lack of overtaking opportunities				
Other, Please specify.....				

How might your business be impacted?

31.If the A40 between St Clears and Haverfordwest was upgraded to dual carriageway status, please provide an indication of the impact this would have on the following aspects of your business: (5-point: Major Negative to Major Positive)

	High Positive Impact	Medium Positive Impact	Low Positive Impact	No Impact	Low Negative Impact	Medium Negative Impact	High Negative Impact
Access to labour market							
Business travel undertaken by staff							
Customer / Visitor numbers							
Delivery of final products to market							
Ease of delivery of supplies							
Future investment plans in Pembrokeshire							
Marketing & Promotion of your business							
Perceptions of remoteness							
Stock & Inventory levels							
Your ability to compete							
Your continuing presence at this location							

32. Does the current standard of the A40 west of St Clears have a material impact on the financial performance or operation of your company at this location?

- Yes, if so.....
- No, it would have no material impact

33. If Yes, please provide an estimate of the potential impact of A40 dualling in terms of your turnover / customer base and / or Employment levels at this site.

Impact of A40 dualling on	High Positive Impact (>10%)	Medium Positive Impact (6%-10%)	Low Positive Impact (1%-5%)	No Impact 0%	Low Negative Impact (1%-5%)	Medium Negative Impact (6%-10%)	High Negative Impact (>10%)
Turnover / Customer Base							
Employment							

34. Please provide an indication of your annual turnover in terms of a range? *(Tick as appropriate or state turnover figure if possible)*

NOTE – ANY TURNOVER INFORMATION PROVIDED WILL BE TREATED AS HIGHLY CONFIDENTIAL AND WILL NOT BE INCLUDED IN ANY REPORTING

Less than £100k			£100k - £500k	
£500k - £1 million			£1 million - £ 5 million	
Greater than £5 million			Exact Figure Please specify.....	

Sustaining your business in Pembrokeshire

35. Which of the following factors would you regard as being the most important in terms of sustaining and growing your business in Pembrokeshire? (please rank your top five, marking '1' for most important downwards)

Availability of bank finance

Availability of higher quality premises

Enhanced marketing and promotion of Pembrokeshire

Faster / higher capacity broadband

Improved local public transport

Improved rail services

Improved road transport links

More extensive local supply chain

More highly skilled local labour force

Wider labour pool to alleviate recruitment difficulties

Any Other Comments

36. Do you have any other comments you wish to add about how the upgrading of the A40 would impact on your business?

.....

Appendix B Literature Review – The Relationship between Transport & Economic Development

B.1 Introduction

This chapter sets out the academic and project based evidence on the relationship between transport and economic development. By combining this more general review with the specific transport and economic conditions of Pembrokeshire, it will be possible to identify the potential ‘transmission mechanisms’ (Chapter 5) of any improvement to the A40 – i.e. how would improvements to the A40 impact on for example labour markets, productivity, inward investment, development etc.

The relationship between transport, economic development and regeneration is a controversial issue that has caused much debate amongst academics and policymakers over a long period of time. Advocates of transport schemes argue that investment in transport infrastructure and services deliver economic benefits through reduced journey times, better accessibility and through making an area more attractive to both businesses and labour. However, it is often argued that such investment causes mainly a redistribution of both jobs and labour as opposed to delivering ‘additional’ benefits. It should be noted that this review is only a high level introduction to the links between transport and the economy.

B.2 Overview²⁶

- *“That there is a link between good infrastructure and the economy is taken as self-evident by most businesses and professionals, but despite a mountain of academic analysis, the nature of the relationship remains somewhat opaque”. The Standing Advisory Committee on Trunk Road Assessments (SACTRA) 1999 Report, Transport and the Economy looked at the issue in some detail but failed to establish any simple, clear rules.²⁷*

The above quotation illustrates the difficulties faced in addressing the question of the links between improved transport and economic performance. It is indeed self-evident that a modern economy requires effective communication links – all would acknowledge for example that Wales would not function as effectively without the strategic road and rail networks, but quantifying these effects and impacts has proven to be extremely difficult. In the UK generally, it is particularly difficult to determine the impact of a single transport scheme on economic performance, which even if significant, is generally making only a marginal change to a highly developed transport system.

Until the release of the Eddington Review in December 2006, the most authoritative work on the relationship between transport and the economy published in recent years was the SACTRA report of 1999 referred to above. The main transmission mechanisms identified by SACTRA through which improved transport could lead to improved economic performance were:

- reorganisation or rationalisation of production, distribution and land-use;
- effects on labour market catchment areas and hence on labour costs;
- increases in output resulting from lower costs of production;

²⁶ Leitham S., Canning, S. and Simmonds, D., *The Scope for Improving Connectivity between Ayrshire and the Central Belt* (Scottish Government, 2006), pp. 9-20.

²⁷ *Local Transport Today* – 8/12/2005

- stimulation of inward investment;
- unlocking inaccessible sites for development; and
- triggering growth which in turn stimulates further growth.

This list provides a useful context in which to consider the potential economic effects of transport schemes.

B.3 Appraisal and Economic Impact

There have been well established appraisal methods for over 30 years which estimate the 'benefits' of a transport proposal by placing a monetary value on reductions in travel times and savings in vehicle operating costs from a social welfare perspective.

However, establishing statistical causal links between improved transport and economic performance (measured by e.g. GDP / GVA, productivity or employment) has proven elusive to researchers – i.e. how, if at all, do the travel time savings identified appear as other economic indicators 'on the ground' once the project is in place?

This question has led to a large volume of literature addressing the question of the links between transport and economic development from an *ex-post* perspective (i.e. economic impact). It is this literature which proves most inconclusive. In part, because of this lack of empirical evidence, appraisal methods which extend beyond social welfare explicitly into economic impact have not until recently existed and the methods which are now being advanced are largely theoretical and at an early stage of application.

The pioneering Eddington Review established the following list of 'micro-economic' drivers by which transport may impact on growth and productivity: (similar to the SACTRA list)

- mobility of people and goods;
- enhancing agglomeration;
- labour markets and migration;
- boosting intra- and inter-regional trade and competition;
- boosting international trade; and
- enhancing the attractiveness of the UK for foreign investment.

B.4 Breaking the Question Down

It is helpful to consider the relationship between transport and economic development from a few distinct perspectives.

National Level

At the national level, appraisal methods currently use a measure of social welfare benefits and costs. 'Welfare' or 'Social Welfare' is the total well-being of society. It reflects the 'utility' of people within society. Although the level of welfare is impossible to measure, it is possible to assess the changes resulting from a project or policy. Social cost-benefit analysis is based on assessments of welfare benefits and costs. Social welfare benefits arise primarily from reductions in travel time and accidents (both converted into a monetary value), and vehicle operating costs.

Most proposed transport schemes are appraised in this way – combined with a range of appraisals against other criteria. Schemes which produce a significantly large social welfare benefit relative to their cost of construction or implementation are deemed ‘good’ projects from this perspective.

Until the mid-2000s, this social welfare measure has been deemed a comprehensive measure of the economic value of a scheme to the national economy (i.e. GDP), given the key assumption of perfect competition. This means that changes in transport costs resulting from a scheme are converted into wider economic effects, such as reduced wage costs or increased property values. At a national level, further ‘economic development’ benefits have not been accepted as ‘valid’ in appraisal terms.

However, new guidance was produced by the UK Department for Transport in July 2005 concerning *Transport, Wider Economic Benefits, and Impacts on GDP*. ‘Wider’ economic benefits contribute to the impact of transport on productivity and GDP and are caused by market imperfections in transport-using industries (e.g. imperfect competition). This guidance suggests that although many of the welfare gains currently calculated during the appraisal of a transport scheme appear as increases in GDP, there can be substantial additional benefits to GDP which are not currently captured. This marks a significant departure from conventional thinking, whereby the schemes will be appraised perhaps in terms of both their welfare and GDP impacts.

The areas where wider ‘welfare’ benefits arise are:

- **agglomeration economies** – some firms gain productivity benefits from proximity to other firms, improved transport can bring these firms ‘closer’ together (also a GDP benefit);
- **increased competition as a result of better transport** – competition between firms in the economy drives down prices and improves efficiency, improved transport increases the ‘reach’ of firms, and therefore increases competition;
- **increased outputs in imperfectly competitive markets** – in most sectors, competition is not ‘perfect’ e.g. buyers are not equipped with all the necessary information to make an informed choice. Improved transport can induce firms to increase production and the value of this increased production is greater than the cost of producing it, i.e. the marginal benefit of this new production is likely to exceed the marginal cost (also a GDP benefit); and
- **economic welfare benefits from improved labour supply** – improved transport can give people access to higher paid jobs resulting in extra tax revenue that is not currently captured in the appraisal.

The areas where wider ‘GDP’ benefits arise are:

- **increased labour force participation** – more people choose to work as a result of a transport improvement;
- **people working longer hours** – as a result of reduced commuting time; and
- **move to more productive jobs** – a relocation of jobs to higher productivity locations.

The research above has recently been supplemented by a research project undertaken by Venables, Laird and Overman (2014). They found that, outwith standard TEE benefits, transport investment supports:

- Enhanced productivity:
 - Through increasing the interactions between firms (and between firms and consumers). It is argued that firms can reach wider markets, enabling them to

expand, gain scale economies and develop specialist skills; markets are more competitive as the natural barrier of distance is reduced; and inefficiencies created by monopoly and monopsony power are eroded.

- Transport is also necessary to get workers into concentrated and productive centres of activity (because concentration of economic activity leads to higher productivity). The role played by transport in this regard varies by project and across areas and sectors.
- Investment & Employment
 - Better transport generally makes a place a more attractive location in which to invest and there is a body of evidence to suggest that transport links are one factor in shaping the location decisions of firms (although one amongst many).
 - Interestingly, the paper states that transport's potential for attracting private investment and creating jobs is key issue of debate – indeed, it is the key point underpinning this study. The paper explains that the apparent benefits can be misleading and that the topic is complex, potentially ambiguous and lacking a firm evidence base. The key to this is the debate between whether new activity in an area is truly additional or displaced from elsewhere.

Venables, Laid and Overman (2014) summarise that business clearly benefits from improved transport, an effect which is captured through user benefit calculations. The paper also notes that it is possible that improved transport can impact upon the pattern of investment and associated job creation, and it is possible that this is an additional source of gain. However, the authors note that this *possibility* has to be critically evaluated on a project by project basis. The authors pose a number of key questions which need to be considered when estimating the impacts of transport investment, including:

- Where is the investment likely to take place?
- Is it additional?
- Is it in an area where job creation is particularly necessary or highly valued?
- Are there reasons to think that transport is unblocking some market failure that is creating a barrier to efficient levels of private investment?

Finally, transport is seen as just one of a package of policy measures that play a role in shaping the level and location of private investment.

The table below summarises the above discussion in terms of whether benefits are picked up in welfare or GDP appraisal.

Wider Economic Impacts Summary

Benefits	Welfare	GDP
Business travel time savings	✓	✓
Commuting time savings	✓	
Leisure time savings	✓	
Increase in labour force participation		✓

Benefits	Welfare	GDP
People working longer		✓
Move to more productive jobs		✓
Agglomeration benefits	✓	✓
Increased competition	✓	✓
Imperfect competition	✓	✓

Regional Level

Until relatively recently, the view of government was that a comprehensive calculation of the welfare benefits of a proposed scheme gave an exhaustive measure of the value to the country of a transport scheme. Anything additional to this was regarded as double-counting of benefits.

In July 2003, the Department for Transport (DfT) published 'Guidance on Preparing an Economic Impact Report (EIR)', in response to the recommendations made by SACTRA. The EIR is effectively an equivalent to an EALI. It provides guidance on how to measure the economic impact, in the form of employment effects, of transport schemes. However, a key element of the EIR is that it is primarily concerned with the effects of a scheme on the *distribution* of economic activity, and is only relevant if the scheme is affecting a pre-defined 'Regeneration Area'. The EIR therefore recognised that schemes which addressed regional imbalances and assisted 'Regeneration Areas' were better than schemes which did not, given an equivalent benefit-cost ratio, i.e. re-distributional effects were now seen as a positive impact.

In Scotland, the Scottish Government published the refreshed Scottish Transport Appraisal Guidance (STAG) in March 2008. A new element of appraisal required by STAG is Economic Activity and Location Impacts (EALI) analysis, the method being used in this study. The aim of EALI analysis is to describe the impacts of a transport investment on the economy, using income and / or employment as key measures. It is recommended that the EALI analysis is presented in terms of:

- the net impact at the national level (beyond that calculated in the welfare based cost-benefit analysis); and
- gross components, which distinguish impacts on particular areas and / or on particular groups in society.

It is recognised however that 'net' impacts will occur in only a 'very few' cases (for the largest schemes), and in practice the analysis focuses on the local and distributional impacts of the scheme. Unlike the EIR however, STAG EALI analysis is not restricted to 'regeneration areas', but projects which impact positively on areas defined as socially excluded will be viewed favourably as they are supporting other Scottish Government policies. This approach is of value in Pembrokeshire as it explicitly recognises the social benefits associated with improved transport provision tackling peripherality / regional imbalances.

Summary of Appraisal

The evolution of the appraisal of the economic benefits of transport schemes can be thought of as occurring in three main stages:

- originally welfare benefits calculated from cost-benefit analysis were regarded as comprehensive with anything else deemed double-counting, assuming perfect competition in the economy;

- it was then acknowledged that distributional effects can be of benefit to lagging areas; and
- most recently, a new view has emerged that schemes should also be appraised in terms of their impact on GDP explicitly, recognising that market imperfections give rise to additional benefits (both in GDP and welfare terms).

B.5 Empirical Evidence

As was highlighted at the outset of this chapter, there has been a large volume of academic work over many years which has attempted to identify clear links between transport provision and economic development.

The most comprehensive study of the links between transport and the economy was the Eddington Transport Study, which explores the long-term links between transport and the UK's economic productivity, growth and stability. Eddington acknowledges from the outset that in mature economies like that of the UK, the effects of *ad hoc* large scale transport investment may be ambiguous. Instead, Eddington contends that it is constraints on the existing transport network that are the biggest obstacle to development. It is argued that the most notable of these constraints in the UK is congestion, which is generally concentrated in major urban areas and key strategic corridors at certain points of the day. Congestion and other bottlenecks (such as a shortage of rail capacity) reduce the scope for agglomeration, increased competition, wider labour catchment areas etc by increasing travel time. The implications of Eddington's conclusions are clear: strategic economic priorities for long-term transport investment should be concentrated in growing and congested urban areas and their catchments as well as key inter-urban corridors and international gateways that are demonstrating escalating congestion and unreliability of travel times. The conclusions of Eddington demonstrate that the greatest return on transport investment can be harvested by investing in eliminating existing local bottlenecks and facilitating the movement of people and goods.²⁸

Many authors have contributed to the debate on the relationship between transport and economic development by reviewing the available evidence, often in the light of a policy objective and without conducting an original study. Selected papers of this nature are considered in the table below to determine the range of thought concerning the understanding of the relationship between transport and economic development.

Summary of Studies which Review Available Evidence

Author	Approaches Considered	Conclusions
Arnott (1987)	Business and local economic development, land and property development, labour market and access to work	Developer attitudes to the marketing of sites and premises is significantly more sensitive to accessibility than the actual experience of business and transport operators, transport can be a potentially important economic development and planning tool
Button (1994)	Use of meta-analysis on previous work, values of time, impact studies	The best use is not made of previous studies when estimating the effects of a new project, previous studies are not used collectively for statistical analysis
Button and Rietveld (1996)	Use of meta-analysis	Caution should be exercised in hoping that large scale infrastructure investment programmes will stimulate rapid and more even economic

²⁸ Leitham, S., Canning, S., Simmonds, D., and Dobson, A., *Transport, Economic Development and Regeneration* (European Transport Conference, 2007), pp. 4-5.

Author	Approaches Considered	Conclusions
		development within the pan-European region.
Drew (1990)	Methodologies: Urban and regional growth, effects of traffic changes, impact evaluation, economic base, input-output, regional economic models	Direct effects of infrastructure spending can be modelled using input-output analysis, its significance as a catalyst to economic growth depends on the socio-economic nature of the region
Drew (1990)	Economic impact methodology, modelling impacts of transport, economic impacts of modal investments, case studies and state planning issues	There is no single causal-based policy sensitive methodology applicable to all modes for all levels of analysis. Results from impact studies are meagre. Measurable and causative relationships between transport and economic development are currently impossible to estimate
Eno Foundation (1983)	US transport costs, location decisions, policy objectives	Complexity and unpredictability of the economy undermines the economic model as a tool to be used in selecting promising transport schemes. Communities that allow transport facilities to deteriorate may find new investments going elsewhere
Ernst (1981)	Incremental evaluation, strategic evaluation, industrial location analysis, US	Understanding of the interactions between transport investment and economic development is too sketchy to allow for deriving any firm performance criteria from economic policy goals
Gwilliam (1979)	Transport costs, location theory, land-use - transport models, inter-regional freight flows, impact studies	Relevant areas of theory are ambiguous and their related hypotheses are impossible to test empirically, transport investment has a limited impact on regional activity
Hurdle (1992)	Railways, road building, inner cities, light rapid transit, regional economic development	The argument for transport investment achieving national economic growth is weak and transport investments are unlikely to have a major impact on the distribution of economic activity
Lee (1981)	US light rapid transit urban revitalisation, local economic development, efficient development patterns	Quantitative estimates of benefits are likely to be very imprecise, political involvement is more important than lengthy scientific analysis
McQuaid & Greig (2002)	Transport & the Scottish Economy - Key Issues	Little is known about the real links between transport and economic development. Much policy is supported by anecdote, ignoring displacement, and expectation of links, rather than real evidence. Key research issues suggested included <i>ex post</i> empirical studies of wider impacts, and further investigation of micro-level behavioural impacts.

Author	Approaches Considered	Conclusions
Parkinson (1981)	COBA freight benefits, before and after studies, econometric evidence, surveys of firms, industrial rents, international evidence, labour market	It is implausible that road schemes will lead to significant increases in GDP, some schemes will assist localised relocation, it is probable that the road programme has had a small effect on the distribution of employment in the long term
Rietveld (1994)	Multi-regional models: Land-use - transport models, production function, transport cost. location models, interviews with entrepreneurs	Production function and interview approaches suggest the greatest impact, need to consider the perceptions of new infrastructure, identification of data deficiencies
SACTRA (1999)	Wide ranging review	Direct statistical and case study evidence on the size and nature of the effects of transport cost changes is limited. The state of the art in this important field is poorly developed and the results do not offer convincing general evidence of the size, nature or direction of local economic impacts.
Sharp (1980)	UK transport costs, inter-regional commodity flows	Transport investment unlikely to cause significant new activity in less prosperous regions, transport must be provided to supplement government regional policies
Whitelegg (1985)	Previous general studies, economic indicators	Road construction is of no benefit to depressed regions and a disbenefit to urban areas
Wilson (1986)	25 year survey of US practice in transport economics	Cause and effect in the relationship of transport to urban or national economic growth are easy to mix up, call to include distributional effects in cost-benefit analysis

The conclusions summarised in Table 4.2 highlight the range of views on the topic, demonstrating the lack of consensus amongst academics and practitioners. A further study by DTZ Pida for the Welsh Office (Economic Impact of Road Infrastructure Investment – Stage 3 Report, 2004) concluded that:

- ‘The existing body of evidence is more compatible with the view that transport can affect the distribution of economic activity than with the claim that transport investment materially affects growth at the UK levels’ and ‘the evidence on even regional and local impacts is poorly developed. Individual studies have produced reasonably convincing evidence of particular projects but it is difficult to draw very general conclusions from the evidence.’

The DTZ Pida report is worth considering in a little more detail. The brief literature review covered the following areas.

Costs of Production

A study by Cardiff Business School (1996) found that almost 30% of businesses believed that improvements to the A55 in North Wales (perhaps the best comparator to the A40) had reduced their

production costs either by reducing delivery costs or by new suppliers entering the market forcing local suppliers to reduce prices. However, there was no evidence that the catchment area for the businesses products had expanded as a result, although it was argued that delivery costs to customers were now lower which had a positive impact on competitiveness. This is an interesting point as north-west Wales shares many similarities with south-west Wales – e.g. a potential two-speed economy, highly rural, low population density, key transport gateways to Ireland etc.

Widening Labour Catchment Areas

It was noted that the potential of road improvements to widen labour catchment areas is dependent on specific geographical areas and the circumstances surrounding each project. An example of the above point is illustrated by a Welsh Office study in 1981 concerning the improvements that were proposed to the A55 in North Wales. The study found that 35% of manufacturing firms and 34% of distribution firms surveyed believed that the A55 improvements could influence travel-to-work patterns and the extent of the labour catchment area of their plants. Of the companies surveyed, 50% were located in an area of relatively low unemployment with an area of higher unemployment to the east. As the road improvement promised significant journey time reductions, companies in the low unemployment area were expecting an increase in the number of people now prepared to travel to their area for employment.

The OECD (2002) argues that improved accessibility is one of the more widely recognised benefits of transport investment and that new provision can extend the effective size of the labour market. However, they also argue that transport provision must be coupled with housing and social policy in order to improve accessibility. This point is reinforced by Trinder (2001) who argues that reductions in job search time, cost and accessibility have an influence on the location of both firms and workers. SACTRA (1999) argue that the ancillary demands of labour (such as the need for leisure facilities) are also encouraged by transport investment.

The European Economic Development Agency (2000) argue that infrastructure investment may alter the **perceived** accessibility of locations, thereby attracting inward investment, regardless of any real change in accessibility. In addition, they argue that transport infrastructure can play an important role in supporting industry clusters by increasing labour catchment areas and improving intra-area connectivity. The report also states that transport infrastructure is a key element in attracting mobile investment.

Pieda (1992) found that levels of commuting across the Second Severn Crossing were low and that the benefits were not likely to be sufficient to deepen the labour pool on either side of the crossing. A good example of the potential 'two-way' effects of transport schemes is highlighted by the study of a new road link from the Kristiansund to the mainland of Norway. While commuting did increase, there was also significant business relocation from the island to the mainland. In essence, many people were now commuting to the relocated jobs (could this be an impact in Pembrokeshire?). In short, while road improvements can undermine the competitive position of local economies, the long-term impacts may be positive due to lower costs of production, lower prices and an enlarged labour market.

Increased Competition

A study by Pieda (1999) analysed the socio-economic impact of the Skye Bridge. It found that construction sector businesses working in the local Skye and Lochalsh market had become more exposed to competition from firms elsewhere in Scotland who were now able to access the Skye market more easily. However, it is likely that the consumers of construction services in this market benefited from lower prices as a result of increased competition.

Impacts on Inward Investment

Dunning (1988) investigated the locational preferences of international businesses located in the UK. The survey was split into 30 'regional' firms and 53 'branch firms'. A 'regional' firm was defined as one which has responsibility for a region (e.g. Europe) of coordinating the operations of a multi-national

enterprise and a 'branch' firm was defined as one which performs the same role only in a smaller geographical region and without the coordination role. For all of the 'regional' firms, the most important locational factor was access to airports with others (in order of priority) including language, market size and prospects, telephone communications and the general business framework. For 'branch' firms, the key locational factors were proximity to clients, language and market size and prospects.

A similar study by Hall et al (1987) attempted to determine why 40 Berkshire companies chose to locate in the Thames Valley (or the eastern part of the M4 corridor). The percentage of firms mentioning the following main factors were:

- Heathrow Airport (75%);
- M4 motorway (63%);
- other motorways and roads (40%);
- access to suppliers (40%); and
- availability of suitable premises (40%).

DTZ Pida argue that the indicative conclusion from these studies is that roads (other than motorways) are in the 'middle ranking' in terms of importance in location decisions. A study into the effects of the M4 in attracting 18 firms to (re)locate in Gwent found that eight firms (44%) had been attracted by the prospect of motorway access while three of these firms noted that it had been a major incentive (Welsh Office, 1981).

Pida (1992) found that the Second Severn Crossing was a potentially major influence in 6% of 27 companies' decision to locate or expand in South Wales in the future. Other key locational factors included access to suitable sites, proximity to markets and proximity to former sites. A study by Cardiff Business School (1997) discovered that the dualling of the A470 played an important role in attracting inward investment to Merthyr Tydfil. Three companies actually stated that the road improvements were a key factor in their decision to locate in the area. The study also sought to quantify the employment benefits arising from the new inward investment projects around Merthyr Tydfil. It found that 'without the supporting infrastructure of roads it is unlikely that Merthyr Tydfil would have been entered into feasibility studies for these new inward investment projects, with such wider effects on the local economy'.

Invest UK (2000) reported on the decision by a large American firm to base a call centre in Glasgow. The vice-president of the firm argued that the primary reasons for locating in Glasgow were:

- the availability of a technologically skilled and customer-service focussed workforce;
- the relatively reasonable price of property;
- the local college and university system was identified as an asset; and
- the availability of the of 'excellent' public transport links provides an extension to the effective size of the labour market.

The CBI indicate that a survey of 12,000 firms found that better transport was one of a firm's top three priorities (out of 22 factors) for improving competitiveness in their region (SACTRA, 1999). Ernst and Young (1996) found that 20% of firms identified positive external benefits (such as reduced inventory costs and access to new markets) to their business as a result of transport improvements (SACTRA, 1999).

McQuaid et al (2004) also argue that non-economic factors are important in determining business location. UK studies have found that quality of life and the general environment were crucial pull factors for inward migration and inward investment. Cornwall County Council (1999) indicates that 57% of executives surveyed argued that this was the most important factor in relocation decisions. This point was echoed by Scottish Natural Heritage who stressed the importance of scenery in business location, concluding that it is an integral factor in making Scotland an attractive destination for FDI.

The results of a study by Thornton (1978) are in stark contrast to those above. It sought to discover how successful Bradford was in attracting new industry given that the M606 linked the city with the M62, which in turn connects to Manchester, Leeds, Hull and Liverpool. While five businesses had opened manufacturing plants in the area in the four years prior to the study, none of the companies identified the road network as a key factor in their location decision.

Opening Sites for Development

It is argued that road infrastructure can play a key role in developing previously inaccessible sites. A case study of the M40 by Headicar and Bixby (1992) examined the development and traffic effects in the immediate vicinity of the motorway. The report found that the motorway altered the nature and pattern of accessibility meaning that certain types of new development became feasible (e.g. major shopping centres requiring large catchment areas). The focus of accessibility also changed from traditional town centres to motorway intersections.

Pieda argue that the study robustly proved that:

- development had taken place on land not previously developed and outside the provisions of the approved development plan;
- the nature and intensity of development had been very different from previous development in the vicinity; and
- the development has significant traffic generation factors.

Cardiff Business School (1997) discovered that the opening of the latest section of the A470 has assisted in the opening of a new retail development area to the west of Merthyr Tydfil. Similarly, Gould (1997) found that the M25 has played a significant role in extending the catchment area for regional shopping and warehouses.

The main themes drawn out of the above were:

- that research evidence suggests that major road improvements do reduce production costs in the areas they serve;
- variable evidence on the impact on labour catchment areas;
- road provision only rarely influences inter-regional location decisions; and
- intra-regional and local location decisions are strongly affected by roads investment (particularly retail).

In addition to the above, a further literature review undertaken by Leitham (1996) does demonstrate a wealth of studies which do give some support to the notion that transport infrastructure is a significant economic factor. Equally, there is much evidence that transport infrastructure projects do not fulfil their economic promise. There are pre-project appraisals, where very considerable benefits additional to road-user benefits were predicted, and other studies which demonstrated that significant benefits are difficult to attribute to one infrastructure project. More success in determining a relationship is met when transport infrastructure is considered at a more aggregate level, over a period of many years.

The clearest conclusions are that the methodology and spatial scale adopted in a study are critical in determining likely post-project effects (Rietveld, 1994). As Drew (1990) concluded, 'measurable, causative relationships between transport and economic development are currently impossible to estimate', and 'there is no single causal based policy sensitive methodology applicable to all modes for all levels of analysis'.

It is clear from the literature that there is still much to be learned, both in terms of methodology and data. The importance of perceptions and qualitative factors has also been demonstrated (e.g. Henley *et al*, 1989), in order to investigate factors outwith the strict assumptions of much economic theory and cost-benefit analysis.

B.6 The Emergence of Evaluation

In recent years, the *ex post* evaluation of transport schemes has assumed an enhanced importance in the main UK transport appraisal guidance documents, including WelTAG, STAG and WebTAG. Whilst many evaluations remain quite narrowly focussed on the direct impact of the transport scheme (i.e. traffic levels / carryings, accident rates etc), the impact of transport schemes on the 'supply side' (e.g. labour markets, productivity, inward investment, development etc) is increasingly coming into focus.

Published evidence remains limited but any emerging evaluations in coming years should be considered in further refining the case for different levels of improvement to the A40.

B.7 Summary and Relevance to South-West Wales

The inconclusive nature of the large volume of work which has attempted to quantify the economic effects of transport schemes has influenced the methods used in the appraisal of transport schemes. In the past, Government has been cautious when responding to some of the 'new jobs' claims made by promoters of particular schemes. This caution has been based in part on the lack of empirical evidence and in part on the tendency to use questionable methodologies to inflate anticipated impacts when competing for funding. Nonetheless, promoters of schemes do routinely make claims as to how these schemes will provide a boost to the economy (often without specifying at what spatial scale, i.e. local / regional / national), and it remains something of an article of faith that improved transport will bring economic benefits. New transport schemes will indeed generally bring reduced travel times – the issue is how these savings feed through into the wider economy, and this remains an area of significant uncertainty. There is a strong theoretical case that the time savings do translate into increased economic activity but the empirical evidence is limited.

Transport costs tend to be a low proportion of operating costs for most businesses, and reductions in transport cost therefore make only a small change to a low proportion of operating costs, although this could be a more significant proportion of profits. In addition, from an economic development point of view, the cost of the transport measure is rarely compared with the cost of other policies which could boost economic development, i.e. the 'opportunity cost'.

There are no clear 'rules' as to in which local circumstances improved transport is likely to bring significant benefits in terms of economic development, e.g. which industrial mix, which geographical orientation etc. Present day guidance in Wales requires that an assessment is made of the impact of any transport proposal in terms of Economic Activity and Location Impacts (EALI). EALI is undertaken separately from Transport Economic Efficiency (TEE), the social cost-benefit analysis element of the appraisal.

Relevance to the South-West Wales Area

A recurring theme in the analysis has been doubt over the impact of transport improvements in an area with an already well developed transport network, the UK being a frequently cited example. However, it can be argued that the transport network in south-west Wales is not currently as well developed, with A40 providing some of the poorest quality stretches of the Trans-European Network.

In addition, work by Bradley and Best in the Irish Border area suggested that the combination of an economic development zone coupled with targeted transport investment to support such aspirations could be of considerable value. This is very much the case in south-west Wales, where the Haven Enterprise Zone has recently been established and it is argued (although not proven at this stage) that poor road based connectivity is constraining development.

Evidence from the seminal Eddington study also suggested that improvements to links to key gateways, ports and airports can deliver the largest economic impacts. The interventions in this study would enhance links to the ports of Fishguard, Milford Haven and Pembroke Dock, as well as the Haven Enterprise Zone.