
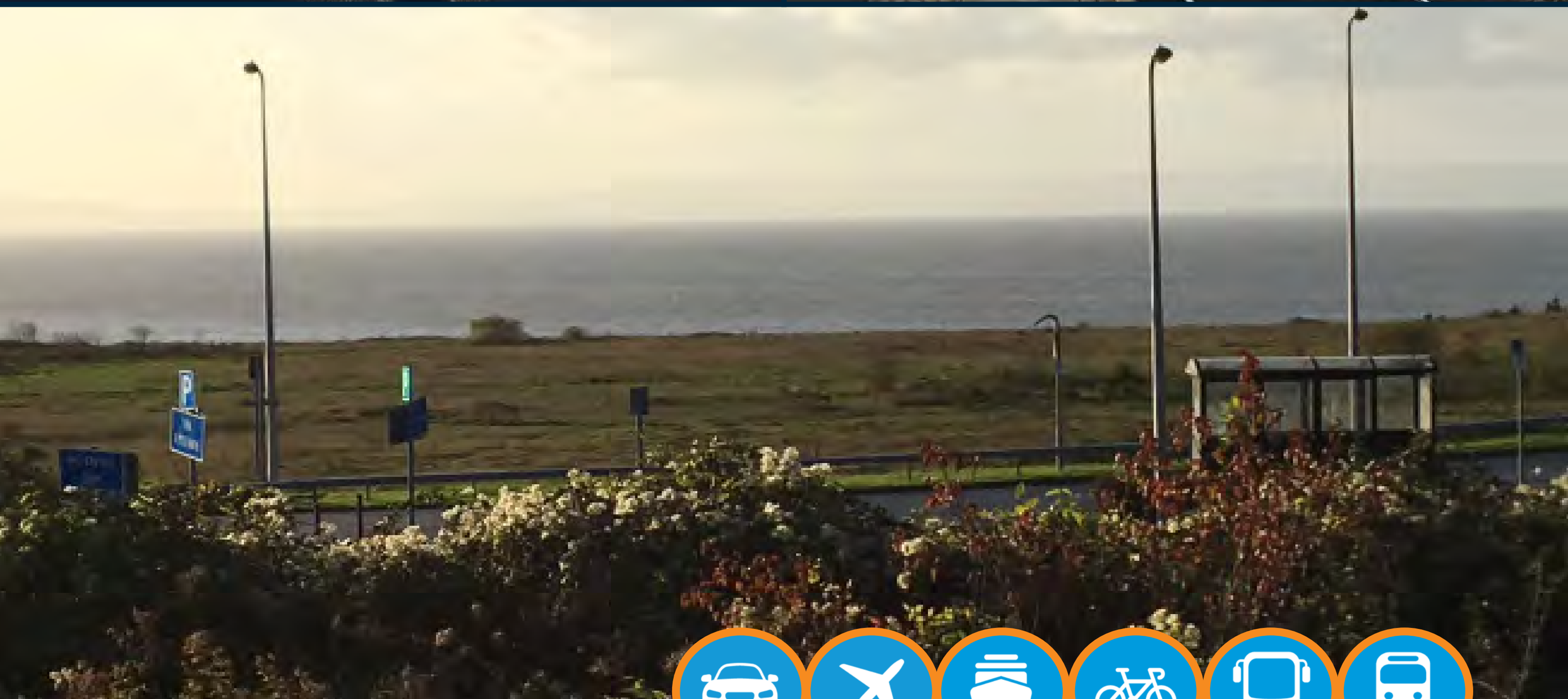

Vale of Glamorgan Connectivity Study – The Case for Change

Welsh Government

Final Report

February 2018

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Final Report

On behalf of **Welsh Government**

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Executive Summary

The Welsh Government (WG), in partnership with the Vale of Glamorgan County Council, is assessing the case for improving the strategic transport connectivity of key employment sites within the Vale of Glamorgan (VoG). This report is focussed on the early stages of the 'Strategic Case', which determines whether or not an investment is needed, either now or in the future. The purpose of this study is to clearly demonstrate and elaborate the 'case for change' - that is, to provide a clear rationale for making an investment, its strategic fit, and how the investment will further the aims and objectives of WG and its partners.

The study aligns with the H.M. Treasury *Green Book: Appraisal & Evaluation in Central Government*, and in particular Chapter 3, 'Justifying Action', in that it makes the 'case for change' and hence investment.

The study area includes the ten local authorities within the Cardiff Capital Region (Cardiff, Monmouthshire, Torfaen, Blaenau Gwent, Newport, Caerphilly, the Vale of Glamorgan, Merthyr Tydfil, Rhondda Cynon Taf and Bridgend) as well as three of the four members of the Swansea Bay City Region (Swansea, Neath Port Talbot and Carmarthenshire). This is shown in the figure below:

Figure S1: Study Area

Why is case for improving connectivity to the VoG being considered?

There are both regional / national and local drivers for improving connectivity to and from the VoG. From a **regional and national** perspective:

- The emergence of the Cardiff Airport – St Athan Enterprise Zone (EZ) in the VoG presents a strategically important economic development and employment opportunity for South Wales as a whole. **It is anticipated that this development will create 4,000 new jobs, with further indirect and induced employment across South Wales.**

- As part of the development of the Cardiff Capital Region and corresponding City Deal, there is a desire to improve transport connectivity across South-East Wales, safeguarding and promoting employment & investment and attracting & retaining population. It is envisaged that judicious and targeted investment will ensure that the Capital Region remains attractive and competitive.
- Through an arms-length company, WG owns and operates Cardiff International Airport. Surface access to the airport has frequently been cited as a problem and there is a desire within WG to consider options for improving connectivity to and from the airport within the boundaries of European Union (EU) State Aid rules.

From a **local** perspective:

- In partnership with neighbouring Rhondda Cynon Taf (RCT) County Council, VoG is pursuing a sub-regional development strategy intended to ensure that the area offers an appropriate and future-proofed balance of employment, commercial and residential opportunities. The current transport infrastructure is considered to be a constraint in realising these aspirations.
- The transport links, across all modes, connecting the VoG with Cardiff and the wider Capital Region are experiencing significant congestion, which is considered by the Council to be acting as a major constraint on the area in terms of attracting investment and realising development planning opportunities, whilst it is also seen to detract from resident and visitor amenity.

What is the policy fit?

The principle of improving connections to and from the VoG aligns well with national, regional and local transport, planning and socio-economic policies. In particular, the EZ has been identified as a strategic opportunity area, with the overall policy framework providing guidance as to how the potential of such developments can be realised.

Of particular relevance is the clear alignment with the headline national and regional policies, as follows:

- Improvements to the connectivity of the VoG would make an enabling contribution to the 'Themes' of **Prosperity for All – The National Strategy**. Enhancing access to a potentially major employment growth area and promoting development at the sub-regional level would support the emergence of regionally significant business and employment opportunities in the VoG, which would be of benefit to communities across South Wales.
- **Prosperity for All** is underpinned by an **Economic Action Plan (EAP)**, which sets out a vision for "inclusive growth, built on strong foundations, supercharged industries of the future and productive regions". Within the EAP, there is a commitment to both:
    - A new *regionally focussed* model of economic development, which will promote regional interests and issues in Welsh Government. In the context of this study, this can be thought of as the Cardiff Capital Region, of which the VoG is part.
    - A five-year programme of transport capital funding, linking to mandated regional land-use and planning decisions. Whilst this commitment remains at the strategic stage, it is possible that the EZ would be considered within the context of 'mandated regional land-use'.
- Investment in improved connectivity would also make a significant contribution to the outcomes and, by definition, the strategic priorities identified in the **Wales Transport Strategy**. As well as supporting access to employment, overall local and national connectivity would be improved, with resulting journey time, reliability and environmental benefits accruing.
- The regional employment opportunity presented by the EZ has the potential to contribute to the **Our Valleys, Our Future** priorities, particularly in terms of creating good quality jobs and furnishing residents with the skills to do them. However, facilitating this desired

outcome will require both transport infrastructure and services which connect the Valleys labour market to employment opportunities in the VoG.

- The proposal to enhance connectivity to and from the VoG is also well grounded within the **Wales Spatial Plan**. The outturn schemes would support access to the Vale of Glamorgan Strategic Opportunity Area and Cardiff Airport, whilst better matching labour with employment opportunities across the area through improving accessibility.
- The emerging **National Development Framework and Strategic Development Plans** are likely to support the development of key sites within the VoG, including the EZ. This would provide a firm policy basis for supporting accessibility improvements to these sites.
- **Powering the Welsh Economy**, the document underpinning much of the **Cardiff Capital Region City Deal**, emphasises the need for investment in improved transport connectivity to both promote economic development and address existing transport problems.
- **A Growth Strategy for the Swansea Bay City Region** recognises the need for improved connectivity between the City Region, the rest of Wales, the UK more generally and internationally. Access to Cardiff Airport is specifically noted as a desired outcome.

Land-Use Development Baseline

The declaration of an EZ in the VoG has facilitated a strategically important and high value economic development and employment site within the area - 78% of the total employment land allocation for the Vale of Glamorgan falls within the EZ and it is anticipated that the site will create 4,000 direct jobs. The EZ therefore represents a development of strategic importance for the Cardiff Capital Region and South Wales as a whole.

Whilst this report is focussed on the case for improving connectivity to the VoG, there is also a specific case for considering infrastructure improvements which would support the development of the sub-regional economy, combining the development potential of the EZ and strategic opportunity sites in Rhondda Cynon Taf (the Rhondda Gateway and Llanilid on the M4). The realisation of these sites and the EZ would assist in addressing an identified market failure in respect of the provision of Grade A commercial property within the Capital Region and would assist in ensuring the Region as a whole is competitive against other areas of the UK.

Ensuring that the EZ and the wider VoG maximises its development and regional economic potential (particularly in terms of the sub-region being developed in partnership with RCT) will require the provision of a safe and efficient transport network capable of meeting the needs of employees, business visitors and freight. As the subsequent sections explain, the transport infrastructure and services in their current form are likely to act as a constraint on the anticipated development of the EZ and the wider sub-regional opportunity.

Outwith the strategic land-use development issue, it is worth noting that the Inspector’s Report on the VoG Local Development Plan (LDP) suggests that without intervention in the relatively short-term, transport infrastructure may start to place a longer-term constraint on land-use aspirations within the VoG, negatively affecting the economy of the County.

Socio-Economic Baseline

A comprehensive socio-economic baselining exercise has identified two key points in relation to the socio-economic profile of the study area:

- There is strong evidence of the existence of a **‘two-speed economy’** with a broadly affluent rural hinterland and coastal zone encircling the Valleys, which suffer high levels of multiple deprivation (including high levels of economic inactivity and unemployment). The imbalance within the regional economy is negative for the study area as a whole.
- There is an evidenced issue with **productivity / competitiveness** within the study area as a whole and within constituent local authorities.

Participation (i.e. high levels of economic activity and employment) and **productivity** are considered to be the building blocks of a strong economy. Whilst there are variances across the study area, there is a clearly evidenced problem in respect of both of these growth factors when the area is considered as a single entity.

At the strategic level, the rationale for improving transport connections to & from the VoG is based on supporting strategic economic and land-use development within the VoG, most notably in the context of the EZ. It is anticipated that by improving connectivity (the *outcome*), there will be a positive impact in terms increased Gross Value Added (GVA), reduced unemployment, higher household incomes etc (the *impacts*).

It is also important to note the economic position of the study area is not static. Improvements to transport connectivity (e.g. improvements to the South Wales Mainline, removal of the tolls on the Severn Bridges) and other infrastructure investments outwith the study area could disadvantage both the Cardiff Capital Region and Swansea Bay City Region if other areas of the UK, and in particular the south-west of England, are deemed to be more competitive. Whilst the Metro and M4 Newport Bypass will greatly assist in supporting the economic competitiveness of South Wales, the threat of a loss of economic activity is a real one.

It is in this context that the EZ, and indeed the wider sub-regional opportunity, can be considered so important. The EZ, amongst other developments, presents a regionally significant economic growth opportunity, potentially generating a range of employment opportunities across different occupational categories, both directly and in terms of indirect and induced employment. Of critical importance is the potential creation of jobs in manufacturing (skilled and unskilled) which would be well suited to parts of the study area with high concentrations of residents in these occupational categories.

Effective transport connectivity between the VoG and the rest of the study area is however likely to be essential in ensuring the EZ is competitive in matching jobs with the labour market and facilitating business-to-business interactions.

Transport Connectivity Baseline

The land-use development and socio-economic 'cases' set out above clearly highlight the scale of the EZ and its socio-economic importance to South Wales. However, the current transport connectivity of the VoG is considered to be a constraint in the development of the EZ sites and thus the benefits associated with it. Specifically:

- Whilst the M4 provides high quality strategic access points to the VoG, the local road network within the Vale is generally of a single carriageway standard and suffers significant congestion around the primary 'gateway' of Culverhouse Cross. Accessibility analysis shows that the need to route via J33 of the M4 and the busy Culverhouse Cross does have a negative impact on both journey length and reliability.
- The most direct route from the M4 to the EZ is via J34 of the M4. However, the connecting road is of a poor quality with lengthy single track sections and poor visibility. The J34 option has become a rat run for those travelling to the VoG from the west, with negative implications for communities along the route, including Pendoylan.
- Whilst there is a reasonable public transport network connecting Cardiff City Centre with the Airport (and, to a much lesser extent, St Athan), connections from elsewhere in the Capital Region and areas to the west are limited, infrequent and generally require interchange. It is notable that those currently working in the EZ area generally travel to work by car.
- Public transport journey times to the VoG generally and the EZ specifically are well in excess of those by car.
- Freight access to and from the Vale of Glamorgan is sub-optimal, with issues associated with journey time reliability, routing through broadly residential areas and a circuitous route to West Wales. The area around Cardiff Airport has a high proportion of freight intensive industries, whilst the focus of the EZ on aerospace and manufacturing means that there is

likely to be significant growth in freight movements from the VoG in the medium-term. The provision of appropriate freight routes to the M4 is a key consideration of any future improvements to VoG connectivity.

Whilst the EZ presents a regionally significant opportunity, the labour market catchment of the site is limited by the current transport infrastructure and services. If this issue is not resolved, it may have longer term implications for firms currently located in the VoG and in terms of the business location decisions of prospective investors. The limited labour market catchment of the EZ currently is compounded by comparatively poor business-to-business accessibility. This may have an impact on business location / investment decisions and would also weaken the agglomeration benefits associated with the development of an aerospace cluster in the Vale.

Moreover, the accessibility analysis undertaken found that relatively modest reductions in journey times to / from the VoG would significantly increase the labour market and business-to-business catchment of the EZ.

The Future of Cardiff International Airport

Whilst the aspiration to improve the connectivity of the Vale of Glamorgan is predominantly focussed on unlocking the land-use development and employment potential of the EZ, any such improvement would clearly be beneficial for Cardiff International Airport. Indeed, the desk-based analysis and consultation demonstrated that the current surface accessibility of the airport is acting as a key constraint on route development, frequency and ultimately passenger numbers.

Analysis of the CAA Passenger Survey data points to the issue of Cardiff Airport being uncompetitive within its target market. There is a significant proportion of leakage – the analysis shows that 58% of South Wales residents surveyed use Bristol, Birmingham and Gatwick when taking a flight, with the overall proportion of leakage likely to be higher if e.g. Heathrow, Manchester etc were included within the analysis.

Benchmarking has also demonstrated that Cardiff is also relatively poorly served in terms of both short and long-haul routes when compared with other EU peripheral secondary airports (e.g. Glasgow & Edinburgh, Dublin, Keflavik etc).

Despite the above points, there are several opportunities within the aviation sector (e.g. low cost long haul, reforms to Air Passenger Duty etc) which could be beneficial for Cardiff. In addition, the securing of the first scheduled long-haul route to Doha with Qatar Airways from May 2018 will significantly enhance the connectivity of Wales to Asia and Australasia. This connection may also provide a template for an expansion of the long-haul market and an embryonic high value and niche freight industry at Cardiff Airport. Realising these and other opportunities will however require resolution of the evidenced problems with surface access to the airport, which is considered by consultees to be a major constraint.

Why invest in improved transport connectivity?

As explained above, improvements in transport connectivity to and from the VoG would assist in improving the accessibility of the EZ, and would better connect jobs to labour and businesses to other businesses within the study area. This concept can be encapsulated in a logic map, which is an effective way of visually presenting the linkages between the infrastructure being delivered and the potential outcomes and impacts that could be generated.

The Logic Map tells the story along the lines of that set out diagrammatically in the figure below. The Strategic Need sets out the rationale for the scheme with the evidence showing the current issues and problems. If there is investment of X (deliverables) this will then generate outputs which result in certain outcomes and then, ultimately, impacts. If the linkages are correct, these impacts should resolve the problems and issues identified under the Strategic Need / current situation.

Strategic Need

- EZ is a strategically important development and employment opportunity for South Wales.
- Transport infrastructure evidenced as constraint on EZ development.
- Cardiff Capital Region – VoG promoting sub-regional opportunity with RCT.
- Congestion and unreliable journey times negatively impacting on VoG.
- Surface access to Cardiff International Airport has been demonstrated to be poor and is constraining route development & passenger numbers.

Deliverable

- A WelTAG Appraisal and subsequent business case will be required to generate, appraise and identify a preferred option(s).
- Preferred option should be focussed on improving connectivity to the wider South Wales labour market and business supply chain.

Outputs

- Reduced journey times to the EZ from across the study area.
- Improved journey time reliability.
- Improved surface access to Cardiff Airport.
- Reduced congestion in the VoG, particularly in and around Culverhouse Cross.
- Potential development of appropriate freight routing between the EZ and the M4 (depending on the preferred option).
- Potential reorientation of public transport services (depending on the preferred option).

Outcomes

Direct Transport Outcomes

- Additional travel to from the VoG, particularly the EZ
- Increased passenger numbers at Cardiff Airport
- Air route development
- Development of niche air freight market

Wider Socio-Economic Outcomes

- Increased labour market catchments for the EZ.
- Business-to-business / supply-chain efficiency improvements
- Improved trading & investment environment for a range of industry sectors
- Land & property development impacts – better connected development sites

Impacts

Socio-Economic Impacts

- Increased productivity (agglomeration)
- Reduced unemployment & economic inactivity rates
- Increased incomes & expenditure through increased local employment levels
- Accelerated EZ land-use development
- Higher levels of inward investment
- Increased spend in local businesses – encourages business formation & expansion
- Lower levels of social deprivation
- Increased tourism

Public sector impacts

- Increased non-domestic rates
- Cardiff Airport – increased revenue / reduced subsidy

Figure S2: Logic Map

The extent to which each of the desirable outcomes and impacts, and their relative magnitude, will be realised through improving connectivity to the VoG will be dependent on the preferred option pursued.

Conclusions

A 'case for change' has been made predominantly on the basis of realising the strategic development and employment opportunities associated with the Cardiff Airport – St Athan Enterprise Zone, which will offer economic development benefits for South Wales as a whole.

Taken together, consultation and desk-based analysis has demonstrated that the current transport connectivity of the VoG, in the context of the EZ and airport, is sub-optimal in terms of journey times, journey time reliability, public transport coverage and the routing of strategic traffic. If these issues are not addressed, there is a risk that the opportunities offered by the EZ may not be fully realised.

The socio-economic baselining of the study area has clearly highlighted the multitude of problems currently being experienced in the Cardiff Capital Region and Swansea Bay City Region. These include low levels of productivity and business competitiveness, limited inward investment, high rates of economic inactivity & unemployment and concentrated areas of multiple deprivation. The EZ is part of a package of measures across the respective City Regions which could begin to tackle these issues through creating (high value) direct, indirect and induced employment opportunities, as well as wider supply-chain opportunities for Welsh businesses across the region. However, its success is dependent on connecting the employment opportunities to the labour market and ensuring that business-to-business interactions are as seamless as possible.

Moreover, with a once in a generation programme of capital investment in transport infrastructure in the Capital Region and connecting Wales with England underway, there is an opportunity for the areas to the west of Cardiff to better access a wider range of employment and business opportunities. However, this improved connectivity also presents a risk, in that by failing to address the transport problems in the VoG, the economic gravity of the area could shift to the east, with potential for economic leakage to England.

There are also a number of opportunities for Cardiff International Airport to better position itself as the gateway to Wales, particularly in terms of the long-haul market. The presence of a well-connected international airport is generally seen to be positive in promoting economic development and inward investment. However, the current surface access to the airport has been widely cited as a constraint which, if not addressed, could continue to limit the route development potential of the airport.

Finally, within the VoG itself, the current transport infrastructure is considered to be having a negative impact on the area, particularly in terms of congestion and journey time reliability. The transport issues are considered to be having a negative impact on business performance, the attractiveness of the VoG as a place to live, work and do business and, in the longer-term, land-use aspirations within the Vale.

In short, improving the transport connectivity of the VoG is considered necessary to support national, regional and local economic performance.

Next Steps

The next step in the process involves undertaking a WelTAG appraisal of options / business case which should be framed within the above logic map (updating it as necessary). The appraisal should be focussed on:

- defining a set of Transport Planning Objectives which reflect the strategic need;

- generation and appraisal of options which, through an iterative process, will define a preferred option(s) which best addresses the evidenced strategic need;
- application of available tools (e.g. the South-East Wales Transport Model (SEWTM), accessibility software, business surveys etc) to evidence the type and magnitude of outcomes and impacts which can be expected; and
- development of a robust monitoring and evaluation plan, which will create a framework for establishing the baseline position and tracking the emergence of outcomes and impacts over time (and in the long-term with relation to wider socio-economic impacts).

1 Introduction

1.1 Overview

1.1.1 The Welsh Government (WG), in partnership with the Vale of Glamorgan County Council, is assessing the case for improving the strategic transport connectivity of key employment sites within the Vale of Glamorgan (VoG). WG has commissioned Peter Brett Associates LLP (PBA) to support the initial development of the business case.

1.1.2 The study aligns with the H.M. Treasury *Green Book: Appraisal & Evaluation in Central Government*, and in particular Chapter 3, 'Justifying Action', in that it makes the 'case for change' and hence investment.

1.2 Scope of the Study

1.2.1 The *Better Business Cases* framework used by WG in assessing potential scheme or policy interventions is based predominantly on the H.M. Treasury 'Five Case Model', which provides a sequential set of steps, from demonstrating the case for change through to the ultimate delivery of an intervention.[1]

1.2.2 This report is focussed on the early stages of the 'Strategic Case', which determines whether or not an investment is needed, either now or in the future. The purpose of this study is to clearly demonstrate and elaborate the 'case for change' - that is, to provide a clear rationale for making an investment, its strategic fit, and how the investment will further the aims and objectives of the Welsh Government and its partners.

1.2.3 This report does **not** consider specific options for improving connectivity for the VoG. Providing the case for change can be satisfactorily demonstrated to the relevant investment decision makers, a subsequent Welsh Transport Appraisal Guidance (WelTAG) study will be required to consider the comparative merits of different options, with a preferred option(s) then being taken forward into a detailed business case.

1.3 What is driving this study?

1.3.1 The initial brief for this study suggested that there are both national / regional and local drivers for improving connectivity for the VoG. From a **national / regional** perspective:

- The emergence of the Cardiff Airport – St Athan Enterprise Zone (EZ) in the VoG presents a strategically important commercial development and employment opportunity for South Wales as a whole.
- As part of the development of the Cardiff Capital Region and corresponding City Deal, there is a desire to improve transport connectivity across South-East Wales, safeguarding and promoting employment & investment and attracting & retaining population. It is envisaged that judicious and targeted investment will ensure that the Capital Region remains attractive and competitive.
- Through an arms-length company, WG owns and operates Cardiff International Airport. Surface access to the airport has frequently been cited as a problem and there is a desire within WG to consider options for improving connectivity to / from the airport within the boundaries of European Union (EU) State Aid rules.

1.3.2 From a **local** perspective:

- In partnership with neighbouring Rhondda Cynon Taf (RCT) County Council, VoG is pursuing a sub-regional development strategy intended to ensure that the area offers an appropriate and future-proofed balance of employment, commercial and residential

[1] http://gov.wales/funding/wales-infrastructure-investment-plan/better-business-cases/?lang=en

opportunities. The current transport infrastructure is considered to be a constraint in realising these aspirations.

- The transport links, across all modes, connecting the VoG with Cardiff and the wider Capital Region are experiencing significant congestion, which is considered by the Council to be acting as a major constraint on the area in terms of attracting investment and realising development planning opportunities, whilst it is also seen to detract from resident and visitor amenity.

1.3.3 The evidence underpinning the above points, and the extent to which they support the overall case for change, will be explored through this study.

1.4 Developing the Case for Change

1.4.1 There were two discrete steps in developing the case for change within the context of this research:

- Baselining the study area from a land-use, socio-economic and transport perspective, with a view to identifying current and potential future opportunities and problems.
- Undertaking a structured stakeholder consultation exercise to develop the evidence base surrounding the identified problems and opportunities. A full list of the stakeholder consultees is provided in Appendix A.

1.4.2 This report draws upon the above tasks to develop the narrative surrounding the case for change, as follows:

- Chapter 2 defines the study area on which the subsequent analysis is based.
- Chapter 3 sets out the policy context, exploring the extent to which improving the strategic connectivity of the VoG aligns with national, regional and local policy.
- Chapter 4 considers the land-use development context and the potential implications of this for the transport system.
- Chapter 5 provides a socio-economic summary of the study area and explores the extent to which current transport connectivity may be acting as a constraint to realising positive outcomes.
- Chapter 6 reviews the transport network in the Vale of Glamorgan and explores the extent to which current connectivity may be acting as a constraint.
- Chapter 7 specifically considers current activity at Cardiff Airport and the extent to which the transport infrastructure is acting as a constraint.
- Chapter 8 develops a 'logic model', which summarises the case for improved transport connectivity to and from the VoG, the potential transport outcomes and wider socio-economic impacts which may be realised through improving transport connectivity.
- Chapter 9 sets out the study conclusions and identifies the next steps required in terms of developing a WelTAG-based options appraisal and subsequent business case (should the investment decision maker consider the case for change to have been satisfactorily made).

2 Study Area

2.1 Overview

2.1.1 The study area includes the ten local authorities within the Cardiff Capital Region (Cardiff, Monmouthshire, Torfaen, Blaenau Gwent, Newport, Caerphilly, the Vale of Glamorgan, Merthyr Tydfil, Rhondda Cynon Taf and Bridgend) as well as three of the four members of the Swansea Bay City Region (Swansea, Neath Port Talbot and Carmarthenshire). This is shown in the figure below:

Figure 2.1: Study Area

2.1.2 In defining the study area, consideration was given to the inclusion of Pembrokeshire. However, given the more limited flows from that area to the Capital Region, it was considered prudent to omit Pembrokeshire from the wider study area. This is also the case for the local authorities to the north e.g. Powys and Ceredigion.

3 Policy Review

3.1 Introduction

3.1.1 The first test in making the case for change in any business case is understanding the strategic fit of the proposed intervention with the wider policy context.

3.1.2 As the funding source of any future intervention is obviously undetermined at this stage, a review of the relevant transport and planning policies at the national, regional and local level has been undertaken and is summarised below. The review is intended to be succinct and identify the strategic 'fit' of any proposed interventions, rather than providing an exhaustive policy narrative. The focus can be gradually tailored in subsequent stages of the business case.

3.2 National Policy

3.2.1 Improving access to the VoG, and in particular the emerging Cardiff Airport - St Athan Enterprise Zone, could represent a regionally and potentially nationally significant investment. It is therefore essential that the 'case for change' can be demonstrated to contribute towards nationally defined outcomes. The following national policy documents have been reviewed:

- Prosperity for All – The National Strategy
- The Wales Transport Strategy – One Wales: Connecting the Nation
- Our Valleys, Our Future
- People, Places, Futures: The Wales Spatial Plan (2008 Update)
- Planning Policy Wales (November 2016)

Prosperity for All – The National Strategy

3.2.2 WG published its Programme for Government, *Taking Wales Forward 2016-21*, in 2016 and set out headline commitments to be delivered by 2021, effectively a set of measures which can be implemented within the lifetime of this Assembly. The National Strategy – *Prosperity for All* - takes those key commitments, places them in a long-term context, and sets out how they fit with the work of the wider Welsh public sector to lay the foundations for achieving prosperity for all.

3.2.3 The National Strategy stems from the ground-breaking *Wellbeing of Future Generations Act*, which sets out the need for a long-term focus to guide Welsh public services in delivering for the people. The Act is believed to be among the first of its kind, promoting a long-term and strategic focus for Wales, within which shorter-term strategies and delivery plans can be nested.

3.2.4 *Prosperity for All* sets out four key themes:

- 1) Prosperous and secure
  - Support people and businesses to drive prosperity.
  - Tackle regional inequality and promote fair work.
  - Drive Sustainable growth and combat climate change.
- 2) Healthy and active
  - Deliver quality health and care services fit for the future.
  - Promote good health and wellbeing for everyone.
  - Build healthier communities and better environments.
- 3) Ambitious and learning
  - Support young people to make the most of their potential.

- o Build ambition and encourage learning for life.
- o Equip everyone with the right skills for a changing world.

- 4) United and connected
  - o Build resilient communities, culture and language.
  - o Deliver modern and connected infrastructure.
  - o Promote and protect Wales' place in the world.[2]

3.2.5 Initiatives to enhance access to and from the VoG from the wider Capital Region and Swansea Bay City Region would contribute directly to the 'Prosperous & Secure' and 'United & Connected' themes.

3.2.6 In terms of Theme 1 (Prosperous & Secure), the strategic economic opportunities emerging in the VoG around the EZ offer a regionally significant opportunity to expand the business and employment base in South Wales. In addition, there is an opportunity at the sub-regional level to connect the emerging opportunities in the VoG with those in RCT, creating a wider strategic opportunity. This in turn will assist in tackling regional inequalities, where pockets of affluence on the coast and in rural areas are juxtaposed against high levels of deprivation and inequality in the Valleys amongst other areas.

3.2.7 In addition, numerous streams of research considering the relationship between transport and economic development have highlighted the importance of air connectivity in promoting business growth and attracting inward investment. Transport improvements in the Vale of Glamorgan would either directly or indirectly (depending on the schemes progressed) support surface access to Cardiff Airport, thus improving integration between the airport and the wider Capital Region (most notably Cardiff City Centre). This point came through very strongly in the stakeholder consultation.

3.2.8 By definition, enhancing the strategic connectivity of the VoG would assist in delivering modern and connected infrastructure. In addition, the provision of infrastructure which could facilitate the development of Cardiff Airport through improving access would 'promote and protect Wales' place in the world', supporting the development of a better connected gateway to South Wales.

3.2.9 By contributing to the above two themes (particularly Theme 1), connectivity improvements would also support Theme 3 *Ambitious & Learning* by providing employment, training and apprenticeship opportunities and Theme 2 given the proven correlation between unemployment and poorer physical and mental wellbeing.

Prosperity for All – Economic Action Plan

3.2.10 Prosperity for All is underpinned by an Economic Action Plan (EAP), which sets out a vision for "inclusive growth, built on strong foundations, supercharged industries of the future and productive regions". Within the EAP, there is a commitment to both:

- A new *regionally focussed* model of economic development, which will promote regional interests and issues in Welsh Government. In the context of this study, this can be thought of as the Cardiff Capital Region, of which the VoG is part.
- A five-year programme of transport capital funding, linking to mandated regional land-use and planning decisions. Whilst this commitment remains at the strategic stage, it is possible that the EZ would be considered within the context of 'mandated regional land-use'.[3]

Key Point: Improvements to the strategic connectivity of the VoG would make an enabling contribution to all of the 'Themes' of *Prosperity for All* and the wider *Economic Action Plan*. Enhancing access to a potentially major employment growth area and promoting development at the sub-regional level would support the emergence of regionally significant business and

[2] http://gov.wales/docs/strategies/170919-prosperity-for-all-en.pdf

[3] http://gov.wales/docs/det/publications/171212-economic-action-plan-executive-summary-en.pdf

employment opportunities in the VoG, which would be of benefit to communities across South Wales.

The Wales Transport Strategy – One Wales: Connecting the Nation

3.2.11 Published in April 2008, this document aims to promote sustainable transport networks that safeguard the environment while strengthening the country's economy and social life. High-level outcomes are identified along with the steps for their delivery.

3.2.12 Long-term social, economic and environmental outcomes are set out with relevant outcomes. The table below summarises these outcomes and identifies the extent to which the proposed interventions could contribute towards their delivery.

Table 3.1: Wales Transport Strategy – Mapping Outcomes to the Proposed Interventions

Outcome	How can any potential interventions contribute?
Improving access to employment opportunities.	The EZ offers a nationally significant employment opportunity but its long-term development may be constrained by the current surface access to the VoG. Improving access to the EZ would support a range of employment opportunities across the Capital Region and Swansea Bay City Region. It would also support sub-regional development aspirations being jointly pursued by VoG and RCT.
Improving connectivity within Wales and internationally.	Access improvements to and from the VoG would improve local and regional connectivity in the study area. However, perhaps more importantly, improved access to Cardiff Airport would provide a basis for enhancing international connectivity, particularly when aligned with aspirations related to the abolition of Air Passenger Duty for long-haul flights
Improving the efficient, reliable and sustainable movement of people.	Whilst the preferred option(s) for improving connectivity in the VoG has not yet been defined, it is likely that the outturn scheme(s) will be focussed on enhancing the movement of people to, from and within the region, and in particular better connecting the employment and labour markets.
Improving the efficient, reliable and sustainable movement of freight.	Whilst the preferred option(s) for improving connectivity in the VoG has not yet been defined, it is likely that any outturn scheme(s) would enhance the movement of freight to, from and within the region. A key issue will be ensuring that current and future freight generated by the EZ is conveyed / routed in such a way that it is 1) not negatively impacted by poor journey time reliability; and 2) does not in itself impact on the journey times of non-freight users on the radial routes (road and rail) connecting into Cardiff.
Reducing the contribution of transport to greenhouse gas emissions	Access improvements to and from the Vale of Glamorgan would assist in reducing a range of negative environmental impacts. The identification of precise impacts clearly depends on the definition of the final option(s). However, it is likely that any investment will reduce congestion (thus improving air quality) and reduce the amount of through traffic (particularly freight) in urban and peri-urban areas. There is potentially a negative impact at the Wales level if aircraft movements at Cardiff Airport increased, although clearly these movements would be happening elsewhere and this would thus just be a redistribution when considered at a wider spatial level.
Reducing the contribution of transport to air pollution and other harmful emissions.	
Improving the impact of transport on the local environment.	

3.2.13 The outcomes in the Wales Transport Strategy formed the basis of a set of strategic priorities (which by definition would be delivered if the outcomes are realised). These are:

- reducing greenhouse gas emissions and other environmental impacts;
- integrating local transport;
- improving access between key settlements and sites;

- enhancing international connectivity; and
- increasing safety and security.

Key Point: Improving connectivity for the VoG would clearly make a significant contribution to the outcomes and, by definition, the strategic priorities identified in the Wales Transport Strategy. As well as supporting access to employment, overall local and national connectivity would be improved, with resulting journey time, reliability and environmental benefits accruing.

Our Valleys, Our Future

3.2.14 Building on the work of the Ministerial Taskforce for the South Wales Valleys, a high level plan has been published which outlines future priorities for the area – these are:

- good quality jobs and the skills to do them;
- better public services; and
- my local community.

3.2.15 The EZ offers a specific opportunity in respect of the first bullet in particular, offering high quality direct employment and the potential for further indirect and induced employment. However, in order to ensure that these opportunities are fully realised, the transport infrastructure and services must effectively connect the Valleys labour market to the employment opportunities in the EZ, as well as facilitating business-to-business interactions.

Key Point: The regional employment opportunity presented by the EZ has the potential to contribute to the *Our Valleys, Our Future* priorities, particularly in terms of creating good quality jobs and furnishing residents with the skills to do them. However, facilitating this desired outcome will require both transport infrastructure and services which connect the Valleys labour market to employment opportunities in the VoG.

People, Places, Futures: The Wales Spatial Plan (2008 Update)

3.2.16 Updated in 2008, the *Wales Spatial Plan* sets out the spatial planning framework for Wales as a whole. As a national plan, it is intended to guide the type and location of strategic developments, whilst providing an over-arching framework to which local development planning must pay due regard.

3.2.17 The *Wales Spatial Plan* aims to ensure that development in the public, private and third sectors in Wales is integrated and sustainable, and that actions within an area support each other and jointly move towards a shared vision for Wales and for its different regions. Collaborative working is important as is the vertical and horizontal integration of policies nationally and regionally. It sets out five themes under which key issues and challenges have been identified:

- building sustainable communities;
- promoting a sustainable economy;
- valuing our environment;
- achieving sustainable accessibility; and
- respecting distinctiveness.

3.2.18 It is important to note that the *Wales Spatial Plan* was prepared prior to the full / current formulation of the City Regions concept and the designation of Enterprise Zones. Nonetheless, it provides an important strategic basis for this study. The Plan defines South-East Wales as the ‘Capital Region’ and notes that:

- the area will function as a networked city region, on a scale to realise its international potential, its national role and to reduce inequalities;

- a fully integrated high quality transport system is necessary for this to happen. Over the 20-year horizon of the *Wales Spatial Plan*, all the of area's key settlements should be linked to Cardiff or Newport by suitable high capacity public transport (effectively the basis of the Metro concept); and
- the success of the area relies on Cardiff developing its capital functions, together with strong and distinctive roles of other towns and cities.[4]

3.2.19 The plan specifically recognises the importance of the Vale of Glamorgan and St Athan, which is defined as a Strategic Opportunity Area (SOA), the forerunner of the Enterprise Zone. Cardiff International Airport is also recognised as making an important contribution to the region and the international visibility of Wales. It is specifically noted that there is a need to ensure good road and public transport access to the airport, whilst more clearly defining the future role and function of the airport.[5]

3.2.20 It is further noted that the Capital Region faces a big challenge to equip all of its people with the skills they will need to contribute effectively to the future of the area. It is pointed out that economic inactivity rates remain high in the Heads of the Valleys and in some wards in Cardiff and Newport.

3.2.21 The transport element of the *Wales Spatial Plan* is contained within the SEWTA *Regional Transport Plan* (discussed later in this chapter). Nonetheless, it supports the development of sustainable travel corridors and enhanced access to key settlements and development sites.

Key Point: The proposal to enhance connectivity to and from the VoG is well grounded within the *Wales Spatial Plan*. The outturn schemes would support access to the Vale of Glamorgan SOA and Cardiff Airport, whilst better matching labour with employment opportunities across the area through improving accessibility.

National Development Framework for Wales

3.2.22 It should be noted that the *Wales Spatial Plan* will soon be superseded by the new National Development Framework (NDF). The NDF will set out a 20-year land-use framework for Wales and will:

- set out where nationally important growth and infrastructure is needed and how the planning system - nationally, regionally and locally - can deliver it;
- provide direction for Strategic and Local Development Plans and support the determination of Developments of National Significance;
- sit alongside Planning Policy Wales, which sets out the Welsh Government's planning policies and will continue to provide the context for land-use planning; and
- support national economic, transport, environmental, housing, energy and cultural strategies and ensure they can be delivered through the planning system.

3.2.23 Whilst the detail of the NDF has not yet been published, the key point of note is that an additional layer of planning will be added into the system, with Strategic Development Plans (SDPs), where appropriate, acting a bridge between the NDF and Local Development Plans. It is likely that the Cardiff Capital Region and Swansea Bay City Region will benefit from a SDP, which will support the determination of 'Developments of National Significance'. From a VoG perspective, the EZ will potentially be defined as such a development within any Capital Region SDP. This would provide an added layer of policy support for improving connectivity to and from the VoG.

[4] *Wales Spatial Plan* (Welsh Government, 2008), p.97.

[5] *Wales Spatial Plan* (Welsh Government, 2008), p.111.

Key Point: The emerging National Development Framework and Strategic Development Plans are likely to support the development of key sites within the VoG, including the EZ. This would provide a firm policy basis for supporting accessibility improvements to these sites.

Planning Policy Wales (November 2016)

3.2.24 *Planning Policy Wales* (PPW) was adopted in November 2016 and sets out the land-use planning policies of the Welsh Government, focusing on the commitment to sustainable development in the planning system.

3.2.25 Chapter 8 of the document outlines the transport objectives which support sustainable development through integration within and between different types of transport; between transport measures and land-use planning; between transport measures and policies to protect and improve the environment; and between transport measures and policies for education, health, social inclusion and wealth creation (Paragraph 8.1.1). There are a number of points within the PPW which support improved connectivity to and from the VoG:

- Ways in which land-use planning can help achieve the Welsh Government's objectives for transport is through locating development near other related uses to encourage multi-purpose trips and reduce the length of journeys; promoting sustainable transport options for freight and commerce; supporting sustainable travel options in rural areas; and supporting necessary infrastructure improvements (Paragraph 8.1.5). This would tie in with supporting the development of an aerospace enterprise cluster in the EZ.
- Promoting public transport as a means to achieve environmental objectives as well as relieving congestion and encouraging social inclusion, the provision of new stations and enhanced passenger services on existing lines are two options which could be explored. Due to the fixed nature of the infrastructure, rail services can provide a focus for regeneration and new development (Paragraph 8.3.1). This may align with the proposed investment in the VoG.
- Ease of interchange between transport modes should be considered as this is an important determinant of public transport use. Local authorities should identify the need for additional interchange sites and improvements to existing interchanges in development plans and local transport plans (LTPs). (Paragraph 8.3.2). This is a key point if the VoG is to be better connected to the wider Capital Region outwith Cardiff City Centre.
- Local authorities should work to reduce the need to use trunk road and other through routes for short, local journeys with development plans specifying the primary road network including the trunk roads. These routes should be identified as corridors for movement (Paragraph 8.5.1). The evidence (expanded on later in this report) suggests that the mix of local and strategic traffic on trunk and key radial routes is a significant challenge for the VoG.
- In terms of freight, local authorities should consider which routes are most suitable for use by freight and encourage the location or relocation of distribution and operating centres to sites which have good access to these routes (Paragraph 8.5.3). This would tie in directly to the long-term transport consideration for the development of the EZ and any air freight aspirations associated with Cardiff Airport.
- Local authorities should consider potential for promoting the use of railways for additional passenger and freight traffic, identifying new infrastructure, multi-modal transfer facilities and, where appropriate, major employment sites with access to railways (Paragraph 8.5.4).
- Development at airports can bring improved facilities and economic benefits (Paragraph 8.5.5).

Key Point: Potential transport interventions in the VoG align well with the *Planning Policy Wales* Guidance.

Summary

3.2.26 The principle of improving connections for the VoG aligns well with national transport, planning and socio-economic policies. In particular, the EZ has been identified as a strategic opportunity area, with the overall policy framework providing guidance as to how the potential of such developments can be realised.

3.2.27 Whilst consistent with national policy overall, this is not in itself enough in terms of making a case for investment. There are several EZs and strategic opportunity areas around Wales, each of which could potentially make a similar case for investment. It is therefore important to explore the alignment with regional, particularly in terms of the Cardiff Capital Region, and local policy.

3.3 Regional Policy

3.3.1 Across the United Kingdom, there has been a recent trend towards devolution of central government funding and / or powers, most tangibly demonstrated through the formation of City Regions. The case for change being developed in this study is very much focussed at the regional level, and thus the fit with regional policy is key. This is particularly the case in terms of the Cardiff Capital Region (the City Region for South-East Wales), under which any emerging interventions are likely to sit. The policy documents considered include:

- Powering the Welsh Economy: Cardiff Bay & the Region Beyond
- A Growth Strategy for the Swansea Bay City Region (January 2015)
- South East Wales Transport Alliance Regional Transport Plan (March 2010)
- South East Wales Regional Strategic Framework
- South-East Wales City Region Tourism Action Framework 2014 – 2020
- Cardiff Airport and St Athan Enterprise Zone: Strategic Plan 2015

Powering the Welsh Economy: Cardiff Bay & the Region Beyond

3.3.2 This document underpins the Cardiff Capital Region City Deal, which was agreed in 2016 and will see £1.28 billion invested in the Capital Region. Published in February 2015 by the Cardiff Capital Region Board, this document focusses upon the three key themes of **'Connectivity'**; 'Skills'; and 'Innovation and Growth' for developing the economy in the region. The pressing need to better align transport with land-use planning is highlighted due to its ability to act as a catalyst for economic growth as well as providing social and environmental benefits. The efficient flow of people and goods whilst connecting key hubs (employment, residential and recreational) is noted as being paramount for a successful city region and sustained economic growth. This above rationale provides a firm basis for the Metro concept as a whole, but also supports the case for investing in improved strategic transport connectivity for the Vale of Glamorgan, stimulating the EZ and other land-uses.

3.3.3 In terms of innovation and growth, it is highlighted that the aerospace, defence and security sector should work with Bristol to develop a critical mass as Wales and the South West of England combined has the largest aerospace and defence cluster in the UK. Together these provide over 59,000 jobs, revenues of £5.5 billion as well as Cardiff Airport being home to the MoD's Defence Equipment and Support (DE&S) operations and the Government Communications Headquarters (GCHQ) at Cheltenham. This makes investment to realise the development of the EZ and associated aerospace cluster a key priority.

3.3.4 The report also notes that Cardiff Airport offers international access to Wales as well as hosting aerospace and defence companies, but it needs to be **accessible** and thriving to allow the region to be globally connected. Significant investment is ongoing to improve access to the airport as well as improve the operations and infrastructure of the airport itself.

3.3.5 According to the document, 65% of commuters to Cardiff use the car as their primary mode of transport which is seen as being unsustainable. It is noted that improvements to the Great

Western Mainline (GWML) and electrification of the Valleys lines together with emerging developments through the Metro concept, offer an opportunity to address this and other transport issues in the future. These opportunities will need to be considered in terms of making the wider case for investment in the VoG.

Key Point: *Powering the Welsh Economy*, the document underpinning much of the Capital Region City Deal, emphasises the need for investment in improved transport connectivity to both promote economic development and address existing transport problems.

A Growth Strategy for the Swansea Bay City Region (January 2015)

3.3.6 Whilst the focus in this report is predominantly on the Cardiff Capital Region, improved access for the VoG could also benefit the Swansea Bay City Region, particularly in the east (in terms of both access to employment and the international connectivity via the airport).

3.3.7 This strategy underpins the Swansea Bay City Deal and represents a framework to support South West Wales and its future economic development, which intends to stimulate and shape the work of all the stakeholders with a common vision to enhance the long-term prospects of the City Region economy, its businesses and communities.

3.3.8 Whilst generally focussed on the Swansea Bay City Region, the document notes that improved ***connectedness*** is a condition for achieving sustainable growth by which positive links are required between local knowledge-based industries and other relevant actors within and outside the area.

3.3.9 Within *Strategic Aim 5: Distinctive Places and Competitive Infrastructure*, it is noted that there is a requirement for strategic transport links to the rest of Wales and the wider UK to be upgraded to make the Swansea Bay City Region more accessible. Although the region has strong connectivity of ports, along with road and rail links to neighbouring City Regions, it is argued that the limitations of the strategic transport infrastructure has resulted in an insularity that challenges the extent to which the region can be considered an international-class 'destination'.

3.3.10 Specifically, investment is seen to be needed to enhance intra-regional connectivity between key centres of employment and areas of innovation including targeted investment in alleviating capacity restrictions of the M4. Additionally, a coherent approach is needed to support and drive transport infrastructure investment, such as road, rail and air (via Cardiff), to enhance the City Region's strategic connectivity.

3.3.11 As well as strengthening links within the City Region, there is also seen to be a need to develop relationship with partners elsewhere, be it Cardiff, the rest of the UK or internationally, to ensure economic growth in the region.

Key Point: A *Growth Strategy for the Swansea Bay City Region* recognises the need for improved connectivity between the City Region, the rest of Wales, the UK more generally and internationally. Access to Cardiff Airport is specifically noted as a desired outcome.

South East Wales Transport Alliance Regional Transport Plan (March 2010)

3.3.12 The South East Wales Transport Alliance (SEWTA) was a consortium of the Cardiff Capital Region local authorities intended to develop a regional approach to transport planning. SEWTA was disbanded in 2014 but the Regional Transport Plan (RTP) was produced in 2010 and remains current. It provides a 15-year transport strategy up to 2025. The RTP is intended to improve transport in the region as well as to help deliver the social, economic and environmental objectives of the *Wales Spatial Plan* and the *Wales Transport Strategy*.

3.3.13 The wider goals of the RTP are to develop the economy; promote social inclusion and equality; and protect the environment. In order to reach these goals, SEWTA has set objectives covering:

- Safety and Security;
- Connectivity and Accessibility;
- Quality and Efficiency;
- Environment; and
- Land Use and Regeneration.

3.3.14 As a result, the RTP aims to:

- Improve access for all to employment opportunities, healthcare, education, tourism and leisure facilities;
- Improve interchange within and between modes of transport;
- Improving the quality, efficiency and reliability of the transport system;
- Reduce traffic growth, traffic congestion and make better use of the existing road system;
- Achieve a modal shift towards more sustainable forms of transport for moving both people and freight;
- Reduce significantly the emission of greenhouse gases from transport;
- Ensure developments in South East Wales are accessible by sustainable transport; and
- Make sustainable transport and travel planning an integral component of regeneration schemes.

Key Point: Whilst now somewhat dated, the SEWTA RTP is well aligned with the proposals to enhance transport connectivity for the VoG, particularly in terms of promoting accessibility to employment, tourism etc and ensuring sustainable access to developments.

South East Wales Regional Strategic Framework, 2013

3.3.15 Delivered in October 2013, this Framework for economic development identifies the key high priority investments that the local authorities in the region wish to see implemented in order to secure sustained future prosperity in the region supported by investments to secure economic development, develop efficient and accessible transport and provide excellent connectivity. To achieve this, the South East Wales Regional Partnership is working with the Welsh Government in assessing and developing the regional transport priorities as well as using their highway and planning powers to assist with the delivery of the programme.

3.3.16 Under *Strategic Priority 1: Place*, key projects for delivering an effective and efficient cross-regional transport infrastructure include strategic road improvements; electrification of the rail network; the implementation of the South Wales Metro network; and developing an international airport of significance (i.e. Cardiff).

3.3.17 The M4 forms part of the Trans-European Transport Network (TEN-T) and therefore plays a key strategic role in connecting South Wales with the rest of Europe and Ireland. It is a significant east-west route and one of the most heavily used roads in Wales as it provides a means for transporting goods, linking people to employment as well as serving the tourism industry. The South East Wales Regional Partnership assume that with their support, the Welsh Government will lead on securing improvements to the M4 corridor; the development of Cardiff International Airport; and rail electrification. This aims to improve connectivity by 2030 within the region and beyond whilst reducing the reliance on the private car and increasing the use of public transport. It also notes the need to reduce travel times to work as well as reduce emissions. This improved connectivity is expected to unlock economic growth through increasing employment to the Enterprise Zones, such as St Athan.

3.3.18 In terms of *Strategy Priority 2: Business Support & Development*, key business clusters, such as Enterprise Zones, should be identified and exploited to allow the region to build upon strengths and generate opportunities for investment and further employment. This involves providing the infrastructure requirements in the Enterprise Zones.

3.3.19 Additionally, *Strategic Priority 3: People and Skills* outlines the need to enable people, particularly in disadvantaged areas, to take advantage of new opportunities as they are generated.

Key Point: Any proposals to improve connectivity for the VOG (including addressing the issues in the M4 Corridor) would be closely aligned with the South-East Wales Regional Strategic Framework. The Framework recognises the need for developing intra and inter-regional connectivity in South Wales and the role of Cardiff Airport from an economic development perspective. There is also a recognition of the role that infrastructure can play in unlocking regionally significant development opportunities and better connecting labour with employment.

South-East Wales City Region Tourism Action Framework 2014 – 2020

3.3.20 The Regional Tourism Action Framework sets the future ambitions and targets, as well as priority or transformational projects to 2020. It establishes the ambition to grow the value of tourism to the South East by 15% in real terms by 2020, representing an overall estimated value of £650m of GVA and approximately 83,000 FTE jobs.

3.3.21 Key objectives include:

- attracting new tourists into the area;
- encouraging repeat visits by existing leisure tourists;
- encouraging business tourists to return on a longer duration leisure holiday; and
- linking together tourism locations and help establish a critical tourism mass for south-east Wales.

3.3.22 Cardiff Airport is clearly fundamental to this vision, acting as the international and, to some extent, domestic (i.e. from the rest of the UK) gateway to South-East Wales. The Glamorgan Heritage Coast is also an important destination in its own right and forms part of the wider tourism product in South-East Wales. There is also a strong day-tripper market to Barry Island, which places additional pressure on the local rail and road network.

Key Point: Enhancing the strategic connectivity of the VoG is an important element of the long-term development of tourism in South-East Wales (likely beyond the above strategy period). This would include supporting the development of Cardiff Airport as the point of entry for trips to Wales from current and new destinations and enhancing access to the Glamorgan Heritage Coast. There is also likely to be a strong element of business tourism associated with the EZ, and in particular the Aston Martin development, which is of international significance.

Cardiff Airport and St Athan Enterprise Zone: Strategic Plan 2015

3.3.23 Published in July 2015, this strategic plan details the framework for the Cardiff Airport – St Athan Enterprise Zone which is one of seven Enterprise Zones in Wales, each of which focuses on a key industry sector. These geographical areas aim to create new jobs and support sustainable growth.

3.3.24 The Cardiff Airport - St Athan Enterprise Zone focuses on aerospace business, offering two runways in close proximity, good airside access and large areas of land already allocated and approved for development, as well as proximity to higher education institutions in South East Wales.

3.3.25 The zone is made up of three distinct areas, as follows (more details and a map are provided in Chapter 4):

- **St Athan ABP:** a base for aerospace activity for more than half a century. The site has a 1,800m runway, with full airfield support, and is suitable for both fixed wing and rotary aircraft, up to Airbus A330 and Boeing 767-sized aircraft. Accommodation is fit for a range of civilian or military purposes, including aircraft Maintenance, Repair & Overhaul (MRO), manufacture, engine overhaul, Non-Destructive Testing (NDT) and R&D.
- **Cardiff Airport:** offers air travel to a number of short and long haul destinations. Land and facilities are available for MRO operators and supply chain operators complementary to British Airways Maintenance, Cardiff (BAMC). The proximity of the airport and runway are ideal for the fast movement of aerospace parts, as well as storage and salvage, cargo operations and freight-related businesses.
- **The Gateway Development Zone:** includes potential development land close to Cardiff airport. Currently at the concept stage, there are plans to develop an airport city, creating a business destination for local and international businesses. The plans include quality office accommodation, specialist education and training facilities and leisure developments.

3.3.26 The document notes that a total of 20% of UK aeronautical business is located in Wales including some of the world's largest aerospace and defence companies such as Airbus, British Airways and BAE Systems.

3.3.27 The vision for the Enterprise Zone is to be: "*Europe's centre of aeronautical excellence, a catalyst for growth in the Cardiff Capital Region and an international gateway with world-class facilities, opportunities and a highly skilled quality workforce."*

3.3.28 The key objectives include:

- a thriving aerospace and defence cluster built upon a strong heritage of aeronautical excellence;
- Europe's hub for aerospace education, training and R&D;
- unique and state of the art accommodation fit for a range of civilian or military aviation purposes;
- world-class office accommodation and light industrial units;
- a gateway to Wales' business, tourism and leisure destinations; and
- a quality environment in which to do business.

3.3.29 In terms of being a gateway for Wales, the EZ will support the aspiration to expand air services at Cardiff International Airport whilst also taking advantage of the Zone's existing transport links and capitalising upon the committed highways and access improvements. The Enterprise Zone will also support planned major infrastructure proposals such as Cardiff Capital Region Metro.

3.3.30 It is anticipated that the EZ will generate around 4,000 additional jobs, which could be created through the development of the Gateway Development Zone and would provide employment opportunities across the region. This would generate further indirect & induced employment and would also complement planned housing growth in the surrounding area.

3.3.31 A range of land-uses could potentially be accommodated as part of the Gateway Development Zone Framework Plan including a transport interchange to enhance accessibility to the airport as well as serve the Gateway Development Zone. This plan is flexible to allow the Enterprise Zone to adapt to, and capitalise upon, any future transport infrastructure proposals such as the Metro.

3.3.32 Further development to the Aerospace Business Park site within the Enterprise Zone was granted planning permission in 2009 including the erection of new and replacement buildings as well as infrastructure improvements.

3.3.33 With the Welsh Government owning the airport itself, it aims to increase passenger numbers and expand upon the routes and services offered (within the boundaries of EU State Aid legislation).

3.3.34 The Gateway Development Zone includes potential development land to the east of Cardiff Airport. The site has been identified as having the potential to be a destination for local and international business including office accommodation, leisure development and transport logistics. Together with the Aerospace Business Park, the Gateway Development Zone is allocated in the VoG LDP as a strategic employment site.

3.3.35 The document highlights that there are strong interdependencies and interconnectivity between the Vale of Glamorgan, Cardiff and the wider South East Wales region which have been reflected in the establishment of the Cardiff Capital Region. Through having strategic direction and collaborative working, the Region aims to be well-connected, innovative, highly-skilled and capable of supporting inclusive and sustainable communities.

3.3.36 In terms of employment, the strong heritage of St Athan as well as the existing skilled workforce of the South East Wales region creates a strong basis for delivering a key regional employment site.

Key Point: The EZ proposals represent a development of potentially national significance, creating high value employment and commercial space proximate to Cardiff. The Strategic Plan identifies the critical importance of improved transport connectivity / surface access in realising the full potential of this opportunity. Fully realising the EZ aspirations can be considered as the fundamental driver of this study.

Summary

3.3.37 The concept of improving connectivity for the VoG is strongly correlated with regional economic, land-use and transport policy. The fundamental drivers of this are the EZ and Cardiff Airport, which are development sites and a transport hub of importance across South Wales as a whole.

3.4 Local Policy

3.4.1 Finally, at the local level, there are a number of Local Transport Plans (LTPs) produced by each local authority, which are reviewed below. The following policy documents have been reviewed.

- Vale of Glamorgan Local Transport Plan 2015 – 2030
- South East Wales Valleys Local Transport Plan (2015)
- Cardiff Local Transport Plan 2015 – 2020
- Bridgend County Borough Council Local Transport Plan 2015 - 2030
- Monmouthshire County Council Local Transport Plan Draft (2015)
- Newport City Council Local Transport Plan (2015)
- Joint Transport Plan for South West Wales 2015 – 2020

Vale of Glamorgan Local Transport Plan 2015 – 2030

3.4.2 The Vale of Glamorgan LTP identified a series of strategic transport 'issues and opportunities' in the area which are relevant to this study. These include:

- The strategic highway network is congested leading to increased journey times and reduced journey time reliability.
- Employment growth areas not aligned with housing growth areas (45% of Vale residents commute out of the local authority for work purposes, the majority of which commute to Cardiff).

- Lack of provision for freight vehicles on a number of key strategic highway corridors – there is seen to be a conflict between HGVs and active travel modes, specifically cycling.
- Limited bus service provision in the rural VoG and throughout the Vale in the evenings and at weekends.
- A geographic spread of population, which brings with it challenges for public transport provision.
- Existence of Air Quality Management Areas (AQMA) in Penarth and the Eastern Vale.[6]

3.4.3 The LTP aims to identify sustainable transport measures with priority given to schemes which aim to serve the economic, social and environmental needs of the local authority area and promote the objectives of the regional plan. In this respect, there is a clear aspiration in the Plan to more effectively manage the interface between local and strategic traffic.

Key Point: The VoG LTP supports a range of transport improvements which would enhance accessibility to both Cardiff and the wider strategic transport network. The LTP succinctly defines the transport issues and opportunities at the local level, with many of these issues having a strategic element to them (at least in terms of how they are resolved).

South East Wales Valleys Local Transport Plan (2015)

3.4.4 Published in January 2015, this document brings together the five South East Wales Valleys local authorities of Blaenau Gwent, Caerphilly, Merthyr Tydfil, Rhondda Cynon Taf and Torfaen, identifying the issues and opportunities for transport in this area. This joint approach is due to the area as a whole being faced with challenges of regeneration in the north and development in the south with transport having a key role to play in achieving the economic, social and environmental objectives as well as reducing socio-economic disparities.

3.4.5 The vision for this Local Transport Plan (LTP) is to provide an integrated and sustainable transport system which increases opportunity, promotes prosperity for all and protects the environment with active travel, public transport and sustainable freight providing real travel alternatives.

3.4.6 Due to out of centre employment sites, improved public transport, particularly to employment growth areas, along with improved access to facilities such as Park & Ride and improved public transport interchange can help improve access to jobs and leisure opportunities. It is noted that these schemes could reduce economic and social disparities which are apparent between the northern and southern areas of the SE Wales Valleys. This could also assist in reducing reliance on the private car therefore increasing sustainable travel.

Key Point: Whilst the South-East Wales Valleys LTP is predominantly focussed on local transport issues, there is a commitment to improving access to current and emerging employment centres across the Capital Region, which would include the EZ.

Cardiff Local Transport Plan 2015 – 2020

3.4.7 This Local Transport Plan (LTP) identifies key transport issues relevant to Cardiff, the high level interventions needed to address these and the specific priorities for the local authority to deliver in the short- and long-term to 2030. It sets out high level interventions for developing the strategic public transport network and the active travel network as well as positively managing the highway network to support sustainable travel. One of the key challenges for Cardiff is addressing the tidal road traffic into the city in the morning and then back out in the evening

3.4.8 Proposed solutions include improved interchange facilities and Park & Ride facilities which can assist in tackling the lack of alignment between employment growth and housing growth in the city, as well as reducing congestion.

[6] Vale of Glamorgan Local Transport Plan 2015-2030 (Vale of Glamorgan County Council, 2015), pp. 13-20.

Key Point: Cardiff is the predominant trip recipient within South-East Wales, and there is therefore support within the LTP to encourage sustainable access to the City addressing both city centre congestion and the imbalance between employment and housing growth.

Bridgend County Borough Council Local Transport Plan 2015 - 2030

3.4.9 The Local Transport Plan (LTP) sets out the short, medium and long-term transport goals for Bridgend CBC for the period between 2015 and 2030.

3.4.10 Priorities include supporting economic growth; reducing economic inactivity through improving access to employment; maximising the contribution of transport for the most deprived communities; and encouraging safer, healthier and sustainable travel. Reducing emissions is also a key aim of the LTP.

3.4.11 Improved transport interchange is seen to be required to tackle the lack of alignment between employment growth and housing growth with improvements required to the strategic road network in order to reduce congestion and improve access for freight.

Key Point: Bridgend is proximate to the EZ and thus improving connectivity to the Vale of Glamorgan would support the objective of improving access to employment, particularly for the most deprived communities.

Monmouthshire County Council Local Transport Plan Draft (2015) and Newport City Council Local Transport Plan (2015)

3.4.12 Whilst there is broad support with the Monmouthshire and Newport LTPs for improved transport connections to key employment sites and transport interchanges, these areas are slightly more distant from the proposed area of intervention. There is therefore little specific information of relevance to this study in these documents.

Joint Transport Plan for South West Wales 2015 – 2020

3.4.13 The Joint Transport Plan for South West Wales 2015-20 covers the Swansea Bay City Region local authorities (i.e. Carmarthenshire, Neath Port Talbot, Pembrokeshire and Swansea). Consistent with the National Transport Plan (NTP) and the Welsh Government Programme Priority Areas, this LTP aims to support:

- economic growth;
- access to employment;
- tackling poverty;
- sustainable travel and safety; and
- access to services.

3.4.14 Additionally, the strategic road network, strategic rail network, ports and airports are seen to provide key gateways for the region, allowing it to become increasingly globalised and have good connectivity both within the region and beyond into the rest of the UK and Europe.

3.4.15 Relevant strategies for addressing these issues include:

- improving the strategic east / west road and rail links;
- improving linkages between key settlements and strategic employment sites;
- improving efficiency of the highway; and
- improving the integration of land use and transportation planning;

3.4.16 As a result, the LTP aims to improve access to employment for all, improving international connectivity, reducing congestion, reducing reliance on the private car, improving integration and improving access for freight.

Key Point: The JTP for South Wales covers the neighbouring area to the Cardiff Capital Region but nonetheless supports measures which would support improved east / west connectivity, access to strategic employment sites & Cardiff Airport and improved functioning of the M4.

3.5 Summary

3.5.1 This chapter has reviewed the policy environment in which improvements to connectivity for the VoG would be developed. It is evident from this review that strategic transport interventions, in whatever form they take, would be consistent with transport, economic development and spatial planning policy at the national, regional and local level.

3.5.2 Of particular relevance is the fit with emerging national and strategic development planning in Wales as well as the aspirations of the Cardiff Capital Region and Swansea Bay City Region.

4 Land-Use Development Baseline

4.1 Overview

4.1.1 As noted in the introductory chapter, the initial rationale for this study stemmed from ensuring that the transport infrastructure in the Vale of Glamorgan is fit for purpose in terms of delivering the needs of the EZ, the Local Development Plan and wider sub-regional aspirations. This chapter therefore establishes the anticipated development profile firstly in the VoG and then in the wider sub-region.

4.2 Vale of Glamorgan Local Development Plan 2011-2026

4.2.1 The Local Development Plan (LDP) describes the Council's land-use strategy for this 15-year period, providing guidance in terms of the type, scale and timing of development expected across the area, in addition to the policies against which new development proposals will be assessed. The Vale of Glamorgan Local Development Plan 2011-2026 was adopted by the Council in June 2017, replacing the previous Unitary Development Plan 1996-2011.[7]

4.2.2 This section identifies the employment land allocations and other plans within the VoG, which will impact upon the local transport network and so may be of relevance to proposals for improved connectivity for the VoG.

Land Allocations

4.2.3 This brief section considers the land allocations within the LDP in respect of employment and residential land. Whilst predominantly a local issue, the purpose of this section is to provide context on the overall levels of anticipated growth in the VoG.

Land Allocated for Employment

4.2.4 Policy MG9 allocates 492 hectares of land for employment uses in the VoG, with 437 hectares being allocated to address strategic need. The LDP notes that the allocated employment land could support a total of 7,610 - 10,610 jobs.

4.2.5 Strategic employment land allocations are spread across three key sites: Land South of Junction 34 of the M4, Land adjacent to Cardiff Airport and Port Road (Rhoose) and St Athan Aerospace Business Park (ABP). Table 4.1 provides further details.

Table 4.1: Strategic Employment Allocations (Vale of Glamorgan)

Site	Uses	Size Gross (Ha)	Size Net (Ha)
Land to the south of Junction 34 M4 (Hensol)	B1, B2, B8	55.2	29.6
Land adjacent to Cardiff Airport and Port Road, Rhoose (I.e. Gateway Development Zone. Forms part of the EZ)	B1, B2, B8	77.4	76.6
Aerospace Business Park, St Athan Rhoose (Forms part of the EZ)	ABP, employment and education	305.0	208.0[8]
	Total	**437.6**	**314.2**

[7] http://www.valeofglamorgan.gov.uk/en/living/planning_and_building_control/planning_policy/local_development_plan/Local-Development-Plan.aspx

[8] 22 ha of the site will be retained by the MoD for military purposes, reducing the net developable area to 208 ha.

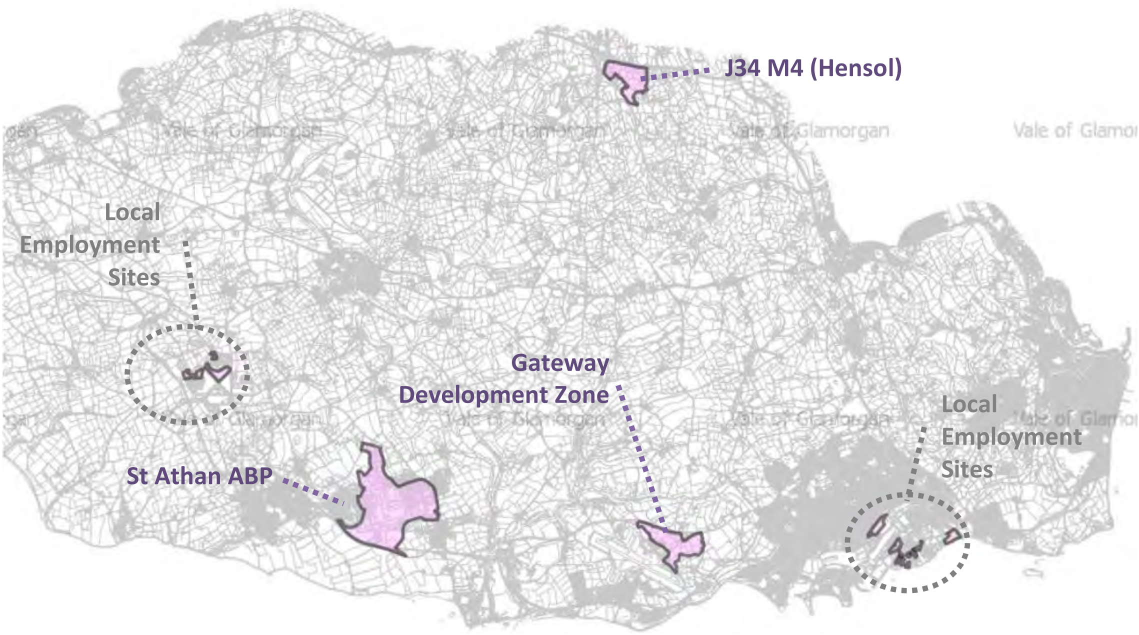

Figure 4.1: Allocated Employment Sites (Source: Vale of Glamorgan LDP Interactive Map)

4.2.6 The following sections provide greater detail on the policies specific to the strategic employment allocation sites.

Policy Mg10: St Athan - Cardiff Airport Enterprise Zone

4.2.7 Policy MG10 describes how the Council envisage the EZ being developed, and notes that a masterplan is required (which is currently under preparation by Arup on behalf of WG).

4.2.8 The St Athan ABP will support business and employment uses associated with the defence and aerospace industry, and the masterplan will include proposals for:

- the refurbishment of the existing 70,000 sqm hanger at St Athan (17.95 ha);
- an aerospace business park north and south of the runway at St Athan;
- a business park for aviation support services at Picketston (immediately north of St Athan) (11.79 ha); and
- a new northern access road at the St Athan ABP.

4.2.9 Improved transport infrastructure is noted as being critical to the successful development of the St Athan ABP site, including construction of a new Northern Access Road, and highway improvements on the B4265 between St. Athan and Aberthaw at Gileston Old Mill (to address existing road safety issues). New housing is also allocated on the site under Policy MG2.

4.2.10 Cardiff Airport and the Gateway Development Zone will support employment uses associated with aerospace and high-tech manufacturing, and the masterplan will include proposals for:

- new aerospace, education, research and development, manufacturing, office and other ancillary development at the Cardiff Airport and gateway development zone;
- a 42-hectare extension to Porthkerry Country Park;
- provision of sustainable transport infrastructure, including reservation of land to ensure that development does not compromise potential for a rail link direct to Cardiff Airport; and
- the incorporation of a sustainable energy centre at the Cardiff Airport and Gateway Development Zone.

4.2.11 This site will house an 'airport-city', which the Council envisages will take "*the form of a business destination for local and international businesses including quality office accommodation, specialist education, training facilities and leisure developments"*. General B1, B2 and B8 industrial development are not acceptable on this site.

Key Point: The proposed commercial developments at the EZ represent an investment of strategic significance in the VoG. The LDP identifies the need for transport connectivity improvements if the potential of these strategic sites is to be maximised.

Land Allocated for Residential

4.2.12 Housing allocations with the VoG LDP are as follows:

Table 4.2: Housing Allocations and Supply for Study Area (No. Dwellings)[9]

Council	LDP Period	Allocated	Committed	Other	Total Requirement	Total Supply
Vale of Glamorgan County Council	2011-2026	8,525	182	1,701	9,460	10.408

4.2.13 The housing supply within the VoG LDP is sufficient to meet the total housing requirement. However, the Inspector's Report identified a number of concerns in relation to the impact of this level of development on the VoG highway network. The Highways Impact Assessment (HIA) examined the potential increase in road use a result of the planned housing developments, specifically examining existing and future peak hour flows and capacity of the all the main arterial highway links and junctions within the Vale. It was noted that, by the end of the Plan period, the HIA anticipates that some 15 link roads and 19 junctions are projected to be above capacity.

4.2.14 The identified housing need was accepted by the Inspector and transport mitigation measures are to be put in place within the Plan period. In addition, it is considered that the growth in local employment opportunities, particularly in the EZ, will have a positive impact on reducing out-commuting. Nonetheless, the evidence from the report suggests that the current transport infrastructure in the VoG is starting to act as a constraint on its economy, a situation which may also be exacerbated by the transport needs of the EZ and any growth in the airport (notwithstanding the above point in relation to out commuting). In addition, given the lead in times for planning, consenting and constructing new transport infrastructure, current constraints may severely limit the allocations which can be made within the next LDP unless addressed in the relatively short-term.[10]

Key Point: The transport infrastructure within the VoG is capable of accommodating the anticipated levels of growth within the LDP, although not without challenges. The conclusions of the Inspector's report suggest that, without intervention in the relatively short-term**,** transport infrastructure may start to place a longer-term constraint on the VoG economy, and would also have negative implications for the competitiveness of the EZ.

4.3 Cardiff Airport – St Athan Enterprise Zone

4.3.1 The Cardiff Airport – St Athan Enterprise Zone is one of eight such sites identified by the Welsh Government, where public sector assistance will be provided to attract and support businesses and jobs. The EZ comprises three separate sites located in and around Cardiff Airport and St Athan, as shown in the figure below.

[9] Vale of Glamorgan Local Development Plan 2011-2026 (Vale of Glamorgan County Council, 2017), pp. 56-57.

[10] Report to the Vale of Glamorgan Council (The Planning Inspectorate, 2017), pp. 47-49.

Figure 4.2 - Cardiff Airport – St Athan Enterprise Zone Map (Source: Welsh Government)

4.3.2 A number of developments have already emerged in relation to the EZ:

- Work has been undertaken to improve the visitor experience at Cardiff Airport, with a view to attracting new airlines (a significant investment in the terminal facility was announced in October 2017).
- Bristow Helicopters has opened a new £5m Search and Rescue base, whilst Cardiff Aviation has opened a new training facility and FlyBe has also established a new base at the airport.
- To date, the EZ has created / safeguarded / assisted 223 jobs[11] but once fully built-out, it could deliver circa 4,000 jobs, and support over £250m of investment.

4.3.3 A Strategic Development Framework for the EZ has been established by Welsh Government, which sets out a '*vision for the future of the Enterprise Zone, to help realise that opportunity*'. It is noted that the majority of new development will be focussed on the Gateway Development Zone, which will combine the following land-uses:

- Airport expansion – space reserved for long term expansion to accommodate up to 3 x the level of current activity;
- Education, training and R&D – aerospace education, Research & Development (R&D) and training hub (64,000sqm);
- Airport / aerospace office campus (45,000sqm);
- Hotel, conference and leisure (300 bed hotel);
- Logistics hub (17,000sqm);
- Transport interchange to support future Cardiff Capital Region Metro proposals and reserve space for potential rail connection; and
- Energy park.

[11] http://www.bbc.co.uk/news/uk-wales-politics-41734208

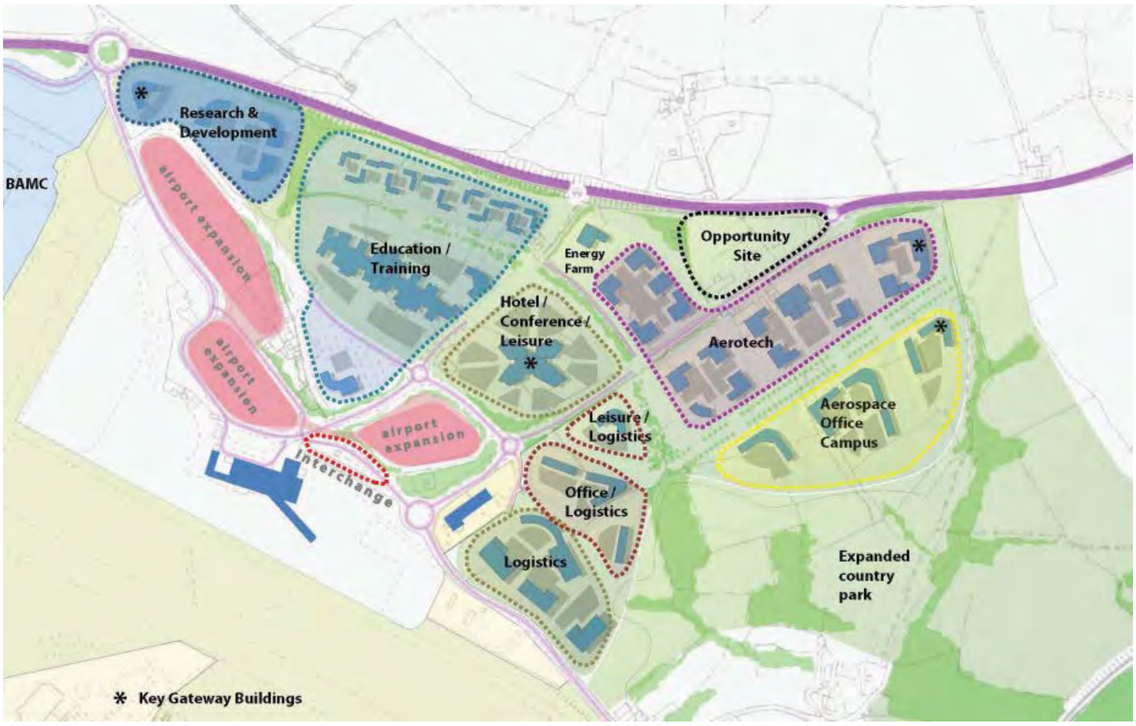

Figure 4.3: Gateway Development Zone Illustrative Masterplan (Source: Cardiff Airport – St Athan EZ SDF)

4.3.4 The EZ is subject to an extensive masterplanning exercise being undertaken by Arup on behalf of the Welsh Government, where the anticipated outputs from the sites will be defined in more detail.

Key Point: The Strategic Development Framework and masterplan further emphasise the scale of the potential developments which are anticipated to emerge in the Vale of Glamorgan. Facilitating the travel-to-work market, business-to-business interactions and freight movements will require a transport network which facilitates efficient movement to, from and within the VoG.

4.4 The Sub-Regional Opportunity

4.4.1 Whilst the EZ is a strategically important economic development opportunity in its own right, the VoG and RCT are working in partnership to develop a sub-regional proposition in the context of the Capital Region.

4.4.2 The rationale for pursuing a sub-regional solution is to address a perceived market failure in the provision of appropriate business premises in the Cardiff Capital Region. This issue was picked up in an economic baselining of South-East Wales undertaken in 2015, which found that a key weakness in the area is a lack of speculative development and little or no investment in the promotion of strategic development sites.[12] Jones Lang LeSalle (JLL) South Wales Report 2017 explained that the supply of commercial land has reduced from the 2016 level, with the availability of units over 100,000 square feet having gone down by 32% on the previous year.

4.4.3 This has been set against a 27% increase in the take up of commercial land, driving an increase in the demand for second hand property. In particular, JLL note that there is a growing demand for distribution floorspace, explaining that there is a particular requirement for business park premises in the M4 corridor at key locations such as Llantrisant.[13]

4.4.4 The sub-regional offer from VoG and RCT combines the Strategic Opportunity Areas associated with the EZ (VoG) and the Rhondda Gateway, as well as the 'Llanilid on the M4' Strategic Opportunity Corridor (see below). It is envisaged that the realisation of these opportunities as

[12] Baseline Economic Analysis for South-East Wales (AECOM, 2015), p. 86.

[13] South Wales Report (Jones Lang LeSalle, 2017), pp. 3-9.

a package would deliver significant economic benefit at the regional and indeed national level. However, transport connectivity between the VoG and RCT is limited across all modes – improving connections between the two local authorities would be integral to realising these opportunities.

Vale of Glamorgan

4.4.5 From the VoG perspective, the principal development in respect of the sub-regional opportunity is the EZ. However, the VoG LDP also includes a significant allocation of land at Hensol, just south of the M4 J34. This site comprises circa 77-hectares of brownfield and greenfield land, but development is restricted to 36.2 hectares for environmental reasons. The strategic allocation extends to 29.6 hectares and land uses will be restricted to high quality B1, B2 and B8 uses with non-employment uses restricted to small scale ancillary proposals. It is anticipated that the 6.6 ha local employment allocation will take the form of a business park.

4.4.6 In-keeping with these designations, outline planning consent was granted for the site in June 2016 for the development of 150,000sqm of Class B1, B2 and B8 land uses, in addition to a hotel / training centre, 1,300 sqm of ancillary uses (A1, A2, A3) and supporting infrastructure.

Rhondda Cynon Taf

4.4.7 The proposed developments at Hensol are mirrored by a much larger proposed development to the north of the J34 in RCT.

A4119 Corridor: Regional Rhondda Gateway – Strategic Opportunity Area

4.4.8 The A4119 corridor in Llantrisant has been identified as a key opportunity area within the region, particularly in terms of a critical mass of development opportunities proximate to the M4 Corridor. With direct access onto the M4, the A4119 trunk road corridor (which is expected to be dualled in the near-term) is considered to provide a strategic development opportunity, building on development that has already been consented and / or is in the planning pipeline. This is shown in the map below:

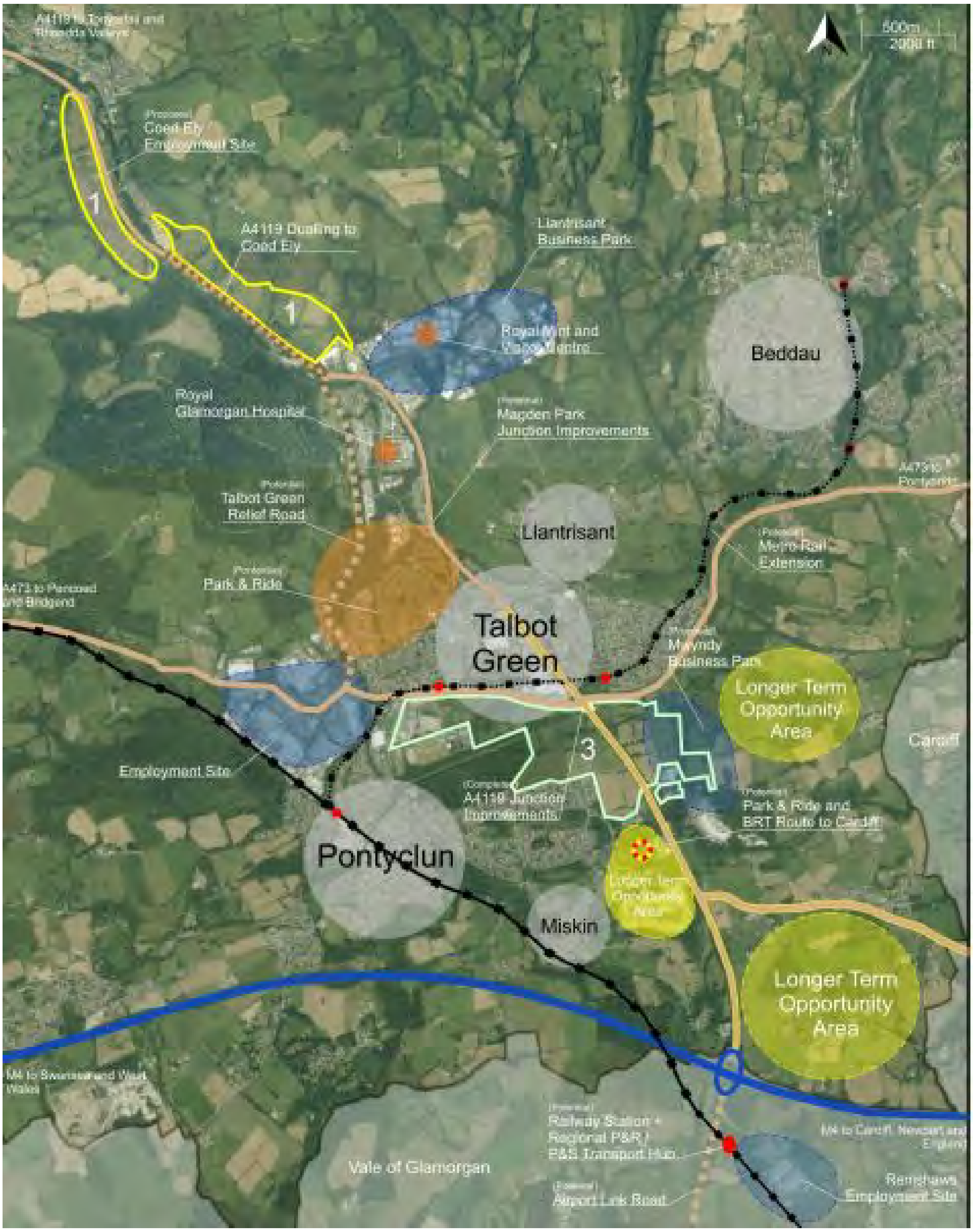

Figure 4.4: A4119 Regional Rhondda Gateway (Source: RCT County Council)

4.4.9 The two immediate opportunities are:

- Coed Ely (short-term) and land north-east of the A4119 (medium-term); and
- Mwyndy / Talbot Green Strategic Site – short / medium-term.

4.4.10 Lying approximately 4.5 miles to the north of the M4, with direct access to the A4119, the **Coed Ely** site provides over 15 hectares of allocated employment land. The site has been profiled into three development zones, with outline planning permission granted for a comprehensive development on the site. Welsh Government is investing in further site improvements. On the north-eastern side of the A4119**,** just **south of Coed Ely**, is a further opportunity for developing c33 hectares of land which is currently agricultural and in private ownership.

4.4.11 Both sites lie close to the established and buoyant Llantrisant Business Park, which has a variety of large scale occupiers. These sites offer an opportunity to build on the success of the business park, expanding the economic mass in the area. The proposed developments would also support the realisation of high specification industrial floorspace, which has been identified as a key weakness of the Capital Region from an investment perspective.

Mwyndy / Talbot Green Strategic Site

4.4.12 This site offers opportunities for major development of a mix of uses – the land is privately owned and much of the development will be delivered without direct public intervention, but there is a requirement for infrastructure investment to facilitate this. The proposed development would deliver:

- circa 500 dwellings (based on the current planning application); and
- 15 hectares of employment land, which consists of 23,400 sq m of retail floor space and 10,000 sq m of leisure floor space.

4.4.13 The development site is clearly of a significant scale and lies on both sides of the A4119, 1.5 miles north of J34 on the M4. 15 hectares of employment land lie on the eastern side of the A4119 and offer a prime development location, which again would assist in addressing the lack of high specification commercial and industrial floorspace across the region.

Llanilid on the M4 – Strategic Opportunity Corridor

4.4.14 The Llanilid / M4 corridor is noted by the Council to be the only inward investment site of this scale in the Capital Region, and is viewed as a critical opportunity for major transformational growth in the economy of the region. On the M4 between J34 and J35, this is perceived to be a major regional opportunity of circa 715 hectares in close proximity to the strategic transport network and Pencoed Technology Park. This is shown in the map below:

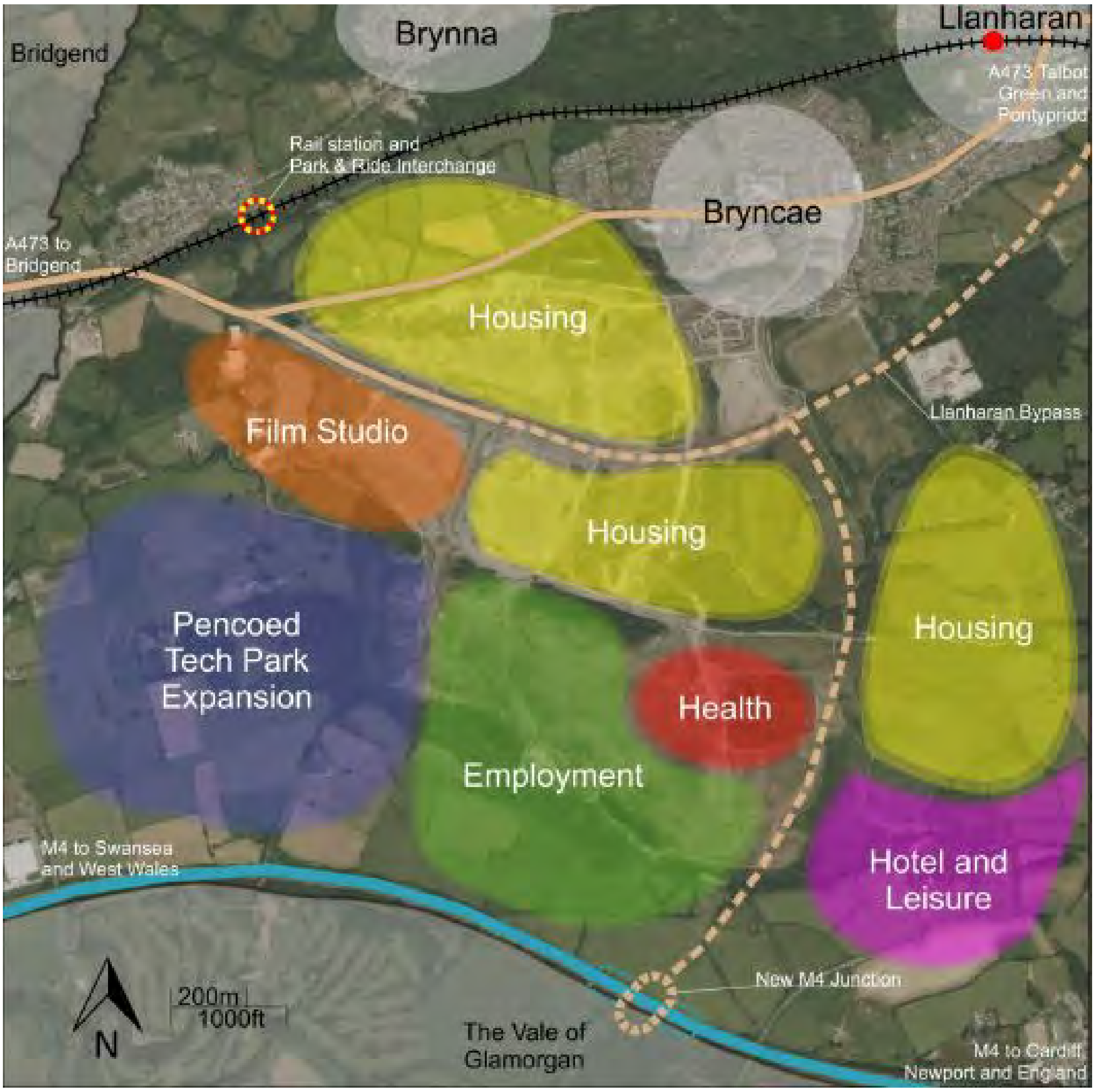

Figure 4.5: Llanilid on the M4: (Source: RCT County Council)

4.4.15 1,850 houses, a new primary school and village centre are already consented and the area is allocated for strategic development in the RCT Local Development Plan. Film studios of 40,000 sq ft have been developed on the western end of the site, but the remainder is a blank canvas for extensive development. It is noted that a new junction on the M4 between J35 and J34 (J34A) would be required to facilitate this development.

Relevance of the sub-regional opportunity

4.4.16 An obvious question in relation to the above material is why the sub-regional opportunity is relevant in the context of VoG connectivity, given that the predominant movements are from the south-east of the Vale to Cardiff City Centre. The relevance of the sub-regional opportunity is as follows (and should be considered in any subsequent options appraisal):

- A combination of the EZ, the Regional Rhondda Gateway and Llanilid on the M4 present a regional opportunity of a significant scale. If fully realised, these opportunities will assist in addressing the market failure associated with a lack of 'Grade A' commercial premises in the Capital Region. This in turn will assist in ensuring the area to the west of Cardiff will be competitive within the context of the Capital Region as a whole. More importantly, the realisation of this development will support the wider competitiveness of the Capital Region *vis a vis* other emerging City Regions in the UK.

- The development of an economic hub of this nature will create a significant demand for labour and increased need for business-to-business interactions. If the developments in the VoG and RCT could be brought 'closer' together in terms of improved transport connectivity between the two areas, this would generate agglomeration and labour market benefits for the Capital Region as a whole (which could be monetised once the options are defined).
- There is an extensive body of research, including the seminal Eddington Study, which suggests that better connecting economic clusters to international gateways, particularly airports, is beneficial in terms of economic performance (expressed in terms of business productivity). The proposed developments in RCT are focussed on attracting both domestic and inward investment, and thus improving connectivity to Cardiff Airport is considered to be beneficial in this respect.

Key Point: Whilst this report is focussed on the case for improving connectivity to the VoG, there is a specific case for considering infrastructure improvements which would support the development of the sub-regional north-south economy, combining the development potential of the EZ and strategic opportunity sites in RCT. The realisation of these sites would assist in addressing an identified market failure in respect of the provision of Grade A commercial property within the City Region and would assist in ensuring the Region as a whole has a competitive 'offer' against other areas of the UK.

4.5 Summary

4.5.1 The declaration of an EZ in the Vale of Glamorgan has facilitated a strategically important economic development and employment site within the area - 78% of the total employment land allocation for the Vale of Glamorgan falls within the EZ.

4.5.2 Ensuring that the EZ and the wider VoG maximises its development and regional economic potential (particularly in terms of the north-south sub-region being developed in partnership with RCT) will require the provision of a safe and efficient transport network capable of meeting the needs of employees, business visitors and freight. The desk-based research (see Chapter 6) and consultation suggest that the existing transport network in the area will act as a constraint if the strategic connectivity of the VoG is not improved.

4.5.3 Having set out the development context and key considerations in respect of it, the next chapter builds on this by considering the socio-economic arguments for improving the connectivity of the Vale of Glamorgan.

5 Socio-Economic Baseline

5.1 Overview

5.1.1 The development context established in the previous chapter provides part of the rationale for improving connectivity to and from the Vale of Glamorgan. The EZ, coupled with wider developments in the VoG and at the sub-regional level, will create significant opportunities in terms of employment and business-to-business opportunities. However, for these developments to be realised and successful, it is essential that the transport network facilitates access to employment and business-to-business interactions.

5.1.2 There is an extensive and constantly evolving literature evidencing the connection between transport and economic development. Of particular importance in this respect is the recent emergence and quantification of ‘wider economic impacts’, which capture some of the wider economic implications of transport investment that are additional to conventional transport user benefits in terms of i.e. journey time savings, reduced vehicle operating costs etc.

5.1.3 In order for the case to be made that a transport investment will have a positive impact in respect business productivity and the labour market, it is necessary to profile the socio-economic position in the study area, assessing the extent to which e.g. economic metrics trail national averages, providing evidence of sub-optimal economic performance. As far as practically possible, and drawing on the consultation, the following analysis identifies where transport connectivity is potentially a contributing factor to an identified economic problem (although it is not possible to empirically evidence this, given there are no data available which would demonstrate causality).

5.1.4 It is important to note that this chapter is not intended to provide an exhaustive profile of every socio-economic aspect of the study area, rather it is focussed on identifying where the area lags other areas and on identifying the transmission mechanisms by which improved transport connectivity could potentially assist in addressing these issues.

5.2 Data Geography

5.2.1 It is important to note that the available data and its spatial scale impacts on the type of analysis which would be undertaken. Figure 5.1 therefore provides a summary of the data used for analysis by different geographic levels:

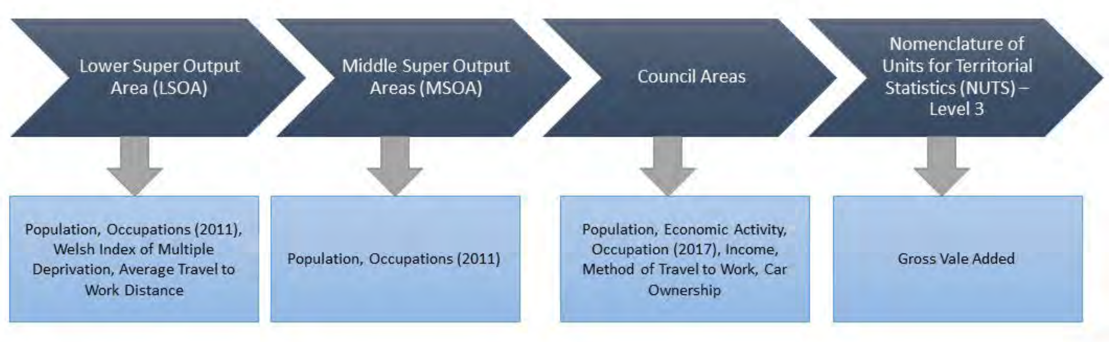

Figure 5.1: Data used for analysis by different geographic levels

5.2.2 Lower Super Output Areas (LSOA) provide the most spatially disaggregate level of data.

5.3 Demographics & Socio-Economics

5.3.1 This section considers the following issues:

- Population;
- Economic activity;
- Occupations; and
- Income.

Population

5.3.2 The figure below provides the 2016 mid-year population estimates for the study area local authorities:

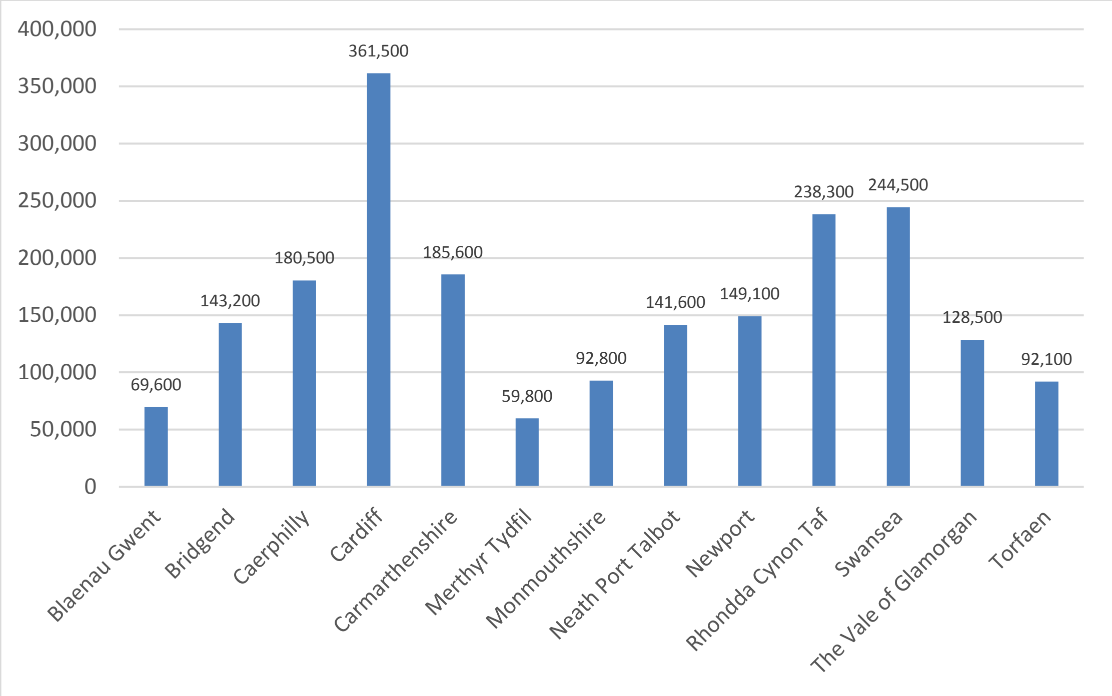

Figure 5.2: 2016 Population Estimate by Local Authority (Source: Population Estimates 2016)

5.3.3 Whilst Cardiff is evidently the economic hub of South-East Wales, the Vale of Glamorgan's neighbouring local authorities (Bridgend and Rhondda Cynon Taff) have a combined population of 381,500, or 18% of the study area total (or 19.5% if VoG is excluded). There is therefore a significant potential labour market catchment both in neighbouring authorities and beyond for the economic development sites within the VoG, and at the sub-regional level.

5.3.4 However, a key theme which emerged from the consultation is that the current transport infrastructure serving the VoG (road and public transport) is an inhibitor to the effective matching of labour and employment opportunities. In particular, representatives from a number of the Valleys local authorities explained that the journey times associated with travelling to the area of the EZ currently would be prohibitive for the majority of residents, with circuitous routing (particularly in terms of public transport) and congestion at various pinch points leading to poor journey time reliability. Culverhouse Cross was cited as a particular constraint in this respect by numerous stakeholders.

5.3.5 In the reverse direction, VoG County Council noted that transport infrastructure within the Vale is constraining access to Cardiff and, in the longer-term, the potential opportunities emerging at the sub-regional level (e.g. at Talbot Green, Llanilid etc)

Key Point: There is a significant population base within the Vale of Glamorgan and surrounding areas which would be well placed to access the development opportunities emerging in that area. However, relatively poor north-south connectivity to / from the VoG is seen by consultees to act as a factor constraining growth (both now and in the future), particularly for those without access to a car.

Economic Activity

5.3.6 The economic activity rate is a critical indicator of the economic wellbeing of an area from a residents' perspective. The economically active are those defined as in work or actively looking for work, whilst the economically inactive are defined as those neither in work nor seeking employment (e.g. retired people, students, long-term sick, unpaid carers etc). 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.

5.3.7 The table below compares the rates of economic activity, those in employment, unemployment and economic inactivity across the study area. The 'top 3' in each category (column) are highlighted in red, with a comparison made with the Welsh and British averages as a whole.

Table 5.1: Economic Activity & Inactivity Rates (Source: Annual Population Survey)

Area	**Economically active (%)**	***In employment (%)***	**Economically Inactive**	***Unemployed (%), Model Based***
Blaenau Gwent	70.9	*66.8*	29.1	*5.8*
Bridgend	73.3	*69.6*	26.7	*4.8*
Caerphilly	75.2	*71.1*	24.8	*5.0*
Cardiff	72.0	*69.1*	28.0	*4.8*
Carmarthenshire	78.6	*75.1*	21.4	*3.8*
Merthyr Tydfil	74.0	*69.0*	26.0	*5.7*
Monmouthshire	78.5	*76.5*	21.5	*2.9*
Neath Port Talbot	74.9	*70.7*	25.1	*4.9*
Newport	76.1	*72.8*	23.1	*5.0*
Rhondda Cynon Taff	73.9	*69.1*	26.1	*5.2*
Swansea	72.0	*68.2*	28.0	*5.0*
The Vale of Glamorgan	78.4	*73.5*	21.6	*4.4*
Torfaen	76.6	*74.0*	23.4	*4.0*
Welsh Average	***74.8***	***71.4***	***25.2***	***4.4***
British Average	***78.0***	***74.2***	***22.0***	***4.7***

5.3.8 As is common across much of Great Britain, the economic activity rate is highest in the more prosperous rural areas, with Carmarthenshire, Monmouthshire and Vale of Glamorgan all having relatively high levels of economic activity and employment.

5.3.9 In contrast, economic activity rates in the Valleys tend to lag Welsh and British averages for the best part. Of those who are economically inactive, a significant proportion tend to be classified as long-term sick (for example 38% of all economically inactive residents in Blaenau Gwent are classified as such). Unemployment also tends to be higher in these areas. Moreover, much of this unemployment is likely to be 'structural', whereby the profile of the employment market has changed to such an extent that there is a skills mismatch, leading to a concentration in low-paid and insecure jobs (a direct product of the decline of dominant industries, such as coal mining and iron & steel in Merthyr Tydfil, Blaenau Gwent, Rhondda Cynon Taf etc).

5.3.10 Cardiff and Swansea both have relatively low economic activity rates, but this is largely because of the university presence in both cities (with students being defined as economically inactive).

5.3.11 The economic activity data point to the existence of a **'two-speed economy'** (otherwise known as economic dualism) with a broadly prosperous rural hinterland and coastal zone encircling an area suffering from socio-economic deprivation. Dualism of this nature is problematic for the South Wales economy as a whole, likely acting as a drag on productivity, investment and competitiveness. This is an issue which will be revisited throughout this chapter.

Key Point: The economic activity data, whilst only part of the picture, clearly point to the existence of a dual or 'two-speed economy' within the study area, which is negative for the area as a whole. The EZ presents an opportunity in terms of direct, indirect and induced job creation and supply-chain opportunities for local businesses. However, the extent to which this opportunity materialises will, in part, be dependent on the provision of transport infrastructure and services which connect the EZ to the wider study area.

Occupations

5.3.12 The table below shows the range of occupations across the study area local authorities (by place of residence) and the Welsh and British averages. It is useful to examine occupational categories as they provide an indication of the main sectors of the economy and the broad skills base of 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 higher skilled, whereas those employed within the occupational categories of elementary occupations, and process, plant and machine operatives typically possess a lower skill level. Again the top three values in each column are shown in red.

Table 5.2: Occupational Categories for Local Authority (Source: ONS Annual Population Survey 2017)

Area	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
Blaenau Gwent	9.8	11.0	8.9	11.1	11.1	12.5	10.5	11.4	12.3
Bridgend	10.2	17.0	11.0	11.3	13.1	10.8	8.6	7.6	10.1
Caerphilly	7.3	15.1	11.1	10.7	12.2	10.3	10.9	10.4	11.8
Cardiff	8.7	29.5	14.4	13.5	7.2	7.1	9.1	3.0	7.4
Carmarthenshire	10.5	15.3	10.0	7.3	15.0	12.2	9.0	7.1	11.9
Merthyr Tydfil	7.4	14.2	9.7	12.1	12.4	11.8	9.0	10.2	13.1
Monmouthshire	13.9	23.2	11.8	10.5	10.8	9.7	4.5	4.9	10.4
Neath Port Talbot	8.1	15.5	12.4	10.7	12.3	13.6	5.8	8.7	11.9
Newport	8.4	19.4	14.4	12.0	7.4	8.3	7.6	8.2	13.8
Rhondda Cynon Taff	8.7	18.9	14.6	9.0	11.0	10.3	9.0	7.9	10.2
Swansea	8.5	18.9	10.3	11.0	11.3	9.6	9.3	7.4	13.0

Area	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
The Vale of Glamorgan	13.6	23.2	12.8	11.9	8.4	8.8	8.0	4.6	8.1
Torfaen	9.1	14.3	13.6	11.2	12.8	10.2	10.3	6.7	10.5
Welsh Average	***9.6***	***18.8***	***12.1***	***10.3***	***12.4***	***10.1***	***8.1***	***7.1***	***11.1***
British Average	***10.7***	***20.4***	***14.2***	***10.2***	***10.4***	***9.1***	***7.5***	***6.3***	***10.7***

5.3.13 The above table neatly summarises the broad economic geography of South Wales. The ‘highest’ occupational categories are dominated by the affluent rural areas in the Cardiff and Swansea Bay City Regions (i.e. Monmouthshire, Vale of Glamorgan and Carmarthenshire). The ‘Professional Occupations’ category broadly mirrors this, although the Cardiff Capital Region and its environs supplant Swansea to some extent given the dominance of such occupations in the Welsh capital, particularly in the city centre and Cardiff Bay. In contrast, the Valleys local authorities generally have a much smaller proportion of their population concentrated in the highest occupational categories.

5.3.14 The opportunities emerging in the Vale of Glamorgan will undoubtedly cater for an expansion in ‘white collar’ employment and may serve to intensify the above concentrations of activity. However, the consultation and desk-based research has suggested that, in volume terms, a significant proportion of the ‘new’ employment (particularly indirect employment) is likely to be concentrated in ‘skilled trade occupations’, ‘process plant and machine operatives’ and ‘elementary occupations’. In this respect, the Valleys local authorities are dominant with Merthyr Tydfil, Blaenau Gwent, Caerphilly and Neath Port Talbot representing four of the ‘top 5’ local authorities in terms of the combined concentration of employees in these occupational categories (the other ‘top 5’ member being Carmarthenshire, which has a large agricultural sector), as is illustrated in the figure below:

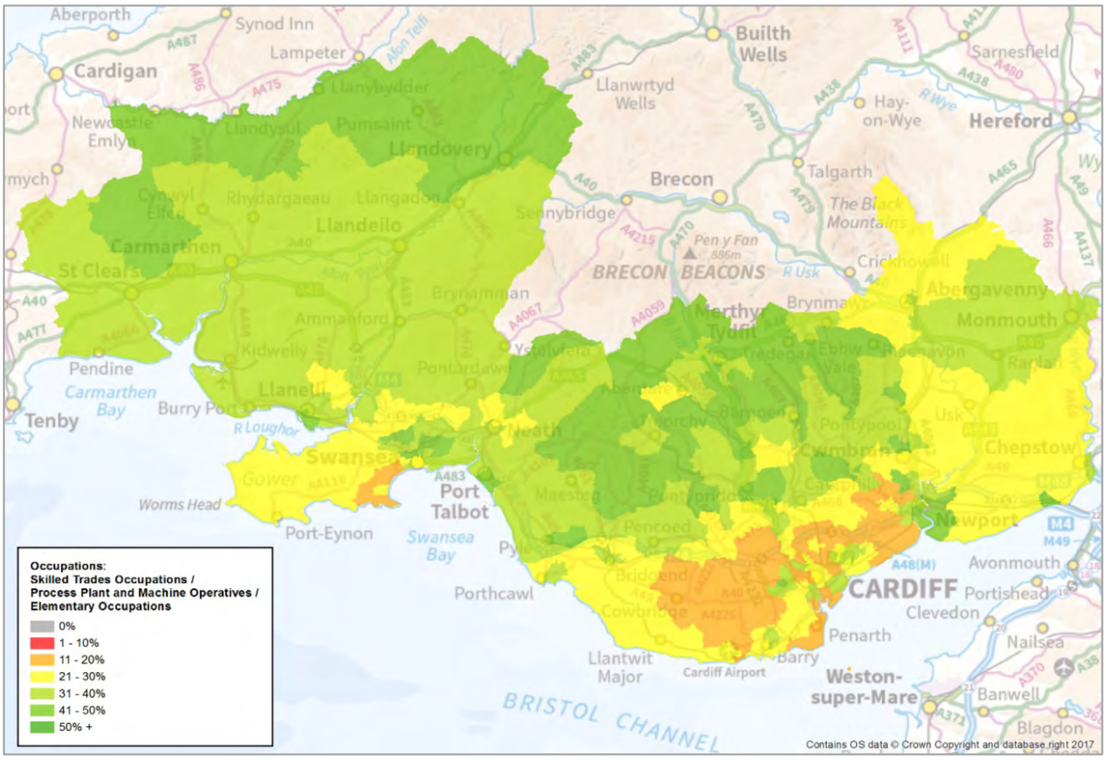

Figure 5.3: Proportion of ‘Lowest’ Occupational Categories (Skilled Trade Occupations, Process Plant and Machine Operators and Elementary Occupations)

5.3.15 The majority of consultees, and in particular local authorities, perceive the EZ as a regionally significant opportunity to generate new direct, indirect and induced employment opportunities within the study area, including in the above occupational categories. Indeed, consultation with a major business located in the EZ found that the availability of a ‘deep’ local labour market with the ‘right’ skills was part of their decision to locate in the area.

5.3.16 However, there was a broad consensus that current transport connections to and from the Vale are ‘convoluted’ & congested (by road) and either indirect or unavailable (by public transport). This view was as commonly held by neighbouring local authorities (e.g. Bridgend and RCT) as it was by more distant local authorities like Merthyr Tydfil and Blaenau Gwent.

5.3.17 High quality transport connectivity is considered essential in ensuring an effective matching of jobs with labour and promoting business-to-business interactions. This point came through strongly in the consultation, with a number of stakeholders noting that the EZ offers an important regional employment opportunity, particularly for residents in skilled trades. An interesting angle in relation to this point was raised by Blaenau Gwent CBC, which noted that the distances involved are likely to deter large scale daily commuting to the EZ. However, they explained that the creation of commutable high quality (i.e. well paid) employment would support the retention of ‘middle earners’ in the area, thus giving rise to induced employment and economic impacts.

5.3.18 Moreover, the EZ is seen as a significant supply-chain opportunity for firms across South Wales, with the consultation noting that journey time reliability is essential in effectively realising these opportunities (a point which will be picked up in more detail later in this chapter).

Key Point: The employment and business opportunities associated with the strategic development sites in the Vale of Glamorgan will require labour from a mix of occupational categories from across the Cardiff Capital Region and the Swansea Bay City Region. Whilst a broad generalisation, the analysis contained within this section show that there are particular concentrations of occupational categories in defined geographic clusters. Ensuring efficient connectivity between these clusters will be essential to maximising the benefits of the opportunities presented by the EZ.

Income

5.3.19 The primary objective of the UK-wide programme of City Deals is to devolve investment making powers to the regional / local level, with a view to supporting economic growth. City Deal funding has typically been used both to unlock economic development and promote transport infrastructure investment which improves access to strategic employment or economic development opportunities. In the medium to long-term, it is anticipated that this will increase income and reduce socio-economic inequality.

5.3.20 The figure below shows average annual, **resident** income (gross) of full time workers across the study area, and for Wales and the UK as a whole.

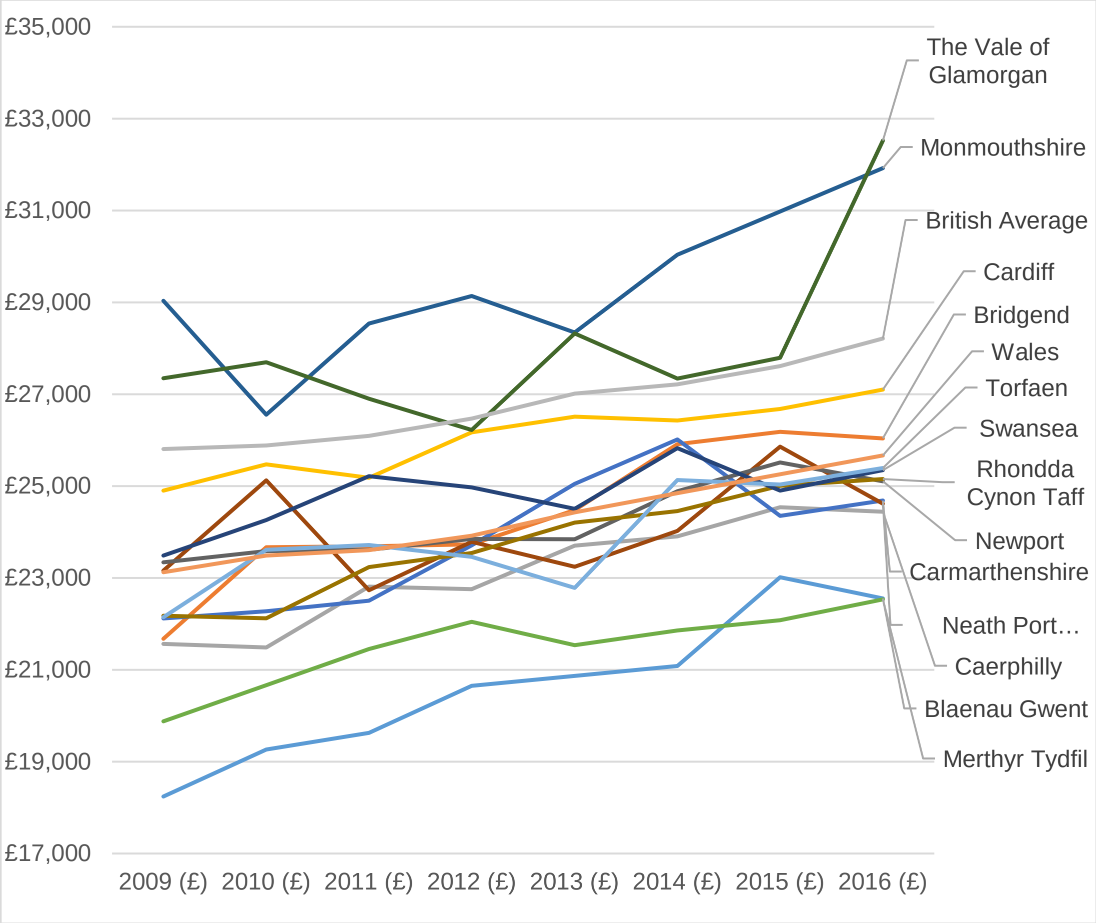

Figure 5.4: Median Gross Annual Income for Residents (Full Time) (Source: Annual Survey of Hours and Earnings, 2009-2016)

5.3.21 The key point of note from the above table is that there is significant income inequality across the Cardiff Capital Region and Swansea Bay City Region with earnings in the VoG being 44% higher than those in Merthyr Tydfil. The levels of Gross Annual Income also demonstrate a strong correlation with the analysis of occupational categories contained within the previous section. Areas with a high concentration of residents in the top three occupational categories also tend to demonstrate the highest levels of income (e.g. Monmouthshire and Vale of Glamorgan). Conversely, it is clear that the Valleys local authorities continue to suffer from below average incomes (although income growth in these areas has been relatively high in recent years, corresponding with a rebound from the economic downturn and targeted regeneration initiatives).

5.3.22 A key objective of enhancing access to and from the Vale of Glamorgan therefore has to be improving access to the strategic employment opportunities associated with the Enterprise Zone and the wider sub-regional opportunity from areas where incomes are lower, with a view to supporting balanced income growth across the two city regions.

Key Point: There is marked income inequality across the study area. Enhancing access to / from the Vale of Glamorgan will assist in connecting lower income areas to the strategic employment opportunities associated with the EZ and the wider sub-regional opportunity.

5.3.23 An alternative means of considering income is to use a **workplace**-based measure – that is, measuring the average income of an area based on those who work there rather than those who live there. The average annual, workplace income (gross) of full time workers in the study area is shown in the figure below.

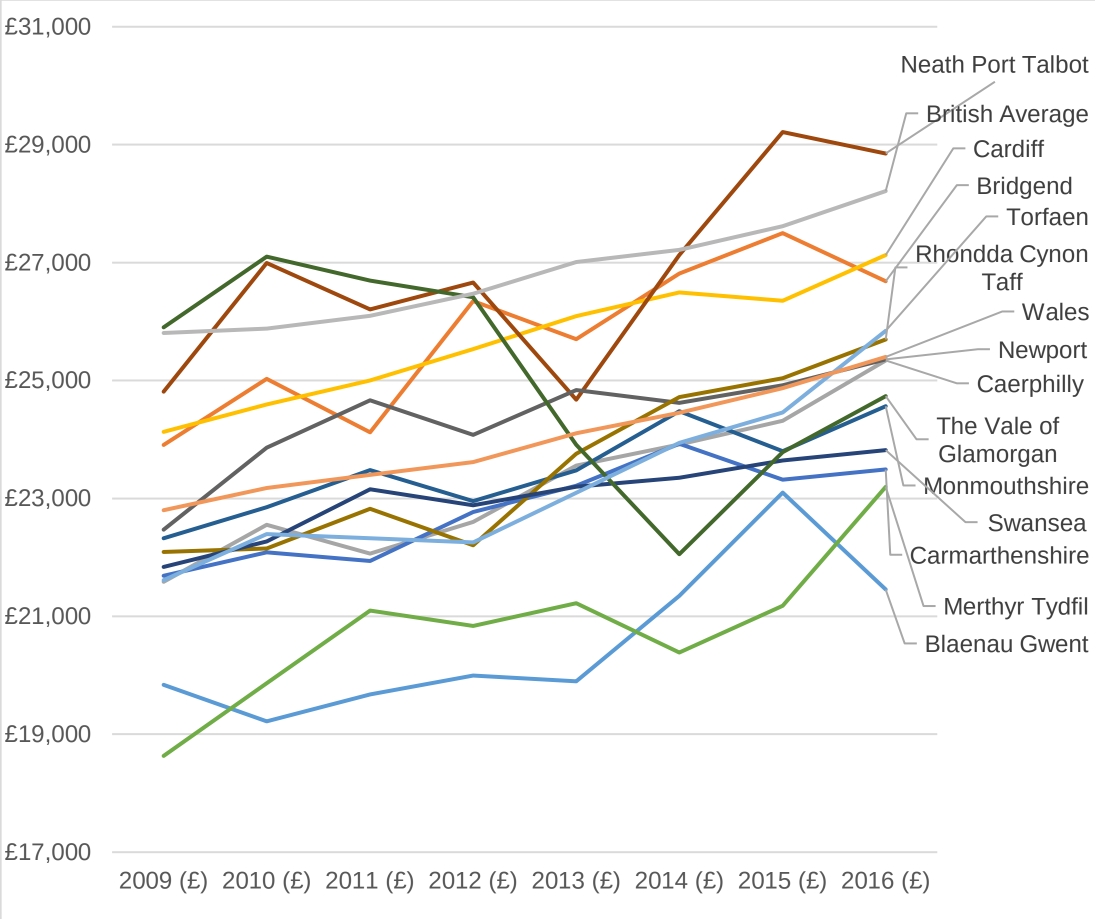

Figure 5.5: Median Gross Annual Income for Workplaces (Full Time) (Source: Annual Survey of Hours and Earnings)

5.3.24 To some extent, the workplace measure of employment presents a slightly different picture. Bridgend and Neath Port Talbot are in the 'top 3' in terms of workplace-based income, although this is likely to be almost exclusively driven by the presence of the Port Talbot steelworks (which in itself highlights the extent to which the development / maintenance of a single major employment location can support incomes at the sub-regional level).

5.3.25 It is however notable that many areas with low resident income also tend to demonstrate below average workplace income, Blaenau Gwent and Merthyr Tydfil for example. This again highlights the importance at the regional level of connecting these areas to strategic employment opportunities.

Key Point: As with the resident-based earnings measure, workplace-based earnings across sections of the Valleys tend to lag a range of averages. At the regional level, there is a case for better connecting these areas with the emerging strategic employment opportunities in the Vale of Glamorgan.

5.4 Gross Value Added

5.4.1 Gross Value Added (GVA) is a measure of economic activity in a region and is measured at current basic prices, which includes the effect of inflation, excluding taxes (less subsidies). The data geography in the context of GVA is more aggregate than other available datasets and is only collated up to and including 2015 at this point. The tables and figures below show GVA firstly per head of the (resident) population and then secondly per filled job:

Table 5.3: Workplace based GVA per head (Source: ONS)

Area	2007 (£)	2013 (£)	% Change 2007-2013
Bridgend and Neath Port Talbot	14,372	15,593	8.5%
Cardiff and Vale of Glamorgan	22,554	22,986	1.9%
Central Valleys[14]	12,309	14,291	16.1%
Gwent Valleys[15]	11,194	13,290	18.7%
Monmouthshire and Newport	19,895	20,071	0.9%
South West Wales[16]	12,949	13,715	5.9%
Swansea	15,835	17,445	10.2%
Wales	***15,572***	***16,893***	***8.5%***

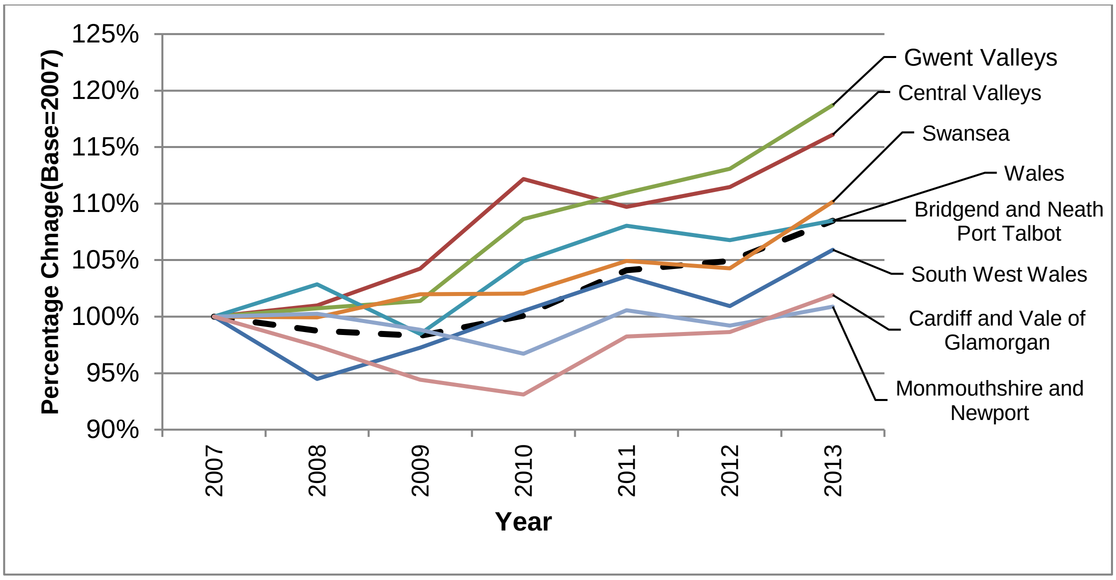

Figure 5.6: Change in workplace based GVA per head (Source: ONS)

Table 5.4: GVA per Filled Job (Source: ONS)

Area	2007 (£)	2015 (£)	% Change 2007-2015
Bridgend and Neath Port Talbot	38,400	42,531	11%

[14] Merthyr Tydfil and Rhondda Cynon Taf.

[15] Blaenau Gwent, Caerphilly and Torfaen.

[16] Carmarthenshire, Ceredigion and Pembrokeshire.

Cardiff and Vale of Glamorgan	39,697	42,363	7%
Central Valleys[17]	34,555	43,491	26%
Gwent Valleys[18]	35,304	39,274	11%
Monmouthshire and Newport	39,255	42,738	9%
South West Wales[19]	33,376	36,553	10%
Swansea	33,601	38,375	14%
Wales	36,319	40,316	11%

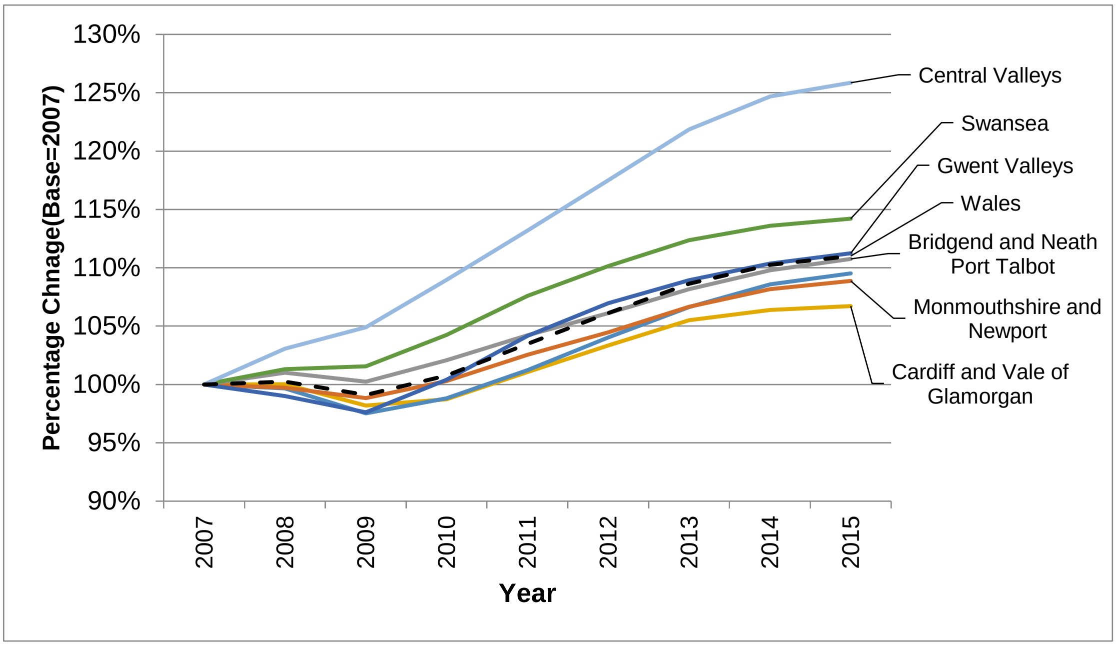

Figure 5.7: Change in GVA per Filled Job (Source: ONS)

5.4.2 The above table and figure show that GVA per head in 'Bridgend and Neath Port Talbot', 'Central Valleys', and 'Gwent Valleys' was consistently below that of the Welsh average (albeit the disparity has narrowed to some degree in recent years). However, the disparity is lessened and, in some cases reversed in terms of the GVA per filled job, which implies that, on the one hand, Valleys residents in work are in relatively high value employment but, on the other, that overall economic activity / employment is relatively lower.

Key Point: There is significant GVA disparity in South Wales, with the southern coastal strip and Monmouthshire tending to display significantly higher GVA per capita than the area as a whole. The realisation of the strategic economic development opportunities in the Vale of Glamorgan may, to some extent, widen this disparity. Nonetheless, it provides an important opportunity to increase the GVA of South Wales. Enhanced connectivity to and from the Vale of Glamorgan would assist in ensuring that the Cardiff Capital Region and Swansea Bay City Region as a whole would benefit from developments in the Vale of Glamorgan.

Business Competitiveness

[17] Merthyr Tydfil and Rhondda Cynon Taf.

[18] Blaenau Gwent, Caerphilly and Torfaen.

[19] Carmarthenshire, Ceredigion and Pembrokeshire.

5.4.3 The November 2017 UK Government Budget highlighted the challenge which the country faces in terms of **productivity** (i.e. output per worker, or GVA per head), in which the UK lags numerous international competitors. The UK Industrial Strategy published on 27th November 2017 is intended to address the productivity challenge, and highlighted investment in infrastructure as one of the key elements of the proposed approach.

5.4.4 In the context of this study, it can be argued that the success of the EZ will at least in part depend on the extent to which the local (i.e. South Wales) labour market and infrastructure supports the competitiveness of businesses within the area (i.e. their productivity). Assessing the competitiveness of any particular destination is clearly challenging given the myriad of factors which impact on business choices. However, the most consistent and commonly used measure is the UK Competitiveness Index, which defines competitiveness as "*the ability for an economy to attract and maintain firms with stable or rising market shares in an activity, while maintaining stable or increasing standards of living for those who participate in it*".

5.4.5 The Index takes into account a number of factors in terms of inputs, outputs and outcomes:

- Input factors include economic activity rates; business start-up rates; number of businesses per 1,000 people; NVQ Level 4 and qualifications; and proportion of knowledge based businesses.
- Output factors include GVA per head, output per hour worked (i.e. productivity) and employment rates.
- Outcome factors include gross weekly pay and unemployment rates.

5.4.6 There are several headlines within the UK Competitiveness Index 2016 which highlight the critical importance of raising the overall level of competitiveness and productivity in South Wales, as follows:

- Wales as a whole is deemed to be the least competitive region in the UK.[20]
- Of the 45 Local Enterprise Partnerships (LEP) / City Regions in the UK, Cardiff is ranked 34th and Swansea 45th in terms of competitiveness.[21]
- Three of the Capital Region authorities, Merthyr Tydfil, Blaenau Gwent and Caerphilly, are in the 'bottom 10' for the whole of the United Kingdom.[22]

5.4.7 The table below shows the relative competitiveness of the individual study area local authorities, together with the change in rank between 2013 and 2016.:

Table 5.5: Study Area Competitiveness Rank, 2013 and 2016 (ordered by 2016 Rank, out of 379)[23]

Area	Rank (2013)	Rank (2016)	Change 2013-2016
Cardiff City	134	128	+6
Monmouthshire	167	162	+5
Newport	232	228	+4
Vale of Glamorgan	225	253	-28
Bridgend	294	283	+11
Swansea City	319	308	+11
Torfaen	366	352	+14
Rhondda Cynon Taf	367	355	+12

[20] UK Competitiveness Index 2016 (Cardiff University & Nottingham Business School, 2016), p.23.
[21] UK Competitiveness Index 2016 (Cardiff University & Nottingham Business School, 2016), p. 26.
[22] UK Competitiveness Index 2016 (Cardiff University & Nottingham Business School, 2016), p.13.
[23] UK Competitiveness Index 2016 (Cardiff University & Nottingham Business School, 2016), pp. 43-53.

Area	Rank (2013)	Rank (2016)	Change 2013-2016
Neath Port Talbot	348	359	-11
Carmarthenshire	365	372	-7
Caerphilly	374	374	0
Merthyr Tydfil	378	376	+2
Blaenau Gwent	379	379	0

5.4.8 It is clear from the above table that the study area faces a challenge in terms of its overall competitiveness, particularly in the Welsh Valleys, almost all of which are in the 'bottom 20' for the whole of the UK. The EZ offers an important opportunity in this regard, potentially bringing a mass of high value investment and employment to the region, which will in turn have indirect and induced impacts.

5.4.9 However, in order to realise the anticipated benefits, it will be important to ensure that access to the EZ for both individuals and businesses is quick and reliable. It is notable that the VoG has suffered the biggest absolute decline in its position between the 2013 and 2016 indices, some 28 places in total. The index does not address the issue of transport infrastructure specifically, but the consultation does suggest that it is possible and indeed probable that this it is one of the key challenges faced in the area.

5.4.10 The prospective value associated with the EZ and the importance of good transport connectivity was a point raised repeatedly throughout the consultation – feedback from consultees included:

- A Central Valleys local authority noted that, due to the types of business that will be located in the EZ, predominantly large multi-nationals, improving access could provide employment for skilled labour in the local authority area. It was also noted that the EZ will provide opportunities for primary and secondary supply chain support from within the local authority boundaries.
- A Gwent Valleys local authority noted that improved access to the EZ would be beneficial in terms of the local supply-chain (e.g. supplying Aston Martin) as manufacturing (particularly niche manufacturing) accounts for a large proportion of employment in the local authority area. It is anticipated that improved connectivity would reduce the 'distance effect' associated with the VoG currently.
- Another Central Valleys local authority highlighted the potential supply-chain benefits of improved connectivity associated with the high value aerospace industry, automotive and defence industries.
- There was a generally held view amongst a number of local authorities that improving connectivity to the EZ would create agglomeration impacts and increase productivity by creating clusters in high value sectors, with spin-offs (and thus positive labour market impacts) for businesses throughout the study area.
- A business representative group highlighted the importance of fast and reliable access to the EZ for members either supplying firms within it or attending meetings in the area.

Key Point: The study area faces clearly evidenced challenges in terms of productivity and business competitiveness. The EZ, with its significant scale and concentration in high value & productive industries, is seen as presenting an important opportunity to increase productivity. However, the consultation repeatedly identified the need for fast and reliable transport connections to and from the VoG.

5.5 Deprivation

5.5.1 WG produces the Welsh Index of Multiple Deprivation (WIMD) which is the official measure of relative deprivation for small areas in Wales. The WIMD 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.

5.5.2 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 overall levels of deprivation in the study area in WIMD 2014 by quintile.

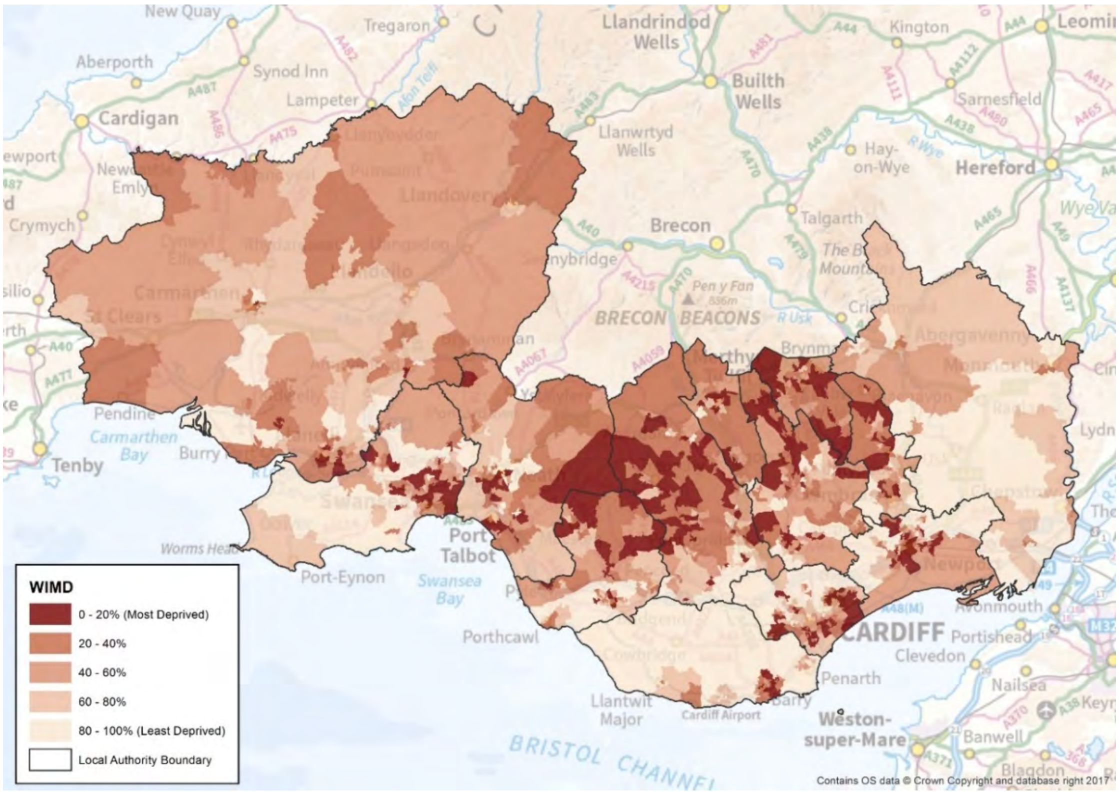

Figure 5.8: Welsh Index of Multiple Deprivation - Overall

5.5.3 The ‘employment’ and ‘income’ domains of WIMD is mapped separately below:

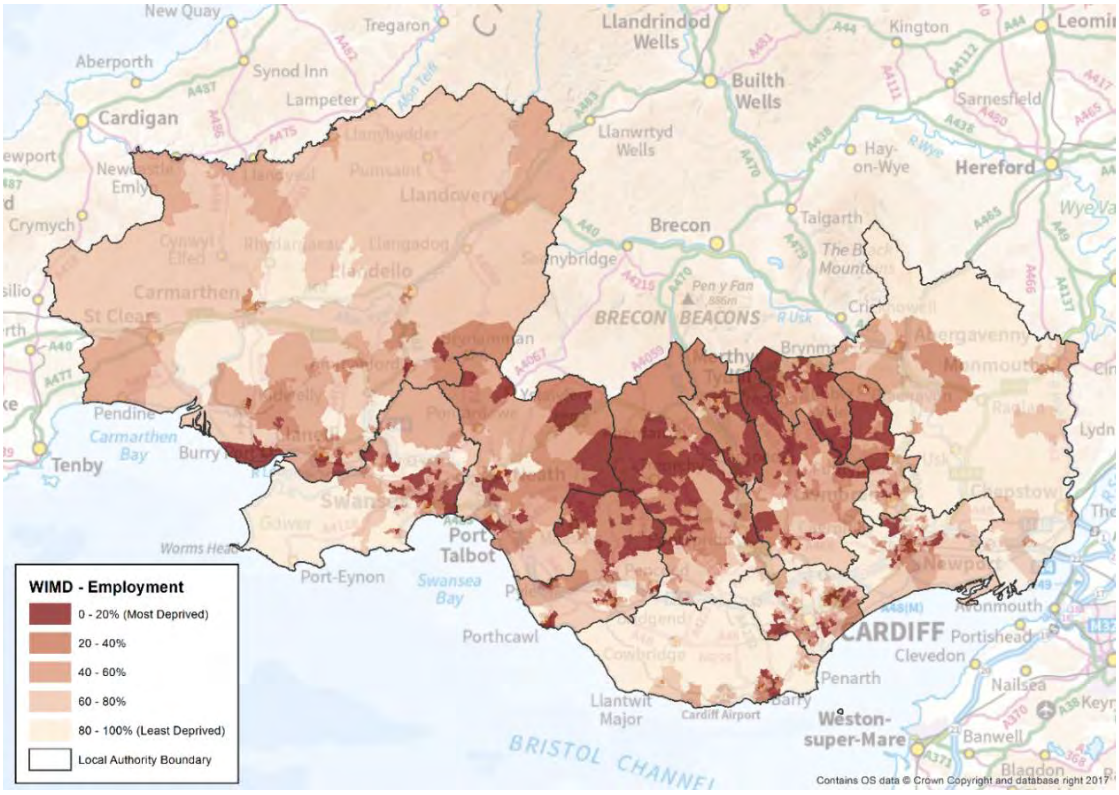

Figure 5.9: Welsh Index of Multiple Deprivation – Employment

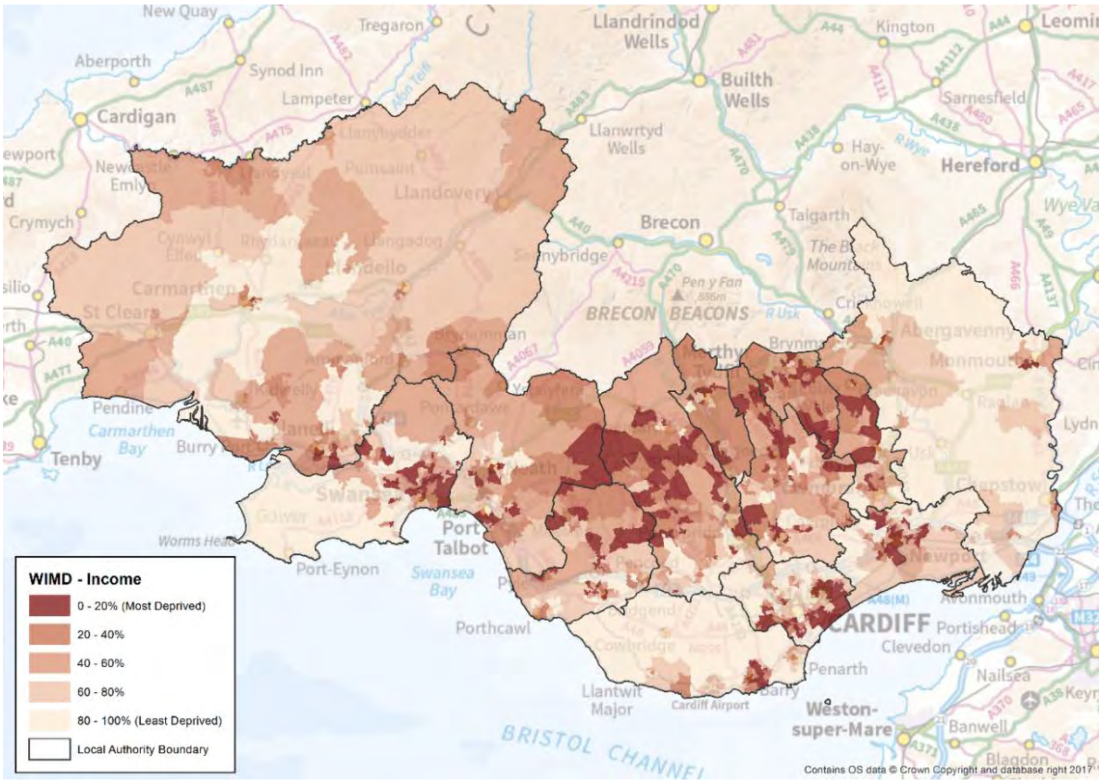

Figure 5.10: Welsh Index of Multiple Deprivation – Income

5.5.4 The above figures clearly evidence the socio-economic analysis brought out in the above sections, and reinforce the idea of a two-speed economy. There are several concentrated areas of deprivation across the Valleys, set against areas of very low deprivation in the more affluent rural areas, such as the Vale of Glamorgan and Monmouthshire.

5.5.5 This emphasises the importance of ensuring that the opportunities associated with the EZ benefit the entire Capital Region. A number of local authorities consulted as part of the study explained that the EZ and the wider sub-regional opportunity must work towards a more spatially even distribution of activity across the study area, whilst also offering benefits to the northern areas of the Valleys, which suffer the most severe deprivation.

5.5.6 It is also worth noting that there are wards within the most deprived quintile in Barry, so the EZ will also promote local employment opportunities.

Key Point: The WIMD data clearly summarises the disparities in income, employment and overall measures of deprivation within South-East Wales. The EZ represents a strategically important employment opportunity and, from a regional perspective, it will be important to ensure that these job opportunities are matched effectively with the wider South-East Wales labour market. Good connectivity is essential to this.

5.6 Census Travel-to-Work

5.6.1 Building on the above point about matching jobs to labour - one of the desired outputs of improved connectivity - this section considers the travel-to-work patterns prevalent within the study area. The Census Travel to Work (CTTW) analysis uses 2011 data to show the distances travelled to work by residents within the study area as well as the method by which they travel.

5.6.2 The figure below shows the **distance residents travel** to their place of work:

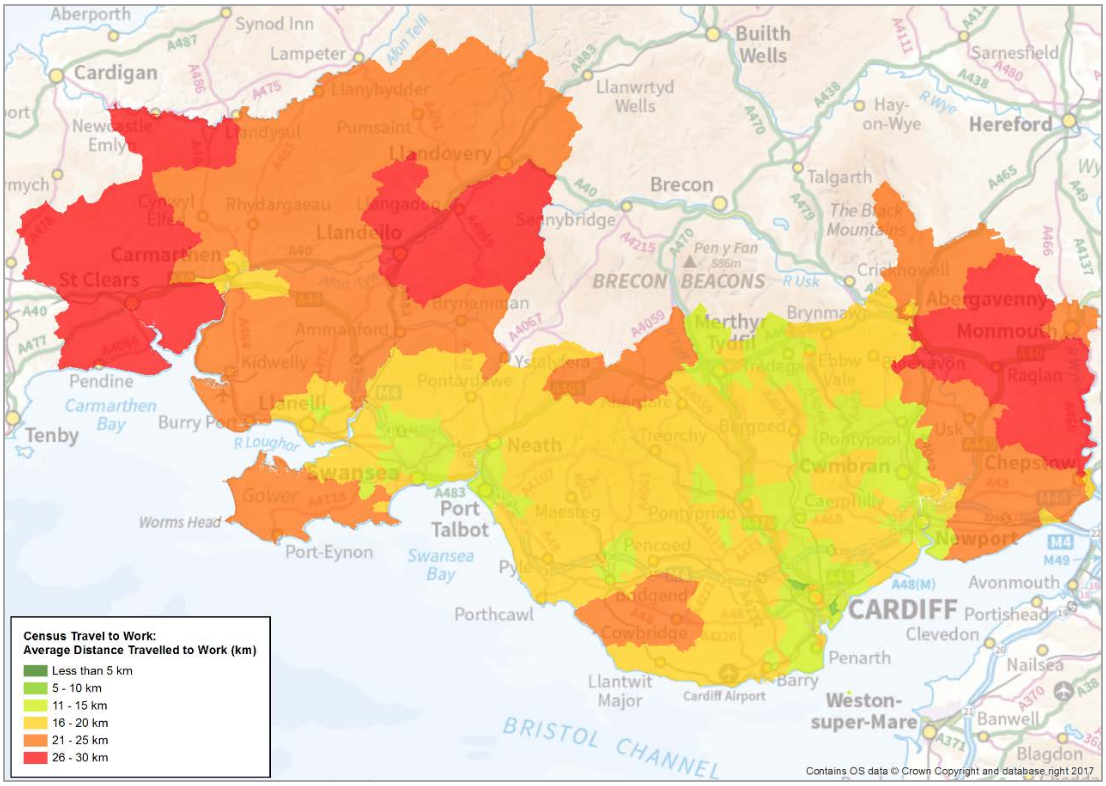

Figure 5.11: 2011 Census Travel to Work Distance (Average Distance in km) (Source: Census 2011)

5.6.3 The figure shows that those living in and around the urban centres of Cardiff and Swansea travel much shorter distances to work compared to those in the wider study area. However, there is a much greater propensity to travel a longer distance in the surrounding study area.

5.6.4 The stakeholder consultation identified a general willingness of respondents to travel longer than average distances where high value / well-paid employment is on offer.

Key Point: The travel-to-work data highlights that distance is not necessarily an impediment to taking up employment. Whilst the longer travel distances in the wider study area are likely to result from commuting to Cardiff, Swansea and, to a lesser degree, Newport, the figure suggests that residents in the study area would be willing to travel to the VoG for work if the employment opportunities are appropriate. Ensuring good connectivity is therefore essential in matching employment opportunities to the wider labour market.

5.6.5 Figure 5.12 below sets out the mode by which residents of each local authority travel to their place of work.

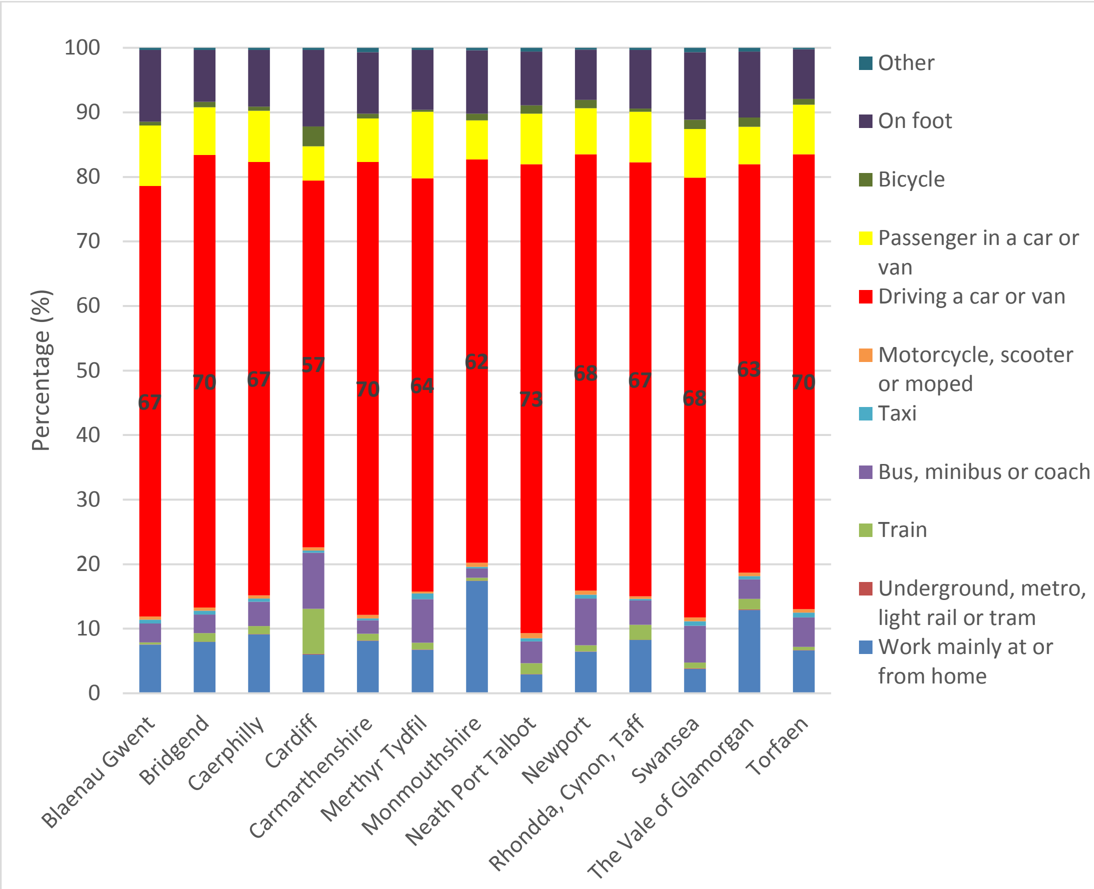

Figure 5.12: Census Travel to Work Method by Local Authority (Source: 2011 Census)

5.6.6 It is evident that the car is the most common mode of transport for all local authorities with those from Neath Port Talbot, Bridgend, Torfaen and Carmarthenshire (73%, 70%, 70% and 70% respectively) having the highest proportion of car users.

5.6.7 The figure below highlights the high proportion of residents driving a car or van to their place of work.

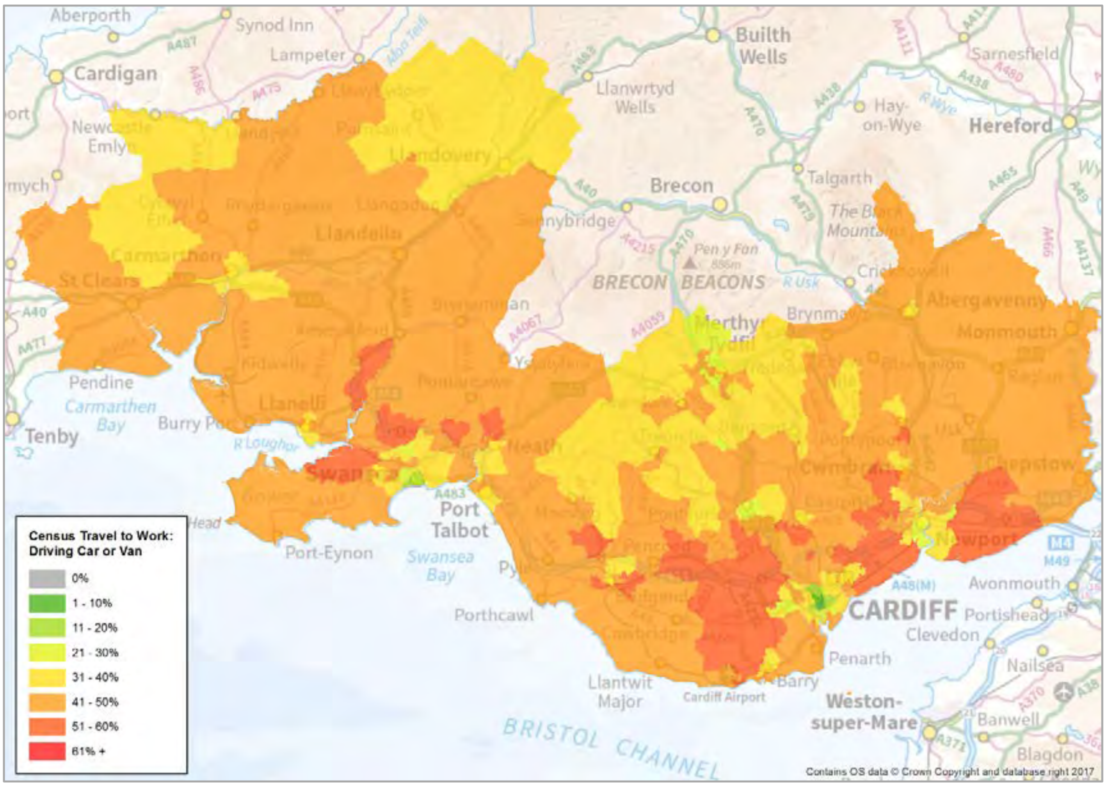

Figure 5.13: 2011 Census Travel to Work Method (Driving Car or Van) (Source: 2011 Census)

5.6.8 Whilst driving a car is the most common mode of travel-to-work overall, it is notable that several of the Valleys (particularly around the Heads of the Valleys) demonstrate a proportionally lower use of the car for travel-to-work. This may in some respects reflect the longer distances to the key employment centres as well as the relatively frequent rail services. However, low levels of car ownership are also likely to be a key issue, as discussed below. The figure below shows car or van availability by local authority:

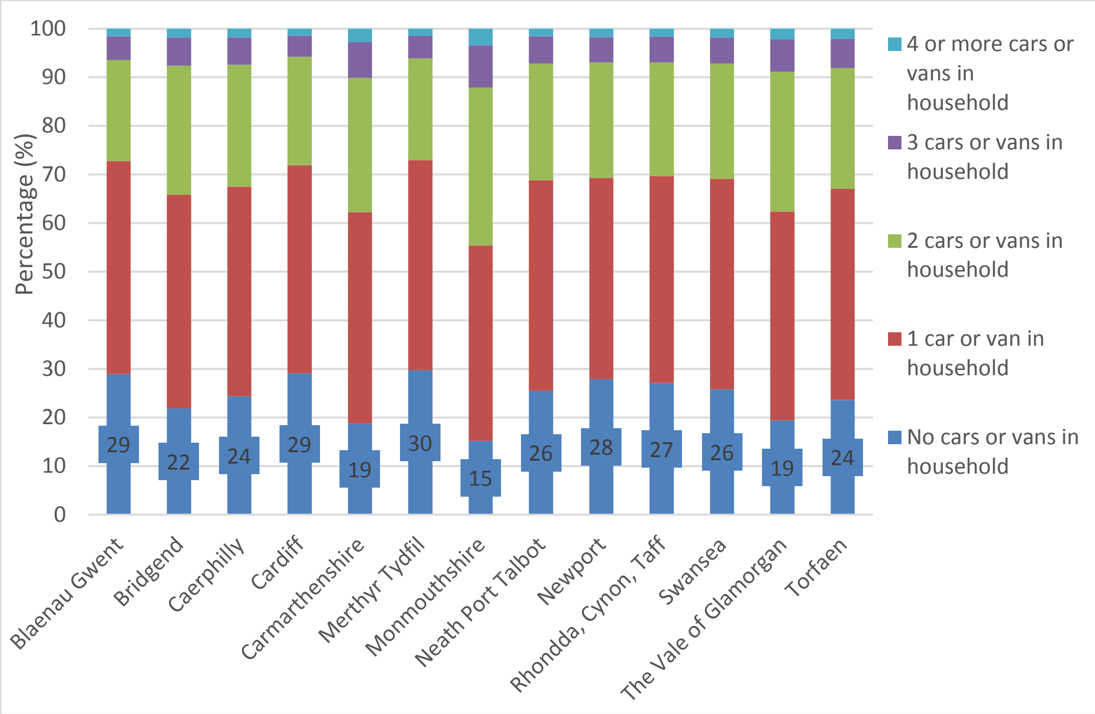

Figure 5.14: Household Car or Van Availability by Local Authority (Source: 2011 Census)

5.6.9 Car ownership varies significantly between each local authority with 30% not having access to a car in Merthyr Tydfil. Car ownership is also low in Blaenau Gwent (29%) and RCT (27%). Outwith the urban areas, low levels of car ownership correlate strongly with a range of negative socio-economic indicators including employment and income. The distribution of households without access to a car or van is highlighted in the figure below:

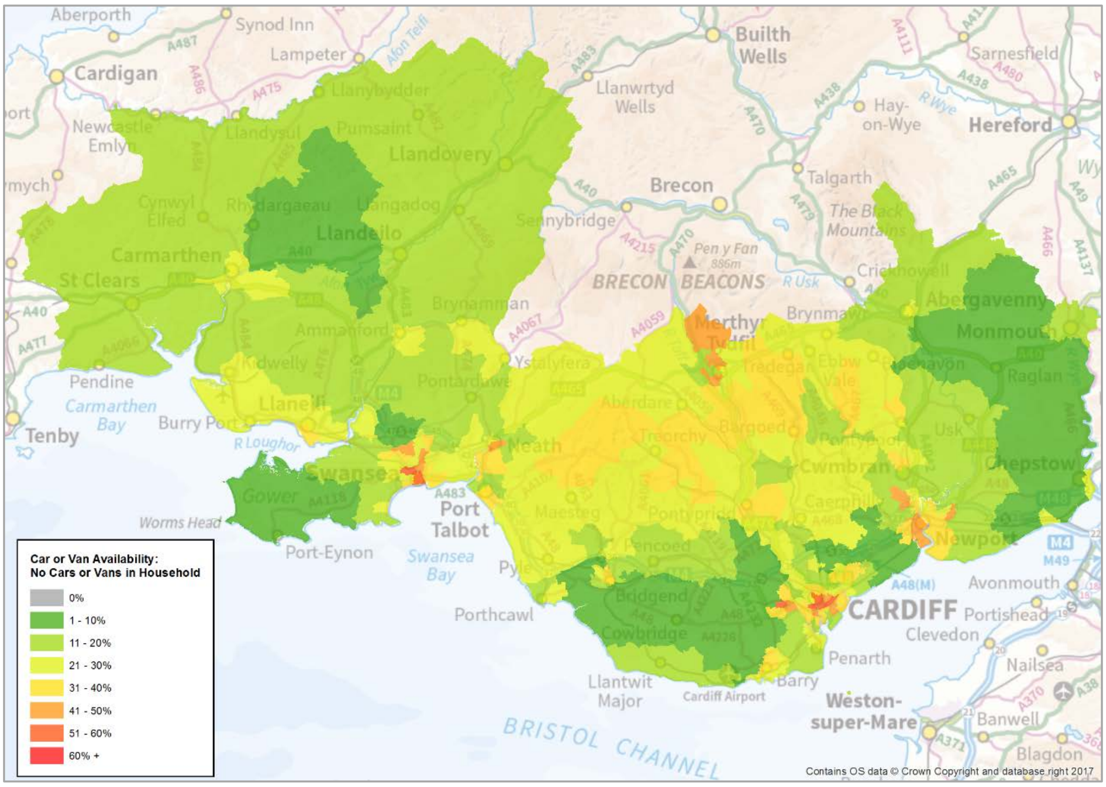

Figure 5.15: Percentage of households with no car or van (Source: 2011 Census)

5.6.10 The above figure confirms the earlier hypothesis that low car ownership in a number of the Valleys local authorities (particularly in the Heads of the Valleys area) is a contributory factor to lower than average travel-to-work by car. This is an important issue in terms of ensuring that the transport solution developed for the VoG maximises multi-modal accessibility in line with the policy context.

Key Point: Census travel-to-work data clearly highlights the dominance of the private car for accessing employment in the study area. However, low levels of car ownership in certain areas, particularly in the Heads of the Valleys, will limit car-based accessibility to the employment opportunities in the EZ. This is an important issue in terms of ensuring that any transport solution(s) developed for the VoG maximise multi-modal accessibility.

5.7 Inward Investment

5.7.1 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 the figure below:

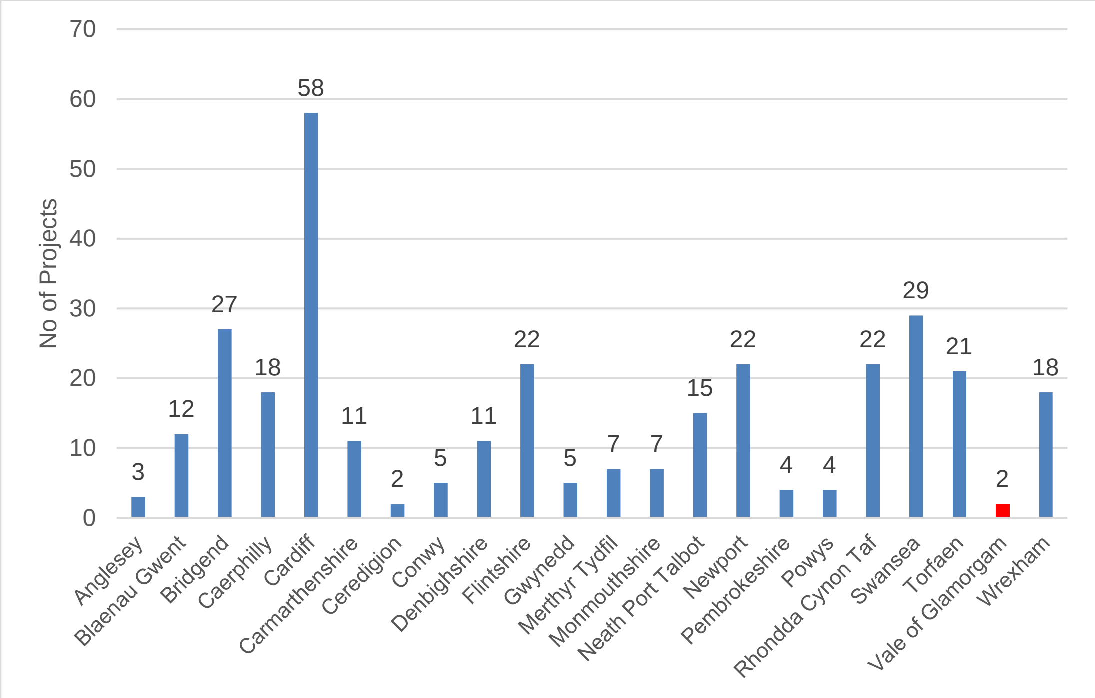

Figure 5.16: FDI Projects by Local Authority, 2008/09, to 2013/14 (Source: Welsh Government)

5.7.2 It is notable from the above chart that, despite the presence of Cardiff Airport and proximity to Cardiff itself, the level of inward investment in the Vale of Glamorgan has historically been amongst the lowest in Wales (joint lowest with rural Ceredigion). Whilst there are numerous reasons for this (including regional policy initiatives historically being focussed on areas of evidenced deprivation), the low levels of inward investment in the VoG are somewhat surprising.

5.7.3 The declaration of the EZ and the early commitment of Aston Martin to locate in the VoG is an important first step in increasing the level of inward investment. However, evidence from a range of studies assessing the locational choices of inward investors has highlighted the importance of good surface transport connectivity in this respect.

Key Point: Inward investment in the Vale of Glamorgan has historically been lower than in much of Wales. The declaration of the Enterprise Zone and the early commitment of Aston Martin to the area represents a significant opportunity to increase the level of inward investment in the VoG. Evidence from a range of studies does however suggest that high quality connectivity is an important factor in the locational decisions of inward investors, and thus improving transport connections to and from the VoG is necessary to maximise the economic development opportunities in the area.

5.8 Tourism

5.8.1 Tourism is a critical component of the Welsh economy. WG maintains tourism data using the STEAM tourism model, which highlights that, in 2013, tourism supported around 100,000 FTE jobs across Wales, generating around £6.23 billion of GVA.[24] The figure below shows the estimated number of visitors by local authority:

[24] Wales STEAM report and dataset (Welsh Government, 2013).

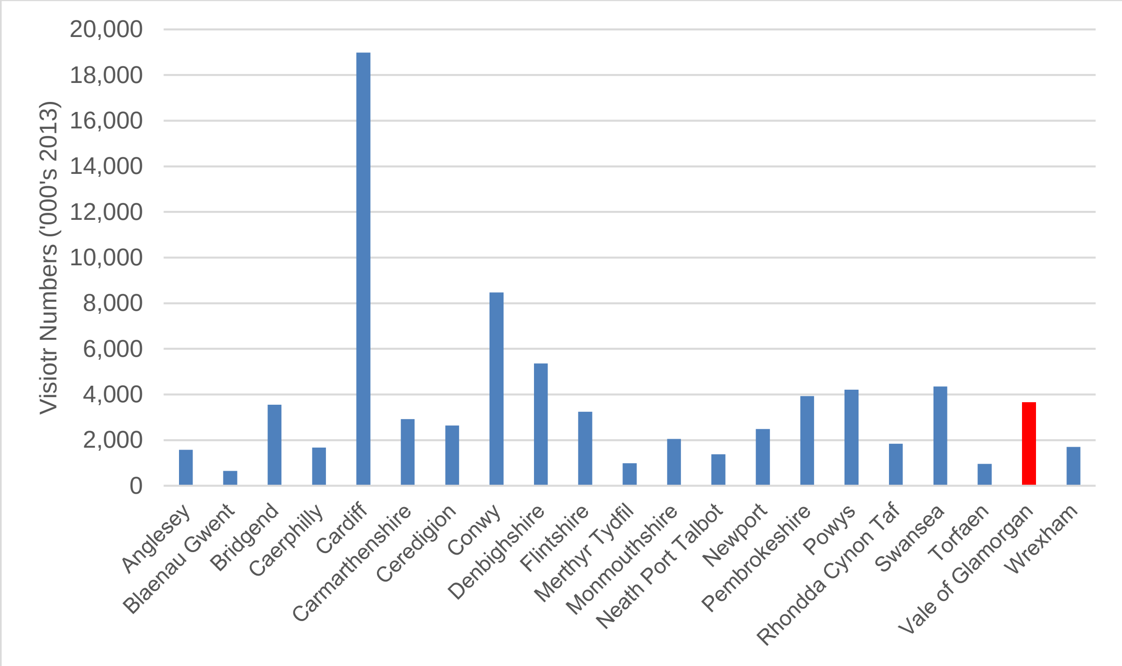

Figure 5.17: Visitor Numbers by Welsh Local Authority (STEAM, 2013)

5.8.2 The chart above picks up both Welsh domestic (approximately 51% of the total) and non-Welsh visitors. Whilst the vast majority of non-Welsh visitors are from the rest of the UK, Wales received around 884,000 overseas visits in 2013. Whilst we do not have firm evidence at present, it is highly likely that a significant proportion of these tourists entered Wales via England, partly due to the range of flights and destinations available from Cardiff Airport.

5.8.3 Improving the infrastructure and connectivity in the Vale of Glamorgan will likely deliver the by-product of improved surface access to Cardiff Airport, one of a potential package of measures which would support route and service development through the airport, thus contributing to increasing the number and duration of visits to Wales.

Key Point: Wales receives a large volume of foreign tourism. However, the limited range of flights and destinations served by Cardiff Airport means it is likely that a significant proportion of overseas visitors arrive via England. Improving surface access to the airport as part of a wider package of measures in the VoG would potentially support further development of the airport route network and thus tourism overall in Wales.

5.9 Summary

5.9.1 This chapter has developed a proportionate economic profile of the study area. Two key points emerge from the above analysis:

- There is evidence of the existence of a **'two-speed economy'** with a broadly affluent rural hinterland and coastal zone encircling the Valleys, which suffer high levels of multiple deprivation (including high levels of economic inactivity and unemployment). The imbalance within the regional economy is negative for the study area as a whole.
- There is an evidenced issue with **productivity / competitiveness** within the study area as a whole and within constituent local authorities.

5.9.2 **Participation** (i.e. high levels of economic activity and employment) and **productivity** are considered to be the building blocks of a strong economy. Whilst there are variances across the study area, there is a clearly evidenced problem in respect of both participation and productivity when the area is considered as a single entity.

5.9.3 It is also important to note that this not a static position. Improvements to transport connectivity (e.g. improvements to the South Wales Mainline, removal of the tolls on the Severn Bridges) and other infrastructure investments outwith the study area could disadvantage both the Cardiff Capital Region and Swansea Bay City Region if other areas of the UK, and in particular the south-west of England, are deemed to be more competitive. Whilst the Metro and M4 Newport Bypass will greatly assist in supporting the economic competitiveness of South Wales, the threat of a loss of economic activity is a real one.

5.9.4 It is in this context that the EZ, and indeed the wider sub-regional opportunity, can be considered so important. The EZ, amongst other developments, presents a regionally significant economic growth opportunity, potentially generating a range of employment opportunities across different occupational categories, both directly and in terms of indirect and induced employment. Of critical importance is the potential creation of jobs in manufacturing (skilled and unskilled) which would be well suited to parts of the study area with high concentrations of residents in these occupational categories.

5.9.5 Effective transport connectivity between the VoG and the rest of the study area is however likely to be essential in ensuring the EZ is competitive in matching jobs with the labour market, facilitating business-to-business interactions, and ensuring that the benefits of improved job opportunities are spread across the study area. It is to the quantification of the current transport connectivity that this report now turns.

6 Transport Connectivity Baseline

6.1 Overview

6.1.1 The previous chapter stated at various points that transport connectivity is currently acting as a constraint on the economic performance of the Vale of Glamorgan. More importantly, it was argued that, if not addressed, these connectivity issues could have a long-term negative impact on the development of the EZ and indeed the wider sub-regional opportunity.

6.1.2 This chapter therefore explores these issues further, using connectivity analysis to more accurately define and quantify the issue. Whilst the analysis does consider the VoG as a whole, the focus is predominantly on the EZ sites (i.e. the sites at the airport and St Athan) as these represent the strategic / regional opportunity which has been alluded to in previous chapters.

6.2 VoG Highways Network

6.2.1 The figure below highlights the principal highway network within the Vale of Glamorgan:

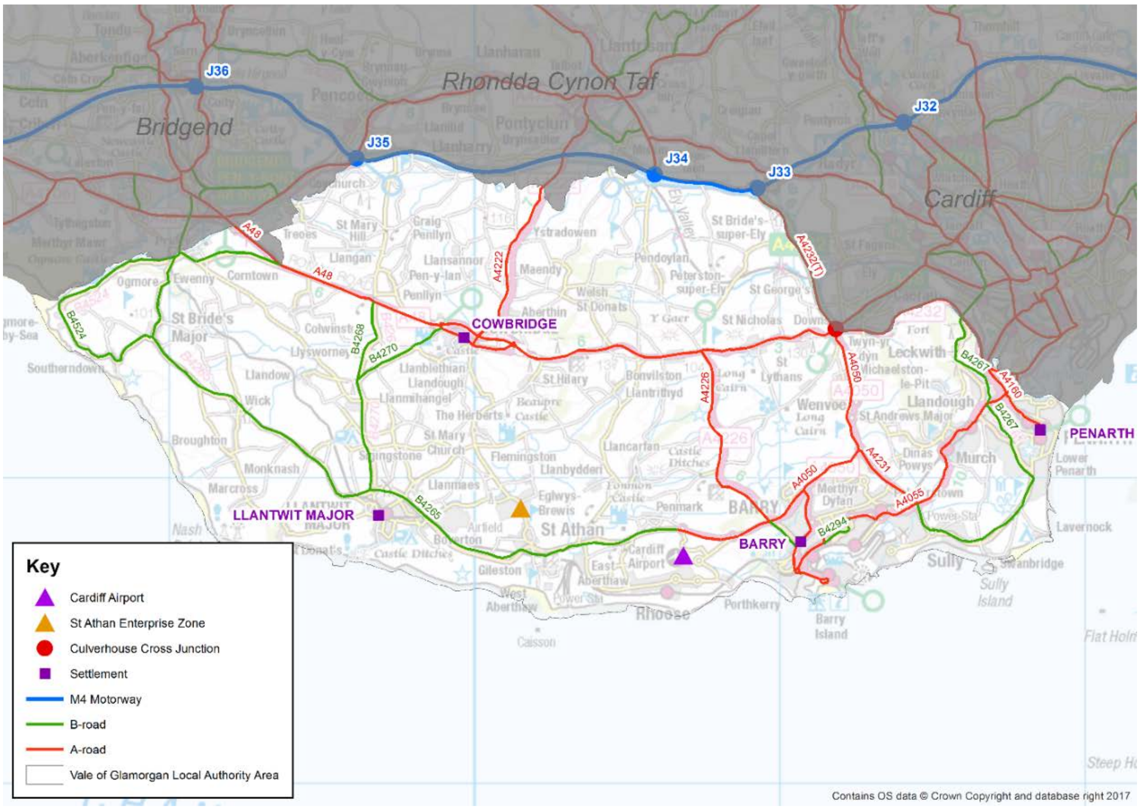

Figure 6.1: Vale of Glamorgan Highway Network

6.2.2 Strategic road access to the VOG is principally via the M4 motorway, with Junctions 33 (Cardiff West), 34 (Llantrisant) and 35 (Bridgend / Pencoed) all providing links into the County. Of these options, J33 provides the highest standard route into the Vale, providing a link to the A4232 (T) dual carriageway and connecting to Culverhouse Cross Roundabout, a major strategic junction linking Cardiff (via the A4232 south), Cowbridge (via the A48 trunk Road) and Barry (via the A4050). The A4232 is a principal route into Cardiff from the west and Culverhouse Cross Roundabout is a congestion hotspot, particularly at peak times. This has a negative impact on journey time reliability to and from destinations in the VoG, including Cardiff Airport.

6.2.3 J34 also provides southbound access into the Vale of Glamorgan. The route passes through Clawdd-coch and Pendoylan before linking to the A48 near Bonvilston. However, the route is mainly single carriageway, but with a number of very narrow single track sections from Hensol

Golf Academy southwards, and is not suitable for significant traffic volumes or larger vehicles. It has become a popular 'rat run' from the M4 to the airport, and can be heavily used when there are problems on the M4 - a function for which the road is ill-suited.

6.2.4 J35 provides a link from the M4 to the less populated west of the VoG, including St Bride's Major and the coastal areas of Ogmore-by-Sea and Southerndown.

6.2.5 As shown in the figure above, the Cardiff Airport - St Athan Enterprise Zone is located in the central southern part of the County. Given the road standard south of J34, the most appropriate strategic (and indeed the signed) route to Cardiff Airport when coming from the west is via J33 (to the east), the busy Culverhouse Cross Roundabout on the A4232, and onward via the A4050 and A4226. The A4050 passes through the residential area of Colcot to the north of Barry and has a speed limit of 40mph along much of its length while the A4226 is rural in nature with a speed limit of 50mph beyond Barry.

6.2.6 The route to the St Athan element of the Enterprise Zone continues west past the Airport along the B4265 before travelling through St Athan via Gileston Road / Cowbridge Road and then west along the northern boundary of the site.

Views of Consultees

6.2.7 As part of the consultation, we sought views on the suitability and problems associated with the current highway network from VoG County Council (the highway authority for the majority of roads within the Vale), an EZ representative and the neighbouring local authorities of Bridgend and RCT County Council. The consultation findings assist in contextualising the subsequent accessibility analysis.

Vale of Glamorgan County Council

6.2.8 Vale of Glamorgan County Council noted the following points in relation to the local highway network:

- In terms of accessing the M4, the radial routes within the eastern Vale all generally converge of Culverhouse Cross, creating a strategic bottleneck. There is also local congestion on these routes. It was noted that there is no effective separation of local and strategic traffic, further congesting radial routes in the area and making active travel options less attractive. It is anticipated that this problem will worsen with the gradual realisation of the EZ opportunities.
- More generally, there is not seen to be an appropriate strategic route for commercial vehicles or abnormal loads in the Vale. HGVs also run through or near residential areas, which is considered sub-optimal.
- There is an evidenced 'rat run' through J34 of the M4 and the village of Pendoylan when the motorway is congested. The recent construction of an offset signalised junction on the A48 at Sycamore Cross has also led to vehicle platooning on this single track road, which can be highly problematic with the limited number passing places available.
- The VoG is a popular destination for tourists, with peak period traffic (particularly day-trippers to Barry Island) layered on top of daily traffic.

Enterprise Zone Official

6.2.9 The EZ set out the following points in relation to the highway network:

- The highway network surrounding the EZ is rural in nature and is generally unsuitable for large volumes of traffic. At peak times, congestion adds significantly to road journey times. In addition, due to the nature of the roads there is limited resilience, with traffic incidents or poor weather leading to significant delays.
- Amongst those currently based at the EZ around 250-300 commute in from the north of the site, including from RCT. Jobs in the aerospace industry are well paid compared to the

Welsh average and therefore people are willing to travel to access them. The current highway infrastructure is considered to be sub-optimal in facilitating such movements.

- From a freight perspective, it was noted that poor transport connections can impact on the cost of transporting supplies which in turn impacts on the cost of doing business more generally. Within the EZ, there is a well-developed industry in Aircraft on Ground (AOG) which is aircraft maintenance, whereby a problem is serious enough to prevent an aircraft from flying. To avoid delays, the parts must be dispatched so that the aircraft can be returned to service. AOG supplies are centred around Heathrow / Gatwick which is around 2 hours from Cardiff. However, it can then be an additional 40 minutes from the M4 to Cardiff Airport. Aircraft in service costs are very high (up to £20,000 an hour) and therefore any delay in delivering parts can have a major impact in terms of cost which has an immediate knock-on impact for the industry.

Neighbouring Local Authorities

- Bridgend CBC noted that the quality of the roads into the VoG from the M4 are relatively poor. The western route via J35 is single carriageway, with the B4265 also having a relatively poor alignment and low speed limit. J34 is not considered to be an appropriate access point given the single track sections connecting to the south of the Vale, whilst the route via J33 is considered to be circuitous and subject to congestion related journey time reliability issues.
- From the perspective of RCT CBC, the most direct route into the Vale is via J34, which as previous noted is inappropriate and thus the congested J33 is generally used. From the perspective of the wider sub-regional development opportunity, addressing congestion on the M4 across the north of the VoG is considered a key priority.

Key Point: Whilst the M4 provides high quality strategic access points to the perimeter of the VoG, the local road network within the Vale is generally of a single carriageway standard and suffers significant congestion around the key 'gateway' of Culverhouse Cross. In both the short and longer-term, this is likely to constrain access to the County and, in particular, the Cardiff Airport – St Athan Enterprise Zone. The most direct route from the M4 to the EZ is via J34 of the M4. However, the connecting road is of a poor quality with lengthy single track sections and poor visibility. The J34 option has however become a rat run for those travelling to the VoG from the west, with negative implications for communities along the route.

6.3 Highway Connectivity Analysis

6.3.1 The socio-economic baseline highlighted the importance of ensuring good connectivity between the VoG and the wider study area if the employment and wider opportunities associated with the EZ are to be realised and maximised. Connectivity analysis has therefore been undertaken to baseline the existing connectivity of the VoG with respect to key locations across the study area.

Journey Times

6.3.2 In order to do this, a series of calculations were undertaken using the 'Network Analyst' software. Network Analyst calculates the quickest car drive times between sets of origins and destinations using a defined start time, car speed data (in this case INRIX data, thus providing actual observed speed and journey time data) and a range of user defined parameters.

6.3.3 The key **origins** used in the analysis are shown in Figure 6.2, with the largest settlement in each local authority being used to determine a representative accessibility measure. In addition, in order to examine the different potential access options from both Cardiff and Bridgend, additional locations were selected in these areas (namely Ely, Tongwynlais and Maesteg). All possible **destinations** within the Vale of Glamorgan are represented at the Census Output Area level (the lowest level of spatial definition):

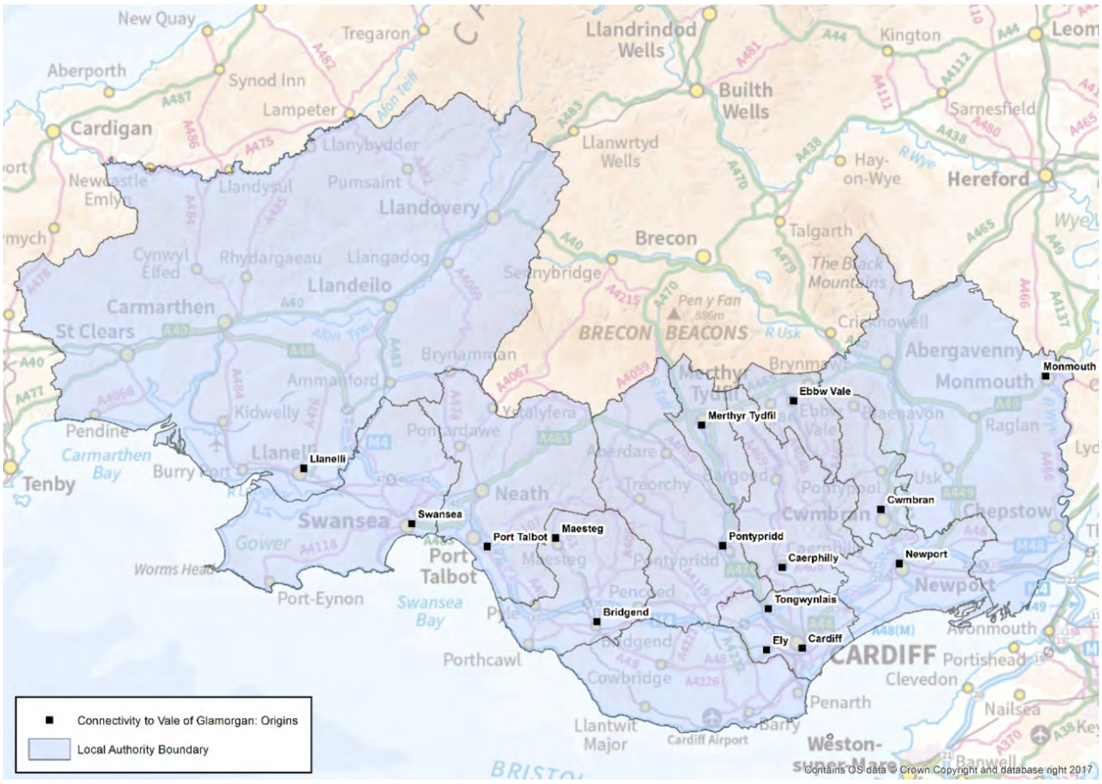

Figure 6.2: Origins Points used within Journey Time Calculations

6.3.4 Four calculations were undertaken (starting at 0630, 0700, 0730 and 0800) and the results were used to calculate an average journey between each origin and destination pair.

6.3.5 For illustrative purposes, Figures 6.3–6.6 show the highway connectivity from Caerphilly, Pontrypridd, Merthyr Tydfil, and Port Talbot to the Vale of Glamorgan (in the interests of brevity, plots for all other named settlements are provided in a stand-alone PowerPoint in Appendix B).

6.3.6 The purpose of this analysis is to show current observed road based travel times from each settlement to all parts of the VoG.

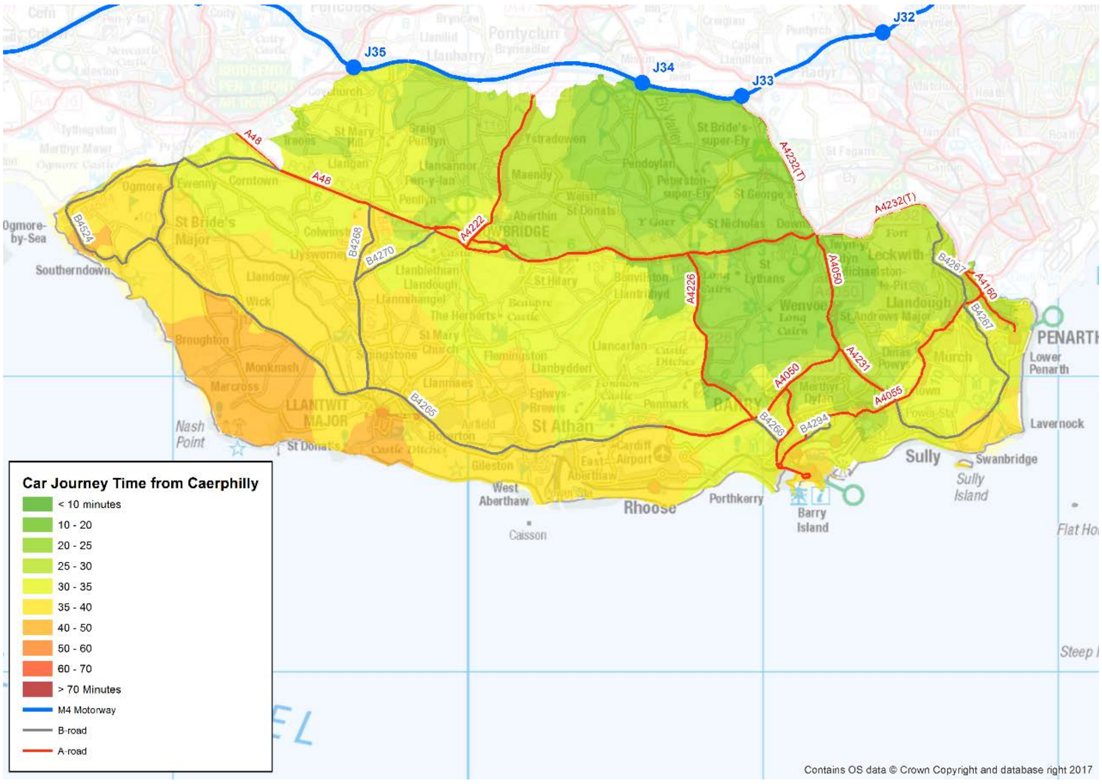

Figure 6.3: Highway Journey Time to Vale of Glamorgan from Caerphilly

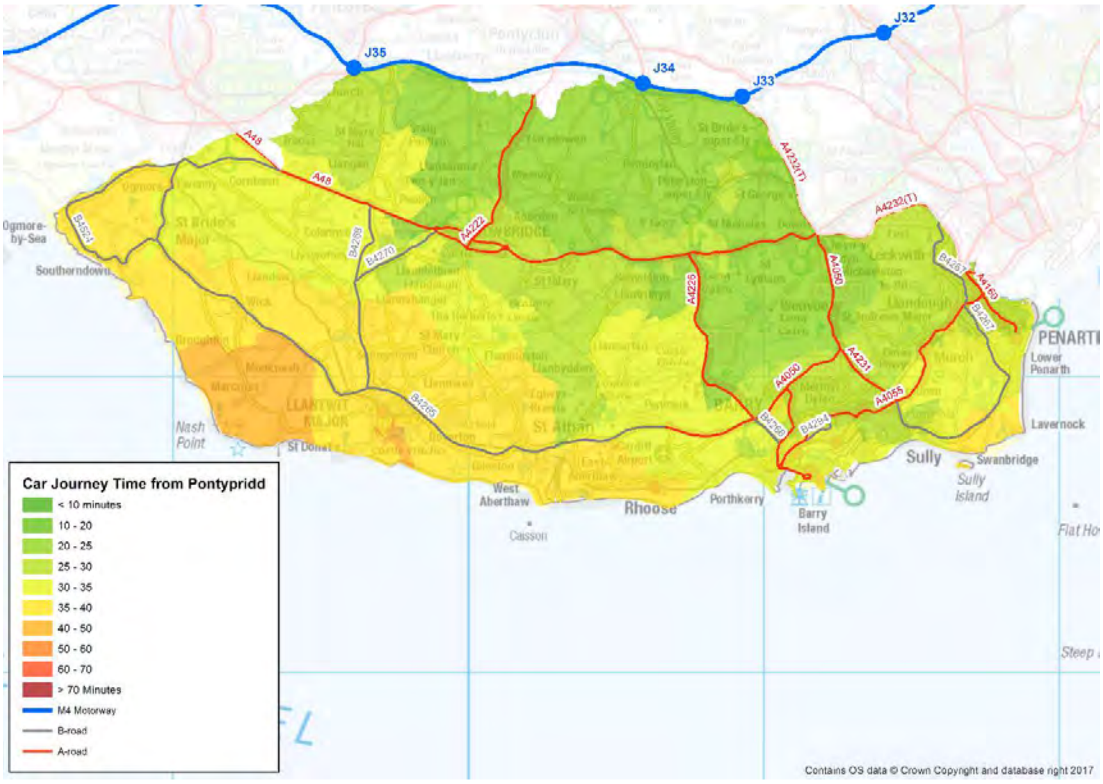

Figure 6.4: Highway Journey Time to the Vale of Glamorgan from Pontypridd

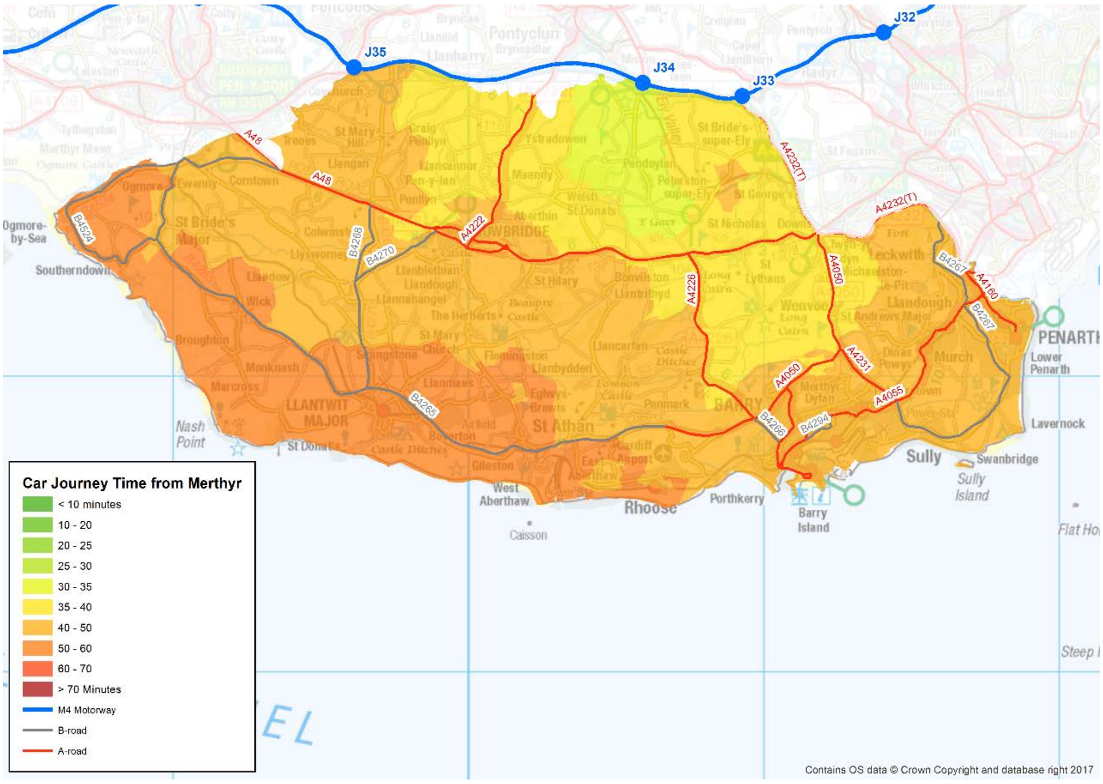

Figure 6.5: Highway Journey Time to the Vale of Glamorgan from Merthyr Tydfil

Figure 6.6: Highway Journey Time to the Vale of Glamorgan from Port Talbot

6.3.7 The above figures show that connectivity to the north-eastern end of VoG is within a reasonable journey time (circa 30 minutes or so) for settlements in the southern portion of the Valleys (e.g. Caerphilly and Pontypridd). However, access to the area of the EZ tends to display slightly longer journey times which, whilst a function of overall distance, is also likely to be partly a result of delays at Culverhouse Cross (given that peak data have been used).

6.3.8 Journey times from the northern portion of the Valleys, represented by Merthyr Tydfil, are of course longer, in the 50-70 minute band. This is likely at the upper-end of the time band at which people would generally be willing to travel for work, and thus reductions in these journey times would be desirable if the labour market catchment of the EZ is to be maximised.

6.3.9 It is notable that journeys from the west (represented by Port Talbot) to the EZ are actually only slightly shorter than those from Merthyr Tydfil (despite being closer as the crow flies). This is largely due to the need to use the M4 J33 and route via Culverhouse Cross rather than the shorter route via J34. The relatively poor current accessibility to / from areas in the west may therefore limit the potential labour market catchment of the EZ from this area.

Key Point: Overall, this analysis has provided a benchmark for road-based journey times to and from the Vale of Glamorgan, and specifically the EZ. The need to route via J33 of the M4 and the busy Culverhouse Cross does have a negative impact on both journey length and reliability. This may in turn limit the current potential labour market catchment of the EZ and the overall benefit to both the Cardiff Capital Region and Swansea Bay City Region. From this perspective, enhancing access to and from the VoG has the potential to support the overall economic development of South Wales by increasing the size of the potential labour market at these sites.

Cardiff Airport and St Athan Journey Time Catchments

6.3.10 In addition to examining journey times to the VoG from specific points, a series of calculations were also undertaken examining journey times to both Cardiff Airport and the wider EZ (denoted by the St Athan site) from all origin locations across the study area. The origin locations were represented in the analysis at the lower supper output area (LSOA) level and, as with the above, four calculations were undertaken (starting at 0630, 0700, 0730 and 0800) and an overall average calculated.

6.3.11 The figures below show the average highway journey time from the study area to Cardiff Airport and St Athan Enterprise Zone sites respectively:

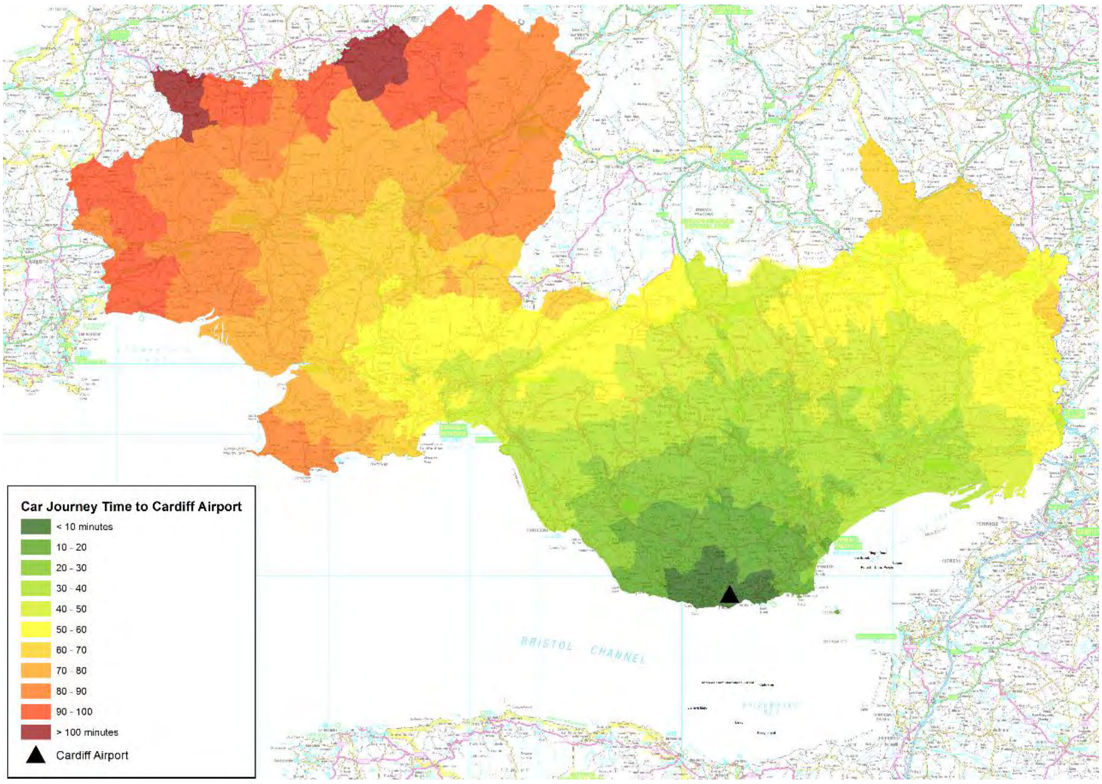

Figure 6.7: Current AM Highway Journey Time to Cardiff International Airport

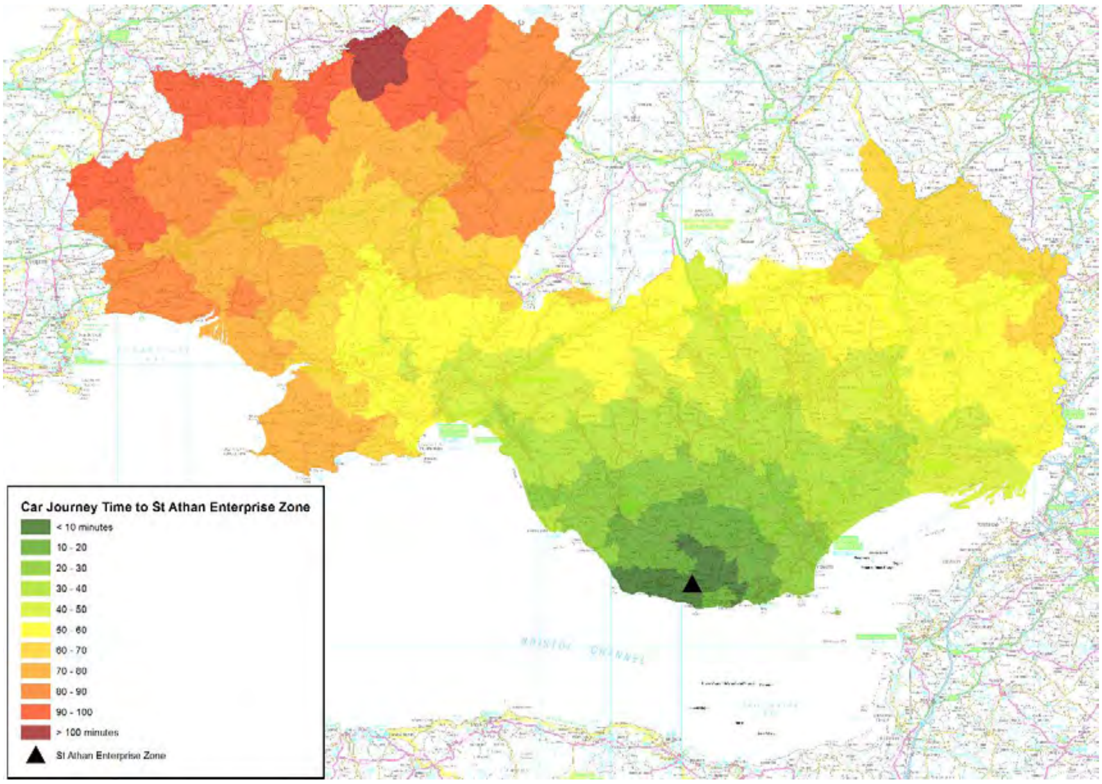

Figure 6.8: Current AM Highway Journey Time to St Athan Enterprise Zone Sites

6.3.12 In order to put the above plots into context, the following tables considers the working age population within various drive time bands from each site – this is effectively a measure of **labour market accessibility** from the perspective of an employer.

Table 6.1: Working Age Population (16-74) in 10-Minute Drive Time Bands of Cardiff International Airport

Category	Working Age Population	Percentage
< 5 minutes	3,208	0.2%
5-10	39,393	2.6%
10-20	91,194	6.1%
20-30	319,603	21.3%
30-40	335,615	22.3%
40-50	318,798	21.2%
50-60	235,743	15.7%
60-70	93,585	6.2%
70-80	38,282	2.5%
80-90	16,881	1.1%
90-100	7,468	0.5%
> 100 minutes	3,544	0.2%

Table 6.2: Working Age Population (16-74) in 10-Minute Drive Time Bands of St Athan Enterprise Zone

Category	Working Age Population	Percentage
< 5 minutes	3,307	0.2%
5-10	11,373	0.8%
10-20	57,393	3.8%
20-30	288,712	19.2%
30-40	355,438	23.6%
40-50	371,440	24.7%
50-60	270,718	18.0%
60-70	90,475	6.0%
70-80	31,567	2.1%
80-90	13,098	0.9%
90-100	8,710	0.6%
> 100 minutes	1,083	0.1%

6.3.13 The key points from the above tables are as follows:

- **Cardiff International Airport:** 30% (453,398) of the study area population are within 30 minutes' drive-time of the airport, with 89% (1,343,554) being within one-hour drive time.
- **St Athan EZ sites:** 24% (360,785) of the study area population are within 30 minutes' drive-time of the St Athan EZ sites, with 90% (1,358,381) being within one-hour drive time.

Key Point: It is notable that, for Cardiff International Airport and the St Athan EZ sites, around 45% of the study area population is within the 30-50 minutes' drive time band. Even a relatively small reduction in journey times to / from the VoG could significantly enhance the labour market catchment of the EZ.

6.3.14 These connectivity metrics can be used as a benchmark in any subsequent appraisal of options (i.e. a WelTAG appraisal) which would improve connectivity to these key site, e.g. option *x* would increase the labour market within a 40-minute drive time by *y*%.

6.4 VoG Public Transport Network

6.4.1 This section considers the public transport connectivity of the VoG and specifically the EZ sites.

Railway Network

6.4.2 The figure below shows the railway network in the Vale of Glamorgan and the surrounding counties.

Figure 6.9: Vale of Glamorgan Rail Network

6.4.3 As shown, the Vale of Glamorgan Line (VoGL) to the south of the County is the only railway line which directly serves the principal settlements in the local authority area. The line links Cardiff to Bridgend via Barry, Rhoose and Llantwit Major and is operated by Arriva Trains Wales, although the Wales and Borders franchise is currently out to tender. The line is split into three branches:

- The Barry Branch – which runs from Cardiff West to Barry Island;
- The Penarth Branch – which links Cogan junction to Penarth; and
- The Vale of Glamorgan Branch – which connects Barry to Bridgend.

6.4.4 While there are no other railway stations within the Vale of Glamorgan, the South Wales Main Line which connects Cardiff to Swansea via Pontyclun, Llanharan, Pencoed and Bridgend runs through the north of the County.

6.4.5 The rolling stock used on the Vale of Glamorgan line is relatively old, typically consisting of 2-car Class 150 diesel multiple units, strengthened to 4-car units for certain peak services.

Rhoose Cardiff International Airport

6.4.6 Rhoose Railway Station, the closest to Cardiff Airport, is situated approximately four miles to the south of the terminal building as illustrated in the figure below:

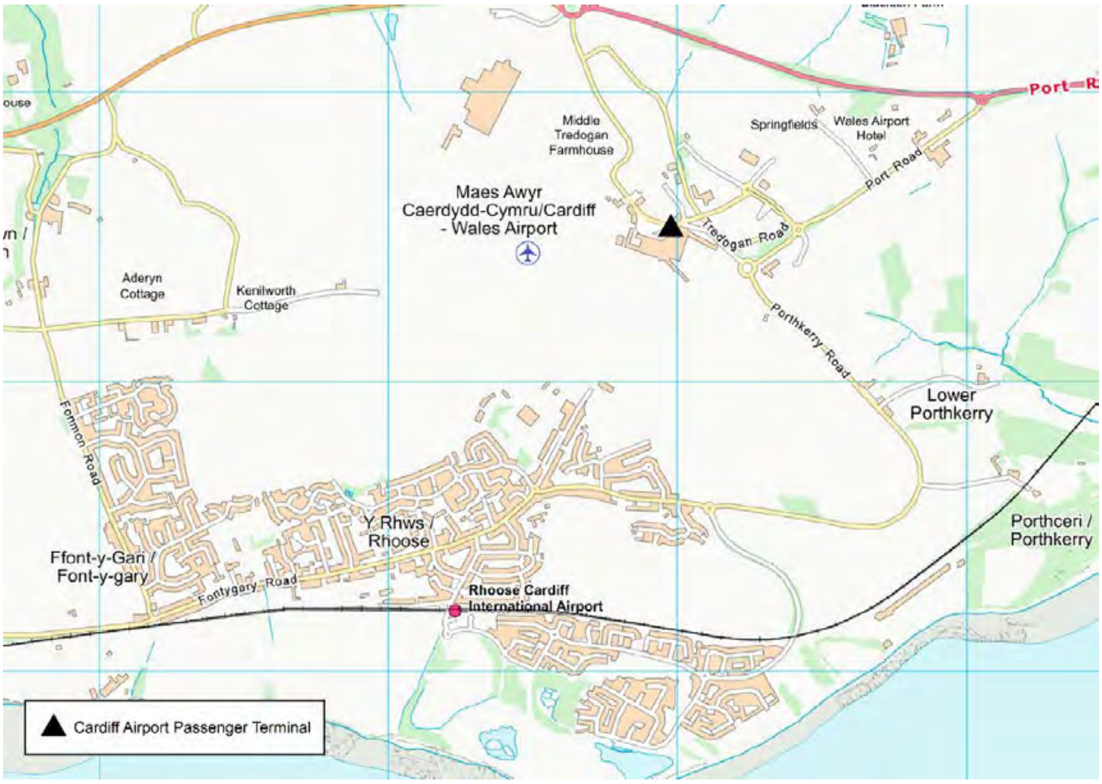

Figure 6.10: Rhoose Rail Station and Cardiff Airport

6.4.7 The station, which is located on the Vale of Glamorgan line, is of a two platform arrangement, but is somewhat unconventional in that the platforms are staggered either side of a level crossing (the 'Up' platform to the east of the crossing and 'Down' platform to the west).

6.4.8 The figure below shows combined station entries and exits for Rhoose Cardiff International Airport Station:

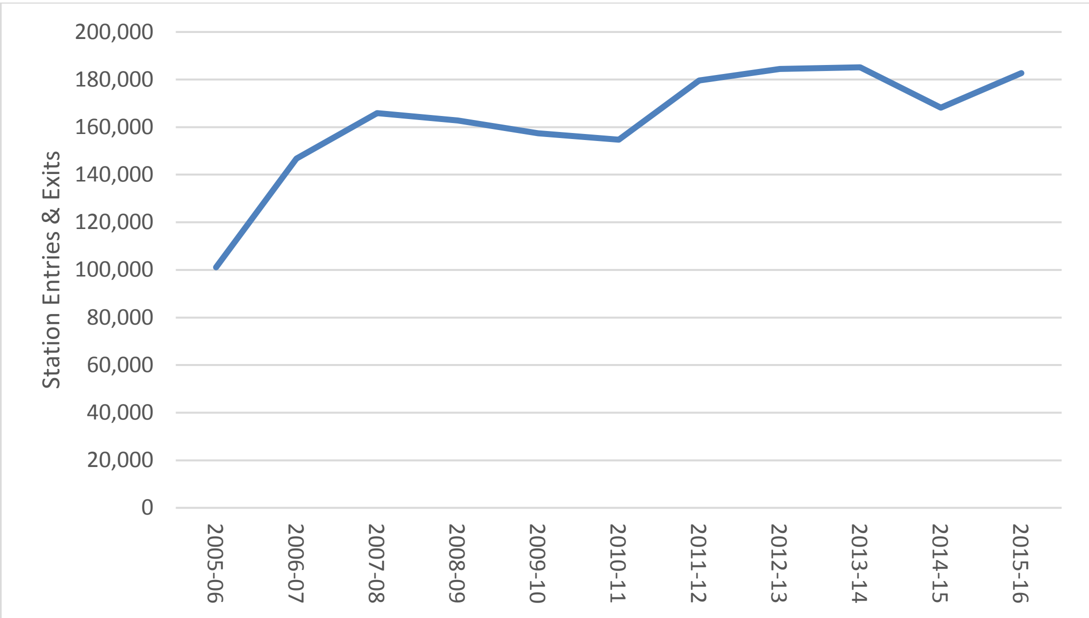

Figure 6.11: Rhoose Cardiff International Airport Station Entry & Exist (Source: ORR)

6.4.9 The table below shows the operating day, frequency and first & last departure times from Rhoose.

Table 6.3: Rhoose Railway Station First and Last Departures and Service Frequency

	To Cardiff		From Cardiff		Service Frequency
	First Departure	Last Departure	First Arrival	Last Arrival	
Monday - Friday	06:06	23:06	06:11	23:12	Hourly
Saturday	06:06	23:06	06:11	23:06	Hourly
Sunday	10:06	22:06	09:12	19:12	Every 2 hours

6.4.10 As shown, there is a reasonable service on both weekdays and Saturdays with services running between Rhoose and Cardiff Central on an hourly basis between 6am and 11pm. The Sunday service is slightly reduced however with a far shorter operating window, particularly in the westbound direction, and a lower frequency (one service every two hours).

6.4.11 There is a 66 space car park to the south of the station, with around five disabled spaces. The car park is not charged. The station is unmanned and there is no waiting room, although there are ticket vending machines and bus-stop style shelters. Step free access is provided to and from the platforms and trains. There are no public conveniences at the station.[25]

6.4.12 A complementary bus service (the 905) connects the station with Cardiff Airport for the duration of the train service (see below). Whilst broadly fit for purpose given available assets, it is a slightly cumbersome means of accessing the airport from Cardiff or the west. Users have to interchange, switching form rail to bus which is not desirable, whilst the station is fairly rudimentary (and at the end of a residential street) compared to other rail-air interchanges across the UK.

6.4.13 The table below sets out ticket prices for trips between Rhoose and Cardiff Central / Bridgend:

Table 6.4: Ticket Prices: Rhoose – Cardiff Central / Bridgend

	Off-Peak Day Return	Anytime Day Return
Rhoose – Cardiff Central	£5.90	£7.00
Rhoose - Bridgend	N/A	£3.90

6.4.14 It is worth noting that, despite the designation of Rhoose as an airport station, only day return tickets can be purchased. If the return journey is one or more days after the outbound journey, two singles have to be purchased, making the cost of a return to £9.

Bus Network

6.4.15 The figure below shows the extent of the bus network in the Vale of Glamorgan:

[25] http://www.nationalrail.co.uk/stations/RIA/details.html

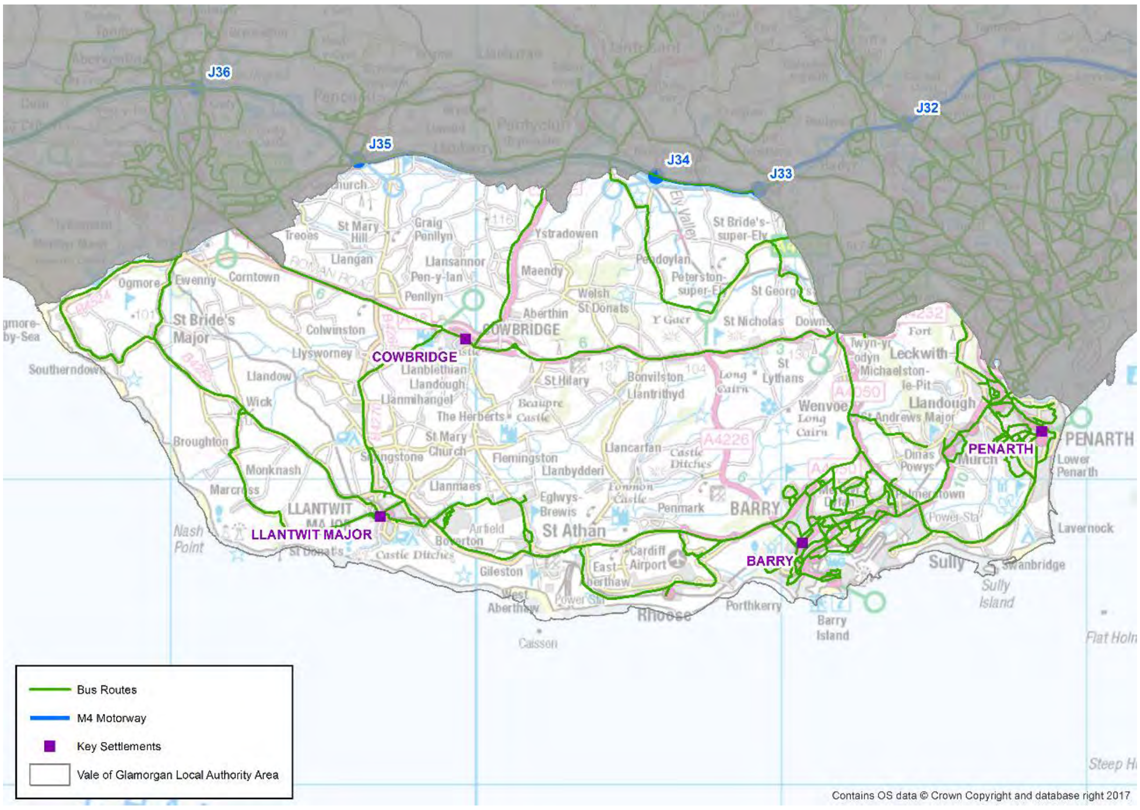

Figure 6.12: Extent of Bus Network in the Vale of Glamorgan

6.4.16 As shown, the bus routes are focussed on the key towns along the coast as well as Cowbridge in the centre. As may be expected given the rural nature of the County, there are few bus routes outside of the main A-roads and to the west of Barry, the main settlement in the VoG.

Cardiff Airport and St Athan EZ Buses

6.4.17 The table below details the bus network serving Cardiff International Airport and the EZ area.

Table 6.5: Bus Services to / from Cardiff Airport

Service Number	Origin Destination	Approximate Frequency	Nearest Stop	Fare (Adult Day Ticket)
T9 – Cardiff Airport Express Bus Service	Cardiff International Airport – Cardiff Central – Cardiff Bay	Every 20 minutes (summer); Every 30 minutes (winter)	Airport Passenger Terminal	Free on weekends; £5 single / £8 return on weekdays
905	Cardiff Airport - Rhoose Railway Station – MOD St Athan	Hourly	Airport Passenger Terminal / Camp, Cowbridge Road	£1 one way
X91	Cardiff – Llantwit Major (travelling through Rhoose)	Every 2 hours	Holiday Inn Express near Airport / East Camp, Cowbridge Road	£4.90
303	Bridgend – Barry (travelling through	Hourly	Holiday Inn Express near Airport / East	

Service Number	Origin Destination	Approximate Frequency	Nearest Stop	Fare (Adult Day Ticket)
	Llantwit Major, St Athan, Rhoose)		Camp, Cowbridge Road	

6.4.18 The T9 Airport Express Service is the key link between Cardiff Airport and Cardiff City Centre & Cardiff Bay. The service includes coach-style leather seating, climate control, WiFi, and extra luggage space, is free on weekends and costs £8 (Return) / £5 (Single) during the week, with the option to pay in Euros also available. The service operates up to every 20 minutes during the summer (April – October) and up to every 30 minutes during the winter (November – March). The end-to-end journey time is 40 minutes.

6.4.19 The figure below shows passengers numbers on the T9 Service for each year between 2014/15 and 2017/18.

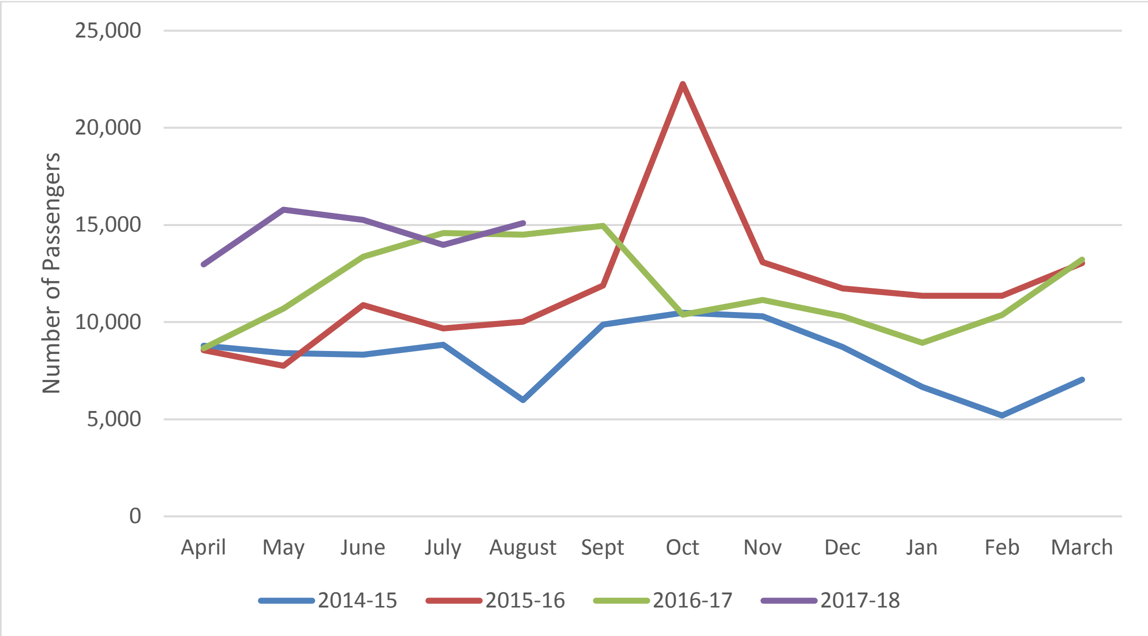

Figure 6.13: Number of Passengers on X91 Service 2014-15 – 2017-18 (Source: Welsh Government)

6.4.20 Overall, passenger numbers increased by 43% between 2014/15 and 2016/17 with data for the first five months of 2017/18 already tracking ahead of previous years suggesting that the total passenger figures for 2017/18 will be higher than 2016/17. The data suggests that passenger numbers fluctuate throughout the year although there is no clear monthly trend.

6.4.21 The remaining VoG bus services connect to both Cardiff Airport and St Athan. The 905 service is the express service between Cardiff Airport and Rhoose Railway Station which also connects to St Athan. The X91 links Cardiff to Llantwit Major via Rhoose and St Athan and Service 303 links Barry to Bridgend calling at Llantwit Major, St Athan and Rhoose. Both the X91 and 303 call close to the Airport but stop at the Holiday Inn Express rather than the passenger terminal. In all cases the nearest stop to the Enterprise Zone is East Camp which is just outside the entrance of the Business Park.

6.4.22 There are no bus services connecting direct to the airport from the north of the study area, with those wishing to travel to both Cardiff Airport and St Athan from areas such as Merthyr Tydfil, Blaenau Gwent and Rhondda Cynon Taf having to travel into Cardiff and interchange first.

Views of Consultees

6.4.23 As part of the consultation, we sought views on the suitability and problems associated with the current public transport network from VoG County Council, an EZ representative and the local authorities across the study area. As with the highway equivalent, the consultation findings will assist in contextualising the subsequent accessibility analysis.

Vale of Glamorgan County Council

- The Council noted that there is a perception that rail services from Barry towards Cardiff are seen to be capacity constrained, with relatively old rolling stock. Rail P&R sites, particularly Barry, are also evidenced to be at capacity.
- The rural (i.e. west of Barry) bus service is seen to be limited (as shown above). It was noted by the Council that improving north-south connectivity to the VoG could assist in supporting public transport services to from RCT and further afield.

Other Local Authorities

- There was a recurring theme throughout the consultation that the current public transport connections to the EZ and the VoG generally are not conducive to commuting. There are few direct routes (even from neighbouring RCT) and routes which do exist are seen to be circuitous and infrequent.
- Congestion is also seen to be a key issue impacting on bus services, particularly in the M4 corridor and arterial routes branching off from it. For example, RCT noted that one of its bus services from Tonypandy to Cardiff experiences a 24-minute timetable variation between peak and off-peak services. This is not seen to be conducive to travelling by public transport to Cardiff, let alone the VoG.
- From a rail perspective, all journeys to the VoG, except from Bridgend require interchange in Cardiff, which is seen to make this an unattractive option for accessing the Vale. This interchange issue is further compounded by capacity issues (despite service ‘strengthening’) and relatively long journey times considering the distance involved.

EZ Official

- It was noted that public transport access to the airport and EZ is limited, with the majority of people currently working at the EZ driving to work as public transport is not seen to provide a viable option. For example, it was explained that, if travelling from Rhondda Cynon Taf by public transport, it would be necessary to travel into Cardiff first and then take the train from Cardiff to the VoG which adds significantly to journey time and cost.
- In terms of access to the airport, it is noted that Rhoose provides an interchange but cannot be considered a substitute for a direct rail link (although it was acknowledged that there would need to be sufficient demand to build any case for investment in a rail link). In terms of leisure travellers, it was noted that the majority of people drive to the airport.

Traws Cymru

6.4.24 Traws Cymru, which is supported by the Welsh Government, operates long distance express bus routes in Wales, including the T9 airport service. They offered the following views in respect of public transport connectivity within the VoG:

- There are a number of pinch points experienced along the T9 route including Culverhouse Cross and Cardiff City Centre. Congestion within the city is often unpredictable but can occur at Callaghan Square and Lloyd George Avenue. Whilst it is noted that this does not affect patronage, it can cause dissatisfaction should there be delays when travelling to the airport.
- The T9 service depends on derived demand and can be affected by the number and frequency of flights from Cardiff Airport. Passenger numbers can also increase should there be a sport / music event being held, particularly in Cardiff.

Key Point: Whilst there is a reasonable public transport network connecting Cardiff City Centre with the Airport (and, to a much lesser extent, St Athan), connections from elsewhere in the Capital Region and areas to the west are limited, infrequent and generally require interchange. It is notable that those currently working in the EZ area generally travel to work by car. The lack of suitable public transport provision could act as an inhibitor to the growth of the EZ and the realisation of the wider sub-regional opportunity, particularly given low levels of car ownership in a number of parts of the study area.

6.5 Public Transport Connectivity Analysis

Journey Times

6.5.1 In order to quantify the existing public transport connectivity of the Vale of Glamorgan, a series of calculations were undertaken using TRACC accessibility software. TRACC calculates the quickest journey time by public transport between sets of defined locations within a defined time frame using public transport timetable data, road network information and a range of user-defined parameters.

6.5.2 The key origins used were the same as those used in the above Network Analyst calculation and the destinations were represented by Census output areas. Three calculations were undertaken in TRACC (covering the time periods 0500-0900, 0600-1000, and 0700-1100) and the results were used to calculate an average journey between each origin and destination pair.

6.5.3 Figures 6.14 – 6.17 show the public transport connectivity from Caerphilly, Pontypridd, Merthyr, and Port Talbot to the Vale of Glamorgan. Images showing the journey times from each of the other key origins are included in a standalone PowerPoint.

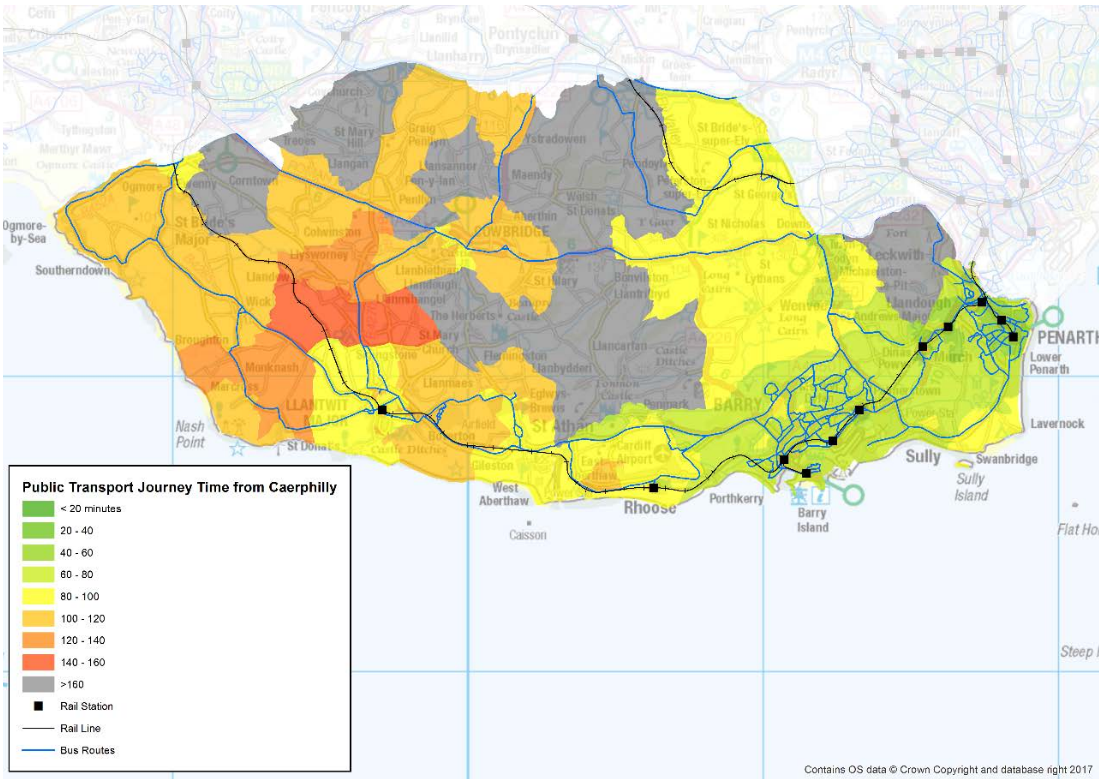

Figure 6.14: Public Transport Journey Time from Caerphilly to Vale of Glamorgan

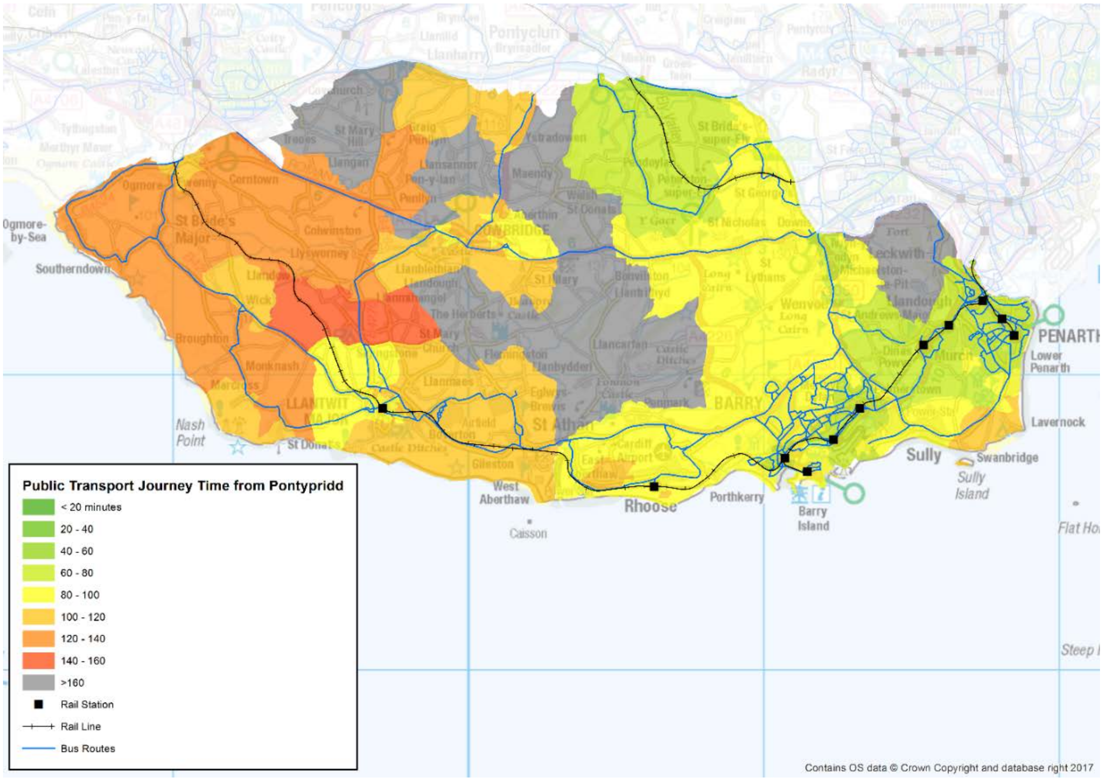

Figure 6.15: Public Transport Journey Time from Pontypridd to Vale of Glamorgan

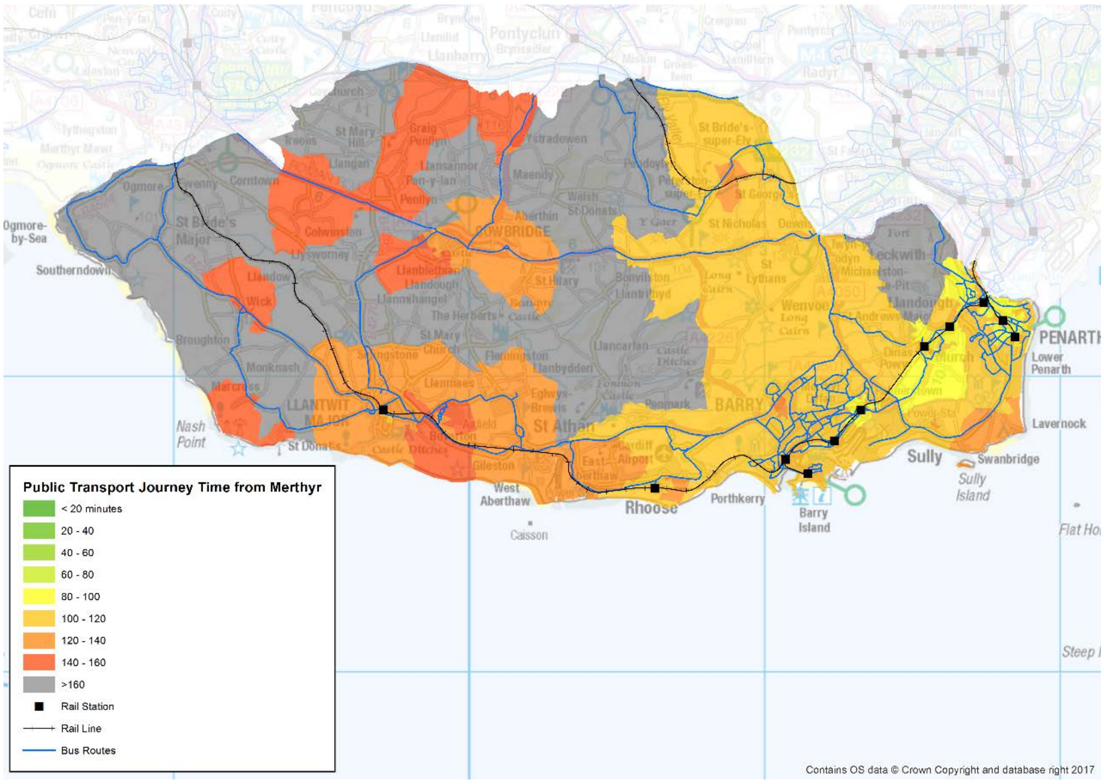

Figure 6.16: Public Transport Journey Time from Merthyr to Vale of Glamorgan

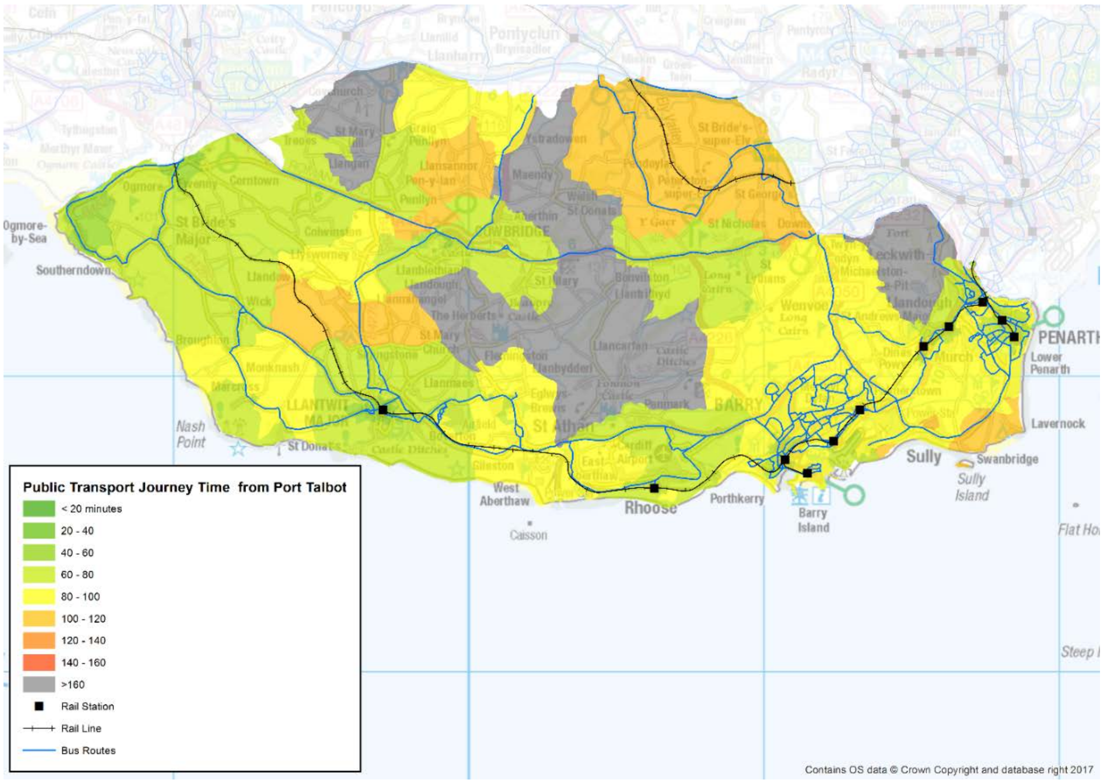

Figure 6.17: Public Transport Journey Time from Port Talbot to Vale of Glamorgan

Key Point: The main point from the above figures is that public transport journey times to the VoG generally and the EZ specifically are well in excess of those by car. Public transport is not currently a viable means of commuting to and from much of the VoG, representing a barrier to taking up employment opportunities there.

Cardiff Airport and St Athan Journey Time Catchments

6.5.4 As with the highway analysis above, a series of calculations was undertaken examining public transport journey times to both Cardiff Airport and the St Athan EZ sites from all origin locations across the study area. Origin locations were represented by Census lower super output areas and three calculations were undertaken (covering the time periods 0500-0900, 0600-1000, and 0700-1100) and an overall average calculated.

6.5.5 The figures below illustrate public transport journey times from the study area to Cardiff Airport and the St Athan EZ sites respectively.

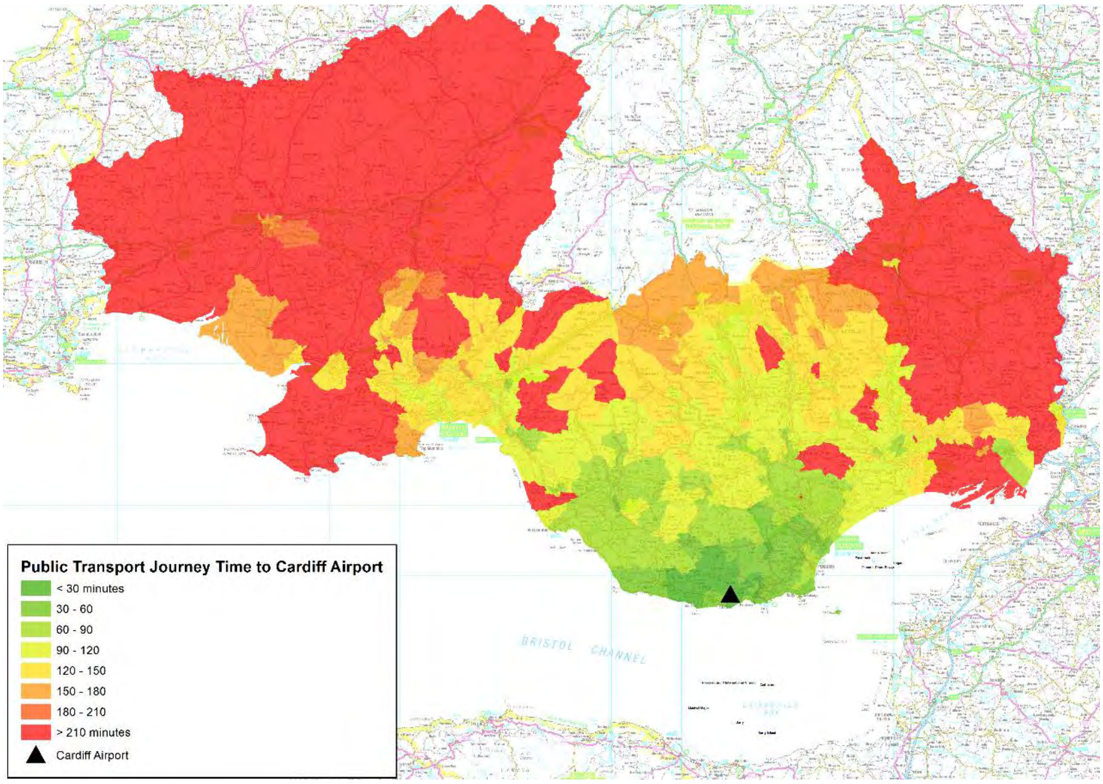

Figure 6.18: Public Transport Journey Time to Cardiff Airport

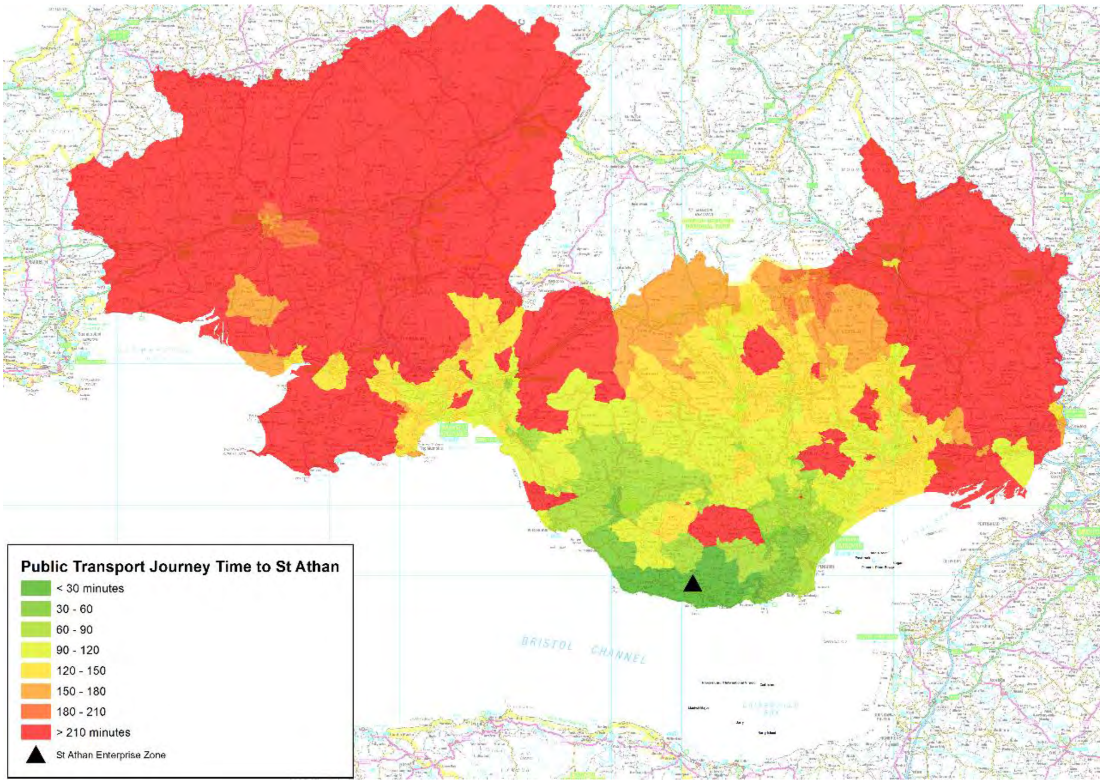

Figure 6.19: Public Transport Journey Time to St Athan

6.5.6 In order to put the above plots into context, the following table considers the working age population within various public transport time bands from each site – this is effectively a measure of **labour market accessibility** from the perspective of an employer.

Table 6.6: Working Age Population (16-74) in Ten Minute Public Transport Time Bands of Cardiff International Airport

Category	Working Age Population	Percentage
< 30 minutes	20,253	1.3%
30-60	129,897	8.6%
60-90	306,242	20.4%
90-120	453,465	30.2%
120-150	313,571	20.9%
150-180	89,216	5.9%
180-200	5,342	0.4%
>200 minutes	185,328	12.3%

Table 6.7: Working Age Population (16-74) in Ten Minute Public Transport Time Bands of St Athan Enterprise Zone

Category	Working Age Population	Percentage
< 30 minutes	26,914	1.8%
30-60	90,530	6.0%
60-90	277,844	18.5%
90-120	376,907	25.1%
120-150	377,030	25.1%
150-180	111,029	7.4%
180-200	16,707	1.1%
>200 minutes	191,809	14.6%

6.5.7 The key points from the above tables are as follows:

- **Cardiff International Airport:** Only 1.3% (20,235) of the study area population are within 30 minutes' public transport time of the airport, with 9.9% (150,150) being within one-hour public transport journey time.
- **St Athan EZ sites:** 1.8% (26,914) of the study area population are within 30 minutes' public transport journey time of the St Athan EZ sites, with 7.8% (117,444) being within one-hour drive time.

Key Point: The public transport journey time catchment of the Airport and St Athan EZ sites is extremely limited (9.9% and 7.8% respectively within one-hour public transport journey time) compared to the drive-based catchment.

6.6 Employment and Business-to-Business Accessibility

6.6.1 To provide an indication of access to employment across the study area more generally, a series of 'Hansen' Connectivity Indicators were developed. Hansen indicators provide a measure of the relative connectivity (based on travel times) of a set of 'origins' to all possible 'destinations' in a defined study area, weighted by a chosen destination 'criteria' (typically employment or population), with resulting high scores indicating good connectivity and low scores suggesting poorer connectivity. A decay-function is applied in the calculation such that opportunities at more distant locations (i.e. with a longer travel time) are valued' less than opportunities closer by, much in the fashion of a gravity model.

6.6.2 The weightings in this case were developed from analysis of National Travel Survey journey purpose by distance data. Each calculation produces a single value for each location reflecting its connectivity to all other locations (the so called 'Hansen' value). These values are unitless and are primarily intended to show the connectivity of locations relative to one another, rather than in any absolute sense.

6.6.3 Details of the journey time calculations undertaken in both Network Analyst (highway) and TRACC (public transport) to inform the development of the Hansen Indicators are provided in **Error! Reference source not found.** table below:

Table 6.8: Journey Time Calculations completed to Inform Hansen Indicators

Calculation	Origin	Destination	Start Time / Time Period
Network Analyst (Road)	MSOA[26]s in study area	MSOAs in study area	AM Period: 0630, 0700, 0730, 0800 Inter-peak Period: 1100, 1200, 1300, 1400
TRACC (Public Transport)	MSOAs in study area	MSOAs in study area	Am Period: 0500 - 0900 0600 - 1000 0700 – 1100 Inter-peak Period: 1000 - 1400 1100 - 1500 1200 - 1600

6.6.4 Using the results from the above journey time calculations, two connectivity indicators were then developed as follows:

[26] Medium Super Output Area (Census)

- **Access to Population within the study area** – the average AM journey times between each pair of origins & destinations was weighted by the number of people at the destination zones as the 'criteria'. The results for each origin-destination pair were then summed over all origin zones. This measure provides a representation of **business to people connectivity** in the study area i.e. the **potential labour market catchment** from each employment location.
- **Access to employment within the study area** - the average inter-peak journey times between each pair of origins & destinations was weighted by the number of jobs at the destination zones as the 'criteria'. The results for each origin-destination pair were then summed over all origin zones. This measure provides a representation **of business-to-business connectivity** in the study area.

6.6.5 Figures 6.20-6.23 show the Hansen indicators by highway and public transport modes respectively. All origins are split into 10 equal groups based on their Hansen score, representing best (dark green) to poorest (red) connectivity.

Labour Market Catchment

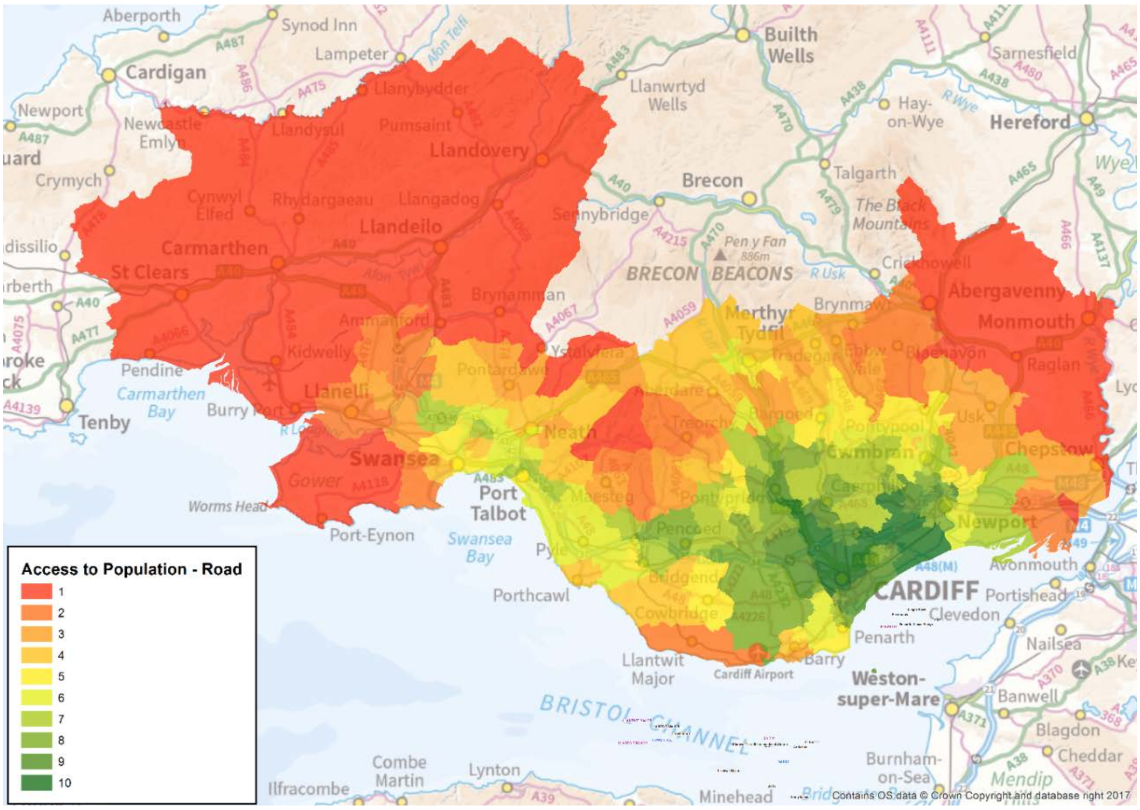

Figure 6.20: Access to Population / Labour within the Study Area (Highway)

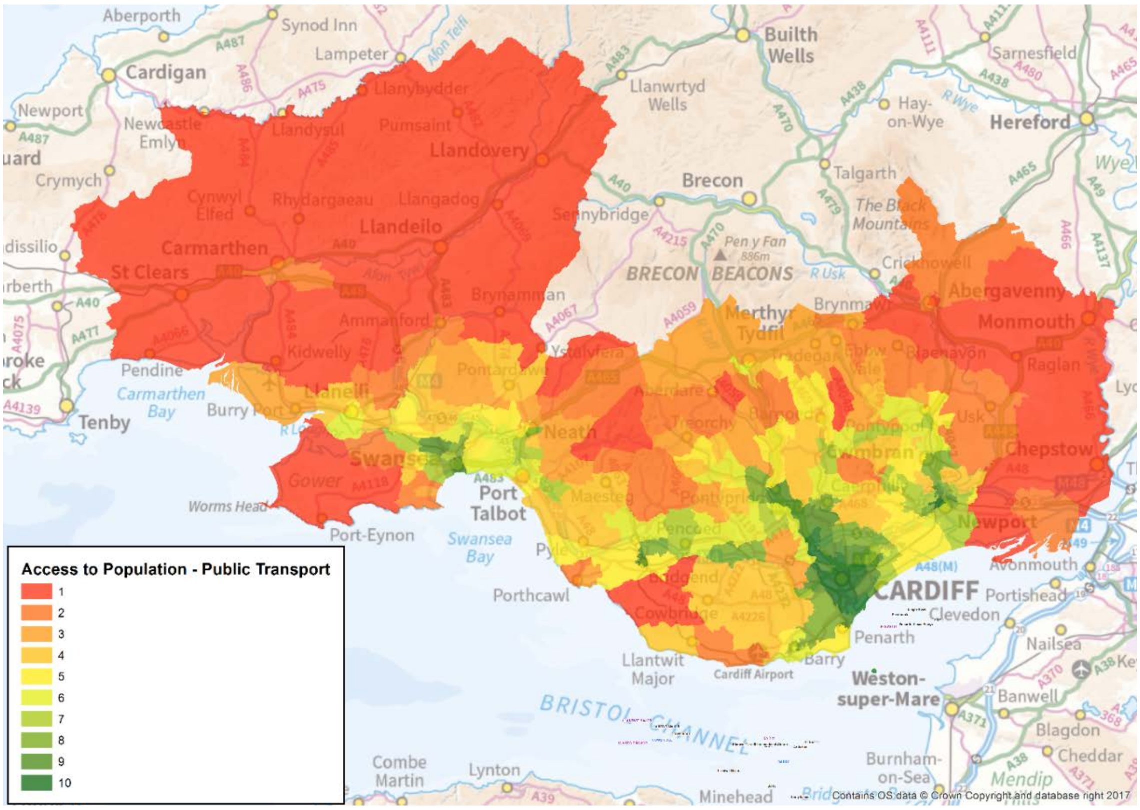

Figure 6.21: Access to Population / Labour within the Study Area (Public Transport)

6.6.6 The key point of note from the above maps is that, despite its geographic proximity to Cardiff City Centre, much of the VoG is mid-ranking in terms of its access to the wider labour market within the study area. In particular, the area around **the EZ is in the second lowest decile in terms of its labour market catchment by road and public transport**. This is a key finding - whilst the EZ offers a strategically important opportunity for South Wales as a whole, its labour market catchment is limited by its overall transport connectivity. This could present a challenge for businesses in the area recruiting and retaining staff and, perhaps more importantly, may negatively impact on the location decisions of prospective investors in the EZ.

6.6.7 The catchment analysis set out earlier in this chapter demonstrated that relatively modest journey time reductions (principally in terms of road travel) could significantly enhance the catchment of the EZ, and in itself makes a strong strategic case for investment.

Key Point: Whilst the EZ presents a regionally significant opportunity, the labour market catchment of the site is limited by the current transport infrastructure and services. If this issue is not resolved, it may have longer term implications for firms currently located in the VoG and in terms of the business location decisions of prospective investors.

Business-to-Business Accessibility

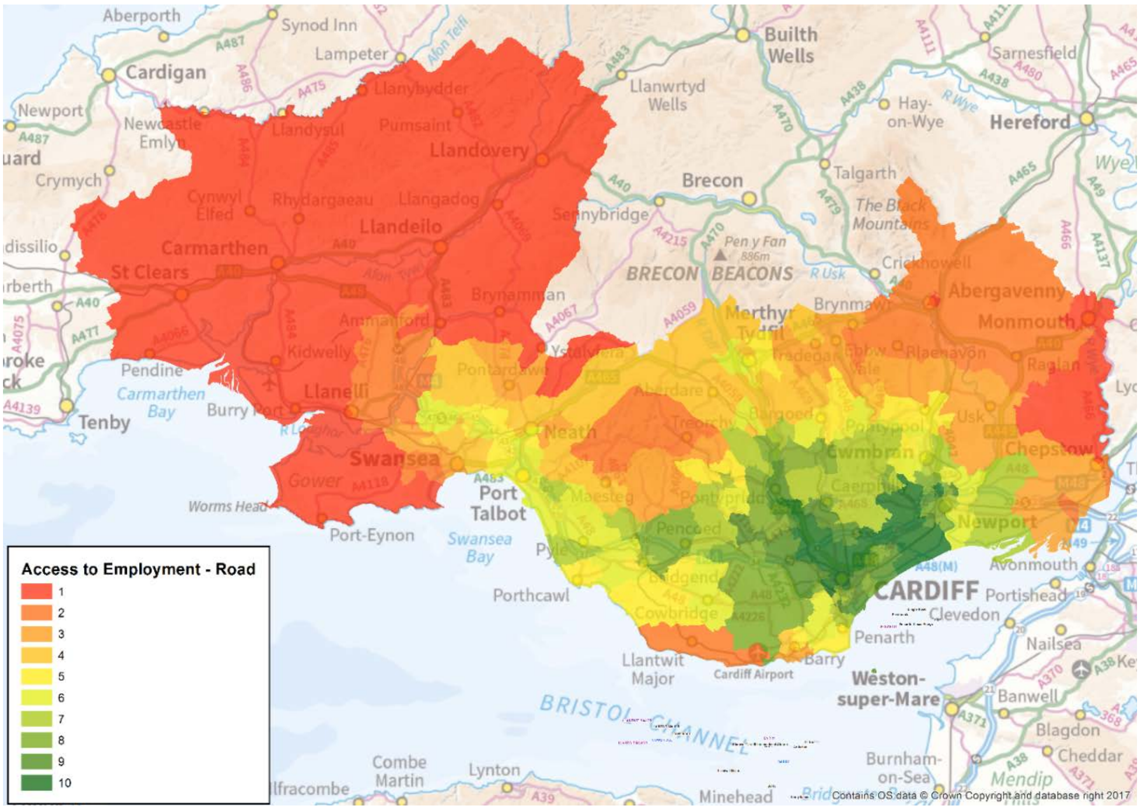

Figure 6.22: Access to Employment / Business in the Study Area (Highway)

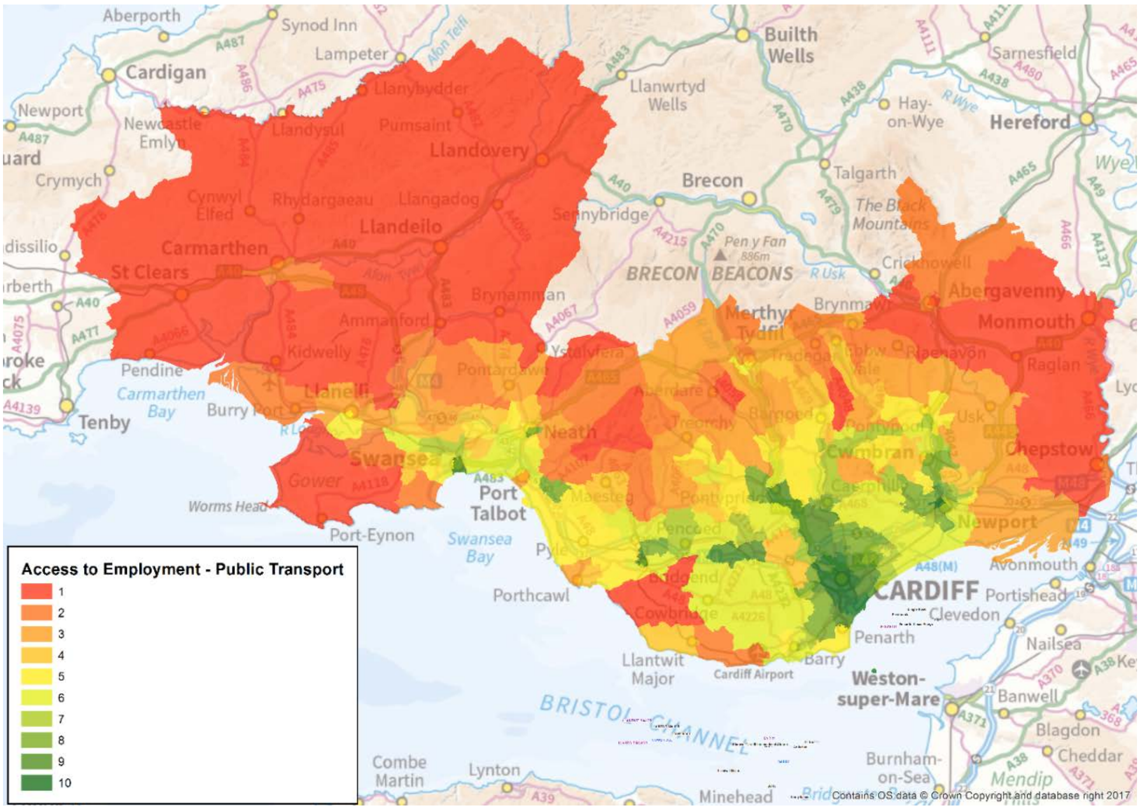

Figure 6.23: Access to Employment / Business in the Study Area (Public Transport)

6.6.8 The position of the VoG in relation to business-to-business accessibility is equally challenging. Whilst the eastern extent of the Vale is reasonably well-connected, the EZ is much less so.

Whilst business travel is generally less sensitive to journey times than commuter travel, it would nonetheless likely be an important consideration for any firm considering the VoG as an investment location.

6.6.9 The limited connectivity would also weaken the agglomeration benefits associated with the development of the aerospace cluster in the EZ by partially detaching it from the wider supply chain in South Wales.

Key Point: The limited labour market catchment of the EZ currently is compounded by comparatively poor business-to-business accessibility. This may have an impact on business decisions and would also weaken the agglomeration benefits associated with the development of an aerospace cluster in the Vale.

6.7 Freight Intensive Industries

6.7.1 The previous sections have focussed on personal and business-to-business accessibility. However, given the focus of the EZ on aerospace and manufacturing, it is also important to consider the movement of freight in the context of the transport network.

6.7.2 This section considers the distribution of freight intensive industries across the study area. Freight intensive industries includes agriculture, forestry and fishing; mining and quarrying; manufacturing; electricity, gas, steam and air conditioning supply; water supply, sewerage waste management and remediation activities; construction; and transportation and storage as these sectors are most likely to be associated with the movement of goods.

6.7.3 The figure below shows the distribution of freight intensive industries in terms of the percentage of jobs in freight intensive industries at the MSOA level.

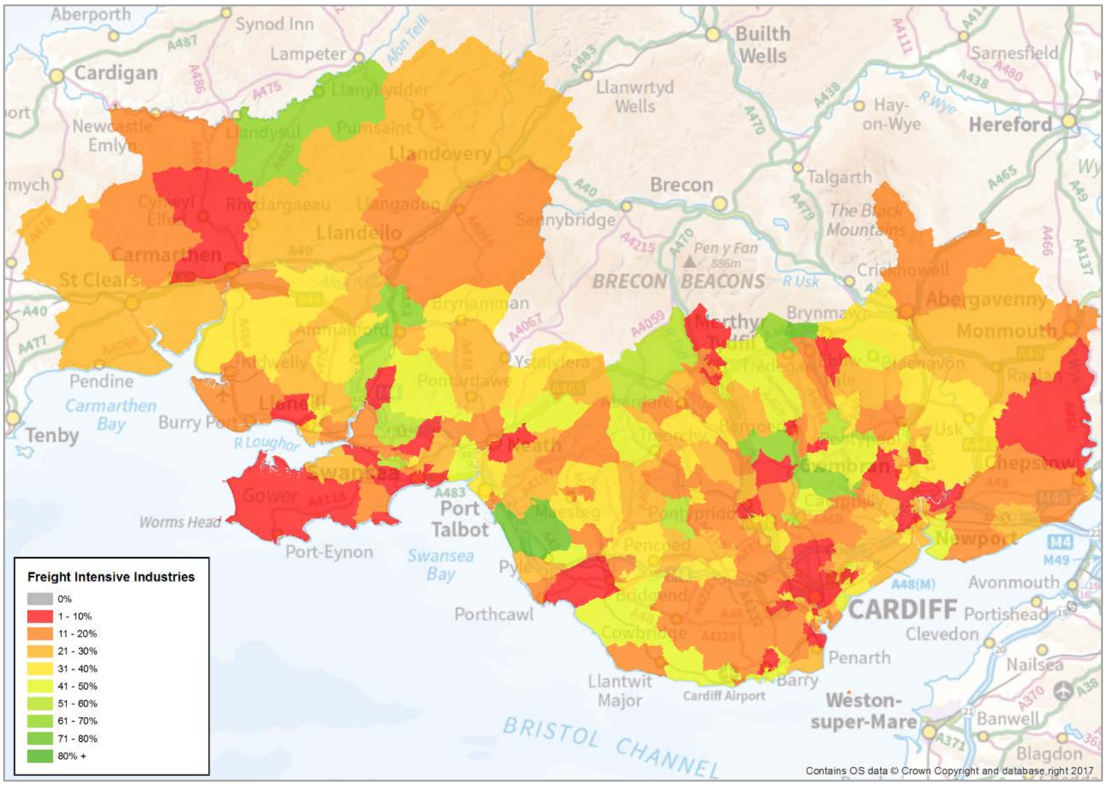

Figure 6.24: Percentage of Jobs in Freight intensive industries (MSOA level)

6.7.4 As would be expected, high concentrations of freight intensive industries are generally found outside urban areas in Blaenau Gwent, Neath Port Talbot, Caerphilly and Merthyr Tydfil. With freight intensive industries generally requiring greater areas of land, their location in the less built up areas is expected.

6.7.5 In terms of the Vale of Glamorgan, the area within which Cardiff Airport and St Athan Enterprise Zone are located has a relatively high proportion of jobs in freight intensive industries (42%). This includes transportation and storage, which makes up 15% of industry in the MSOA, and manufacturing and electricity, gas, steam and air conditioning supply which each account for 10% of industry in the MSOA. This level of freight intensity can be reasonably expected to grow as the EZ proposition is developed.

6.7.6 Despite the high freight intensity of the area, the existing transport network in the VoG is less than ideal for the movement of freight. Issues associated with journey time reliability, routing through broadly residential areas and a circuitous route to West Wales are negative from the perspective of the haulage and logistics industry, as well as the local population.

6.7.7 As part of this study, we consulted with a freight industry body to seek views on the connectivity of the VoG. The organisation noted that HGVs use the strategic routes into the VoG, departing the M4 at J33 and travelling via Culverhouse Cross and the A48. It was noted that this creates a challenging mix of strategic and local traffic, and it is argued that the congested road network serving the airport and wider EZ will act as a barrier to the growth of the site.

6.7.8 It was further noted that the routes within the are generally narrow and poorly aligned, particularly south of the A48. The ideal from the perspective of the consultee is accessing the EZ from J34, as it would allow freight to stay on the M4 longer, thus supporting improved strategic routing. However, current north-south connections do not support this.

Key Point: Freight access to and from the Vale of Glamorgan is sub-optimal, with issues associated with journey time reliability, routing through broadly residential areas and a circuitous route to West Wales. The area around Cardiff Airport has a high proportion of freight intensive industries, whilst the focus of the EZ on aerospace and manufacturing means that there is likely to be significant growth in freight movements from the VoG in the medium-term. The provision of appropriate freight routes to the M4 is a key consideration of any future improvements to VoG connectivity.

6.8 Wider Transport Developments in South Wales

6.8.1 Both WG and the South Wales City Regions recognise the importance of investment in transport infrastructure if wider economic aspirations are to be realised. Improvements in connectivity to / from the VoG would be realised within a wider context of almost unprecedented transport investment in the region. The key investments / schemes are set out below in order to provide a degree of context for the wider study.

South Wales Metro

6.8.2 The principal wider transport development in the study area is the South Wales Metro, an integral component of the Cardiff Capital Region City Deal, accounting for around three quarters of the total value of the deal. The Metro is a phased regional project intended to deliver higher public transport frequencies and enhanced inter-modal integration. It is envisaged that this will support economic development and regeneration within the Capital Region.[27]

6.8.3 Metro is anticipated to comprise some, or all, of these elements:

- an electrified rail system;
- integrated transport hubs;
- park-and-ride facilities;
- new (including some on-street) light rail and/or bus rapid transit routes;
- better integration of services across modes and operators; and

[27] http://gov.wales/docs/det/publications/160224-metro-information-brochure-en.pdf - p.8

- active travel interventions.

6.8.4 Enhanced services on the Valleys Lines are a core part of the project. This scope of Metro includes all of the lines in and north of Cardiff, the Vale of Glamorgan line, the Ebbw Valley and Maesteg branches, the Marches line to Abergavenny and the South Wales mainline. The Valley Lines Electrification (VLE) project has been integrated into the Metro programme as the Valley Lines Modernisation (VLM) scheme.[28]

6.8.5 Metro Phase 1 (£77million) has already made improvements, and significant progress has been made on the next phase of the project. Phase 2 is likely to be predominantly, although not exclusively, focussed on rail based measures.

6.8.6 The main point here is that Metro will enhance accessibility and reduce journey times across the Cardiff Capital Region, effectively bringing settlements in the region 'closer' together. Set against this backdrop, connectivity improvements to / from the VoG would complement the Metro initiatives, providing the widest possible labour market catchment for the EZ.

Key Point: Improving connectivity to and from the Vale of Glamorgan would be in keeping with the principles of the Metro proposals. When taken together, the Metro and VoG connectivity improvements would complement each other in supporting the regionally significant economic and employment opportunities offered by the EZ.

Other Transport Investment

6.8.7 Outwith the Metro proposals, there is an arguably once in a generation programme of transport investment ongoing in South Wales at present. This includes:

- Commitment to the construction of the £1 billion M4 Relief Road south of Newport, which will significantly reduce journey times and improve journey time reliability on the M4 Corridor.[29]
- Completion of the electrification of the South Wales Mainline between London Paddington and Cardiff Central (due to be completed by December 2018). The route will be served by new *Super Express* trains offering a 15% increase in capacity during the morning peak hours and a 15-minute end-to-end journey time reduction. The further electrification of the route to Swansea has been scrapped although the new rolling stock will be bi-mode, and thus can operate as diesel services between Cardiff and Swansea, offering a 19-minute end-to-end (i.e. Paddington to Swansea) journey time reduction.[30]
- The abolition of tolls on both Severn Crossings by the end of 2018 (following a small initial reduction in January 2018). It is estimated that this measure will save regular motorists around £1,400 per annum.[31]

6.8.8 The above listed programme of investment will improve connectivity across South Wales, but also with England (and in particular supporting the 'Great Western Cities', an initiative jointly launched in February 2015 by the cities of Cardiff, Newport and Bristol to improve cooperation across the area and to develop economic and environmental partnerships).

6.8.9 Improvements to inter-regional connectivity present an important opportunity for the Vale of Glamorgan and South Wales more generally, particularly in terms of attracting inward investment and skilled labour. However, transport is a **two-way street** – improving connectivity exposes an area to additional competition. The VoG, including the EZ and Cardiff Airport, will be more readily competing with a wider area (particularly South-West England) for investment, skilled labour and, in the context of the airport, routes and patronage. From this perspective, it is therefore essential that the local / regional connections to the VoG are of a high standard,

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[28] http://gov.wales/docs/det/publications/160224-metro-information-brochure-en.pdf - p.10

[29] http://gov.wales/topics/transport/roads/schemes/m4/corridor-around-newport/?lang=en

[30] http://webarchive.nationalarchives.gov.uk/20100516005022/http://dft.gov.uk/pgr/rail/pi/rail-electrification.pdf

[31] http://www.bbc.co.uk/news/uk-wales-politics-41271239

making the EZ and the area more generally an attractive place to live, work and invest. There is otherwise a risk that the economic gravity of the area could shift to the east.

Key Point: There is a once in a generation programme of strategic transport investment taking place in South Wales at present. This presents a significant opportunity for the VoG, particularly the EZ, in terms of attracting investment and skilled labour. However, transport is a two-way street and the area will be competing for investment, skilled labour and, in the context of Cardiff Airport, routes & patronage, against a much wider geographic area. It is therefore essential that local / regional connections to and from the VoG are of a high standard if the economic potential of the EZ and wider area are to be realised.

7 The Future of Cardiff International Airport

7.1 Overview

7.1.1 The focus of this report has been on the case for improving connectivity to the VoG, with a view to supporting the strategic development and employment opportunities associated with the EZ. However, a by-product of any such measure would be improved surface access to Cardiff Airport, which could support route development, an increase in passenger numbers and the development of air freight. This chapter therefore considers the current market context in which the airport operates, the competitive positon of Cardiff International Airport and the emerging opportunities and threats.

7.2 Cardiff International Airport

7.2.1 Cardiff International Airport was nationalised by the Welsh Government in 2013, operating as an arms-length commercial business. The decision to nationalise the airport, taken against a backdrop of declining passenger numbers, reflected the strategic importance of the facility for Wales as a whole. As the owners of the airport, WG provides the policy and strategic framework under which it operates and develops. WG own the airport and plan to retain and grow it for the benefit of the people of Wales. There is seen to be an underlying need to safeguard and develop the airport for future generations.

7.3 Market Context

Air Traffic and Terminal Passenger Movements

7.3.1 In 2016, Cardiff Airport hosted 26,256 air traffic movements (ATMs) and circa 1.3 million terminal passengers, making it the 34th busiest airport in the UK by ATMs and the 20th busiest by terminal passengers[32]. This represents a circa 40% reduction in ATMs and 35% reduction in terminal passengers relative to volumes seen in the mid to late 2000s. However, this has not been a continuing decline as ATMs have been relatively consistent since 2012 and passenger volumes have seen 32% growth since 2014.

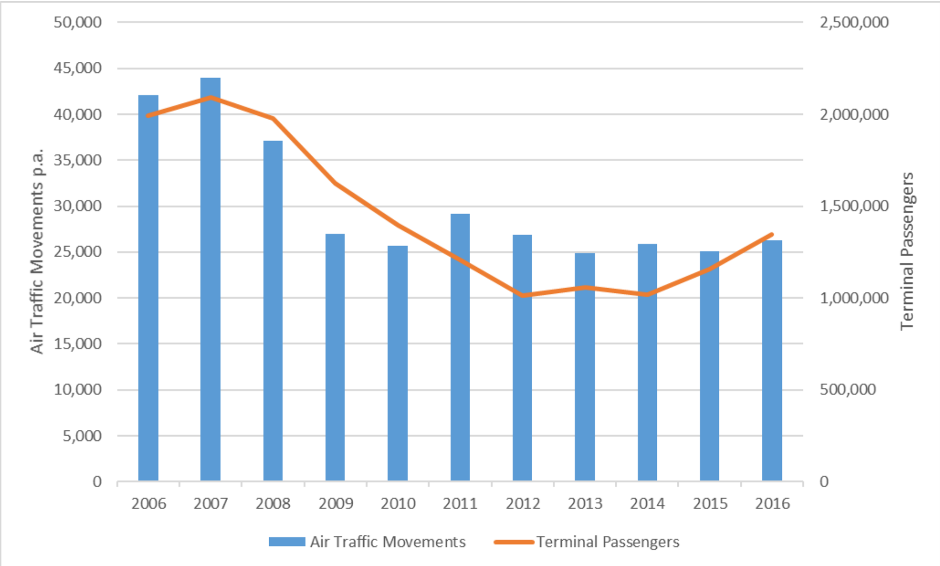

Figure 7.1: Annual Air Traffic Movements and Terminal Passengers at Cardiff Airport

7.3.2 Bristol Airport is located around 60 miles from Cardiff Airport, and so is also well used by Welsh residents and visitors to Wales. Bristol Airport similarly saw a substantial reduction in traffic

[32] This reflects the focus of Cardiff Airport on commercial flights in comparison to other some other UK airports (e.g. those accepting substantial volumes of military or flight school traffic).

volumes during the recession, but entered recovery earlier with passenger volumes increasing steadily since 2009.

Key Point: Whilst passenger numbers and air traffic movements at Cardiff have grown in recent years, the airport significantly lags equivalent UK regional airports on these metrics. The consultation strongly suggests that surface access to the airport is one of the principal causes of this.

Types of Air Traffic Movements

7.3.3 The figure below provides a full breakdown of ATMs by type at Cardiff Airport in 2016. Similar data is provided for Bristol Airport, the closest as the crow flies, for comparison.

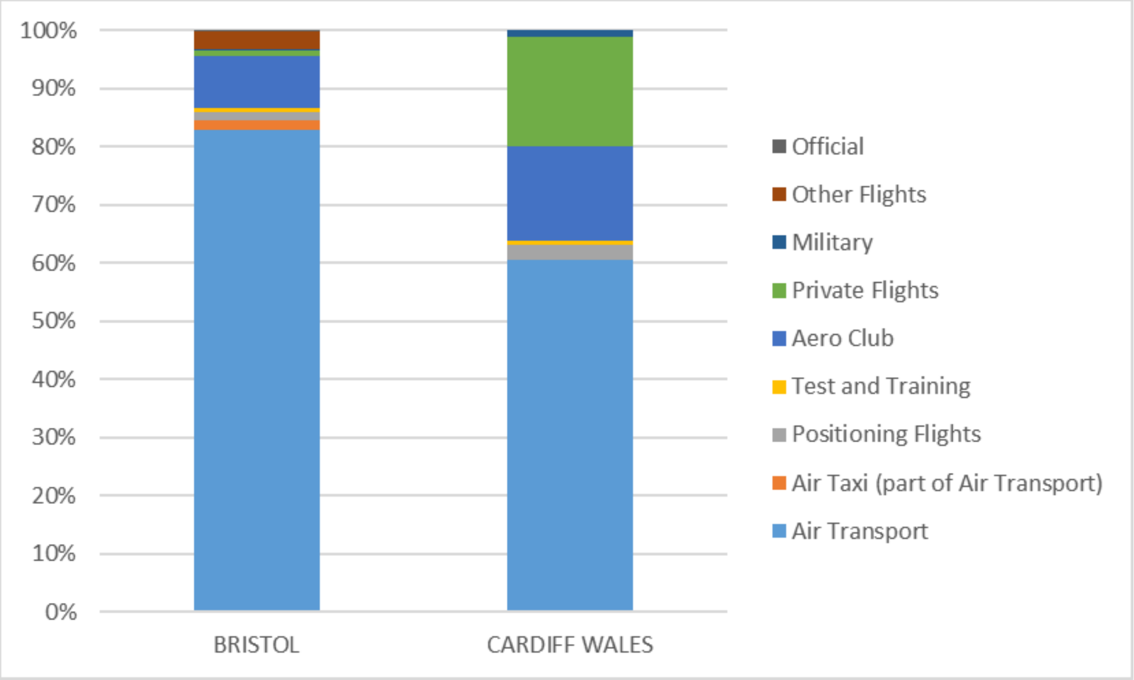

Figure 7.2: Breakdown of Air Traffic Movements

7.3.4 Some 61% of ATMs from Cardiff are classed as 'air transport' flights by the CAA. Air transport flights comprise all landings and take-offs of aircraft transporting passengers, mail and cargo on a commercial basis.

7.3.5 Cardiff Airport also supports high proportions of Private Flights and Aero-Club movements, and is home to two private aviation companies (Dragonfly and Signature Flight Support) and the Aeros Flying School. The Aeros Flying School has 45 planes and, also accommodates visiting aircraft.

7.3.6 There are no dedicated air freight flights from the airport at present.

7.3.7 In 2016, all air traffic movements from Cardiff Airport were undertaken by fixed wing aircraft.

Key Operational Facilities

7.3.8 Cardiff Airport has the following facilities:

- The runway length is 2,392 metres, which is capable of accommodating any aircraft currently in service. The runway is open 24 hours a day, seven days a week.
- The Instrument Landing System (ILS), a critical navigational aid for landing aircraft, is Category 3, which is slightly restricted during periods of poor visibility. However, the ILS is

due for an upgrade in 2019/20, and it is likely that this will be to the highest performance Category 1 system.

- There are no slot constraints at the airport currently. Our consultation with Cardiff Airport suggested that there may be a need for some remodelling if passenger numbers increase significantly.
- The terminal building is seen to be the only medium-term constraint in growth. Built in the 1960s, the capacity of the building would cap out at around 3 million passengers (roughly double what the airport currently handles), although some investment would be required at 2-2.5 million passenger mark.

Routes and Airlines

7.3.9 Eighteen commercial airlines presently operate out of Cardiff Airport, serving a variety of destinations in the UK and Europe, in addition to Florida in the USA.[33] FlyBe is the largest airline by air traffic movements. The table below indicates the number of airports served by flights from Cardiff Airport and the frequency of those flights during the summer months.

Table 7.1: Summary of Flight Destinations from Cardiff Airport[34]

Country	No. Destinations	No. Flights per Week (Summer)	
UK	9	62[35]	Year round
Spain	11	37	Summer only
		21	Year round
Netherlands	1	20	Year round
Ireland	2	16	Year round
Greece	6	9	Summer only
Italy	3	8	Year round
Portugal	1	7	Year round
		1	Summer only
France	1	7	Year round
Germany	3	7	Year round
Bulgaria	1	3	Summer only
Cyprus	2	3	Summer only
Turkey	1	3	Summer only
Switzerland	1	1	Year round
USA	1	1	Summer only
Total	**43**	**206**	**-**

7.3.10 Like many regional airports in the UK, Cardiff benefits from connections with European airport hubs such as Dublin, Paris and Amsterdam, facilitating long haul travel.

7.3.11 Bristol Airport is considerably larger and provides direct flights to 9 regional airports in the UK, 105 airports in Europe and 7 further airports across the rest of the world.

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[33] https://www.cardiff-airport.com/uploads/Summer_2017%20Timetable%20for%20WEB.PDF

[34] https://www.cardiff-airport.com/uploads/Summer_2017%20Timetable%20for%20WEB.PDF

[35] Not all flights operate for full duration of summer period.

Prospective New Routes

7.3.12 In September, Qatar Airways announced that it would operate a direct daily service from Cardiff to Doha starting in May 2018. This new connection was described in the consultation as a 'game changer', as it will facilitate onward connections to South East Asia, Australia and New Zealand. In addition, the aircraft being used for the flight, a Boeing 787 Dreamliner, is capable of carrying around 20 tonnes of cargo and could therefore assist in creating a new freight industry at the airport, focussed on high value and time sensitive freight.

7.3.13 From a short-haul perspective, there are aspirations to enhance domestic connectivity, better connecting Cardiff with other key airport across the UK. In the context of long-haul, the immediate aspiration is to secure a connection to the east coast of the United States. Coupled with the connections to European hubs and Doha, this would ensure that Cardiff is connected to an extensive range of global destinations.

7.3.14 Flybe withdrew their Cardiff to London City service at the end of October 2017. In their statement, FlyBe noted that the service was not commercially viable under the current Air Passenger Duty regime, but would consider re-introducing flights to London City in the future if tax powers were devolved and rates adjusted.

7.4 Competition with Other Airports

7.4.1 A variety of airports are accessible from South Wales, with Cardiff, Bristol, Birmingham and the principal London terminals all located within around three hours' drive of Cardiff. Local residents therefore have a good selection of travel options, although Cardiff's proximity is likely to be a significant attractor.

7.4.2 The airport explained that, for short-haul, their catchment is the Cardiff, Swansea and part of the Newport postcode areas, whilst for long-haul this extends to Gloucestershire, Somerset, Devon and Cornwall. However, it was explained that, in the current short-haul market, there is significant leakage from these postcode areas. It was noted that there is a prevailing and hard to tackle perception that Cardiff Airport is 'awkward to get to' (irrespective of the reality). Addressing the surface connectivity issue is seen as essential in addressing this perception.

7.4.3 In order to evidence the travel choices of local residents, we have undertaken a review of the results from the CAA Passenger Survey 2015. As part of this research, travellers were surveyed at departure gates at each of the above airports, and asked questions about themselves, the journey they were making and their reasons for travel from that airport. All passengers are asked for a home postcode (although not all provided it), which allows us to 1) understand the catchment of Cardiff Airport and 2) analyse the extent of use of other airports by those living in the study area.

7.4.4 In the sections below, the findings of this analysis of outputs from the CAA Passenger Survey 2015 are discussed. In all cases, we have only considered passengers who are beginning their journey at the noted airport, omitting those who have arrived at the airport from another flight connection (although these are relatively few in number).

CAA Data Request

7.4.5 This section briefly establishes the parameters of the CAA data available to the study. We requested detailed survey responses to the CAA Passenger Survey 2015 for all passengers departing Cardiff and Bristol Airports, in addition to passengers departing from Birmingham and Gatwick airports who have a home in Blaenau Gwent, Bridgend, Caerphilly, Cardiff, Carmarthenshire, Merthyr Tydfil, Neath Port Talbot, Newport, RCT, Swansea, Torfaen or Vale of Glamorgan. In both cases, we stipulated that we were only interested in passengers beginning their air journey at the survey airport, i.e. they were not simply transferring between planes at the survey airport. This data request yielded records for circa 17,500 passenger records. We requested data on the passengers' home and surface origins, travel purpose, travel destination, ticket type, group size, airport access mode and reasons for selecting airport used.

7.4.6 The CAA stratifies the survey design by carrier, route and quarter and seeks to survey as wide a range of flight numbers and routes as possible during each quarter. Nevertheless, it is not possible to survey every flight number and also it is unlikely that the proportion of survey responses gained for each flight number or route correspond with the true number of passengers carried on that same flight number or route over the quarter. As such, the CAA applies a weighting to each response, such that when the 'population' weighting values sum to the true number of passengers carried. This weighting is based on the carrier, flight number and sector for scheduled flights.

Users of Cardiff Airport

7.4.7 This section analyses the responses of all passengers who were surveyed at the departure gates at Cardiff and Bristol (as the main short haul competitor) airports, regardless of their surface origin.

7.4.8 The CAA calculates a weighting to be attributed to each passenger response, such that, when combined, the weighted responses total to the number of passengers which used a given route from the survey airport during that year. We have used the weighted passenger numbers in the following sections since we are considering all travel through Cardiff and Bristol Airports.

Travel Destinations

7.4.9 Although Cardiff Airport serves some long-haul destinations, many of these services have a limited frequency and operate only during peak season. CAA Data has been analysed to compare the destinations of those travelling from Cardiff (CWL) and Bristol (BRS) Airports. Destination countries were categorised as falling into one of the following five country types, as defined by the DfT's UK Aviation Forecasts 2017:

- Domestic;
- Western Europe;
- OECD (those OECD countries outside of Western Europe);
- Newly Industrialised Countries (NIC); and
- Less Developed Countries (LDC).

7.4.10 Trips to domestic destinations and those in Western Europe can largely be considered short-haul, and those to OECD, NIC and LDC country types are typically long haul.

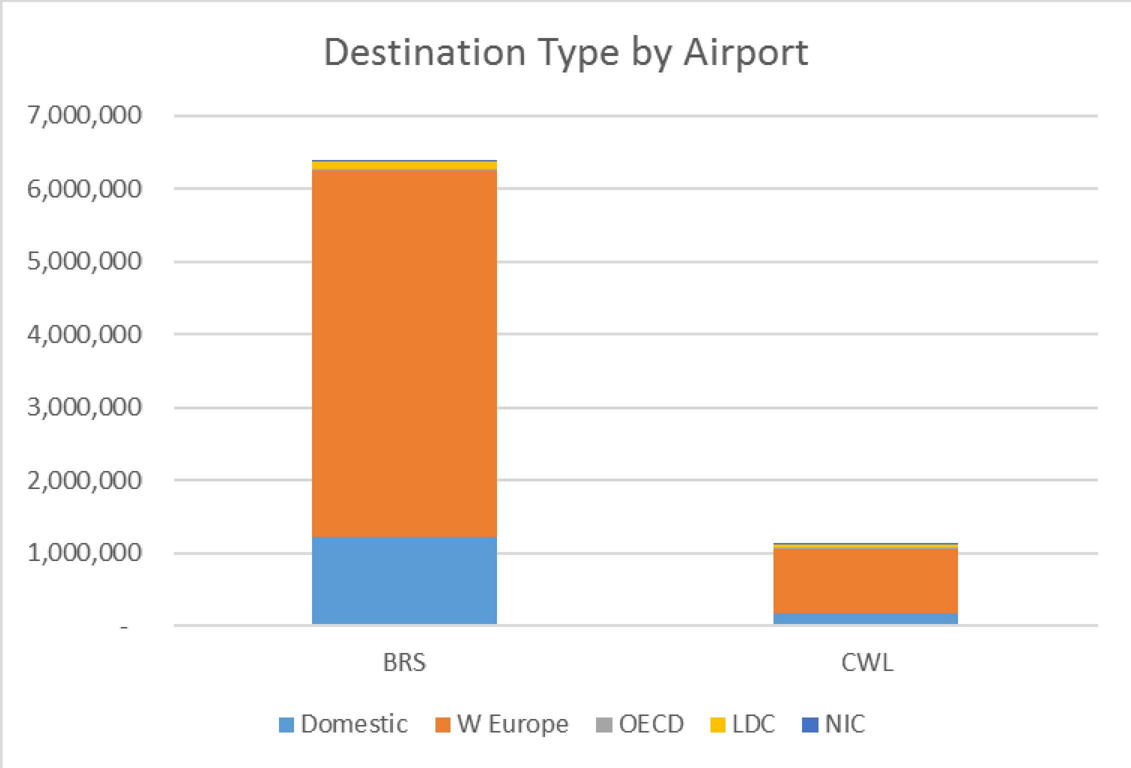


Figure 7.3: Trip Destination Breakdown by Airport

7.4.11 Although Cardiff carries a substantially smaller volume of traffic, it carries a slightly greater proportion of trips to OECD, NIC and LDC countries.

Key Point: Passenger movements through Cardiff Airport are dominated by short-haul trips to Western Europe, which is unsurprising given that FlyBe is the predominant scheduled airline operating from Cardiff, whilst there is also a well-established charter / package holiday flight market. It is however worth noting that Cardiff has a foothold in the long-haul market, with some 10% of trips to long-haul destinations (although a proportion of these are to North Africa, which may be considered short-haul and is also a market which has declined since the survey), whilst the equivalent figure at Bristol is less than 5%.

Travel Purpose

7.4.12 The data indicates that Cardiff and Bristol Airports carried similar proportions of business and leisure passengers in 2015.

Table 7.2: Journey Purpose Split by Airport

Airport	Business	Leisure
Cardiff	16%	84%
Bristol	13%	87%

Airport Catchment

7.4.13 Where postcode data was available, the surface origins of passengers using both Cardiff and Bristol Airports were mapped and this is shown in the figures below.

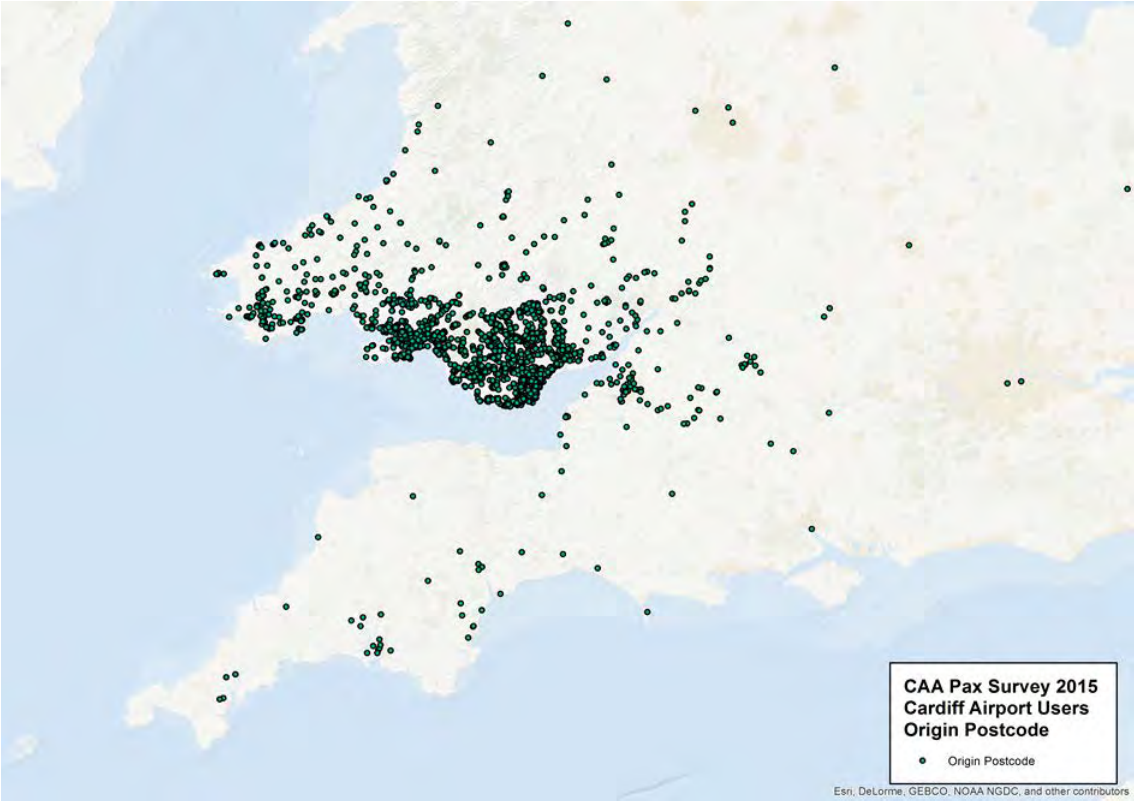


Figure 7.4: Passenger Surface Origins – Cardiff Airport

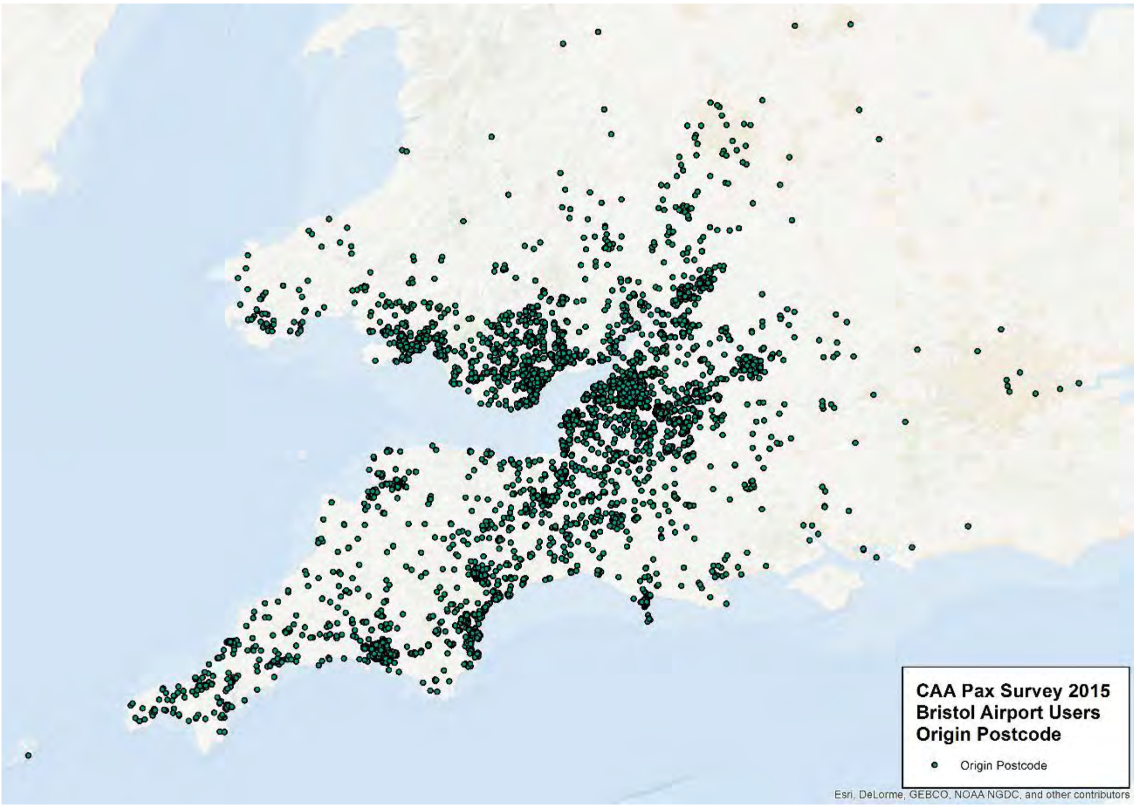


Figure 7.5: Passenger Surface Origins – Bristol Airport

7.4.14 It can be seen that Bristol Airport has a much wider passenger catchment area than Cardiff Airport, reaching further north towards Birmingham and south across Somerset, Devon and Cornwall. More notably, Bristol Airport draws a significant number of passengers from South Wales, particularly within the Cardiff Capital Region and Swansea Bay City Region. Indeed, it is notable that a large number of users of Bristol Airport actually live much closer to Cardiff Airport, but use the former for reasons explained later in this chapter.

Short Haul Travel (Domestic and Western Europe)

7.4.15 The table below shows the surface origins or destinations of short haul travellers using Cardiff and Bristol airports. So for example the data suggests that there were 642,275 air journeys which began in the Cardiff Council area in 2015 via either Cardiff or Bristol airports – of these 49% used Cardiff Airport and 51% used Bristol Airport.

Table 7.3: Short Haul Passenger Surface Origins, 2015

Local Authority	Cardiff + Bristol Airport Terminal Passengers	% Cardiff	% Bristol
Wales			
Cardiff	642,275	49%	51%
Swansea	260,303	43%	57%
Newport	167,824	27%	73%
Rhondda Cynon Taff	153,010	58%	42%
Caerphilly	142,698	37%	63%
Vale of Glamorgan	132,035	78%	22%
Carmarthenshire	105,806	49%	51%
Neath Port Talbot	98,275	35%	65%
Pembrokeshire	82,704	31%	69%
Ceredigion	79,146	67%	33%
Monmouthshire	78,271	16%	84%
Bridgend	75,690	37%	63%
Blaenau Gwent	65,222	33%	67%
Torfaen	55,002	31%	69%
Powys	35,189	27%	73%
Merthyr Tydfil	31,561	68%	32%
England			
Bristol	1,538,198	1%	99%
Somerset	1,162,299	0%	100%
Devon	801,284	1%	99%
Gloucestershire	454,857	1%	99%
Wiltshire	388,435	2%	98%
Cornwall	286,692	1%	99%
Dorset	124,399	0%	100%
Worcestershire	56,964	1%	99%
Herefordshire	47,168	8%	92%
Oxfordshire	27,110	0%	100%
Berkshire	25,792	0%	100%
West Midlands	16,460	2%	98%
Hampshire County	14,493	5%	95%

Local Authority	Cardiff + Bristol Airport Terminal Passengers	% Cardiff	% Bristol
Greater London	13,199	10%	90%
West Sussex County	10,226	0%	100%
Other (LA's generating <10000 pax pa at Cardiff and Bristol)	64,809	8%	92%
Total	**7,237,395**	**14%**	**86%**

7.4.16 These figures clearly show that there is a large draw to Bristol Airport from Wales but very little movement in the other direction. For example, 51% of air travel from the Cardiff Council area (via Cardiff or Bristol Airports) goes via Bristol Airport, whilst only 1% of travel from Bristol goes via Cardiff Airport. In terms of the Welsh local authority areas, all except RCT, Vale of Glamorgan, Ceredigion and Merthyr see more air travel via Bristol than Cardiff. This suggests that there is a significant potential market for Cardiff Airport – if all of the above Wales based trips were to transfer to Cardiff Airport, this would represent an additional 1.2 million terminal passengers.

Catchment – Long Haul Travel (OECD, NIC & LDC)

7.4.17 The table below summarises the surface origins of travellers using both Cardiff and Bristol airports.

Table 7.4: Long Haul Passenger Surface Origins

Local Authority	Cardiff + Bristol Airport Terminal Passengers	Cardiff	Bristol
Wales			
Cardiff	40,319	82%	18%
The Vale of Glamorgan	12,657	93%	7%
Swansea	9,751	91%	9%
Rhondda, Cynon, Taff	7,462	81%	19%
Carmarthenshire	7,316	57%	43%
Caerphilly	4,927	67%	33%
Pembrokeshire	4,612	100%	0%
Newport	4,259	76%	24%
Ceredigion	3,177	100%	0%
Neath Port Talbot	2,612	82%	18%
Blaenau Gwent	2,260	100%	0%
Bridgend	2,187	20%	80%
Monmouthshire	697	65%	35%
Torfaen	497	100%	0%
Merthyr Tydfil	443	100%	0%
England	-	-	-
Bristol	43,480	1%	99%
Somerset	30,283	0%	100%
Devon	20,846	0%	100%
Gloucestershire	14,662	4%	96%

Local Authority	Cardiff + Bristol Airport Terminal Passengers	Cardiff	Bristol
Cornwall	6,492	2%	98%
Wiltshire	6,111	2%	98.0%
West Midlands	1,884	0%	100%
Greater Manchester	584	0%	100%
Oxfordshire	584	0%	100%
Worcestershire	584	0%	100%
Hampshire	463	100%	0%
Herefordshire	105	100%	0%
Berkshire	84	100%	0%
Essex	22	100%	0%
Staffordshire County	22	100%	0%
Other	0	-	-
Total	**229,386**	**62%**	**38%**

7.4.18 Although the sample numbers are much smaller, the evidence here suggests less leakage from Wales when long haul is considered. Whilst 55% of Wales based Cardiff/Bristol short haul air travel goes via Bristol, for long haul only 18% is 'leaked' in this way.

Airport Access

7.4.19 Consultation identified that there is a perception that Cardiff Airport is difficult to access. The figure below compares the last mode of transportation used to access Cardiff (CWL) and Bristol (BRS) Airports.

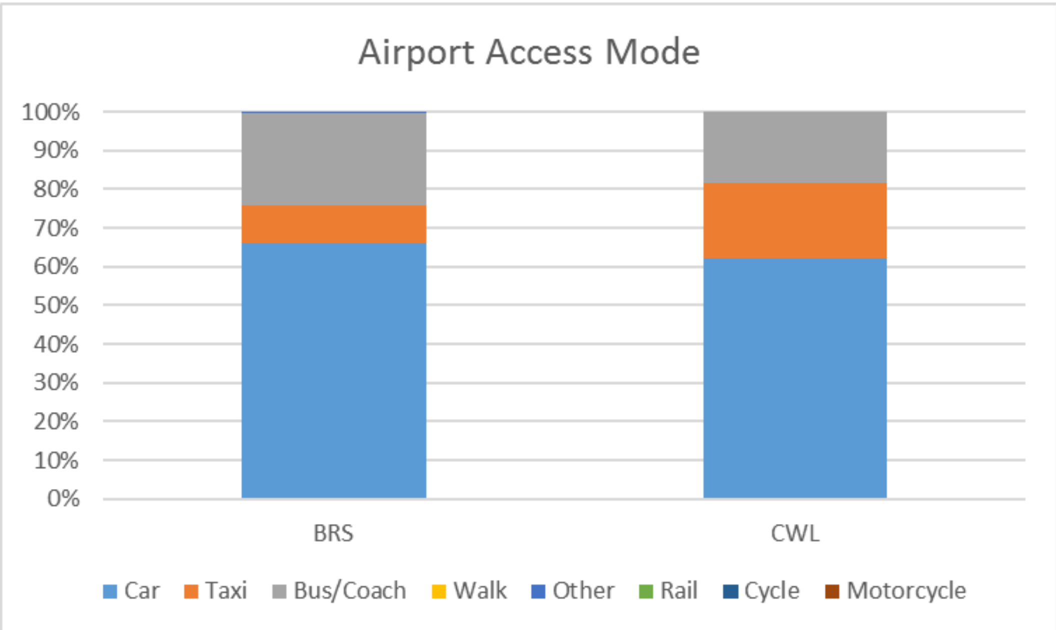


Figure 7.6: Last Mode of Travel Used to Access Airport

7.4.20 Similar proportions of passengers use the car, but a smaller proportion of passengers use the bus to access Cardiff Airport (which may include the rail-bus interchange at Rhoose). Correspondingly a greater proportion of Cardiff passengers travel by taxi.

Reasons for using Cardiff Airport

7.4.21 The survey also asks passengers the main reason why they chose to use their departure airport. The figure below contrasts the responses from travellers using Cardiff (CWL) and Bristol (BRS) Airports respectively.

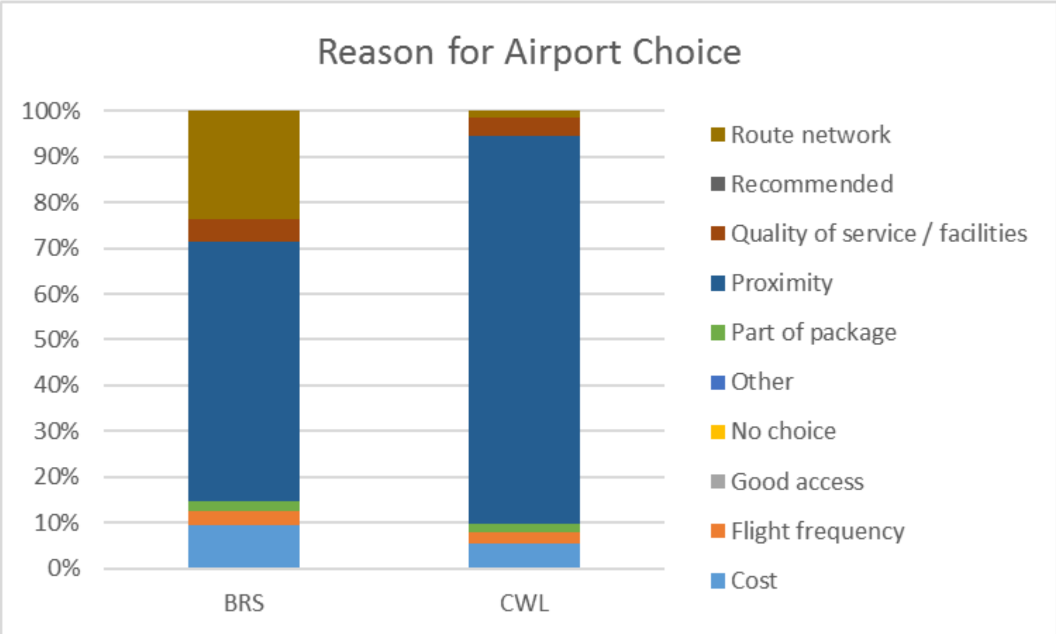


Figure 7.7 :Reasons for using Cardiff and Bristol Airports

7.4.22 85% of Cardiff Airport passengers indicated that they chose Cardiff Airport on account of its proximity to either their origin or destination (in probability the former). A far greater proportion (24% vs. 1%) chose Bristol Airport on account of its route network and flight connections, suggesting that an improved route network may increase the attractiveness of Cardiff Airport. The airports performed similarly in terms of the majority of other metrics, although Bristol appears to be chosen more frequently on the basis of cost.

Key Point: The data suggests that the overwhelming reason for passengers choosing Cardiff Airport is proximity. Only 1% of passengers choose to fly from Cardiff due to its route network. This suggests that Cardiff is currently seen as an airport of convenience rather than an airport of choice. There is however a degree of circularity here, with the limited route network influenced by a range of factors, one of which is understood to be surface connectivity.

Use of Other Airports by South Wales Residents

7.4.23 Many people resident in Wales elect to use English airports, which are generally located further from their homes than Cardiff Airport. This section analyses the responses of air passengers who are resident in one of the following 12 Welsh local authority areas, with a view to understanding why they have chosen to use another airport:

- Blaenau Gwent
- Bridgend
- Caerphilly
- Cardiff
- Carmarthenshire
- Merthyr Tydfil
- Neath Port Talbot

- Newport
- Rhondda Cynon Taf
- Swansea
- Torfaen
- Vale of Glamorgan

7.4.24 Welsh air passengers could have used any number of airports; however, this review focusses on Bristol, Birmingham and London Gatwick as these were considered to have a greater similarity in terms of service offering.

'Leakage' of Passengers

7.4.25 The figure below highlights airport use by South Wales residents from the CAA data:

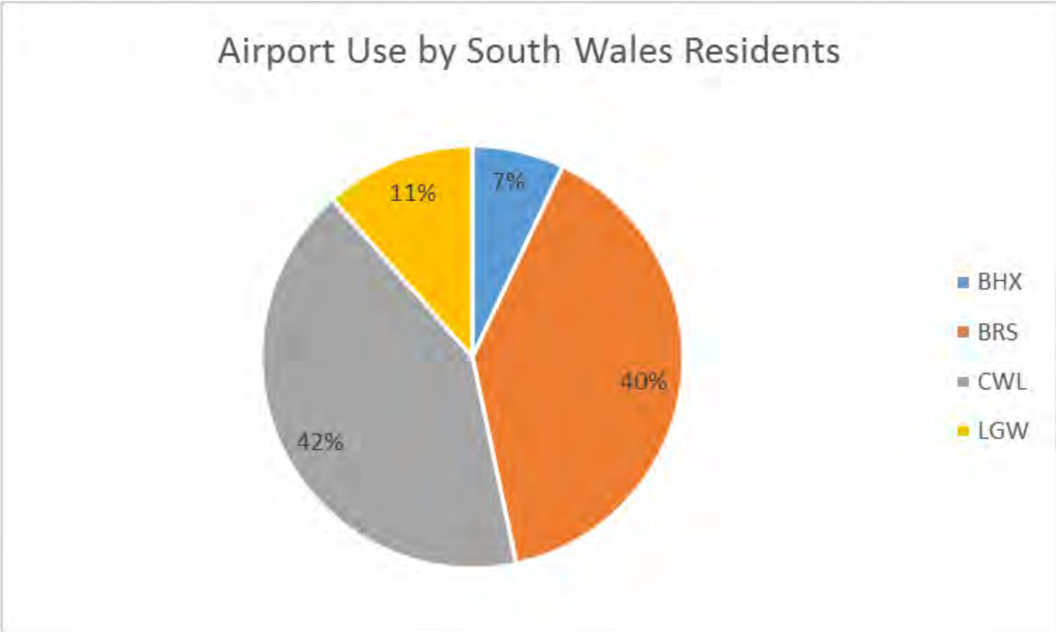


Figure 7.8: Leakage of Airport Passengers from South Wales

7.4.26 The figure shows that there is substantial leakage of passengers from South Wales to Birmingham, Bristol and Gatwick Airports, with only 42% of south Wales passengers surveyed using Cardiff Airport. This value is 44% for domestic trips. There will be additional leakage to London Heathrow; however, there is a lower level of direct competition between Cardiff and Heathrow airports on account of the destinations served.

7.4.27 Figure 7.9 below illustrates how this split varies by local authority area.

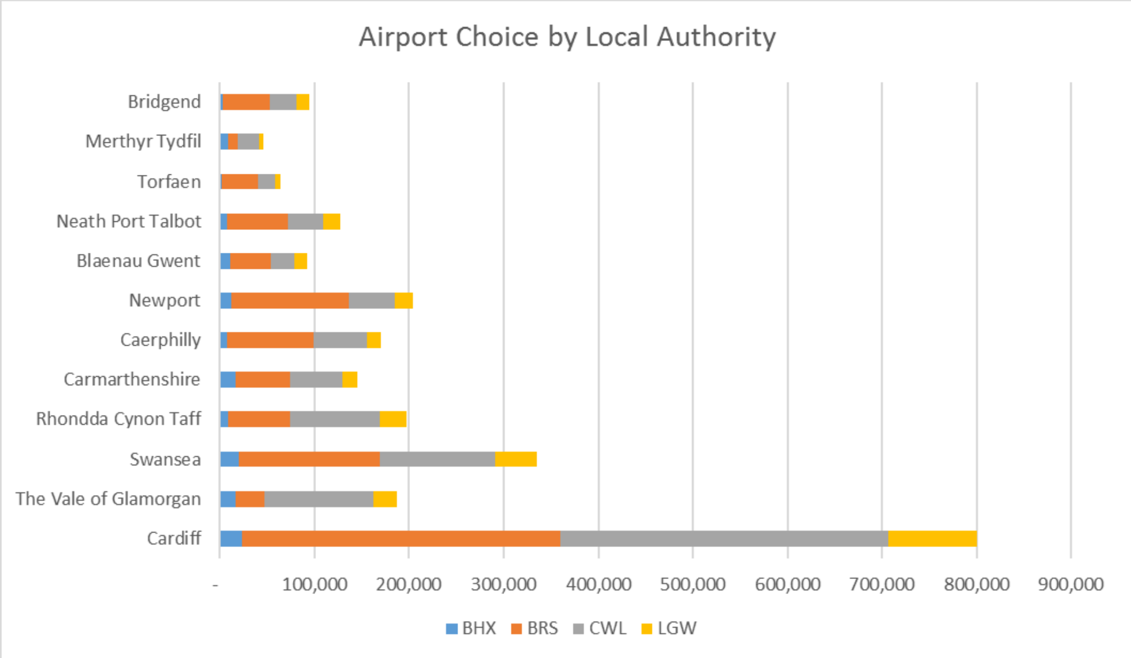


Figure 7.9: Airport Split by Local Authority (South Wales)

7.4.28 It is clear that the likelihood of travellers from South Wales using another airport is influenced by airport proximity but other factors also come into play, including cost, routes available and airport access. Reasons for airport choice are discussed later.

Long/short-haul destinations

7.4.29 Figure 7.10 indicates the destinations of South Wales residents air trips by airport used.

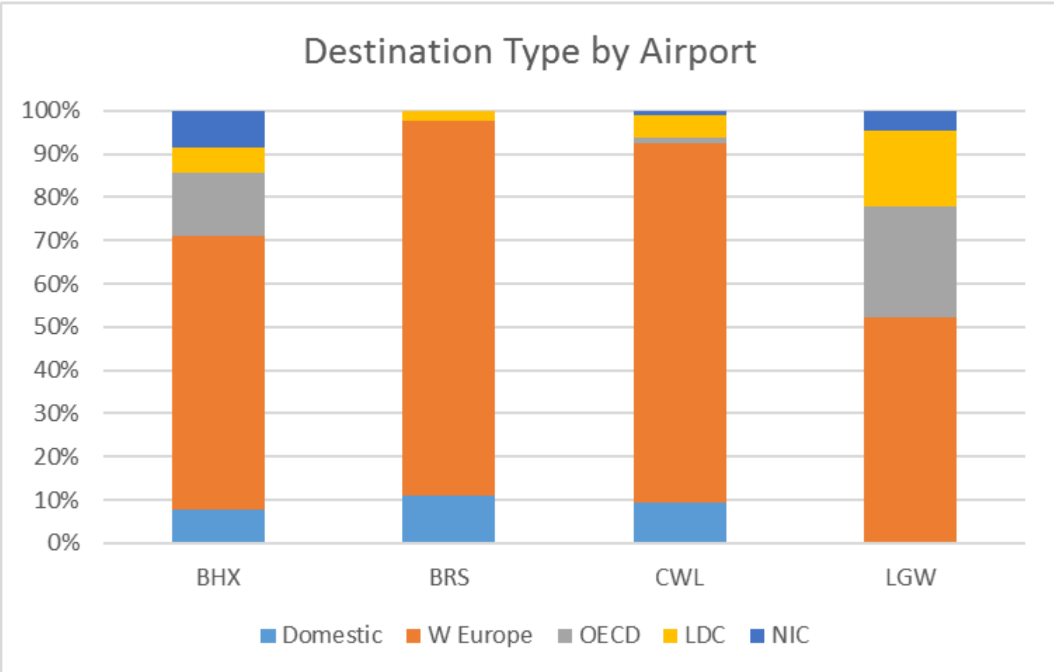


Figure 7.10: South Wales Passenger Destinations by Airport

7.4.30 As might be expected, passengers are much more likely to travel further afield to access long haul flights, which are unavailable locally. For example, circa 50% of South Wales passengers using Gatwick do so to access destinations in OECD, LDC and NIC countries. Given the focus of WG on growing the long-haul market through connections to key hubs, there is potential to grow this market both locally within Wales and through attracting long-haul passengers from further afield.

Business/Leisure

7.4.31 The figure below shows travel from each airport split by type:

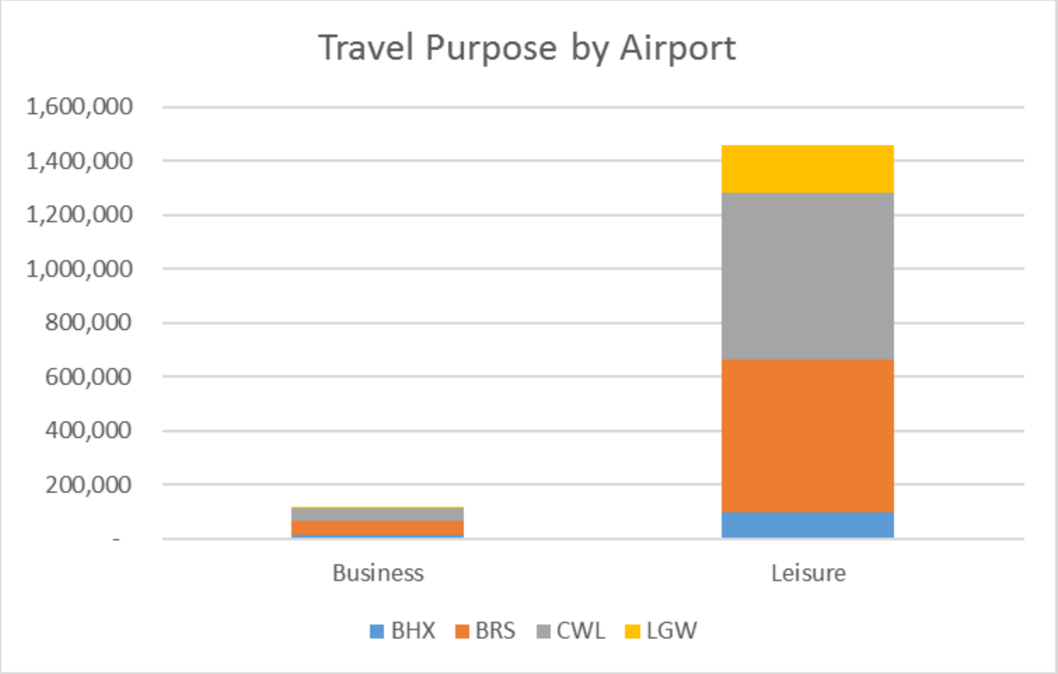


Figure 7.11: South Wales trips by Purpose and Airport

7.4.32 Approximately 7% of survey respondents living in South Wales indicated that they were travelling for business purposes. This value is lower than the average at each of the airports surveyed. 37% of business travellers used Cardiff, 49% used Bristol, 11% Birmingham and 3% Gatwick. Cardiff however was the most common choice for leisure travel, followed by Bristol, then Gatwick and then Birmingham.

Reasons for using another airport

7.4.33 The figure below sets out the reasons specified by South Wales residents for their choice of airport:

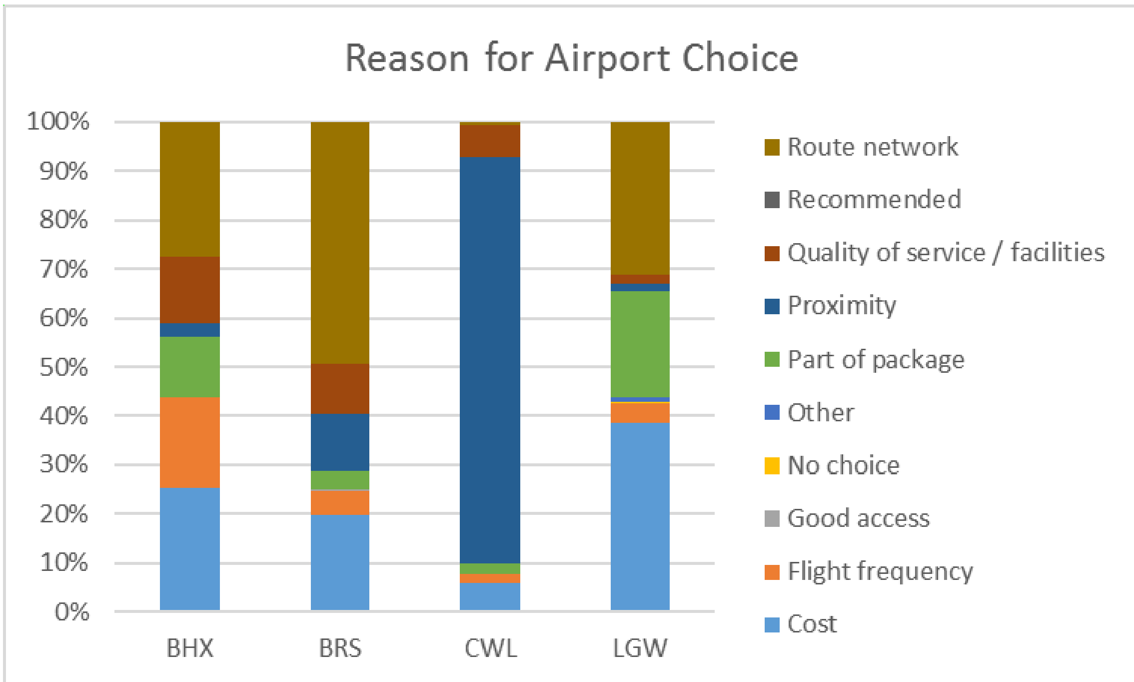


Figure 7.12: South Wales Passengers' Reasons for Airport Choice

7.4.34 The most notable point from the above figure is that the main reason for choosing Cardiff Airport is proximity, with only a fractionally small number of respondents citing the route network as a factor in their decision. This is contrast to neighbouring Bristol, where almost 50% of South Wales passengers cite the route network as the reason for their choice. This is a key finding as it implies that the proximity of Cardiff Airport is attractive to South Wales residents, but that the current route network limits the airport's use.

7.4.35 It also becomes clear that many of those travelling on package holidays, must travel through the larger airports of Birmingham and Gatwick as part of their package.

Key Point: The analysis of 'competing' airports clearly demonstrates that Cardiff is experiencing significant leakage of demand to Bristol, Gatwick and Birmingham airports amongst others.

7.5 Benchmarking

7.5.1 In developing the analysis, a degree of benchmarking was undertaken with 'secondary' comparator airports on the European periphery, with a view to identifying the level of Welsh connectivity compared to other 'peripheral' European airports. The results are shown in the table below:

Table 7.5: Benchmarking with EU Peripheral Secondary Airports (2015) [36]

City / Airport	Passengers (Million)	Long Haul Routes	Short Haul & Domestic Routes	National Population (Million)
Cardiff	1.35	1[37] & 1 Seasonal	43, numerous routes to southern Europe seasonal	3.1
Edinburgh & Glasgow (Combined)	19.8	6 & 10 Seasonal	113	5.3
Lisbon	20.1	25 & 5 Seasonal	137	10.5

[36] https://www.cardiff-airport.com/uploads/Summer_2017%20Timetable%20for%20WEB.PDF

[37] Cardiff – Doha, commences 1st May 2018

City / Airport	Passengers (Million)	Long Haul Routes	Short Haul & Domestic Routes	National Population (Million)
Copenhagen	26.6	36 & 7 Seasonal	139	5.6
Helsinki	16.4	20 & 8 Seasonal	96	5.4
Dublin	25.0	18 & 16 Seasonal	132	4.6
Keflavik	4.9	16 & more seasonal	48	0.3

7.5.2 It is important to note that Cardiff Airport does not represent an entirely 'like-for-like' comparison with the other cited airports for the following reasons:

- With the exception of the Scottish airports, the other benchmarked airports represent the primary airports in those countries. The long haul connectivity of Cardiff Airport is impacted heavily by the dominance of the London terminals.
- Wales does not have a national or 'flag' carrier, unlike the comparator countries (except Scotland).
- Lisbon and, to a lesser extent, Dublin serve large national diaspora further afield – e.g. Brazil and a number of Atlantic islands in the case of the former and the east coast of America in the case of the latter.
- There will be different taxation and charging regimes with respect to air travel and airports in these countries.

Key Point: Whilst not direct comparators, it can be seen from the above table that Cardiff significantly lags other European peripheral airports, including Edinburgh and Glasgow, in terms of overall connections, but particularly in terms of long haul. This in effect means that Wales is less well connected to key current and growing markets. Whilst surface access is only one of a large number of factors determining the scope and scale of the route network, it would nonetheless be one part of a package of measures which could assist in supporting route development.

7.6 Emerging Opportunities and Threats

7.6.1 This section considers emerging opportunities and threats relevant to the Welsh aviation sector.

Air Passenger Duty

7.6.2 The Welsh Government is currently lobbying UK Government for devolution of Air Passenger Duty (APD). If granted, WG would have the opportunity to vary the rates and bands of APD, potentially providing a basis for stimulating growth at Cardiff Airport.

7.6.3 The Silk Commission report on devolved powers to Wales recommended that APD be devolved to the Welsh Government. APD is a tax paid by passengers travelling on all flights departing Wales. The First Minister, Carwyn Jones AM, has pledged to scrap APD on long-haul flights if the powers are devolved.[38] The current APD rates for financial year 2017-18 are shown in the table below.

[38] http://www.bbc.co.uk/news/uk-wales-politics-41833833

Table 7.6: Current Air Passenger Duty Rates and Bands

Destination Bands and distance from London (miles)	Reduced rate: (for travel in the lowest class of travel available on the aircraft)	Standard rate: (for travel in any other class of travel)	Higher rate: (for travel in aircraft of 20 tonnes or more equipped to carry fewer than 19 passengers)
Band A (0 to 2,000 miles)	£13	£26	£78
Band B (over 2,000 miles)	£75	£150	£450

7.6.4 If there is only one class of travel available, the 'Reduced' rate applies (unless the seat pitch exceeds 40 inches). This means that for a typical UK internal return flight, the UK APD paid would be £26 per adult (2 * £13 in each direction) or a long-haul flight, it would be £75, as the tax only accrues to the UK Government on the outbound leg.

7.6.5 The potential scrapping of long-haul APD is a key opportunity for the Vale of Glamorgan and South Wales as a whole, with the potential to grow the long-haul aviation market through offering differential tax rates to the rest of the UK. Increased long-haul connections may also generate a derived demand for short-haul connecting flights.

Other Opportunities and Threats

7.6.6 There are a number of macroeconomic opportunities which could support the long-term growth of Cardiff Airport. These include:

- A number of airlines, including EasyJet and Ryanair, have substantial orders in place for new aircraft and thus there is a significant opportunity to realise new routes and enhanced frequencies on existing routes in the medium-term (although the former has no presence at Cardiff and the latter a relatively minimal presence compared to elsewhere). This could also feed into the longer-term aspiration to have more aircraft based in Wales.
- Improvements in aircraft technology is contributing to a climate for the emergence of low cost long haul. This could be a major 'market disruptor' and presents an important opportunity for Cardiff Airport. Norwegian has already commenced low cost long-haul flights from Edinburgh, Manchester and Gatwick amongst others to a wide range of destinations including a number of cities in the United States, initially on the East Coast. In addition, Level, an IAG subsidiary, has commenced flights from Barcelona to the United States, the Dominican Republic and Argentina. If this segment grows in a similar manner to how the short haul low cost sector did in the 1990s and early 2000s, it would represent a fundamental evolution in the aviation industry.
- Industry consultations on another study being carried out by PBA highlighted the significant risk posed by the United Kingdom's planned departure from the European Union. On both the demand and supply side, aviation is an industry which relies as far as possible on the free movement of people and assets. Our recent discussions with industry highlighted the significant risks to the aviation market posed by a so-called 'hard Brexit' and explained that, if these risks materialise, they would likely outweigh other positive developments in the UK aviation sector.

7.7 Summary

7.7.1 Whilst the aspiration to improve the connectivity of the Vale of Glamorgan is predominantly focussed on unlocking the land-use development and employment potential of the EZ, any such improvement would clearly be beneficial for Cardiff International Airport. Indeed, the desk-based analysis and consultation demonstrated that the current surface accessibility of the airport is acting as a key constraint on route development, frequency and ultimately passenger numbers.

7.7.2 Analysis of the CAA Passenger Survey data points to the issue of Cardiff Airport being uncompetitive within its target market. There is a significant proportion of leakage – the analysis shows that 58% of South Wales residents surveyed use Bristol, Birmingham and Gatwick when taking a flight, with the overall proportion of leakage likely to be higher if e.g. Heathrow, Manchester etc were included within the analysis.

7.7.3 Benchmarking has also demonstrated that Cardiff is also relatively poorly served in terms of both short and long-haul routes when compared with other EU peripheral secondary airports.

7.7.4 Despite the above points, there are several opportunities within the aviation sector (e.g. low cost long haul, reforms to Air Passenger Duty etc) which could be beneficial for Cardiff. In addition, the securing of the first scheduled long-haul route to Doha with Qatar Airways from May 2018 will significantly enhance the connectivity of Wales to Asia and Australasia. This connection may also provide a template for an expansion of the long-haul market and an air freight industry at Cardiff Airport. Any expansion of air services from Cardiff would generate significant benefits for Welsh residents currently travelling further afield to access flights. Realising these and other opportunities will however require resolution of the evidenced surface access to the airport, which are considered to be a major constraint.

8 Why invest in improved transport?

8.1 Overview

8.1.1 The previous chapters have set out the case for improving the transport connectivity of the VoG. To recap, the Cardiff Airport – St Athan EZ represents a strategically important development and employment opportunity for South Wales as a whole. However, the VoG and EZ site as a whole is characterised by relatively poor highway and public transport connections, which limits both the labour market catchment of the EZ and the agglomeration / productivity potential of the site. Improvements in transport connectivity to and from the VoG would assist in improving the accessibility of the EZ, and would better connect jobs to labour and businesses to other businesses, spreading the benefits across the study area.

8.1.2 This chapter encapsulates the above case within a 'logic map' - developing a logic map is an effective way of presenting the linkages between the infrastructure potentially being delivered and the potential outcomes and impacts that could be generated. It provides a visual representation of what might happen under certain scenarios.

8.1.3 The Logic Map tells the story along the lines of that set out diagrammatically in Figure 8.1 below. The Strategic Need sets out the rationale for the scheme with the evidence showing the current issues and problems. If there is investment of X (deliverables) this will then generate outputs which result in certain outcomes and then, ultimately, impacts. If the linkages are correct, these impacts should resolve the problems and issues identified under the Strategic Need / current situation.

8.1.4 The key stages of the Logic Map have been defined as follows:

- **Strategic Need:** The issues that the proposal will address and rationale for proceeding with the intervention.
- **Deliverable:** The proposal being taken forward, which in this case would need to be defined through a WelTAG appraisal and associated business case.
- **Outputs:** What the deliverable will directly achieve in the immediate future in terms of, for example, improving accessibility / connectivity and generating significant reductions in journey times etc.
- **Outcomes:** The outcomes are the short to medium term results of the project stemming from the outputs. In the context of this study, the outcomes will be:
  - Transport outcomes associated with improved connectivity; and
  - Wider socio-economic outcomes (which will feed into longer-term impacts). These could include for example: improved labour market performance and an improved trading and investment environment for businesses.
- **Impacts:** The long-term effects of the intervention. In this case: lower levels of unemployment and higher economic activity rates; higher levels of incomes and expenditure; increased development; improved business performance; and lower levels of social deprivation. If the linkages of the Logic Map are correct and can be evidenced, then the impacts will help address the issues set out in the Strategic Need and rationale for the investment in the first place.

Strategic Need

- EZ is a strategically important development and employment opportunity for South Wales.
- Transport infrastructure evidenced as constraint on EZ development.
- Cardiff Capital Region – VoG promoting sub-regional opportunity with RCT.
- Congestion and unreliable journey times negatively impacting on VoG.
- Surface access to Cardiff International Airport has been demonstrated to be poor and is constraining route development & passenger numbers.

Deliverable

- A WelTAG Appraisal and subsequent business case will be required to generate, appraise and identify a preferred option(s).
- Preferred option should be focussed on improving connectivity to the wider South Wales labour market and business supply chain.

Outputs

- Reduced journey times to the EZ from across the study area.
- Improved journey time reliability.
- Improved surface access to Cardiff Airport.
- Reduced congestion in the VoG, particularly in and around Culverhouse Cross.
- Potential development of appropriate freight routing between the EZ and the M4 (depending on the preferred option).
- Potential reorientation of public transport services (depending on the preferred option).

Outcomes

Direct Transport Outcomes

- Additional travel to from the VoG, particularly the EZ
- Increased passenger numbers at Cardiff Airport
- Air route development
- Development of niche air freight market

Wider Socio-Economic Outcomes

- Increased labour market catchments for the EZ.
- Business-to-business / supply-chain efficiency improvements
- Improved trading & investment environment for a range of industry sectors
- Land & property development impacts – better connected development sites

Impacts

Socio-Economic Impacts

- Increased productivity (agglomeration)
- Reduced unemployment & economic inactivity rates
- Increased incomes & expenditure through increased local employment levels
- Accelerated EZ land-use development
- Higher levels of inward investment
- Increased spend in local businesses – encourages business formation & expansion
- Lower levels of social deprivation
- Increased tourism

Public sector impacts

- Increased non-domestic rates
- Cardiff Airport – increased revenue / reduced subsidy

Figure 8.1: Logic Map

8.2 Logic Map Detail

8.2.1 The next stages of the case-making (e.g. the WelTAG and associated business case) will firm up the evidence on the existence and magnitude of the linkages between the different stages of the Logic Map and the potential impacts of the new crossing using secondary data and evidence from similar schemes elsewhere.

Strategic Need

8.2.2 The strategic need for improving connectivity to / from the VoG has been developed based on consideration of the baseline position in the study area with regards to development aspirations, socio-economic data and transport connectivity, as outlined in the previous chapters. The following factors have been identified as forming the strategic need:

- The EZ is a strategically important employment and development opportunity for South Wales as a whole. Its realisation, particularly when considered in the context of the wider sub-regional opportunity with RCT, provides a means by which the GVA of the Cardiff Capital Region and indeed South Wales as a whole can be increased, supporting positive socio-economic outcomes. However, transport connectivity to the sites (road and public transport) has been evidenced to be problematic, and will need to be addressed if the EZ is to achieve its full potential.
- Surface access to Cardiff International Airport, the gateway to Wales, has been demonstrated to be poor and is constraining route development and passenger numbers.
- At a more local level, congestion and unreliable journey times within the VoG are having a negative impact on both strategic traffic in the area and on VoG residents. In the longer-term, these transport problems may impact on development aspirations for the area and the attractiveness of the VoG as a place to work, live and do business.

Deliverable

8.2.3 The deliverable is the ultimate preferred option which will emerge from the appraisal and business case process. This report has established the 'case for change' but has not yet considered options for how this could be delivered (e.g. the 'why' rather than the 'what' has been identified). It would be inappropriate to comment on options in advance of a WelTAG appraisal. However, in terms of meeting the strategic need, any transport option which does emerge should be focussed on:

- effectively and efficiently connecting the emerging employment market in the VoG with the wider labour market in the Cardiff Capital Region and Swansea Bay City Region - it is essential that the benefits of the solution are regional rather than local in nature; and
- promoting / enhancing business-to-business interactions within the study area through improving overall connectivity, reducing journey times and improving journey time reliability.

Outputs

8.2.4 The outputs of the project relate to the opportunities that the deliverable provides. In this case, the anticipated outputs are:

- reduce journey times to and from the VoG and EZ from across the study area;
- improved journey time reliability;
- reduced congestion in the VoG, particularly in and around Culverhouse Cross;
- improved surface access to Cardiff International Airport;
- development of appropriate freight routing between the EZ and the M4, splitting out local and strategic traffic (depending on the preferred option); and

- potential reorientation of public transport services, providing better connectivity between the local authorities surrounding Cardiff (depending on the preferred option).

Outcomes

8.2.5 The outcomes of this investment are twofold – direct transport outcomes and wider socio-economic outcomes. Whilst this project is not being undertaken purely on the basis of transport considerations, there will be positive transport outcomes which in turn will form the basis of, and thus enable, the socio-economic outcomes.

Direct Transport Outcomes

8.2.6 By improving connectivity to and from the VoG, the following transport outcomes are likely to be delivered:

- additional trips to / from the VoG by car and / or public transport; and
- increased routes, flight frequency and passenger numbers at Cardiff International Airport.

Socio-economic Outcomes

8.2.7 The potential outcomes from a wider socio-economic perspective are extensive and varied:

- Labour market
  - Increased labour market catchments for the EZ due to better accessibility and journey reliability (i.e. better matching of labour supply and jobs market). Outcomes could include:
    - people entering the jobs market who are currently unemployed or economically inactive;
    - people moving to more productive jobs due to improved accessibility; and
    - people working longer hours due to reduced commute times / enhanced accessibility.
  - Enhanced skills development and training opportunities.
- Business-to-business / supply-chain efficiency improvements.
- Improved trading and investment environment for a range of industry sectors, particularly in the aerospace cluster and in terms of attracting inward investment.
- Land and property development outcomes (short-term)
  - The realisation of improved connectivity to the VoG may assist in promoting the earlier development of sites within the study area. It is also considered possible that the new connection will increase land values and overall marketability of sites.

Impacts

8.2.8 The final element of the Logic Map is the consideration of the impacts generated by the outputs and outcomes of the intervention as outlined above. The identified impacts can be split in terms of:

- wider socio-economic impacts; and
- public sector impacts.

Wider Socio-Economic Impacts

8.2.9 The potential wider socio-economic impacts of the intervention are set out below:

- increased productivity (i.e. agglomeration);

- reduced unemployment and economic inactivity rates;
- increased local incomes and expenditure through increasing employment levels and attracting people to live / work in the area;
- longer-term higher levels of inward investment and accelerated EZ investment;
- higher local incomes and expenditure levels encourage businesses to locate / expand in the area;
- lower levels of social deprivation as, for example, incomes and education levels rise; and
- increased tourism to South Wales as a whole, including the VoG heritage coast.

Public Sector Impacts

8.2.10 Public sector impacts include:

- increased revenue through more non-domestic rates; and
- increase in revenue / reduction in subsidy associated with Cardiff International Airport.

8.2.11 The Logic Map presented above sets out outcomes and impacts which could be realised by improving connectivity to the VoG. Subsequent stages of this study, including the WelTAG and any subsequent business case, would investigate the evidence in relation to whether the outcomes and impacts are likely to occur and, if so, the magnitude of those impacts.

8.3 Summary

8.3.1 This chapter has reaffirmed the strategic need for improving the connectivity of the VoG and identified through a logic map how addressing that need could deliver positive transport and socio-economic outcomes and impacts.

8.3.2 The extent to which each of the desirable outcomes and impacts, and their relative magnitude, will be realised through improving connectivity to the VoG will be dependent on the preferred option pursued. The subsequent WelTAG study and business case should therefore be framed within the above logic map (updating it as necessary), with the appraisal focussed on:

- defining a set of Transport Planning Objectives which reflect the strategic need;
- generation and appraisal of options which, through an iterative process, will define a preferred option(s) which best addresses the evidenced strategic need;
- application of available data and tools (e.g. the South-East Wales Transport Model (SEWTM), accessibility software, business surveys etc) to evidence the type and magnitude of outcomes and impacts which can be expected; and
- development of a robust monitoring and evaluation plan, which will create a framework for establishing the baseline position and tracking the emergence of outcomes and impacts over time (and in the long-term with relation to wider socio-economic impacts).

9 Conclusions & Next Steps

9.1 Conclusions

9.1.1 This report has explored the case for improving the transport connectivity of the Vale of Glamorgan. A 'case for change' has been made predominantly on the basis of realising the strategic development and employment opportunities associated with the Cardiff Airport – St Athan Enterprise Zone, which will offer economic development benefits for South Wales as a whole.

9.1.2 Taken together, consultation and desk-based analysis has demonstrated that the current transport connectivity of the VoG, in the context of the EZ and airport, is sub-optimal in terms of journey times, journey time reliability, public transport coverage and the routing of strategic traffic, including goods vehicles. If these issues are not addressed, there is a risk that the opportunities offered by the EZ may not be fully realised.

9.1.3 The socio-economic baselining of the study area has clearly highlighted the multitude of problems currently being experienced in the Cardiff Capital Region and Swansea Bay City Region. These include low levels of productivity and business competitiveness, limited inward investment, high rates of economic inactivity & unemployment and concentrated areas of multiple deprivation. The EZ is part of a package of measures across the respective City Regions which could begin to tackle these issues through creating (high value) direct, indirect and induced employment opportunities, as well as wider supply-chain opportunities for Welsh businesses across the region. However, its success is dependent on connecting the employment opportunities to the labour market and ensuring that business-to-business interactions are as seamless as possible.

9.1.4 Moreover, with a once in a generation programme of capital investment in transport infrastructure in the Capital Region and connecting Wales with England underway, there is an opportunity for the areas to the west of Cardiff to better access a wider range of employment and business opportunities. However, this improved connectivity also presents a risk, in that by failing to address the transport problems in the VoG, the economic gravity of the area could shift to the east, with potential for economic leakage to England.

9.1.5 There are also a number of opportunities for Cardiff International Airport to better position itself as the gateway to Wales, particularly in terms of the long-haul market. The presence of a well-connected international airport is generally seen to be positive in promoting economic development and high-value inward investment. However, the current surface access to the airport has been widely cited as a constraint which, if not addressed, could continue to limit the route development potential of the airport.

9.1.6 Finally, within the VoG itself, the current transport infrastructure is considered to be having a negative impact on the area, particularly in terms of congestion and journey time reliability. The transport issues are considered to be having a negative impact on business performance, the attractiveness of the VoG as a place to live, work and do business and, in the longer-term, land-use aspirations within the Vale.

9.1.7 In short, improving the transport connectivity of the VoG is considered necessary to support national, regional and local economic performance.

9.2 Next Steps

9.2.1 This study has developed the strategic case for improving the transport connectivity of the VoG. This report delivers the requirement of a WelTAG Stage 1 appraisal, whereby the strategic case should be 'almost fully developed'.

9.2.2 The next step in the process should therefore be the undertaking of a full WelTAG Stage 1 appraisal which:

- further develops evidence on the transport problems, opportunities, issues and constraints within the study area;
- identifies a set of Transport Planning Objectives which reflect the identified strategic need identified in this study;
- generates a long-list of options; and
- undertakes an initial appraisal of those options, identifying those which merit further consideration in a WelTAG Stage 2 appraisal.

9.2.3 At the early stages of the WelTAG Stage 2 Appraisal, this strategic case should be revisited and updated if necessary.

Appendix A List of Stakeholder Consultees

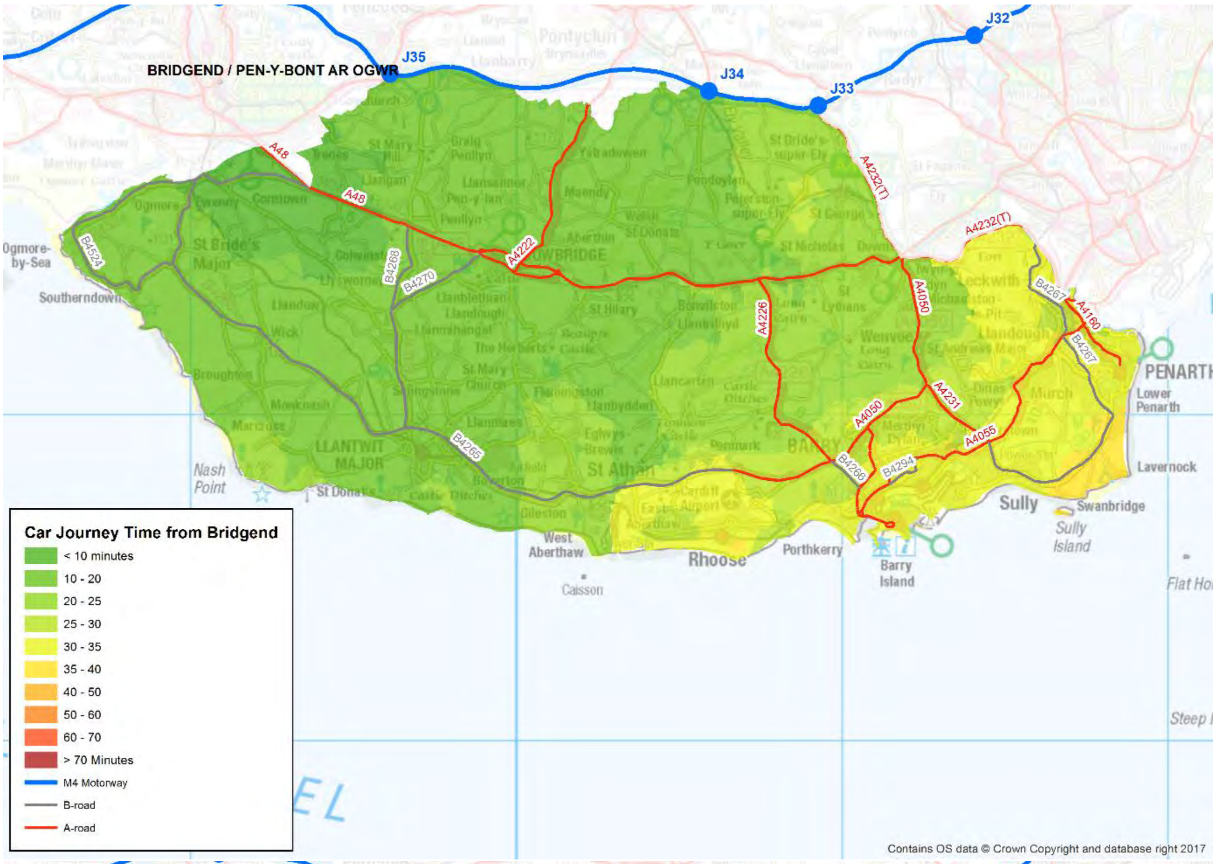
The following stakeholders responded to the consultation request:

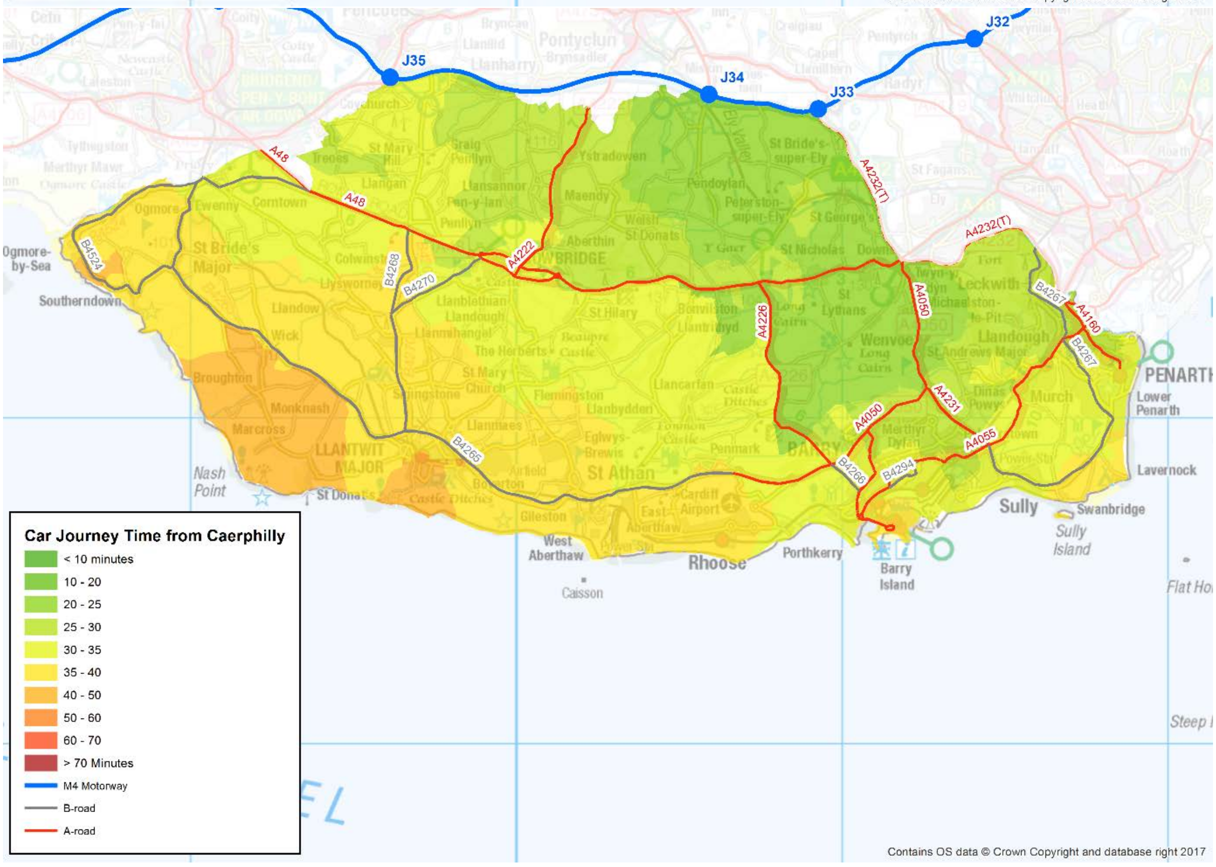
- Aston Martin
- Blaenau Gwent County Borough Council
- Bridgend County Borough Council
- Cardiff City Council
- Caerphilly County Borough Council
- Cardiff Airport and St Athan Enterprise Zone
- Cardiff International Airport
- Federation of Small Businesses
- Freight Transport Association
- Merthyr Tydfil County Borough Council
- Rhondda Cynon Taf County Borough Council
- Torfaen County Borough Council
- Transport for Wales
- Traws Cymru
- Vale of Glamorgan County Borough Council
- Welsh Government – Aviation

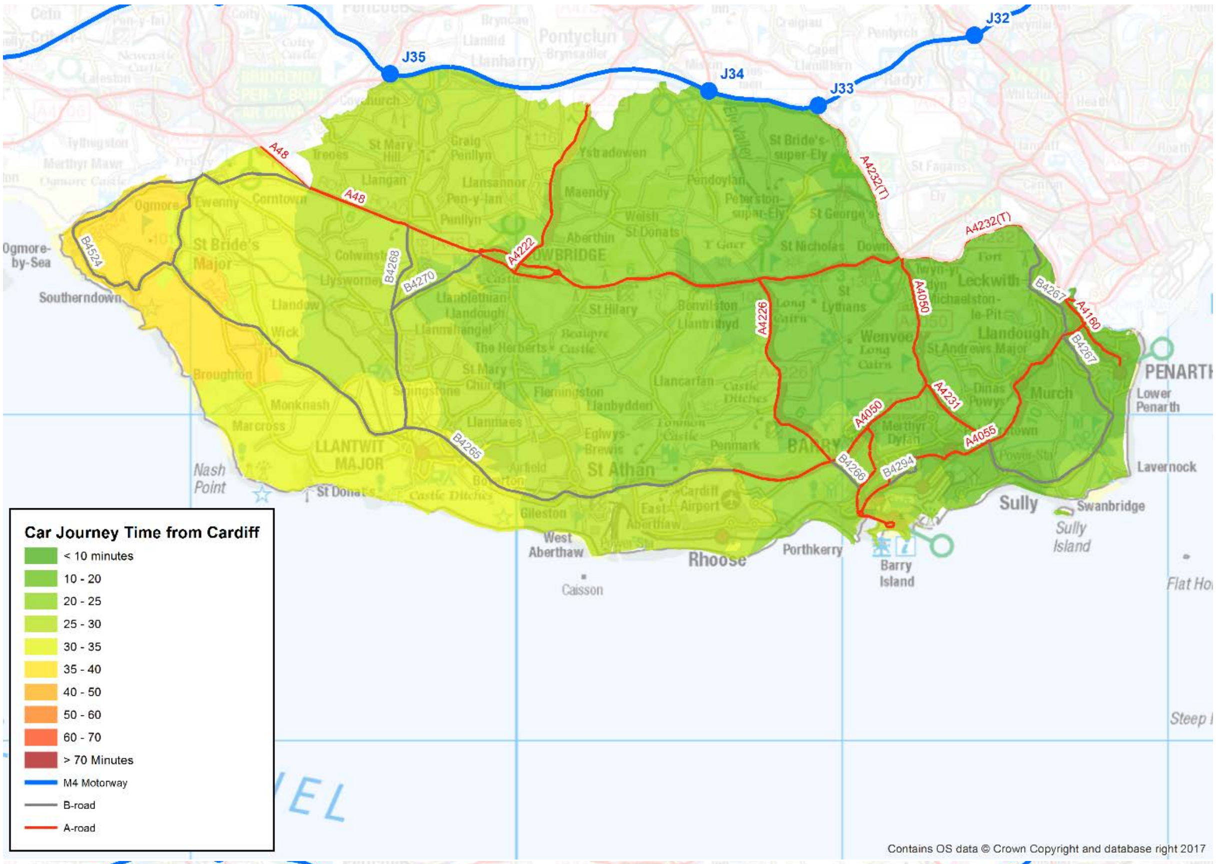
The following stakeholders were invited to participate in the consultation but either did not respond or declined to participate.

- BA Avionics Engineering
- Business Wales
- Carmarthenshire County Borough Council
- FlyBe
- Monmouthshire County Borough Council
- Neath Port Talbot County Borough Council
- Newport County Council
- Road Haulage Association
- Swansea City Council
- Visit Wales

Appendix B Network Analyst Accessibility Plots



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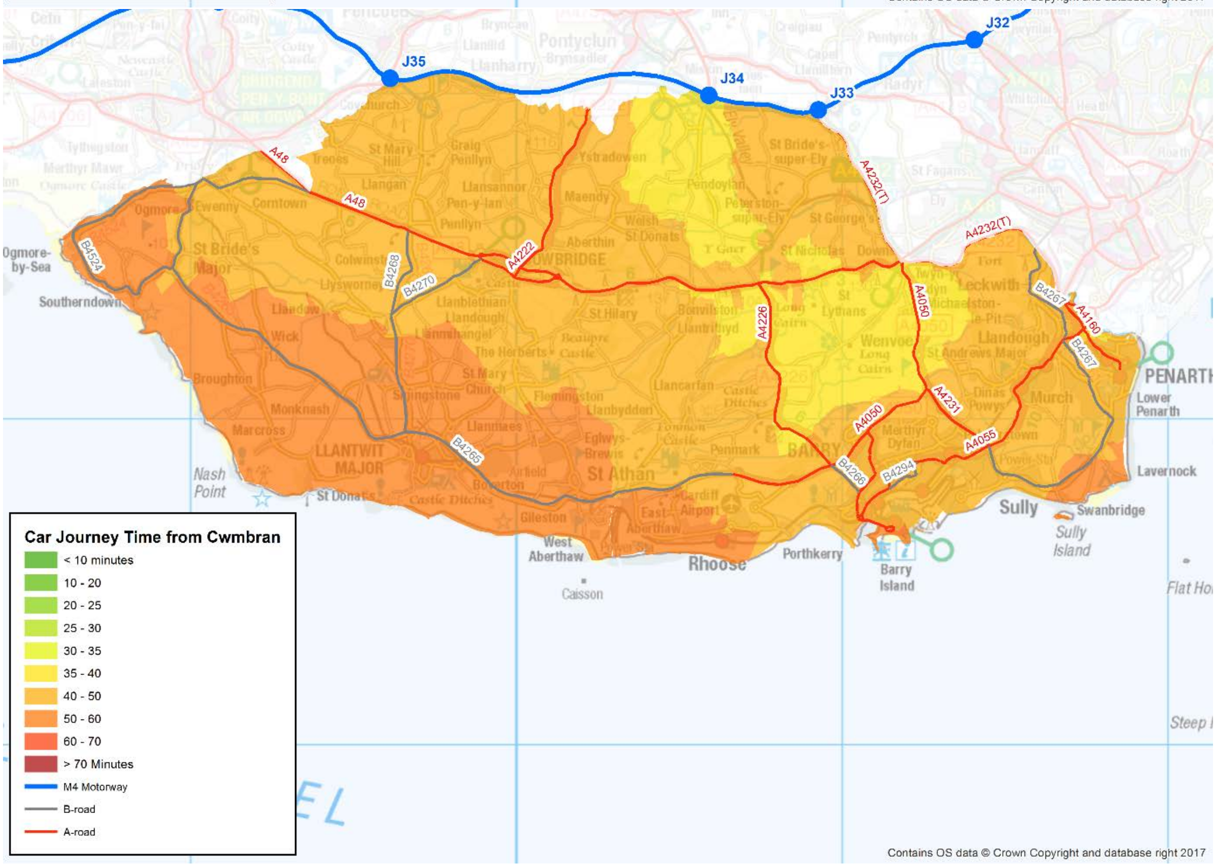
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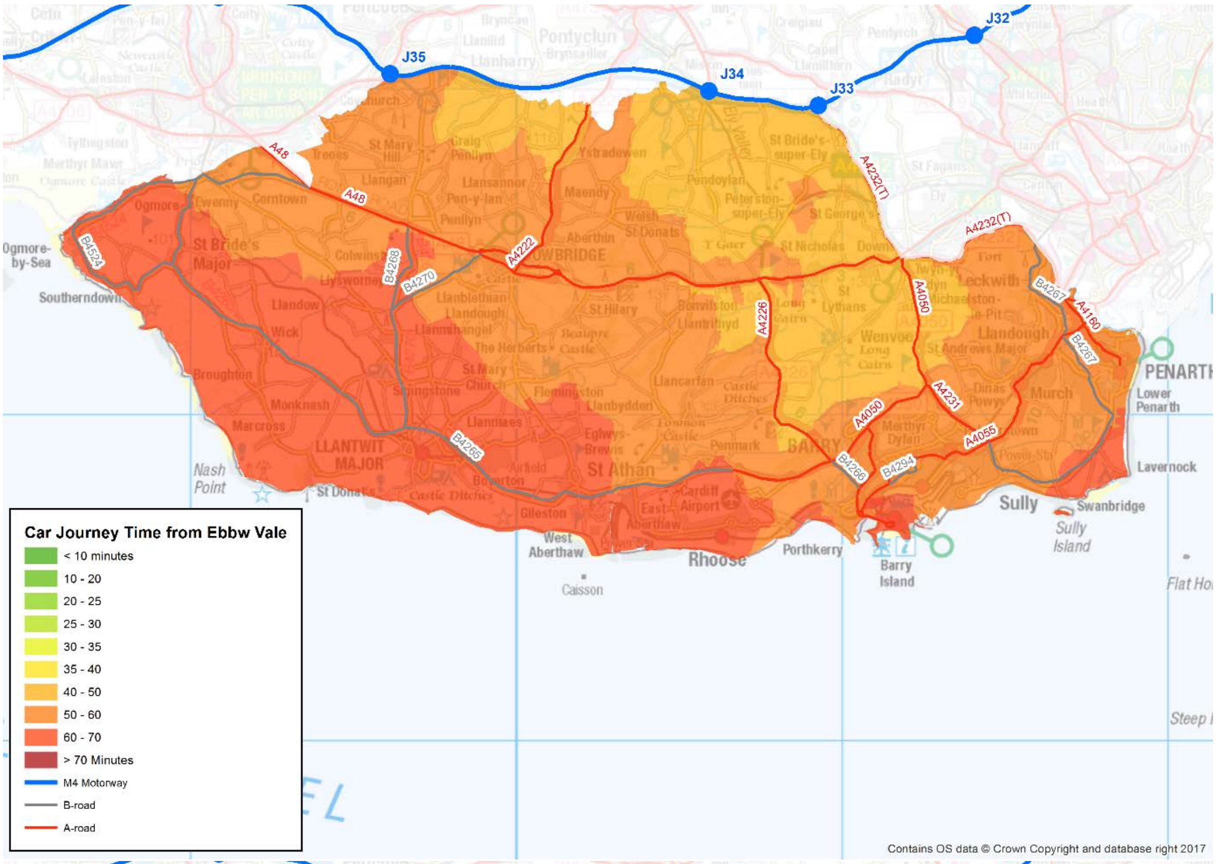
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Car Journey Time from Ely
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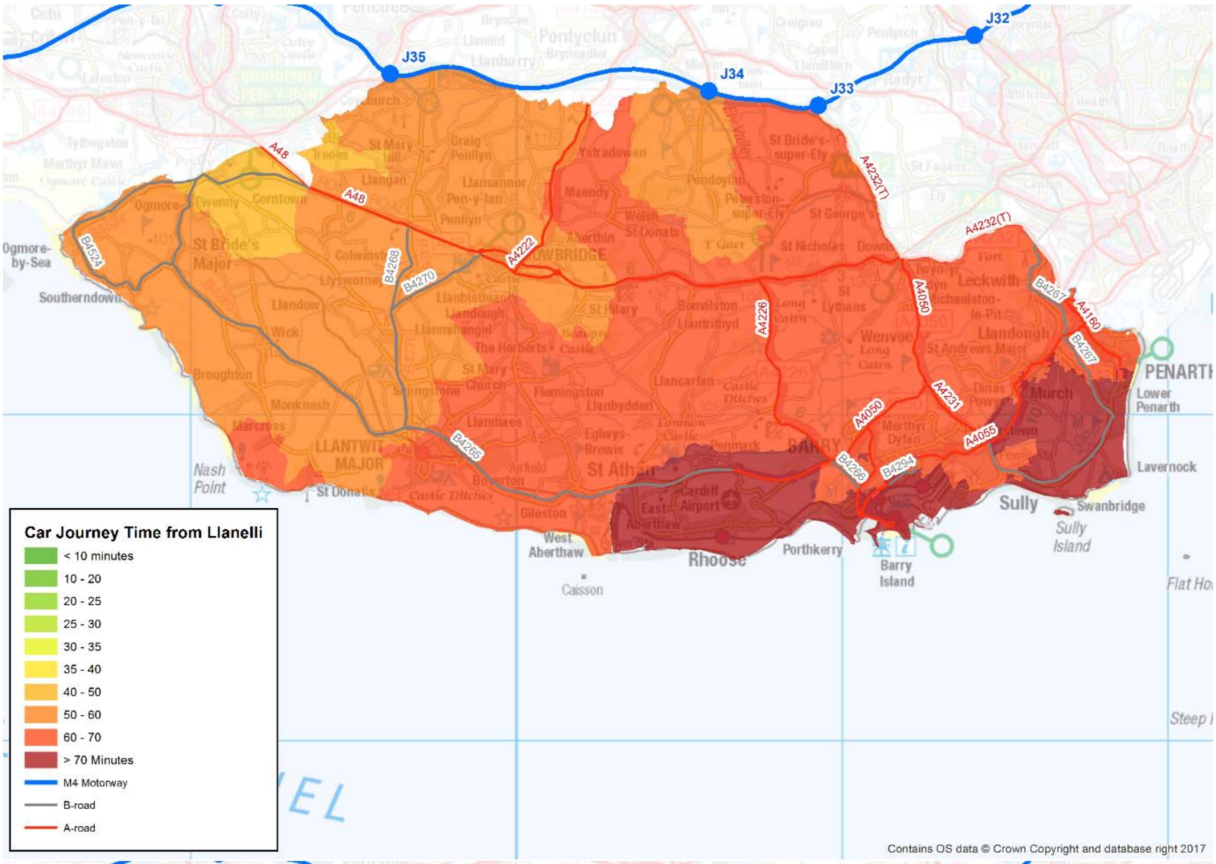
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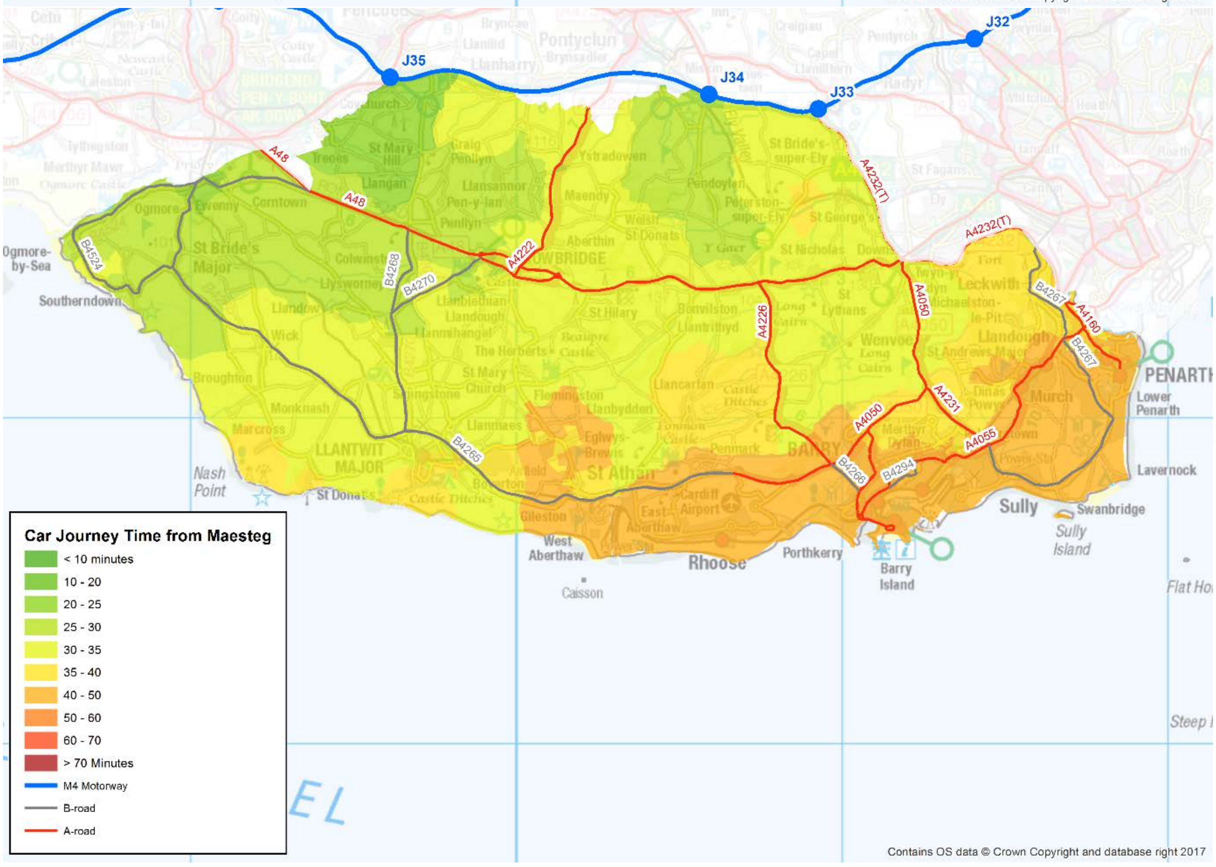
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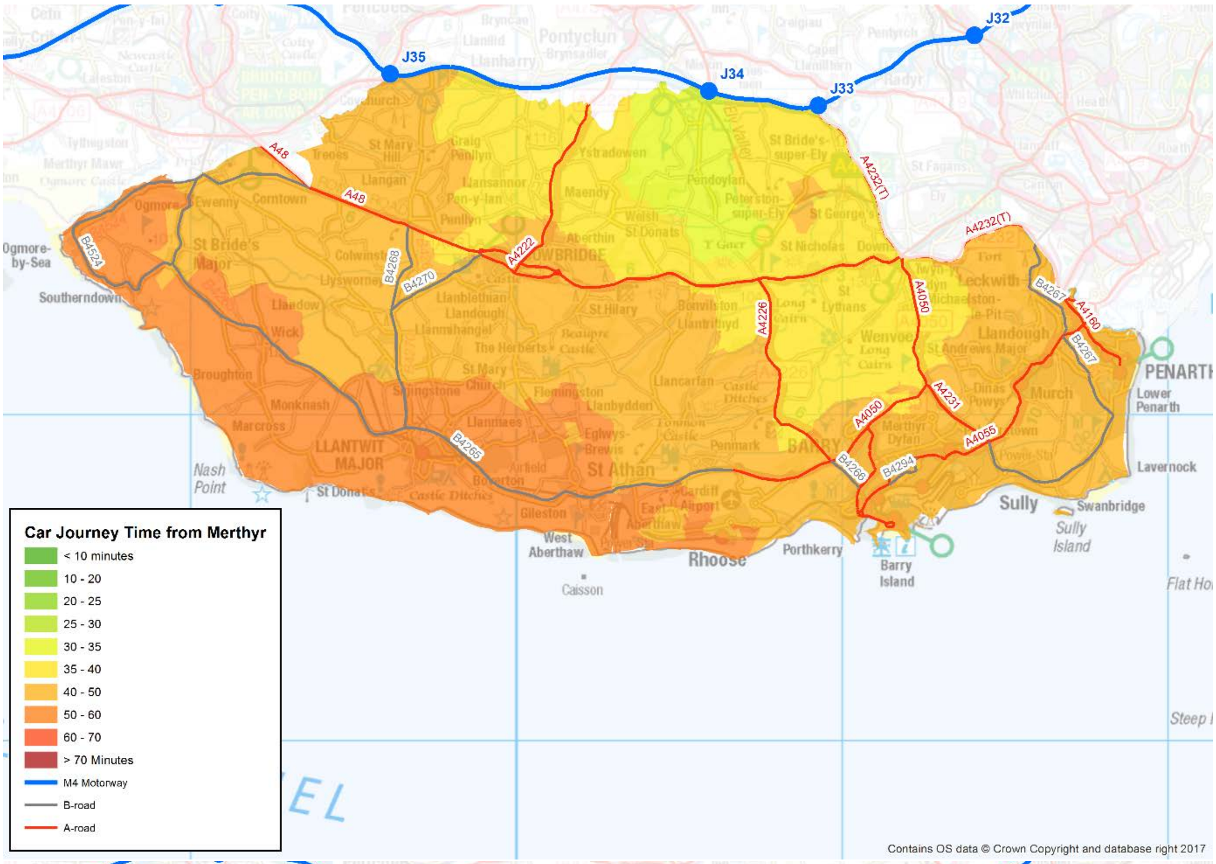
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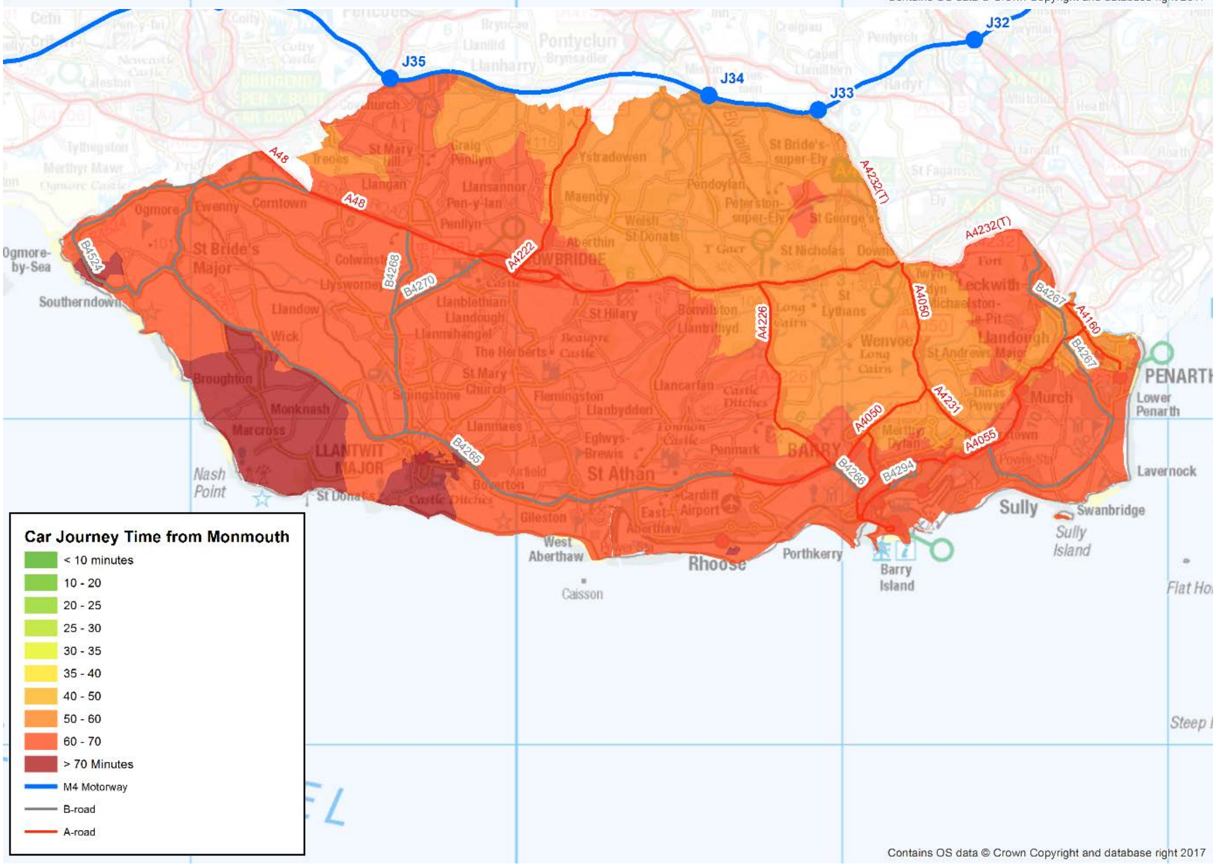
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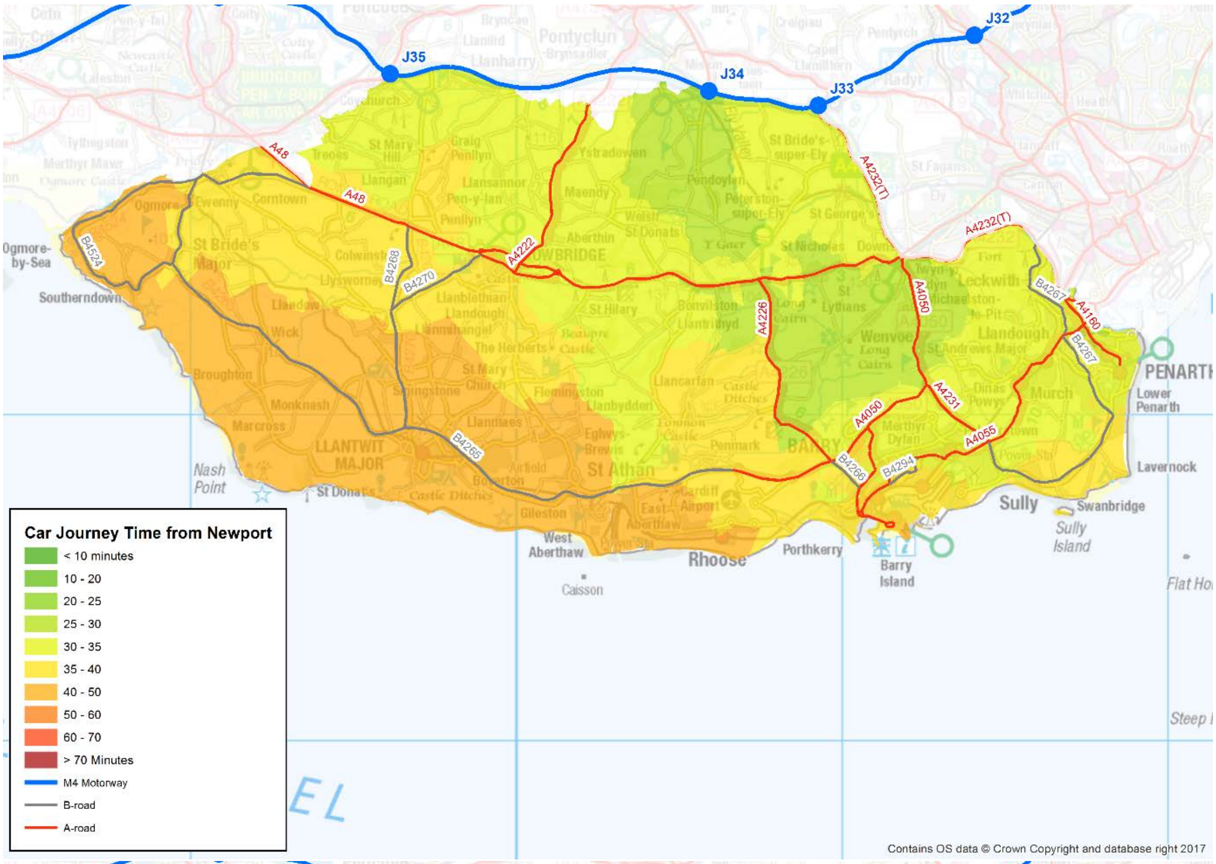
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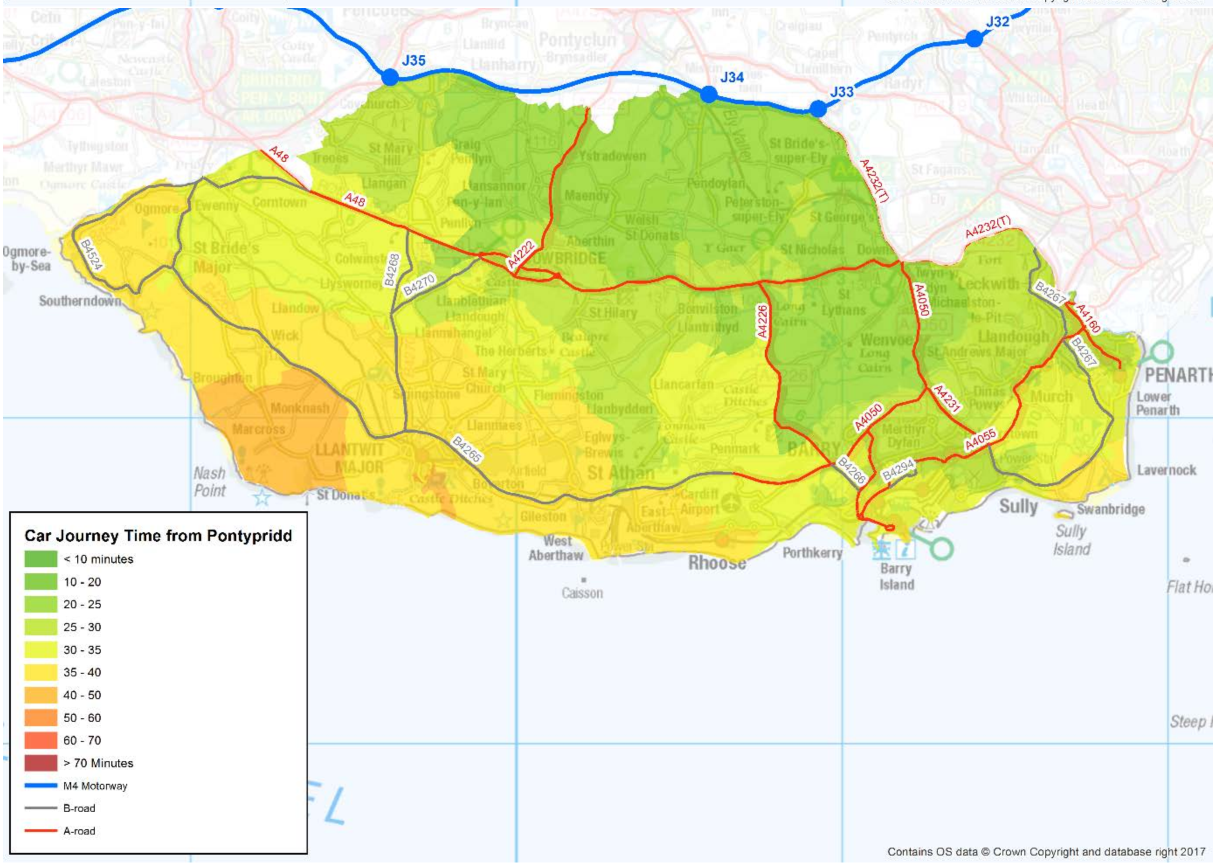
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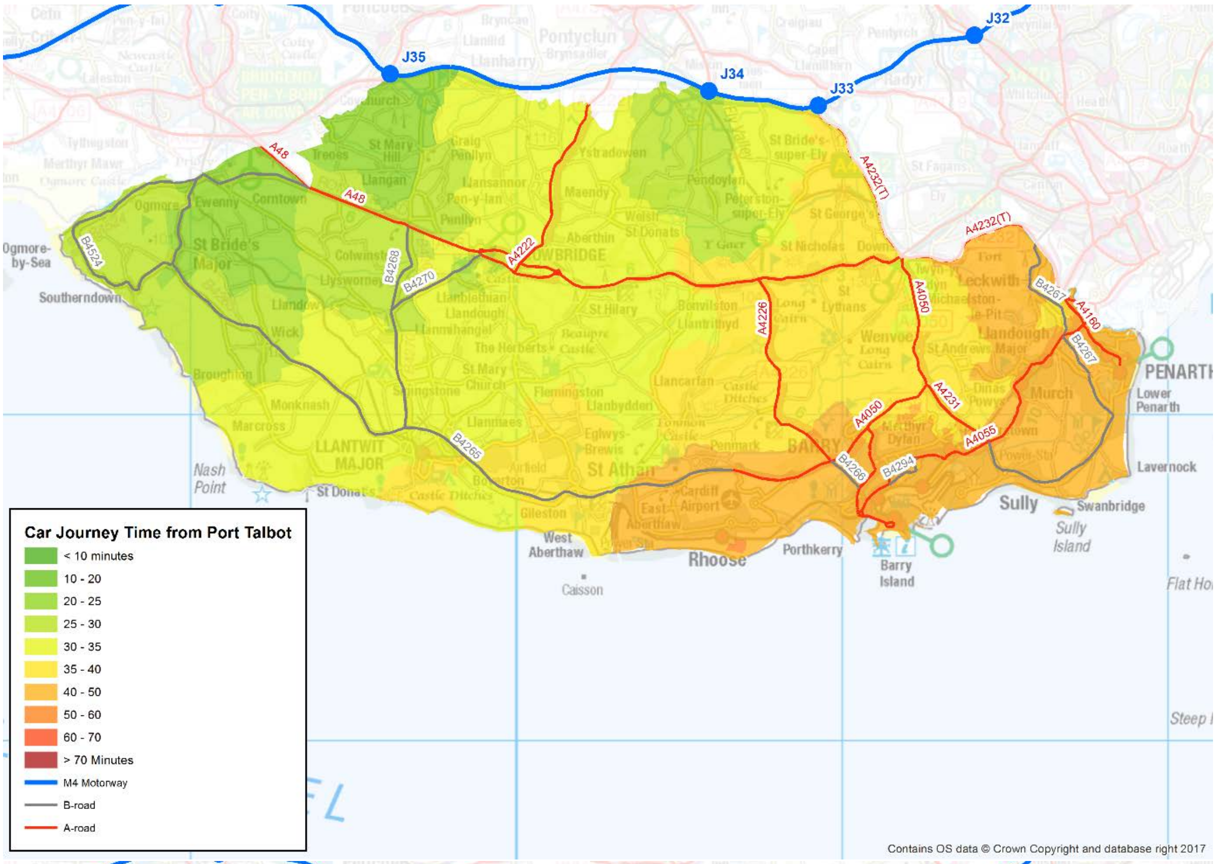
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Lower Penarth
Lavernock
Sully
Swanbridge
Sully Island
Barry Island
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Nash Point
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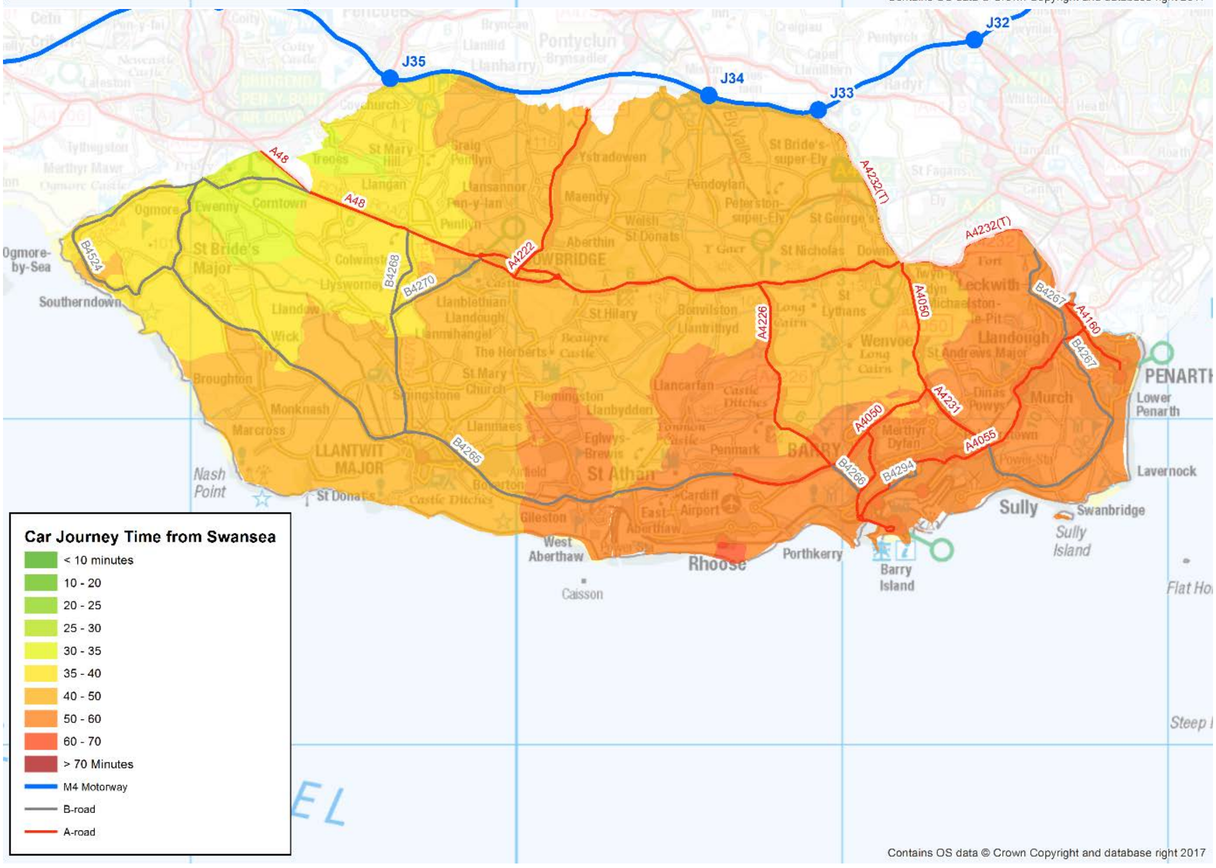
St Bride's Major
Caisson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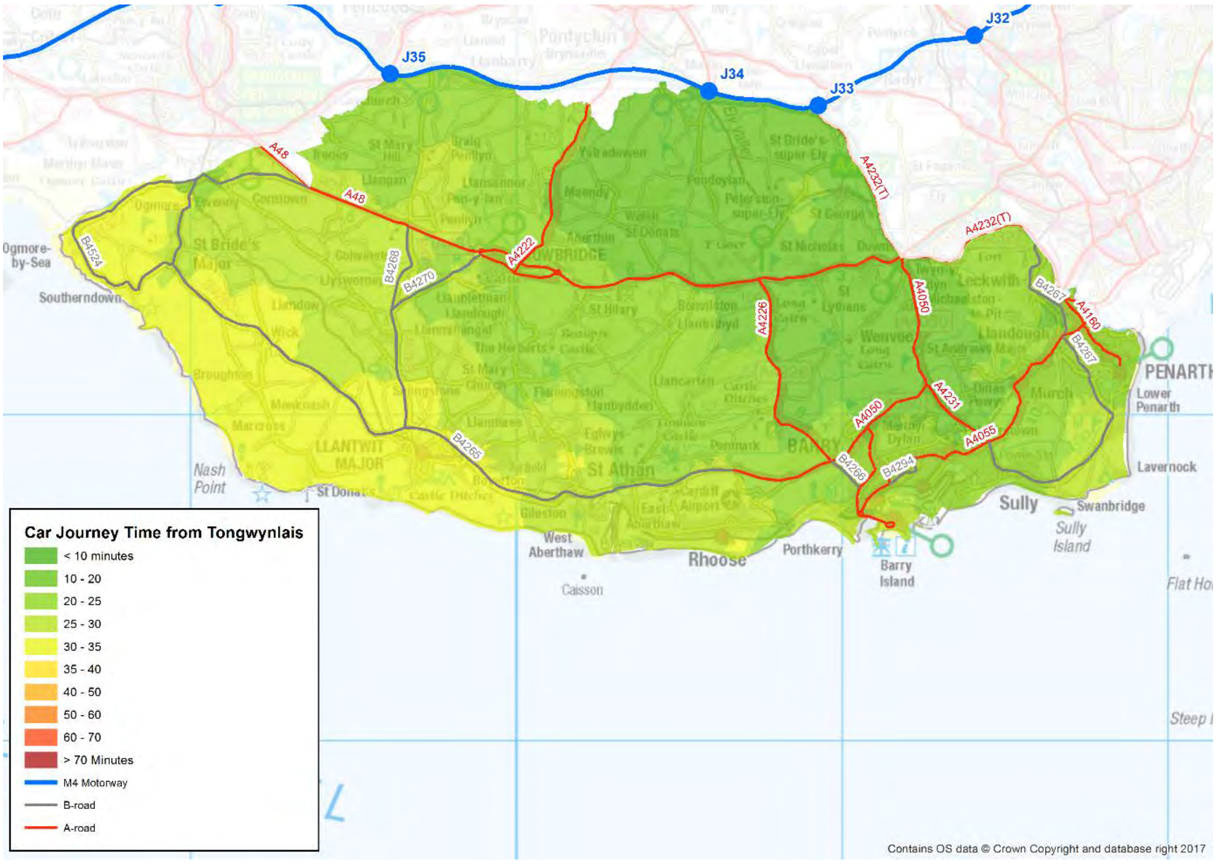
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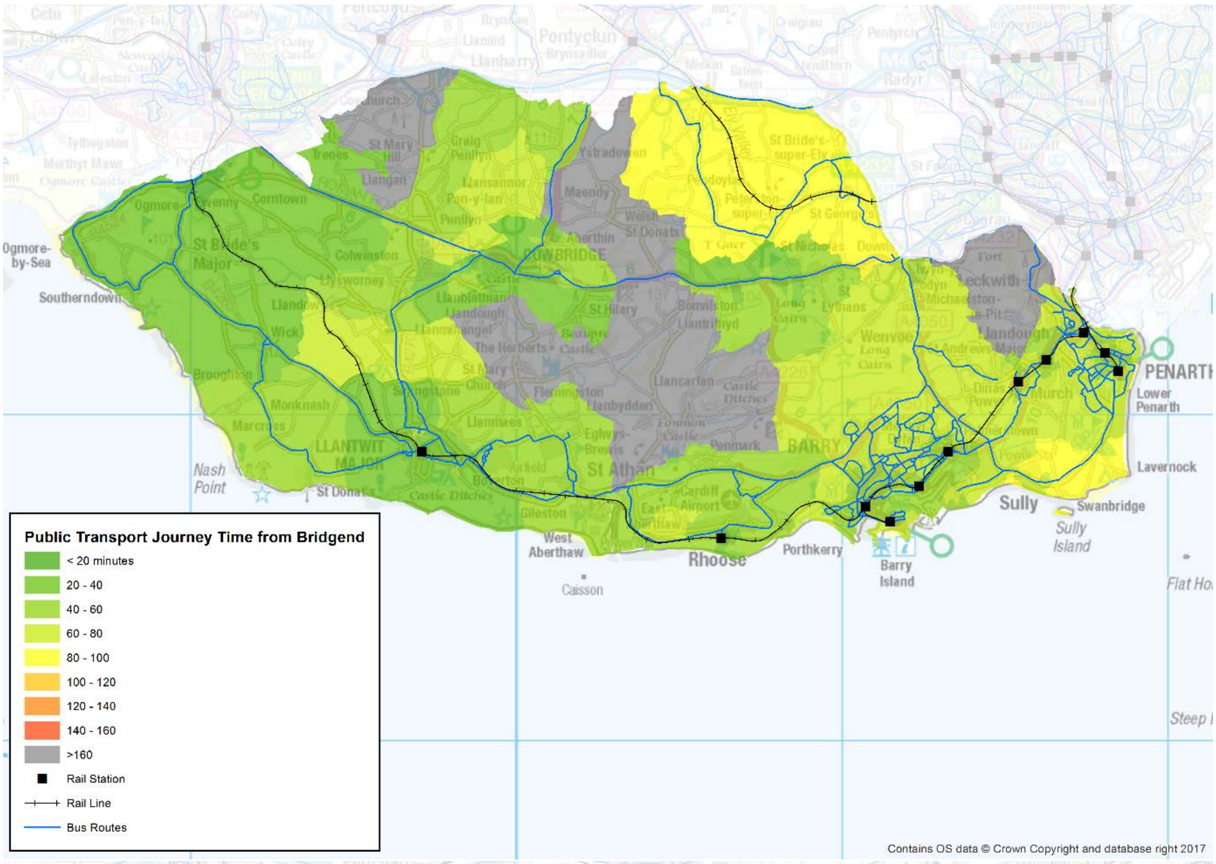
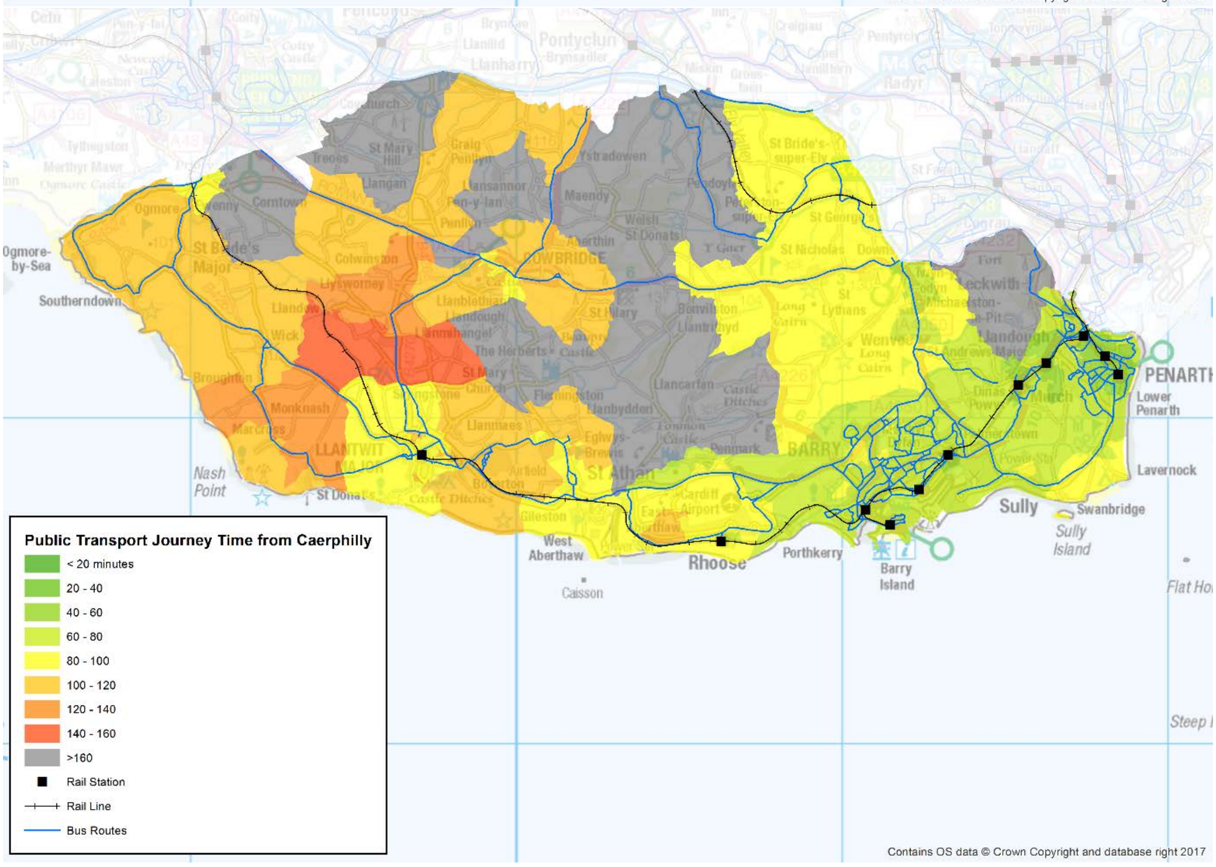
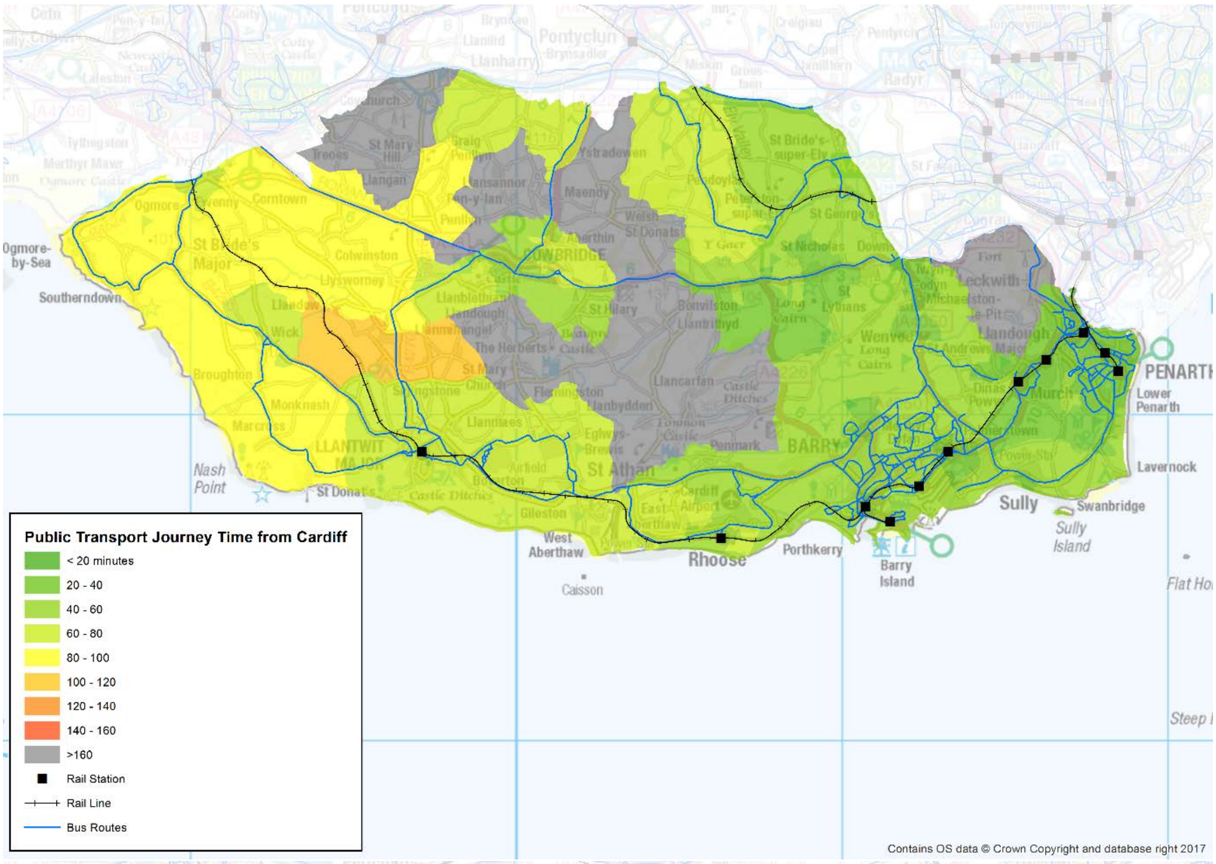
Appendix C TRACC Accessibility Plots







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Bus Routes
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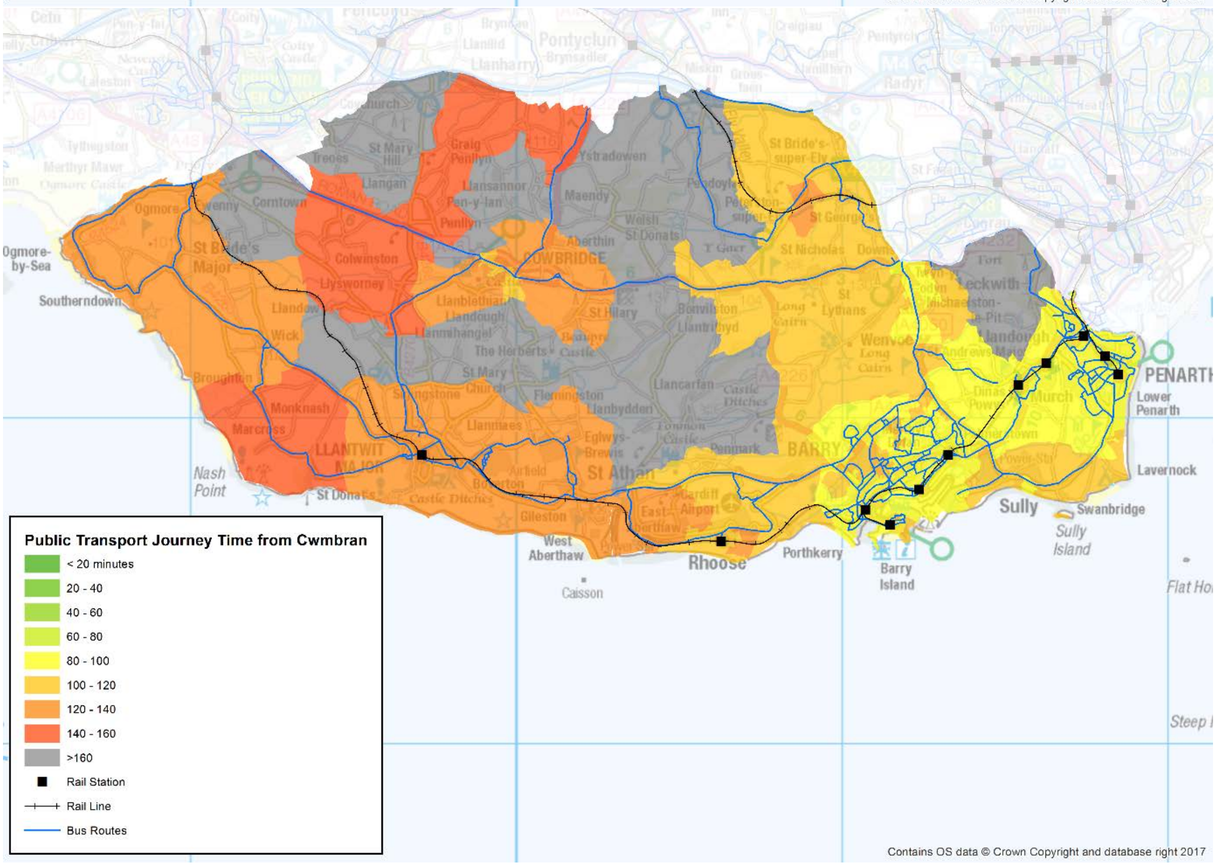

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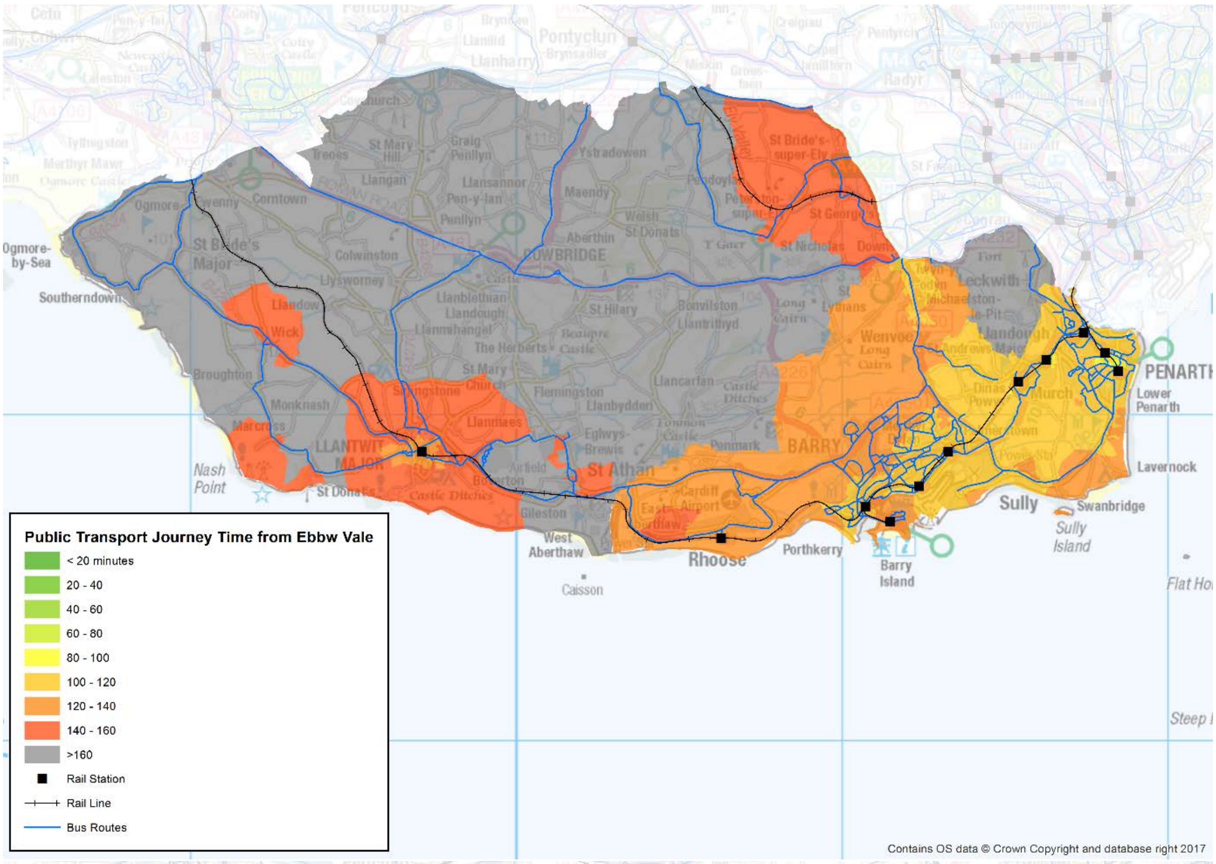

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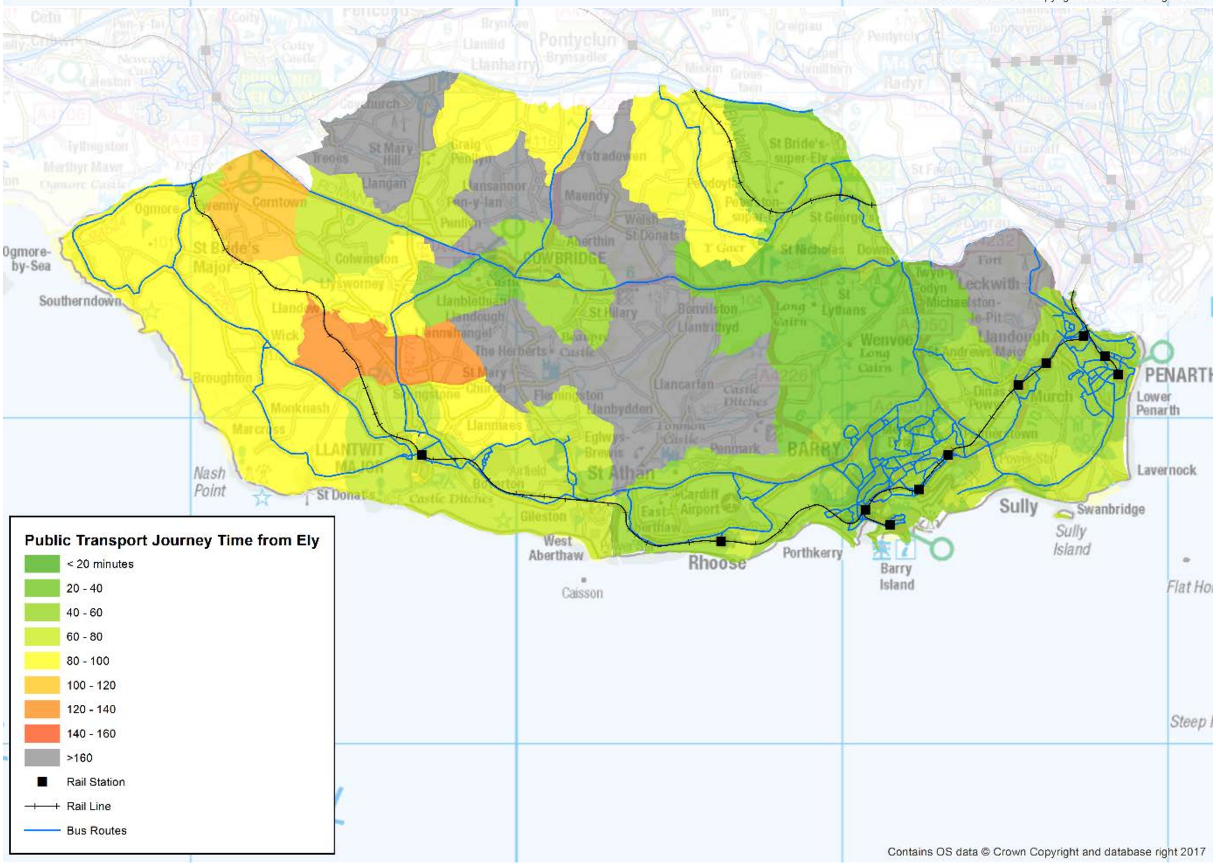

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Rail Line
Bus Routes
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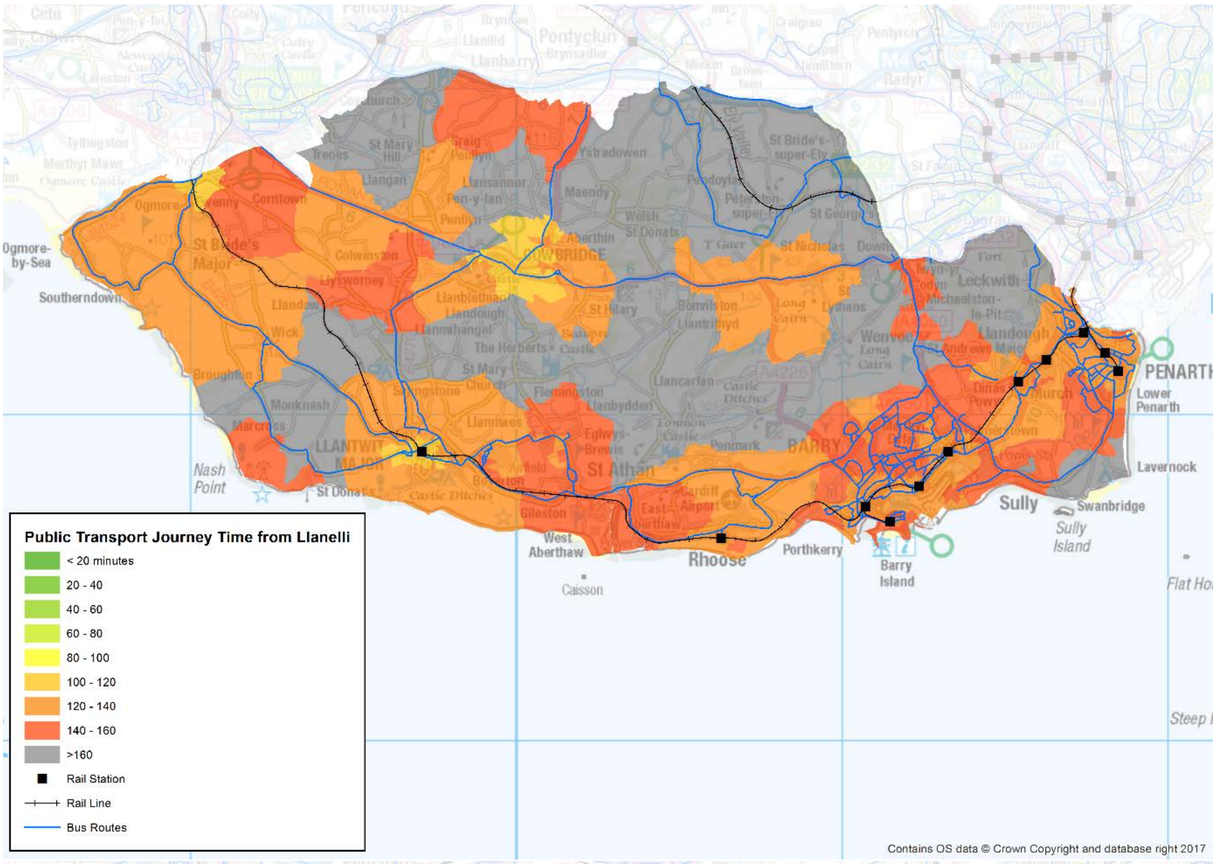
Public Transport Journey Time from Llanelli
< 20 minutes
20 - 40
40 - 60
60 - 80
80 - 100
100 - 120
120 - 140
140 - 160
>160
Rail Station
Rail Line
Bus Routes
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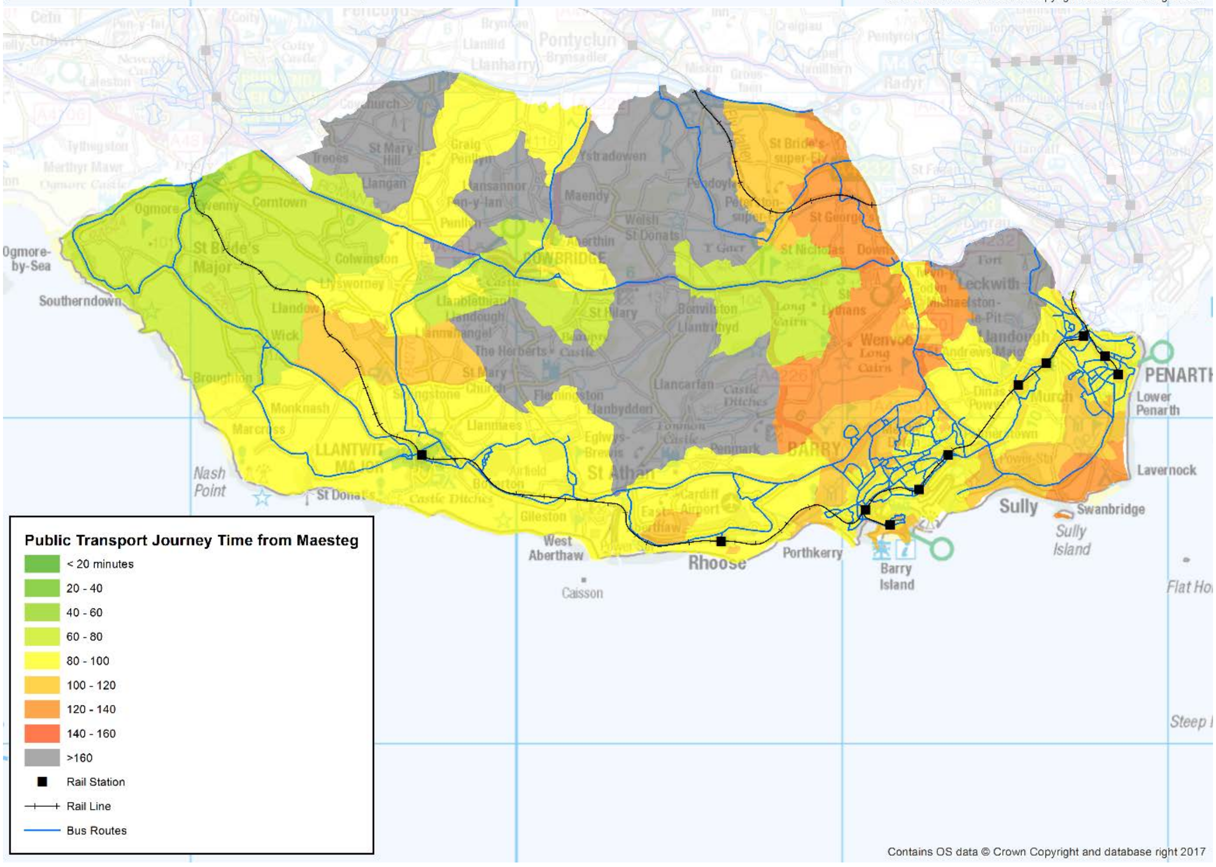
Public Transport Journey Time from Maesteg
< 20 minutes
20 - 40
40 - 60
60 - 80
80 - 100
100 - 120
120 - 140
140 - 160
>160
Rail Station
Rail Line
Bus Routes
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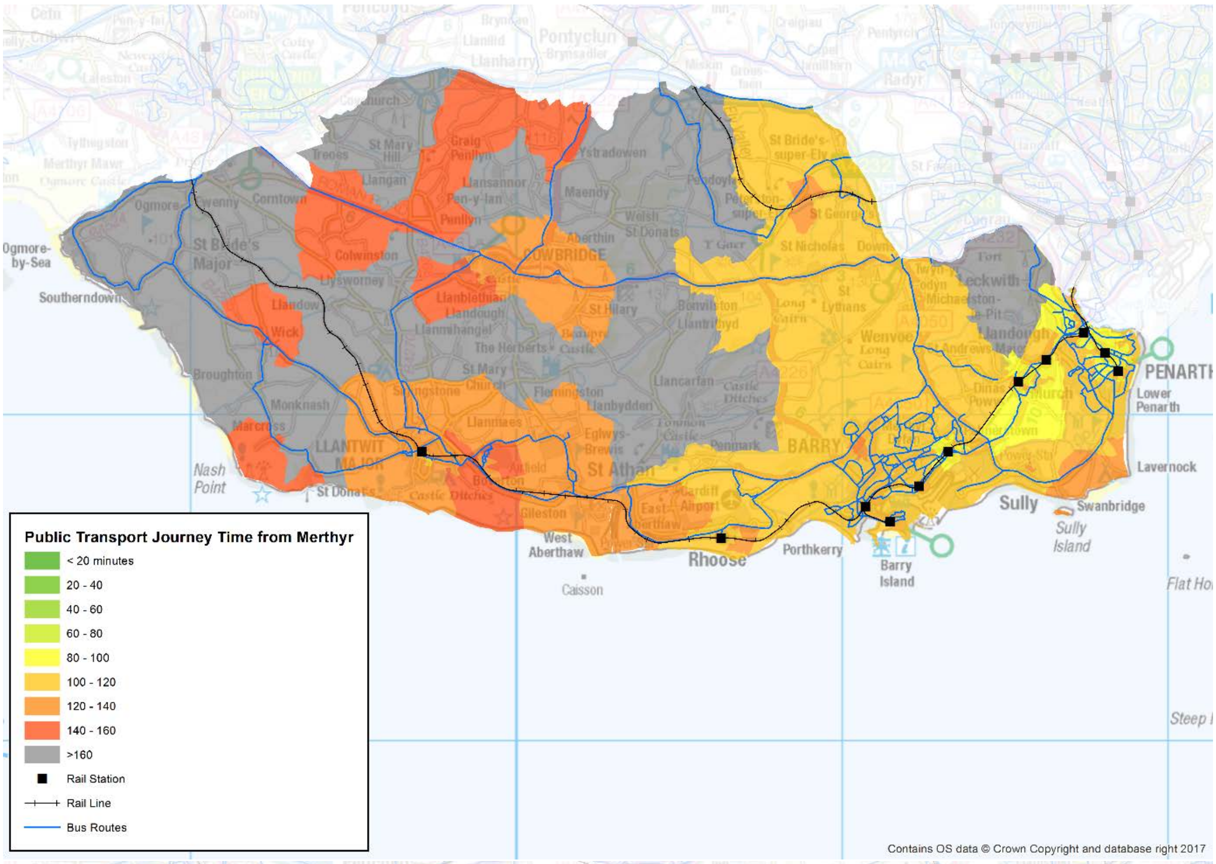
Public Transport Journey Time from Merthyr
< 20 minutes
20 - 40
40 - 60
60 - 80
80 - 100
100 - 120
120 - 140
140 - 160
>160
Rail Station
Rail Line
Bus Routes
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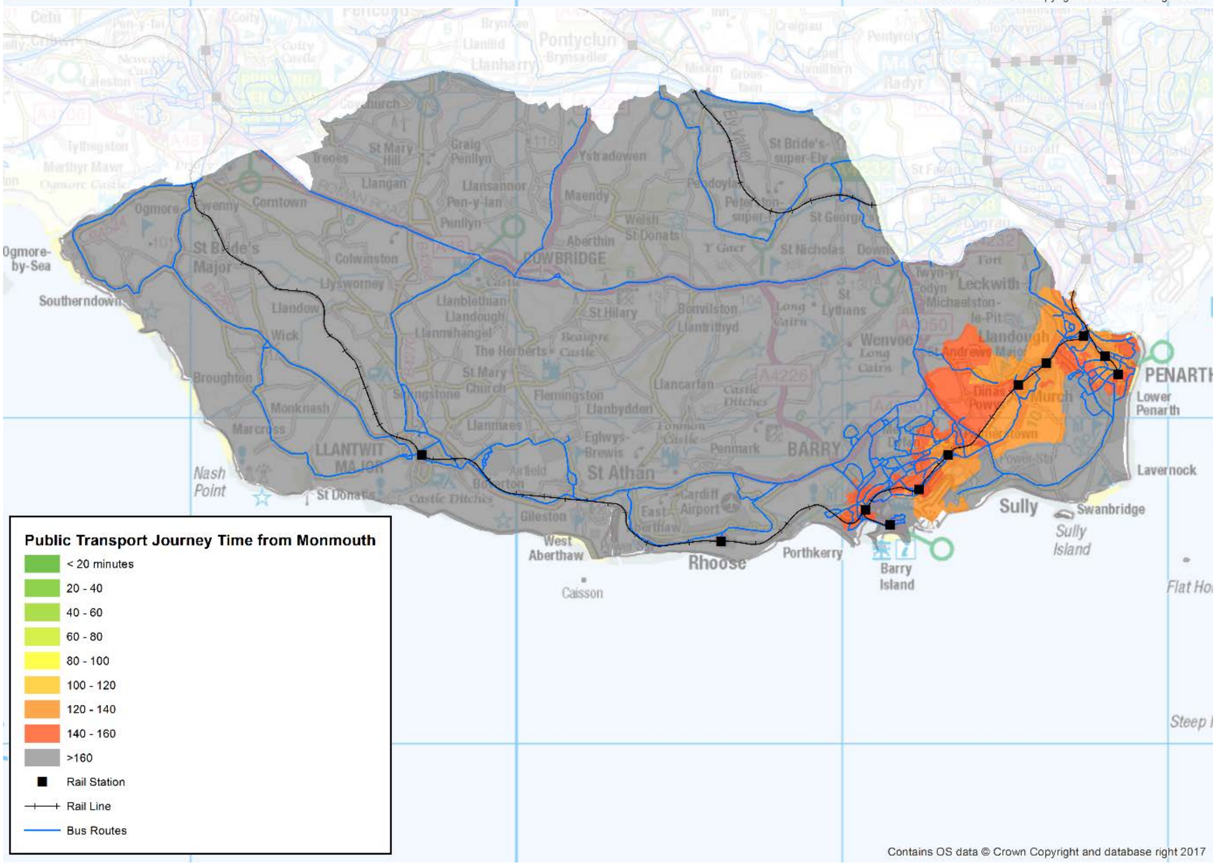
Public Transport Journey Time from Monmouth
< 20 minutes
20 - 40
40 - 60
60 - 80
80 - 100
100 - 120
120 - 140
140 - 160
>160
Rail Station
Rail Line
Bus Routes
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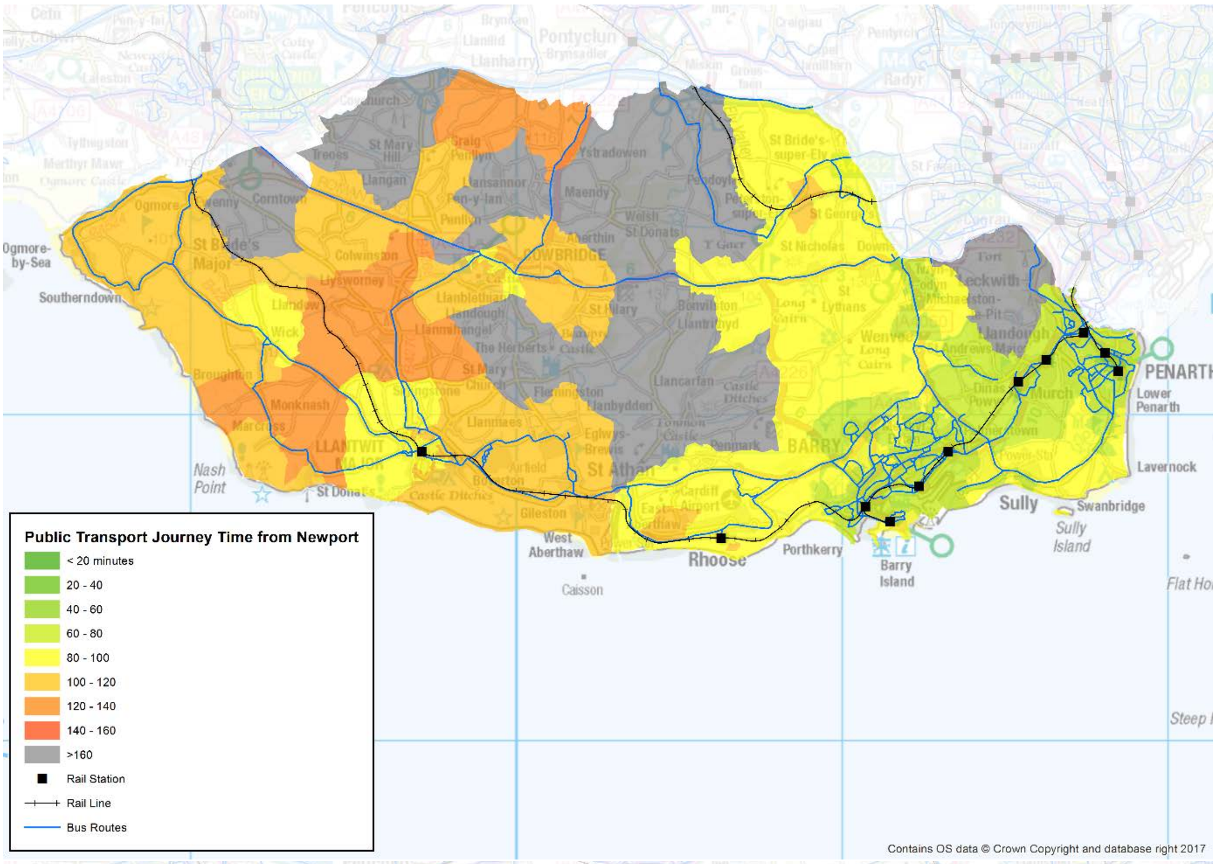

Public Transport Journey Time from Newport
< 20 minutes
20 - 40
40 - 60
60 - 80
80 - 100
100 - 120
120 - 140
140 - 160
>160
Rail Station
Rail Line
Bus Routes
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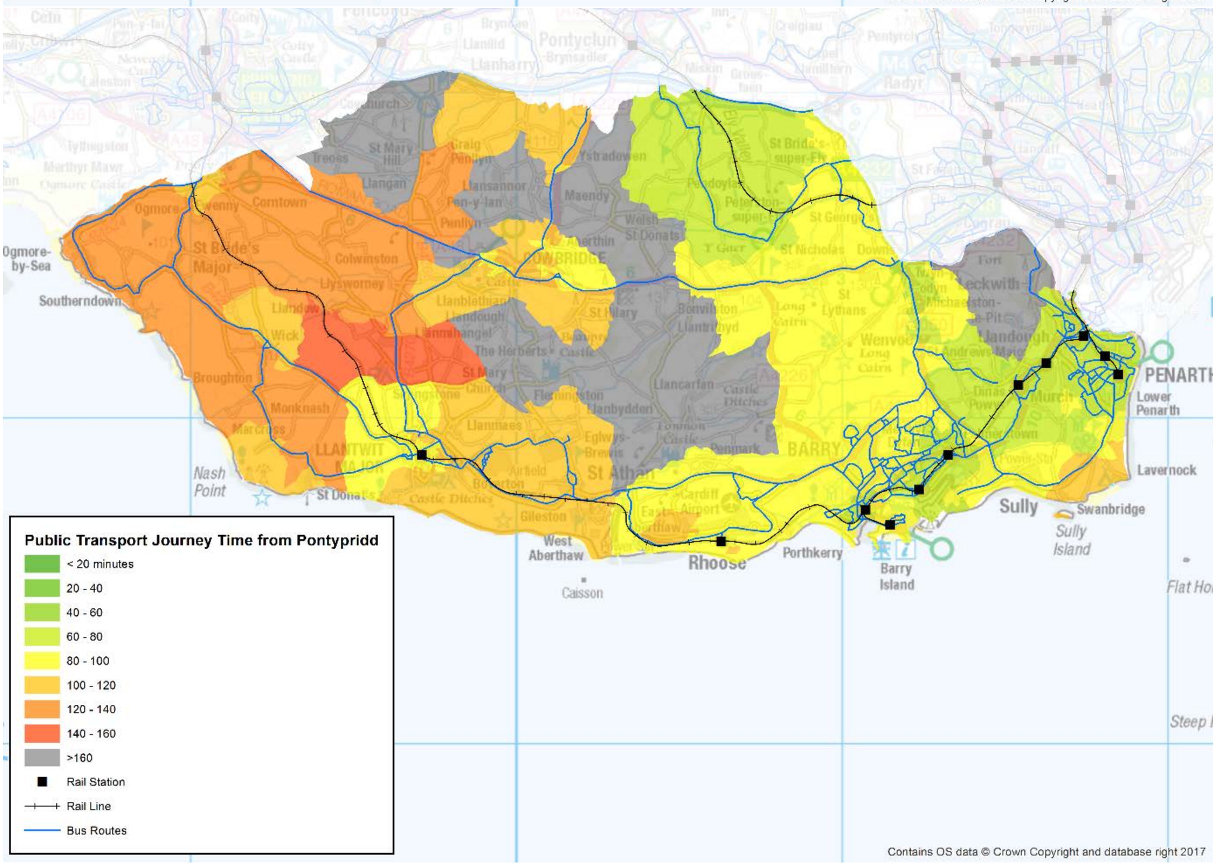

Public Transport Journey Time from Pontypridd
< 20 minutes
20 - 40
40 - 60
60 - 80
80 - 100
100 - 120
120 - 140
140 - 160
>160
Rail Station
Rail Line
Bus Routes
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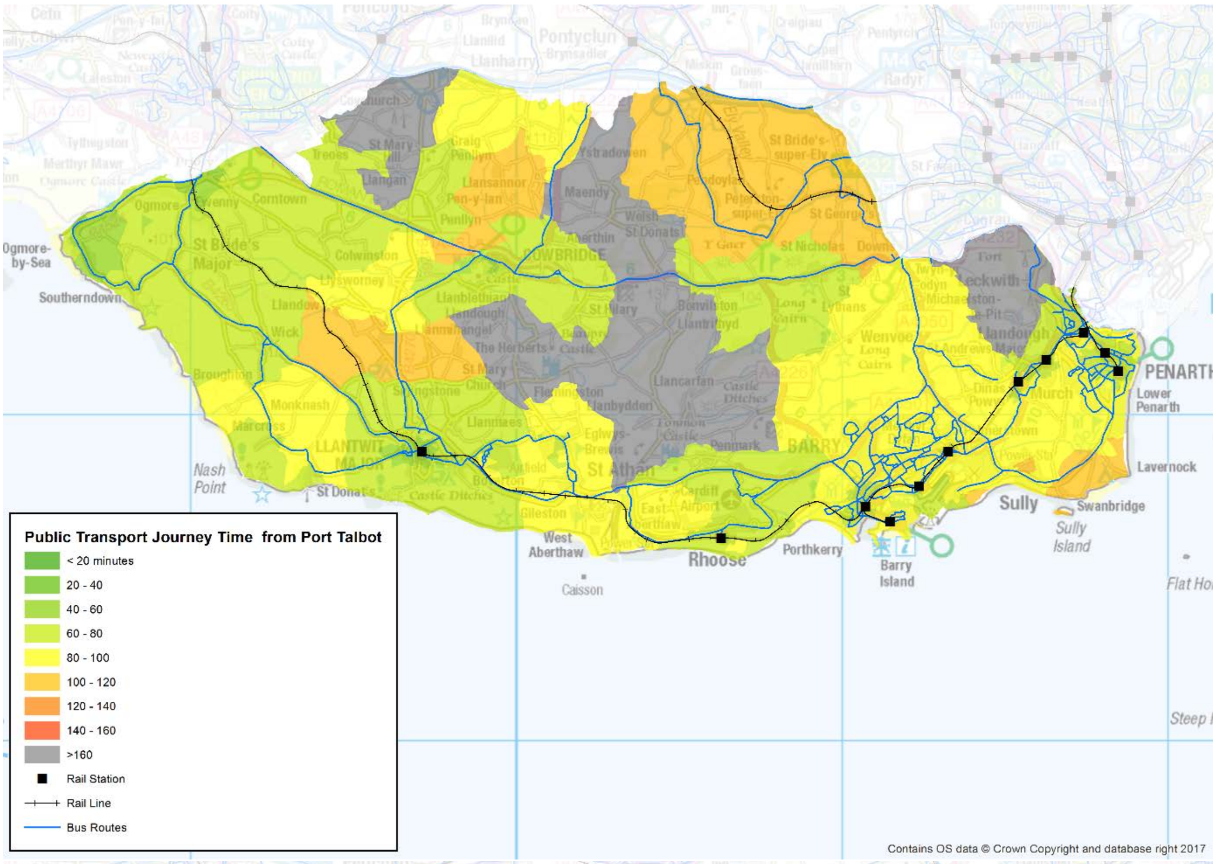
Public Transport Journey Time from Port Talbot
< 20 minutes
20 - 40
40 - 60
60 - 80
80 - 100
100 - 120
120 - 140
140 - 160
>160
Rail Station
Rail Line
Bus Routes
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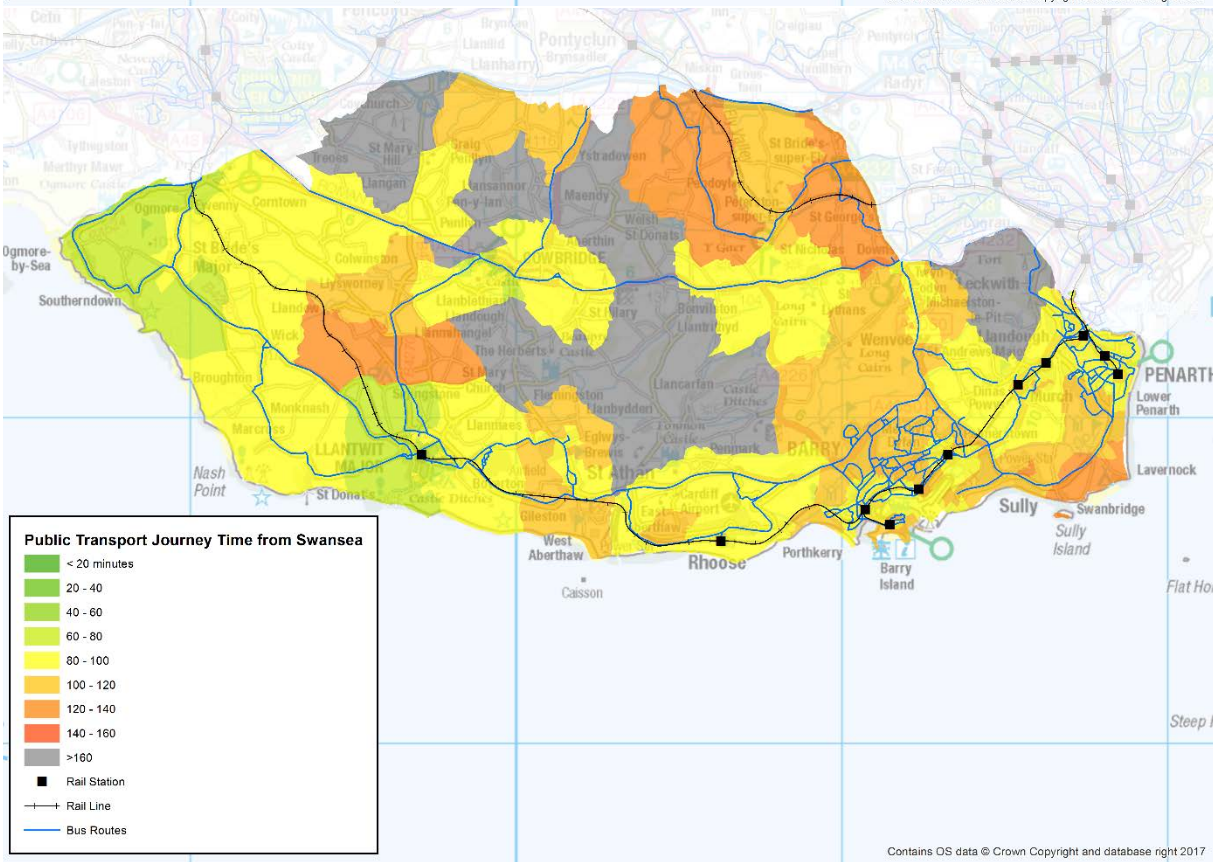
Public Transport Journey Time from Swansea
< 20 minutes
20 - 40
40 - 60
60 - 80
80 - 100
100 - 120
120 - 140
140 - 160
>160
Rail Station
Rail Line
Bus Routes
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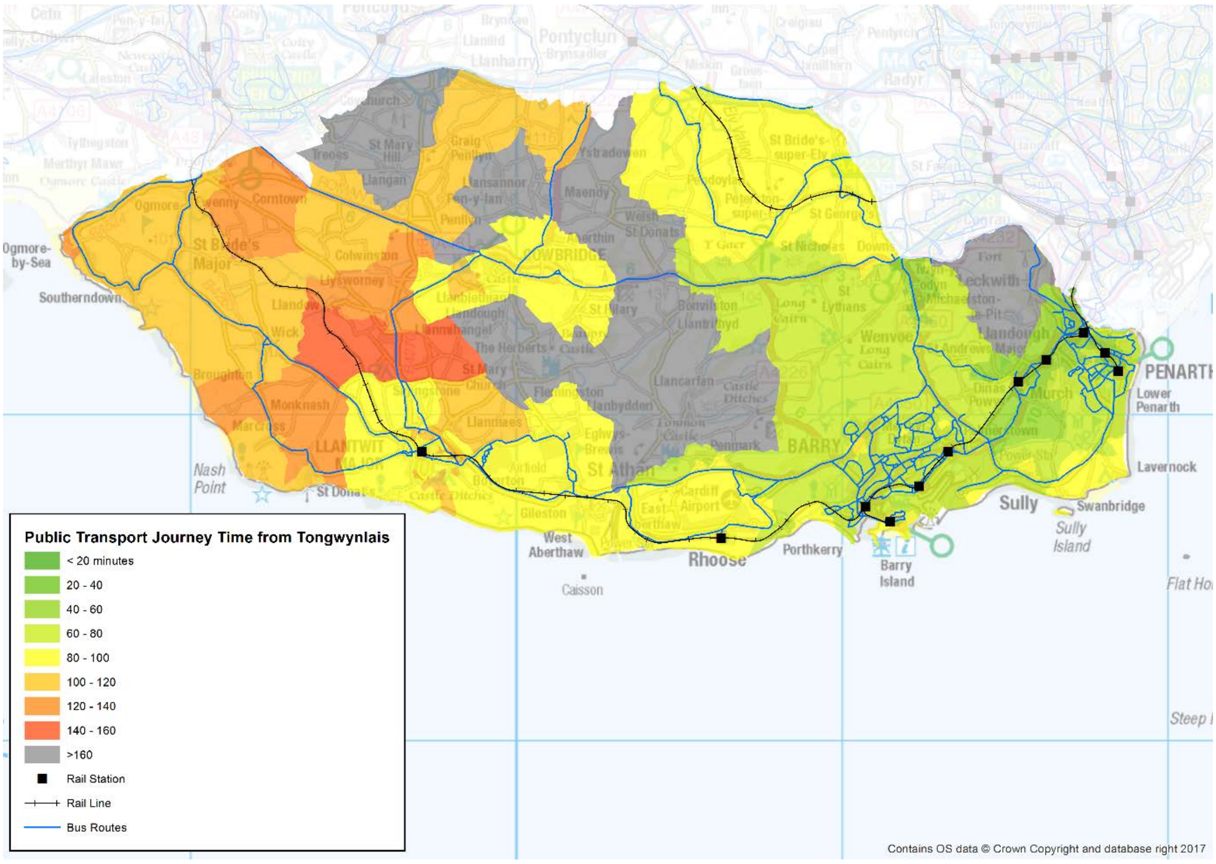
Public Transport Journey Time from Tongwynlais
< 20 minutes
20 - 40
40 - 60
60 - 80
80 - 100
100 - 120
120 - 140
140 - 160
>160
Rail Station
Rail Line
Bus Routes
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