

IMPROVING STRATEGIC TRANSPORT CONNECTIONS BETWEEN ABERYSTWYTH AND CARMARTHEN

WelTAG Stage One: Strategic Outline Case Report

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CONTACTS

LAURA NORMAN
Principal Transport Planner

dd +02920926749
e laura.norman@arcadis.com

Arcadis.
Arcadis Cymru House
St Mellons Business Park
Fortran Road
Cardiff
CF3 0EY
United Kingdom

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This report dated 19 October 2016 has been prepared for Ceredigion County Council (the "Client") in accordance with the terms and conditions of appointment dated 18 April 2016 (the "Appointment") between the Client and **Arcadis (UK) Limited** ("Arcadis") for the purposes specified in the Appointment. For avoidance of doubt, no other person(s) may use or rely upon this report or its contents, and Arcadis accepts no responsibility for any such use or reliance thereon by any other third party.

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Overview

Arcadis Consulting (UK) Limited has been commissioned by Ceredigion County Council to develop and appraise potential options for improving strategic transport connections between Aberystwyth and Carmarthen.

The appraisal of options has been undertaken in accordance with the Welsh Government's latest version of the Welsh Transport Planning and Appraisal Guidance (WelTAG) (draft version, June 2016), as agreed with the Welsh Government by email (dated 27th June 2016). A summary of the guidance is presented in **Appendix A**.

This WelTAG report presents the development, appraisal and evaluation of transport related projects and has been undertaken with the involvement of key stakeholders. This report presents the Stage One: Strategic Outline Case of the WelTAG process.

The WelTAG guide states that the purpose of the Stage One: Strategic Outline Case is to 'understand the issue of concern, explore its context and to present a wide list of possible solutions, with sufficient clarity and depth for the review group to be able to decide whether there are any possible solutions within the transport sector that are worth pursuing and to select a short list of options for more detailed consideration'.

Study Area

The study area of this appraisal report has considered the region of Mid and West Wales between Aberystwyth and Carmarthen, including all existing transport corridors (highway network and public transport), as well as potential routes for the delivery of new strategic transport corridors between the two key settlements.

Stakeholder Consultation

A stakeholder workshop was undertaken on 21st June 2016 to which representatives from all key stakeholders from across the region representing key employers, public organisations, transport providers and local authority were invited.

The workshop informed all the key stages of the strategic case aspect of the appraisal, whereby stakeholders were asked to discuss and identify problems, opportunities and constraints, set objectives and identify and discuss potential transport options.

The Case for Change

Overall the study area suffers from poor access to services and jobs (Welsh Index of Multiple Deprivation (WIMD) 2014) and consequently the National Transport Finance Plan 2015 – Evidence Base (2015) identifies the importance of reducing journey times along the road corridors in Mid Wales and identifying where long distance public transport services can play a role in improving accessibility.

The highway network forms the backbone of the transport network within the study area due to the lack of rail infrastructure between Aberystwyth and Carmarthen. However, given the importance of the highway network in places it falls below appropriate standards (Ceredigion County Council – Local Government Performance 2012/13).

There is an opportunity to introduce greater innovation, integration and collaboration to improve connections between Aberystwyth and Carmarthen, as well as the settlements in between, in order to reverse the trend in the dominance of the private car and difficulties accessing employment and services. Recent investments in the Traws Cymru service have shown that considerable growth in patronage can be achieved, for example along the corridor the former X40 service (now the Traws Cymru T1 service) had 102,000 passengers in 2010/11 which grew to 235,000 in 2013/14 when route became the T1 service. The patronage grew further to 240,000 in 2014/15¹.

¹ TraCC Board (29th October 2015) – Strategic Regional Transport :- Welsh Government National Transport Finance Plan 2015 – “The Plan”

Options

Following the discussions with stakeholders the long list of options considered within this WelTAG report are:

- Option A: Do-minimum
- Option B: New rail route
- Option C: Regional bus service enhancements
- Option D: Local and community transport enhancements
- Option E: Regional highway improvements
- Option F: Multi-modal option

Options to be Taken Forward

Following the appraisal of the six options it is recommended that Option A (do-minimum), Option C (regional bus service enhancements), Option E (regional highway improvements) and Option F (multi-modal option) are taken forward to the Stage Two: Outline Business Case for further investigation into the impacts of the option.

Impacts Assessment Report

This report presents the Stage One: Strategic Outline Case Impacts Assessment Report. In accordance with the WelTAG guidance this WelTAG report is supported by an Impacts Assessment Report, as presented in **Appendix B**. The Impacts Assessment Report 'is a live document which is maintained and grows throughout the five WelTAG stages. It becomes a permanent record of the appraisal work on the proposed transport intervention. It contains the detailed evidence behind the summary information provided to decision makers in the Stage reports'.

The Impacts Assessment Reports provides a summary of the policy framework, the context of the study, detailed information which informed the strategic case and the data sources used within the study.

Methods to be used to Provide Additional Evidence

It is recommended that in order to provide the necessary additional evidence required to undertake the Stage Two: Outline Business Case that a:

- **Bus and Community Transport Study** – is commissioned to review the existing regional bus service, in terms of timetable, routes and journey times, in order to identify potential additional strategic bus corridors and improvements that could be delivered. The study would provide information on the potential revenue and capital costs, potential population catchment of the identified new routes and the views of key stakeholders. The review would also need to consider the relationship between the local bus and community transport services and identify innovative ways of delivering a more effective and accessible public transport service between Aberystwyth and Carmarthen and the key settlements in between; and
- **Highway Route Study** – is commissioned to identify largely on-line improvements along each of the key highway routes linking Aberystwyth and Carmarthen (and thus the strategic east-west route corridor namely the A40/ M4 motorway network) encompassing:
 - Aberystwyth – Synod Inn – Llandysul – Carmarthen (A487/ A486/ A484);
 - Aberystwyth – Aberaeron – Lampeter – Carmarthen (A487/ A482/ A485);
 - Aberystwyth – Llanrhystud – Lampeter – Carmarthen (A487/ B4337/ A485); and
 - Aberystwyth – Tregaron – Lampeter – Carmarthen (A487/ A485).

In summary the study would:

- Describe the condition and constraint along each route;
- Identify and appraise potential schemes;
- Identify indicative cost estimates; and
- Undertake an environmental, social and economic assessment.

1 Introduction

1.1 Purpose of the Study

Arcadis Consulting (UK) Limited has been commissioned by Ceredigion County Council to develop and appraise potential options for improving strategic transport connections between Aberystwyth and Carmarthen. The appraisal of options has been undertaken in accordance with the Welsh Government’s latest version of the Welsh Transport Planning and Appraisal Guidance (WelTAG) (draft version, June 2016), as agreed with the Welsh Government by email (dated 27th June 2016). This WelTAG report presents the development, appraisal and evaluation of transport related projects and has been undertaken with the involvement of key stakeholders. This report presents the Stage One: Strategic Outline Case of the WelTAG process. A summary of the draft WelTAG guidance is provided in **Appendix A**.

1.2 The Study Area

The study area of this appraisal report has considered the region of Mid and West Wales between Aberystwyth and Carmarthen, including all existing transport corridors (highway network and public transport), as well as potential routes for the delivery of new strategic transport corridors between the two key settlements.

1.3 WelTAG Stage One: Strategic Outline Case

The WelTAG guidance states that the purpose of the Stage One: Strategic Outline Case is to ‘understand the issue of concern, explore its context and to present a wide list of possible solutions, with sufficient clarity and depth for the review group to be able to decide whether there are any possible solutions within the transport sector that are worth pursuing and to select a short list of options for more detailed consideration’. As such, this Stage One: Strategic Outline Case report:

- Identifies the issue that needs addressing supported by evidence;
- Establishes objectives;
- Develops a long list of possible solutions, including non-transport interventions;
- Assesses a long list of options against the objectives;
- Assesses a long list of options against the impacts criteria; and
- Selects a short list of options to take forward to the next stage.

This Stage One report follows the principle of proportionate appraisal. It presents a largely qualitative appraisal, whilst providing stakeholders and decision makers with greater information and understanding of the problems and potential options. The accompanying Impacts Assessment Report for this Stage One report is presented in **Appendix B**.

In accordance with the WelTAG guidance the significance and scale of the impacts throughout the assessment has been appraised using a seven-point scale, as presented in **Table 1.1**.

Table 1.1 – WelTAG Seven-Point Assessment Scale

Large beneficial	+++
Moderate beneficial	++
Slight beneficial	+
Neutral	0
Slight adverse	-
Moderate adverse	---
Large adverse	----

1.4 Reason for the Study

The need to improve the connectivity between Aberystwyth and Carmarthen has been identified by both the Mid Wales Joint Local Transport Plan (2015) and the Joint South West Wales Local Transport Plan (2015). Both strategies highlight the importance of cross-border movements to assess employment and key services along this strategic corridor including access to Glangwili General Hospital and Bronglais General Hospital, as well as connectivity between the universities within Swansea, Lampeter and Aberystwyth.

It is important that we seek to specifically identify suitable value for money short to medium term delivery options to improve connectivity and journey times along this corridor, building on the schemes identified within both regional strategies. Hence this WelTAG report has been commissioned to strategically develop, appraise and evaluate transport related projects to improve the connectivity between Aberystwyth and Carmarthen.

1.5 Context

A summary of the policy framework within which the Stage One report fits is presented in Section 2 of the Stage One: Strategic Outline Case Impacts Assessment Report in **Appendix B**, alongside the context of the study in terms of the existing travel infrastructure, travel trends and population data presented in Section 3 of the Impacts Assessment Report.

1.6 Report Structure

This WelTAG report presents the Stage One: Strategic Outline Case WelTAG report, together with the Impacts Assessment Report presented in **Appendix B**. In accordance with the WelTAG guidance the structure of this report is as follows: **Chapter 2** sets out the strategic case, **Chapter 3** the transport case, **Chapter 4** the delivery case, **Chapter 5** the financial case and **Chapter 6** the commercial case. The Stage One: Strategic Outline Case WelTAG report concludes in **Chapter 7** with a summary of the key conclusions of the appraisal and details on the next steps to be taken forward.

2 Strategic Case

2.1 Overview

The Strategic Case 'addresses the need for change. It presents an evidence based description of the current situation, describes the likely funding situation if no action is taken and presents the reasons why an intervention is required'.

2.2 Consultation

A stakeholder workshop was undertaken on 21st June 2016 to which representatives from all key stakeholders from across the region representing key employers, public organisations, transport providers and local authority were invited. **Appendix B** presents a list of the stakeholders who attended the workshop.

The workshop informed all the key stages of the strategic case, whereby stakeholders were asked to discuss and identify problems, opportunities and constraints, set objectives and identify and discuss potential transport options.

In order to inform the discussions at the workshops a draft list of problems, opportunities and constraints were presented. These were derived from the Mid Wales Joint Local Transport Plan (2015). The outcomes of the plan were presented as a starter for the discussions on the emerging objectives, alongside a list of potential transport solutions. The presentation from the workshop is presented in **Appendix B**. At the workshop stakeholders discussed the problems, objectives and transport options in groups, which were then discussed in turn as a whole group. The outputs from the stakeholder workshop have been used to inform this strategic case.

2.1 Policy Context

The key policies at the local, regional and national levels, highlighting the policies and proposed delivery programmes and schemes (subject to the availability of funding) that are relevant to this study are presented in the Impacts Assessment Report in **Appendix B**.

In summary there is a strong commitment to supporting strategic bus services alongside delivering high-quality improvements and bus priority measures in the region. Also the need to consider strategic highway improvements between Carmarthenshire and Ceredigion is identified in both the relevant joint local transport plans, as well as protecting former railway lines.

2.3 The Case for Change

Overall the study area suffers from poor access to services and jobs, possessing relatively weak internal and external links, poor public transport and limited rail accessibility. This together with dispersed settlement patterns has resulted in a high dependency on the car and long journey distances to access employment and key services (2011 Census). The Welsh Index of Multiple Deprivation (WIMD) 2014 for access to services deprivation identifies that large parts of the study area are ranked in the most deprived lower super output areas. The National Transport Finance Plan 2015 – Evidence Base (2015) states that access to higher and further education and to acute NHS hospitals is generally poor, dictated by the patterns on service delivery.

Outside of the key settlements, employment is highly dispersed and accessing employment and key services by public transport is constrained by the limited service provision and long travelling distances, often requiring interchange between different services, thus is inadequate to provide a sufficient offer to compete with the car (Mid Wales Joint Local Transport Plan, 2015; Joint Transport Plan for South West Wales 2015 – 2020, 2015; National Transport Plan Finance Plan 2015 – Evidence Base, 2015; 2011 Census). The National Transport Finance Plan 2015 – Evidence Base (2015) identifies the importance of reducing journey times along the road corridors in Mid Wales and identifying where long distance public transport services can play a role in improving accessibility.

While motoring costs seem to have fallen in real terms, this disguises the fact that while the (often discretionary) cost of buying a new or second hand vehicle has been falling, (non-discretionary)

operating costs such as fuel and insurance have risen significantly quicker than inflation. More notably the cost of bus and rail fares has risen quicker than average wages and the rise has been higher than the cost of all motoring (RAC Foundation).

Sustrans Cymru² report that around half of all people in Wales could be struggling with the costs of running a car and state that between 40-50% of the population of Carmarthenshire are reported to be experiencing transport poverty and between 30-40% of population of Ceredigion. This can lead to social exclusion particularly for young people trying to access jobs and training. The centralisation and changes in education, social services and healthcare provision are on-going and are resulting in an increased need to travel for some of the most vulnerable residents.

The delivery of public and community transport services have been shaped by the lack of investment and sustained resourcing that have prevailed over the past few years³. There have been recent investments in the Traws Cymru service and Bwcabus, however there is potential to improve the provision of public and community transport across the region further, as a means to reduce the reliance on the private car. Since the introduction of the T1 Traws Cymru service there has been considerable growth in patronage along the corridor. For example the former X40 service (now the Traws Cymru T1 service) had 102,000 passengers in 2010/11 which grew to 235,000 in 2013/14 when route became the T1 service. The patronage grew further to 240,000 in 2014/15⁴.

The highway network forms the backbone of the transport network within the study area due to the lack of rail infrastructure between Aberystwyth and Carmarthen. However, given the importance of the highway network in places it falls below appropriate standards (Ceredigion County Council – Local Government Performance 2012/13) and experiences congestion in the key centres. The strategic road network often passes through the centre of communities, where traffic speeds are generally reduced and in some places traffic calming measures have been implemented. Traffic calming measures have recently been implemented in Alltwalis and Llanllwni in the form of speed bumps and whilst these measures may improve safety, there is an impact on journey time and quality.

If there is a continued decline in investment, the dominance of the private car would continue, the difficulties accessing employment and services would become increasingly challenging as services continue to be centralised and the standard of the highway network would further diminish. There is an opportunity to introduce greater innovation, integration and collaboration to improve connections between Aberystwyth and Carmarthen, as well as the settlements in between.

2.4 Identification of Problems

The identified issues that require addressing are summarised below, which have been identified through analysing local data, reference to previous feasibility reports and policy (as presented in Section 2 and 3 of the Impacts Assessment Report within **Appendix B**), alongside consultation with stakeholders (as presented in Section 4 of the Impacts Assessment Report within **Appendix B**). A description of how the problems have been identified is summarised in Section 4 of the Impacts Assessment Report within **Appendix B**. The identified problems are presented in **Table 2.1**.

² Sustrans Cymru - http://www.sustrans.org.uk/sites/default/files/images/files/Access%20Denied_eng.pdf

³ The allocation of Local Transport Fund to Mid Wales in 2015/16 was only 8.9% (£2.4m) of the all Wales allocation (£26.9m) and 8.17% of funding in 2016/17 compared to allocations of 29.3% and 39.5% in South East Wales in 2015/16 and 2016/17 respectively.

⁴ TraCC Board (29th October 2015) – Strategic Regional Transport :- Welsh Government National Transport Finance Plan 2015 – “The Plan”

Table 2.1 – Identification of Problems

Problem	Evidence
P1: Unreliable journey times (e.g. limited overtaking opportunities)	<ul style="list-style-type: none"> The National Transport Finance Plan 2015 – Evidence Base (2015) – Average vehicle speeds in Mid Wales are quite low, generally between 40-50mph on trunk roads and between 30-40mph on county roads.
P2: Poor highway condition and road safety	<ul style="list-style-type: none"> Ceredigion County Council – Local Government Performance 2012/13. In 2012/13 13.4% of Ceredigion’s roads were in a ‘poor’ condition. EuroRAP 2014 – statistical risk of death and serious injury occurring on motorways and A-road network for 2010-2012 in Wales. A487 is assessed to be a medium-high risk road, while the A482, A484, A485 and A486 are assessed to be medium risk roads.
P3: Long distances to access key services and jobs	<ul style="list-style-type: none"> 2011 Census – Distance travelled to work is higher in the study area compared to the more urbanised areas of Wales (see Figure 3.1 of the Impacts Assessment Report within Appendix B). The Welsh Index of Multiple Deprivation (WIMD) 2014 for access to services deprivation identifies that large parts of the study area are ranked in the most deprived lower super output areas.
P4: Dependence on the private car	<ul style="list-style-type: none"> 2011 Census – The car is the dominant mode of travel to work across Ceredigion (65.4% of journeys) and Carmarthenshire (65.4%), which is higher than the urban area of Cardiff where 62% of journeys are undertaken by car.
P5: Transport Poverty, lack of available affordable transport for some communities	<ul style="list-style-type: none"> Mid Wales Joint Local Transport Plan (2015) RAC Foundation⁵ – the cost of bus and rail fares has risen quicker than average wages and notably higher than the cost of all motoring Sustrans Cymru – 40-50% of the population of Carmarthenshire are reported to be experiencing transport poverty and between 30-40% of population of Ceredigion. Joint Transport Plan For South West Wales 2015 – 2020 (2015)
P6: Lack of connections to the long distance rail network	<ul style="list-style-type: none"> Traveline Cymru – bus service and frequency data Mid Wales Joint Local Transport Plan (2015)
P7: People with no access to a car may be excluded from accessing jobs, leisure and tourism	<ul style="list-style-type: none"> 2011 Census – Car ownership is generally higher in the study area compared to the urban areas, 18.8% of households within Ceredigion have no car to a car, whilst the level is 18.4% in Carmarthenshire compared to 29% in Cardiff⁶. 2011 Census – Distance travelled to work is higher in the study area compared to the more urbanised areas of Wales (see Figure 3.1 of the Impacts Assessment Report within Appendix B). The National Transport Finance Plan 2015 – Evidence Base (2015) states that the 2011 Census data shows that 44.63% of people in Ceredigion cannot access a NHS Major Acute Hospital by public transport within 60 minutes, while it is 27.11% within Carmarthenshire. 35.17% of Ceredigion residents cannot access further education within 60 minute journey by public transport, whilst 46.22% of Carmarthenshire and 40.26% Ceredigion residents cannot access higher education within 60 minutes by public transport.
P8: Limited evening and weekend bus services	<ul style="list-style-type: none"> Traveline Cymru – bus service and frequency data Mid Wales Joint Local Transport Plan (2015) Joint Transport Plan For South West Wales 2015 – 2020 (2015)

⁵ <http://www.racfoundation.org/data/cost-of-transport-index>

⁶ 2011 Census

P9: Disproportionate impact of road freight on the highway network	<ul style="list-style-type: none"> • Campaign for Better Transport⁷
P10: Public transport journeys can be complex and less attractive due to the need to interchange	<ul style="list-style-type: none"> • Traveline Cymru – bus service and frequency data • Mid Wales Joint Local Transport Plan (2015)
P11: Increased risk to the resilience to climate change	<ul style="list-style-type: none"> • The National Transport Finance Plan 2015 – Evidence Base (2015) states that flooding of roads and railway and the associated disruption, is projected to increase
P12: Poor integration of bus services	<ul style="list-style-type: none"> • Traveline Cymru – bus service and frequency data • Mid Wales Joint Local Transport Plan (2015) • Joint Transport Plan For South West Wales 2015 – 2020 (2015)
P13: Dispersed population	<ul style="list-style-type: none"> • 2011 Census • Mid Wales Joint Local Transport Plan (2015) • Joint Transport Plan For South West Wales 2015 – 2020 (2015)
P14: Speed restrictive measures have detrimental impact on journey time and comfort	<ul style="list-style-type: none"> • Local press⁸

2.5 Objectives for the Intervention

The objectives for the intervention have been derived from general and transport-specific objectives as set by the Welsh Government. Section 4 of the Impacts Assessment Report in **Appendix B** sets out how stakeholders have informed the development of the objectives and how the proposed objectives positively contribute to Welsh Government policy.

The final objectives for the intervention are as follows:

- **Objective 1:** Access to and from Key Destinations, Markets and Transport Hubs
 - Improve efficiency, reliability, resilience, and connectivity of movement (people and freight by all modes)
- **Objective 2:** Access for Employment and Services (health and education)
 - Promote inclusive, integrated and affordable access to key services and employment by public transport
 - Focus on access to regeneration/ growth areas
 - Focus on areas deprived in terms of access to services
- **Objective 3:** Improving Health and Well-being
 - Improving and promoting active travel (both recreation and necessary trips)
- **Objective 4:** Improved Safety and Security
 - To improve actual and perceived safety and security of travel by all modes.
- **Objective 5:** Benefits and Minimised Impacts on the Environment
 - Minimise impacts on the local and global environment (natural and built)
 - Adaptation to the effects of climate change

⁷ <http://www.bettertransport.org.uk/dangerous-dirty-and-damaging-new-research-reveals-impact-hgvs>

⁸ <http://www.cambrian-news.co.uk/article.cfm?id=105178&headline=Bumps%20%E2%80%98slowing%20down%20ambulances%E2%80%99§ionIs=news&searchyear=2016>

2.6 Developing Options

The next stage of the WelTAG process is to develop options that alleviate the identified problems and achieve the objectives. At the stakeholder workshop stakeholders were asked to identify and discuss potential options to improve the strategic transport connections between Aberystwyth and Carmarthen. A number of proposals were generated including a do-minimum in advance of the stakeholder workshop, in order to inform and encourage discussion, which are presented in **Appendix B**.

Following the discussions by stakeholders the long list of options are considered within this WelTAG report:

- Option A: Do-minimum
- Option B: New rail route
- Option C: Regional bus service enhancements
- Option D: Local and community transport enhancements
- Option E: Regional highway improvements
- Option F: Multi-modal option

2.7 Appraisal of Options

At this early stage in the WelTAG process high level options have been identified and defined in order to determine the potential impacts of each option. The section describes each of the options in turn, how it tackles the identified problems, how it meets the objectives, as well as key risks, adverse impacts, constraints and dependencies. The appraisal of the extent the option meets the objectives is described using the WelTAG seven-point assessment scale, as set out in **Table 1.1**.

Option A: Do-minimum		
Description	<ul style="list-style-type: none"> Assumes continued delivery of transport enhancements via the Local Transport Plans and utilising existing sources of funding, but assumes no step change in the level of funding or delivery of any major transport enhancements within the study area (assumes current levels of investment). Assumes continuation of the Traws Cymru service, local bus and community transport (including Bwcabus) at a similar level as present utilising funding at similar levels to existing. Assumes continued work by local authorities and stakeholders to deliver improvements to the transport network, with the overall aim of addressing the identified problems and the outcomes of the relevant transport policies. 	
How it tackles the problems	<ul style="list-style-type: none"> Limited available funding (both capital and revenue) and resources are unlikely to make a step difference in overcoming the identified problems. 	
Objectives	Overall	<ul style="list-style-type: none"> Overall the do-minimum option has an adverse effect at meeting the objectives, due to the low levels of funding currently being invested in the infrastructure and public transport services. It should be noted that policies and programmes are in place to facilitate improved transport services but the lack of funding means that beneficial enhancements are currently difficult to achieve. A negative impact on the environment is forecast as the car continues to be the dominant mode of transport, whilst the limited funding means that there is currently poor access to service, a poor road safety record and limited promotion and delivery of transport schemes to promote health and well-being. These problems cannot be addressed without sufficient committed funding and sources to have a beneficial impact.
Key risks	<ul style="list-style-type: none"> Minimal investment in the delivery of an integrated transport network results in the private car becoming increasingly relied upon. Potential reductions in available funding and resources, resulting in greater transport poverty and social exclusion, as using the private car becomes increasingly unaffordable. 	
Adverse impacts	<ul style="list-style-type: none"> Adverse impact on the environment as the private car remains the dominant mode of transport. 	
Constraints	<ul style="list-style-type: none"> Availability of funding and resources. Dispersed settlements and low population density. 	
Dependencies	<ul style="list-style-type: none"> Continued centralisation of services (health and education) adding increasing pressure on the existing transport infrastructure and services, as well as an increased need to travel to access these services. 	

Option B: New Rail Route			
Description		<ul style="list-style-type: none"> Reinstatement of a rail line between Aberystwyth and Carmarthen, with the potential to be extended north of Aberystwyth connecting to Bangor, via both existing and new sections of rail lines. An indication of a potential route is presented in Figure 2.1. No route alignment has been defined, as this would require a full feasibility study, however it is assumed that it would broadly follow the route of the former railway line which closed to passenger traffic in 1965, as the topography does not readily lend itself to alternative alignments. At this stage it is assumed that Option B would be heavy rail⁹ and would focus on passenger services, with the potential to provide freight services. An hourly service is assumed for the purpose of the assessment and there is potential that journey times between Aberystwyth and Carmarthen could be approximately 90 minutes (however this requires further investigation to determine the feasibility – the journey time on the former rail service between Aberystwyth and Carmarthen was approximately 2 hours and 30 minutes). It is assumed that the route would focus on longer distance journeys with approximately five intermediate stations with over 1,000 population, with new stations at Pencader, Llanbydder, Lampeter, Tregaron and Llanilar. 	
How it tackles the problems		<ul style="list-style-type: none"> Option B has the potential to tackle the following problems – P1, P4, P5, P6, P7, P8, P10 and P12. Option B has the potential to reduce the dependency on the private car and encourage a greater proportion of journeys to be undertaken by public transport, particularly as rail services are typically more attractive to passengers than bus options. There are resultant environmental benefits from encouraging people to shift modes and to become less dependent on the private car. Option B has the potential to reduce social exclusion and transport poverty, by providing an alternative transport option for people to access jobs and services, as well as providing an additional connection to the longer distance rail services in Carmarthen and Aberystwyth and providing a greater public transport coverage in the region. 	
Objectives	Overall	<ul style="list-style-type: none"> Option B is considered to have a positive impact on access to key destinations, services and employment, through delivering enhanced public transport services. Option B is considered to have a slight beneficial impact on health and well-being and safety and security. It is considered that Option B may have an overall negative impact on the local environment as the option may have an adverse impact on protected sites along the route. However, the option has the potential to reduce the dependency on the private car and potentially reduce air pollution and greenhouse gas emissions but the environmental impacts have not been quantified at this stage. 	
	1	Access to and from Key Destinations, Markets and Transport Hubs	++
	2	Access for Employment and Services (health and education)	++
	3	Improving Health and Well-being	+
	4	Improved Safety and Security	+

⁹ AECOM. Scoping Study for Full Feasibility Study for Re-opening a Heavy Rail Railway between Aberystwyth and Carmarthen. 2015

	5	Benefits and Minimised Impacts on the Environment	-
Key risks	<ul style="list-style-type: none"> • Requires a high level of capital investment. The current estimated total project costs are £750m. • Option B would require significant subsidy. The Welsh Government has provided Arriva Trains Wales with £700m between 2011/12 and 2014/15 in franchise subsidy payments, including funding for services additional to those within the franchise¹⁰. Arriva Trains Wales, whose subsidy per passenger kilometres grew to 13.1p in 2013- 14¹¹. • Any potential new rail service would be dependent on the need to be fully integrated with the regional and local bus services, as well as with community transport services. • Would be dependent on a range of funding sources, which are uncertain particularly given the future loss of EU monies. • A number of large scale transport options are currently in the Welsh Government's infrastructure delivery programmes, such as the Metro, the M4 motorway, Tidal Lagoon Swansea Bay (subject to approval) and Wylfa Newydd nuclear plant, which would require significant capital funding and resources. • Option B would require a full feasibility study to provide robust construction costs, land acquisition costs, as well as preliminary environmental and business case assessments. • Land acquisitions. • Environmental considerations. • Dispersed settlements and low population density are a potential risk to ensuring the potential railway line has sufficient population catchment to be economically viable. This level of information is not available at this stage. • Route uncertainties make it difficult to fully understand the engineering constraints and potential costs, and associated impacts, particularly for the rail route to serve Aberystwyth. • Public and political acceptability particularly at the northern end where the former railway line has been developed. 		
Adverse impacts	<ul style="list-style-type: none"> • Potential impact on protected environmental sites along the route. • Impact on residents and businesses located along the potential route, although this would be localised to those immediately affected with potential benefits for the wider communities. • Impact on those residents and businesses located along the route, due to increased noise pollution. • Impact on local communities during construction. • Would require a high level of capital investment, which would have implications on the delivery of other capital schemes in the region for a number of years. 		
Constraints	<ul style="list-style-type: none"> • Requires a high level of capital investment and subsidy. • Low population density and dispersed settlement patterns. • Inflexibility of rail serves. • Existing protected environmental sites along the route. • Developments along some sections of the former rail route. • Route uncertainties make it difficult to fully understand the engineering constraints and potential costs, and associated impacts, particularly for the rail route to serve Aberystwyth. • Existing routes and structures may not conform to current standards. 		

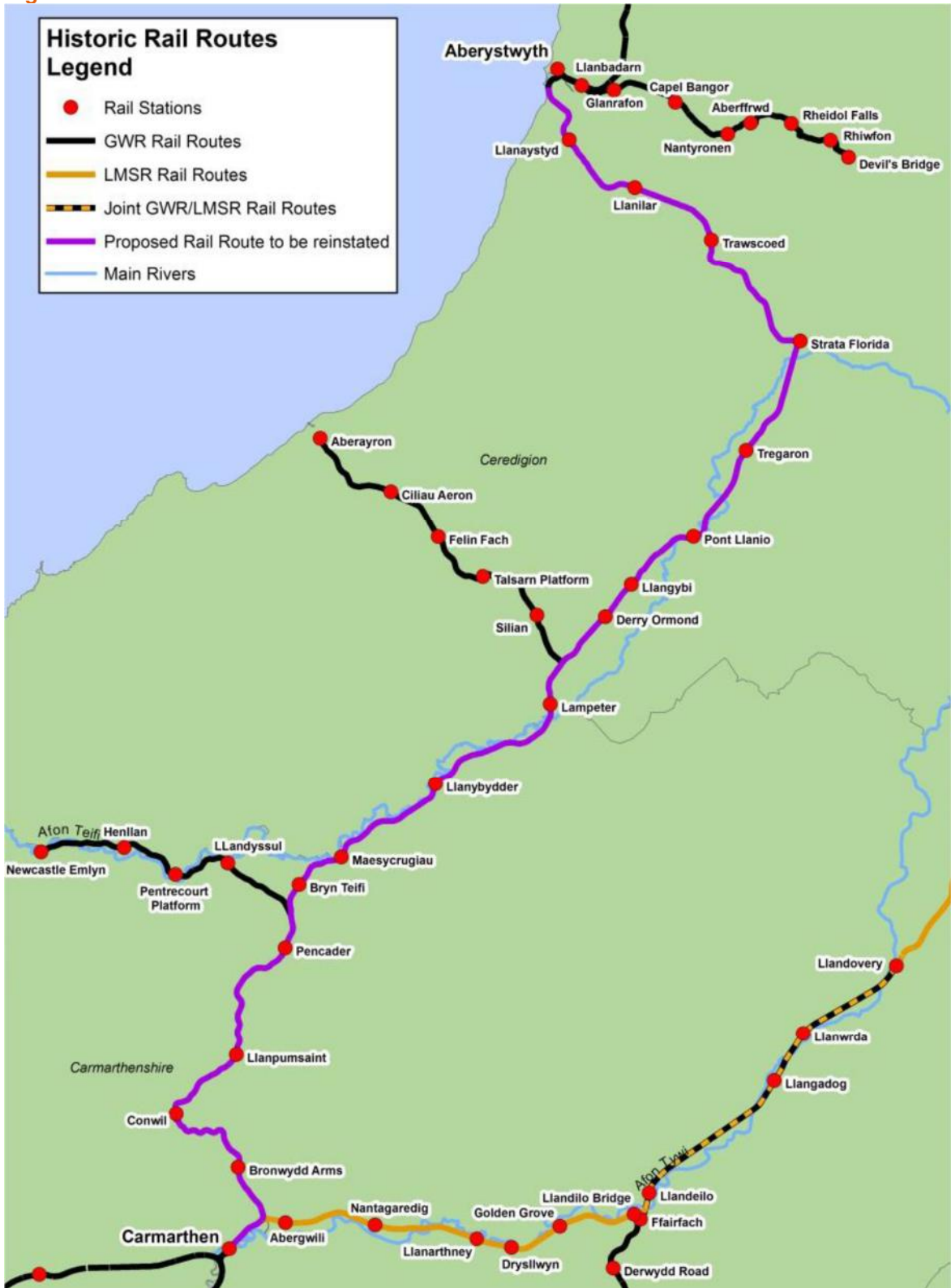
¹⁰ Written Evidence submitted by the Welsh Government to the Welsh Affairs Committee (August 2016)

¹¹ Office of Rail Regulation. 2013-14 Annual Statistical Release – Rail Finance (2015)

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	<ul style="list-style-type: none"> • At the northern end of the former route much of the original alignment has been preserved as the Ystwyth Trail for cyclists and walkers. • Gwili Railway use part of the former railway line and are keen to continue to operate as a tourist attraction.
<p>Dependencies</p>	<ul style="list-style-type: none"> • Network Rail delivery programmes and rail operator franchise. • Welsh Government priorities and committed expenditure. • Local authority delivery programmes, as set out in the Joint Local Transport Plans.

Figure 2.1 – Potential Rail Route¹²



Note: LMSR: London, Midland and Scottish Railway and GWR: Great Western Railway

¹² AECOM Scoping Study for Full Feasibility Study for Re-Opening a Heavy Rail Railway between Aberystwyth and Carmarthen (2015)

Option C: Regional Bus Service Enhancements		
Description	<ul style="list-style-type: none"> Greater enhancement of the existing Traws Cymru services – service enhancements to existing routes (weekend and evening services) and potential additional routes serving other key settlements between Carmarthen and Aberystwyth, that are integrated with existing regional and local buses, community transport and rail services. There would be no improvement on the journey time between Aberystwyth and Carmarthen (currently approximately 2 hour and 20 minutes). However, there would be potential to provide express services along the corridors to reduce journey times if increased service frequency is delivered. Delivery of infrastructure enhancements along strategic bus corridors, providing high quality consistent waiting facilities in line with the Statutory Quality Bus Partnership Standards. 	
How it tackles the problems	<ul style="list-style-type: none"> Option C has the potential to tackle the following problems – P4, P5, P6, P7, P8, P10 and P12. Through both delivering enhancements to both services and infrastructure, Option C has the potential to make public transport services more attractive and less complex with greater integration, thus reducing the dependency on the private car and enabling those without a car to more readily access key services and employment. Additional direct routes would remove the need to interchange and enable a greater number of people to access the key centres (containing key services and employment) and the long distance rail network. The Traws Cymru services are an existing brand (which has experienced an increase in patronage along the strategic bus corridor since the introduction of the service), which can be strengthened and built upon, hence Option C is deliverable in the short term (up to five years) subject to the availability of funding. Option C also provides a flexible option that can be modified to accommodate demand. 	
Objectives	Overall	<ul style="list-style-type: none"> Option C is considered to have a positive impact on access to key destinations, services and employment, through delivering enhanced services and raising the profile of bus services through infrastructure enhancements. Patronage has grown on the existing strategic bus corridor since the implementation of the Traws Cymru service. Option C is considered to have a slight beneficial impact on health and well-being and safety and security. Option C has the potential to reduce the dependency on the private car and encourage a greater proportion of journeys to be undertaken by public transport. There are resultant environmental benefits from encouraging people to shift modes and to become less dependent on the private car. Option C has the potential to reduce social exclusion and transport poverty, by providing an alternative transport option for people to access jobs and services, as well as providing an additional connection to the longer distance rail services in Carmarthen and Aberystwyth and providing a greater public transport coverage.
	1	Access to and from Key Destinations, Markets and Transport Hubs ++
	2	Access for Employment and Services (health and education) ++
	3	Improving Health and Well-being +
	4	Improved Safety and Security +
	5	Benefits and Minimised Impacts on the Environment +

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<p>Key risks</p>	<ul style="list-style-type: none"> • Availability of funding. • Potential reductions in available funding and resources from national and local government. • Greater centralisation of services (health and education) adding increasing pressure on the existing transport infrastructure and services. • Is there sufficient demand for additional services and routes to justify the investment when availability of funding is diminishing? This would require further analysis.
<p>Adverse impacts</p>	<ul style="list-style-type: none"> • Potential local impacts on traffic flow and passenger waiting facilities if additional bus services are serving the towns and settlements within the study area. Consideration would need to be given to additional waiting areas and infrastructure within towns and settlements if additional bus services are implemented.
<p>Constraints</p>	<ul style="list-style-type: none"> • Availability of funding and resources. • Requires integration with local and community transport services, which are reliant on other funding sources and such integration is therefore not guaranteed. • Journey times are dependent on the existing road network and its existing limitations. Improvements to journey time and journey quality are dependent on significant highway improvements and hence investment. • Requires local bus services and community transport to be of a sufficient frequency and coverage to enable a large number of people to be able to readily access the regional services. • Requires increased promotion and marketing of services, such as utilising the full potential of social media to maximise patronage and attract new passengers. • Dispersed settlements and low population density.
<p>Dependencies</p>	<ul style="list-style-type: none"> • Centralisation of services (health and education) is adding increasing pressure on the existing transport infrastructure and services.

Option D: Local and Community Transport Enhancements			
Description	<ul style="list-style-type: none"> Greater enhancement of existing local and community transport services – enhancements to existing routes (increased daytime, weekend and evening service frequencies) and potential additional routes connecting to regional bus services, together with delivery of innovative community transport services. Delivery of infrastructure enhancements, such as improvements to bus stops and waiting facilities. 		
How it tackles the problems	<ul style="list-style-type: none"> Option D has the potential to tackle the following problems – P4, P5, P6, P7, P8, P10 and P12. Through both delivering enhancements to both services and infrastructure, Option D has the potential to make public transport services more attractive, thus potentially reducing the dependency on the private car and enabling those without a car to more readily access services and employment, largely through interchange with the regional bus network. Option D also provides a flexible option that can be modified to accommodate demand. 		
Objectives	Overall	<ul style="list-style-type: none"> Option D is considered to have a slight beneficial impact on access to key destinations, services and employment, through delivering enhanced services and infrastructure enhancements, as well as benefiting the environment, through reducing the dependency on the private car. Achieving improved access to services would largely be dependent on the connections with the regional bus network, as well as the frequency and availability of routes. Option D is considered to have a slight beneficial impact on health and well-being and safety and security. Option D has the potential to reduce the dependency on the private car and encourage a greater proportion of journeys to be undertaken by public transport. There are resultant environmental benefits from encouraging people to shift modes and to become less dependent on the private car. 	
	1	Access to and from Key Destinations, Markets and Transport Hubs	+
	2	Access for Employment and Services (health and education)	+
	3	Improving Health and Well-being	+
	4	Improved Safety and Security	+
	5	Benefits and Minimised Impacts on the Environment	+
Key risks	<ul style="list-style-type: none"> Availability of funding. Potential reductions in available funding and resources from national and local government. Greater centralisation of services (health and education) adding increasing pressure on the existing transport infrastructure and services. Is there sufficient demand for additional services and routes to justify the investment when availability of funding is diminishing? This would require further analysis. 		
Adverse impacts	<ul style="list-style-type: none"> Potential local impacts on traffic flow and passenger waiting facilities if additional bus services are serving the towns and settlements within the study area. Consideration would need to be given to additional waiting areas and infrastructure within towns and settlements if additional bus services are implemented. 		
Constraints	<ul style="list-style-type: none"> Availability of funding and resources. Requires integration with regional services, which are reliant on other funding sources and such integration is therefore not guaranteed. 		

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	<ul style="list-style-type: none"> • Journey times dependent on the existing road network and its existing limitations. Improvements to journey time and journey quality are depending on significant highway improvements and hence investment. • Challenging and costly to serve all key communities with a consistent service. • Requires regional services to be of a sufficient frequency and coverage to enable a large number of people to be able to readily access services and employment. • Requires increased promotion and marketing of services, such as utilising the full potential of social media to maximise patronage. • Dispersed settlements and low population density.
<p>Dependencies</p>	<ul style="list-style-type: none"> • Centralisation of services (health and education) is adding increasing pressure on the existing transport infrastructure and services.

Option E: Regional Highway Improvements		
Description	<ul style="list-style-type: none"> It is assumed that this option would focus on the key highway corridors connecting Aberystwyth and Carmarthen within the West Wales Coastal Corridor namely: <ul style="list-style-type: none"> Aberystwyth – Synod Inn – Llandysul – Carmarthen (A484/ A468/ A487) Aberystwyth – Aberaeron – Lampeter – Carmarthen (A487/ A482/A485) Aberystwyth – Llanrhystud – Lampeter – Carmarthen (A487/B4337/A485) Aberystwyth – Tregaron – Lampeter – Carmarthen (A487/A485) Aberystwyth by-pass It is assumed at this stage that Option E would deliver largely on-line improvements along each of the corridors outlined above to deliver journey time reliability and road safety improvements (current journey times between Aberystwyth and Carmarthen are 90 minutes by car). There may be potential to provide improvements to active travel facilities and bus stops, where applicable/ possible. 	
How it tackles the problems	<ul style="list-style-type: none"> Option E has the potential to tackle the following problems – P1, P2, P9 and P14. Option E through the delivery of on-line improvements has the potential to improve both journey times and journey time reliability, as well as road safety through the removal of pinch points, improving the standard of the carriageway and provision of overtaking opportunities (where possible). If by-passes are delivered as part of the option, the adverse impact of road traffic and in particular road freight, on the local communities could be reduced. However, by improving the road network it may strengthen the dependence on the private car, through making journeys by cars more attractive and reliable. 	
Objectives	Overall	<ul style="list-style-type: none"> Option E has the potential to deliver improvements to journey times and road safety, thus improving access to key services and employment. The option would benefit all road users, regional and local bus and community transport, as well as light vehicular traffic and HGVs (Heavy Goods Vehicles). However, there may be options to enhance active travel infrastructure where available. Option E has the potential to have an adverse impact on the environment, both through the construction and through the potential increase in road traffic, as more people may choose to drive due to the time savings and greater journey reliability. However, the improvements in journey time and reliability has the potential to make journeys by public transport more attractive also.
	1	Access to and from Key Destinations, Markets and Transport Hubs +++
	2	Access for Employment and Services (health and education) +
	3	Improving Health and Well-being +
	4	Improved Safety and Security ++
	5	Benefits and Minimised Impacts on the Environment -
Key risks	<ul style="list-style-type: none"> Requires a high level of capital investment. Delivery would be in the medium term. A number of large scale transport options are currently in the Welsh Government's infrastructure delivery programmes, such as the Metro, the M4 motorway, Tidal Lagoon Swansea Bay (subject to approval) and Wylfa Newydd nuclear plant, which would require significant capital funding and resources. Potential reductions in available funding and resources. Land acquisitions (time and cost). Environmental considerations (time and cost). 	

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	<ul style="list-style-type: none"> • Option would require route studies to provide robust construction costs, land acquisition costs, as well as preliminary environmental and business case assessments (journey time savings etc.). • Greater centralisation of services (health and education) adding increasing pressure on the existing transport infrastructure and services. • Route uncertainties make it difficult to fully understand the engineering constraints and potential costs, and associated impacts.
Adverse impacts	<ul style="list-style-type: none"> • Potential adverse impact on the environment and biodiversity. • Potential to encourage more journeys to be undertaken by car or HGVs. • Impact on residents and businesses who own land/ properties along the route. • Impact on local communities during construction. • Delay to road users (car, HGVs and public and community transport) during construction. • Potential by-passes may have an adverse economic impact on local communities no longer on the main route. • Would require a high level of capital investment, which may have implications on the delivery of other capital schemes in the region for a number of years.
Constraints	<ul style="list-style-type: none"> • Availability of funding and resources. • Environmental considerations. • Land ownership. • Route uncertainties make it difficult to fully understand the engineering constraints and potential costs.
Dependencies	<ul style="list-style-type: none"> • Impacts on available revenue/ maintenance budgets. • All of the individual identified schemes along the corridor would need to be delivered to enable the full scheme benefits to be achieved. • Centralisation of services (health and education) adding increasing pressure on the existing transport infrastructure and services.

Option F: Multi-modal Option	
Description	<p>The multi-modal option considers delivery of short to medium term improvements within the study area:</p> <ul style="list-style-type: none"> • In the short term (up to five years) it is envisaged that this option would deliver enhancements to the existing Traws Cymru services – service enhancements to existing routes (weekend and evening services) and potential additional routes serving other key settlements between Carmarthen and Aberystwyth, that are integrated with enhanced local public transport (bus and community transport) using innovative approaches. This element would be supported by infrastructure enhancements providing high quality consistent waiting facilities in line with the Statutory Quality Bus Partnership Standards. These are potentially quick wins deliverable in the short term (subject to available funding) which have the potential to have a measureable impact on transport provision within the region, alongside a programme of active travel improvements. • In the medium term (5 – 20 years) route studies to identify potential improvements to improve journey time reliability and road safety along the key corridors within the West Wales Coastal Corridor namely: <ul style="list-style-type: none"> • Aberystwyth – Synod Inn – Llandysul – Carmarthen (A484/ A468/ A487) • Aberystwyth – Aberaeron – Lampeter – Carmarthen (A487/ A482/A485) • Aberystwyth – Llanrhystud – Lampeter – Carmarthen (A487/B4337/A485) • Aberystwyth – Tregaron – Lampeter – Carmarthen (A487/A485) • Aberystwyth by-pass
How it tackles the problems	<ul style="list-style-type: none"> • Option F has the potential to tackle the following problems – P1, P2, P4, P5, P6, P7, P8, P10, P12 and P14. • Through delivering enhancements to both services and infrastructure, Option F has the potential to make public transport services more attractive and less complex with greater integration, thus reducing the dependency on the private car and enabling those without a car to more readily access key services and employment. • The potential to connect other towns to the regional bus network would remove the need to interchange and enable a greater number of people to access the key centres (containing key services). The Traws Cymru services are an existing brand, which could be strengthened and built upon, hence this option is deliverable in the short term (up to five years) subject to the availability of funding and provides a flexible option that can be modified to accommodate demand. • The delivery of on-line improvements has the potential improve both journey times and journey time reliability, as well as road safety through the removal of pinch points, improving the standard of the carriageway and provision of overtaking opportunities (where possible). If by-passes are delivered as part of the option the adverse impact road traffic and in particular road freight has on the communities could be reduced.
Objectives	Overall
	<ul style="list-style-type: none"> • The combination of improvements to both the road network and delivery of an enhanced public transport would promote a high level of accessibility to key destinations, employment and services. The on-line road improvements would provide improve journey times for all road users. • The delivery of on-line road improvements would serve to improve road safety and journey time reliability. • It is considered that this option would have a neutral impact on the environment, as the construction of any road improvements may have an adverse impact, while improving journey times and journey time reliability may encourage an increase in road traffic and hence resulting in an adverse impact on the environment. However, improving journey time reliability and providing enhanced public transport provision

		has the potential to have a beneficial impact on the environment by encouraging some to use more sustainable modes of travel.	
	1	Access to and from Key Destinations, Markets and Transport Hubs	+++
	2	Access for Employment and Services (health and education)	+++
	3	Improving Health and Well-being	+
	4	Improved Safety and Security	++
	5	Benefits and Minimised Impacts on the Environment	0
Key risks		<ul style="list-style-type: none"> On-line road improvements would requires a high level of capital investment. Availability of funding. Potential reductions in available funding and resources. Land acquisitions (time and cost). Environmental considerations (time and cost). The highway elements would require route studies to provide robust construction costs, land acquisition costs, as well as preliminary environmental and business case assessments (journey time savings etc.). Greater centralisation of services (health and education) adding increasing pressure on the existing transport infrastructure and services. Is there sufficient demand for additional services and routes to justify the investment when availability of funding is diminishing? This would require further analysis. Potential reductions in available funding and resources to support public transport, both initial investment and ongoing support. 	
Adverse impacts		<ul style="list-style-type: none"> On-line road improvements could potential result in adverse impact on the environment and biodiversity. Potential to encourage more journeys to be undertaken by car or HGVs. Impact on local communities during construction. Delay to road users (car, HGVs and public and community transport) during construction. Potential by-passes may have an adverse economic impact on local communities no longer on the main route. Potential local impacts on traffic flow and passenger waiting facilities if additional bus services are serving the towns and settlements within the study area. Consideration would need to be given to additional waiting areas and infrastructure within towns and settlements if additional bus services are implemented. 	
Constraints		<ul style="list-style-type: none"> Availability of funding and resources. Environmental considerations. Land ownership. Requires integration with local and community transport services, which are reliant on other funding sources and such integration is therefore not guaranteed. Journey times dependent on the existing road network and its existing limitations. Improvements to journey time and journey quality are dependent on significant highway improvements and hence investment. Requires local bus services and community transport to be of a sufficient frequency and coverage to enable a large number of people to be able to readily access the regional services. Bus elements are potentially constrained by low population density and development along the route. 	

Dependencies	<ul style="list-style-type: none">• Impacts on available revenue/ maintenance budgets.• All of the individual identified schemes along the corridor would need to be delivered to enable the full scheme benefits to be achieved.• Centralisation of services (health and education) adding increasing pressure on the existing transport infrastructure and services.• Welsh Government priorities and committed expenditure.
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3 Transport Case

3.1 Overview

The aim of the Transport Case is to ‘present the narrative for each option in more detail as to how each proposed solution will meet the need identified In the Strategic Case and the objectives set’.

The transport case presents the impacts of each option under the headings of social, environmental and economic impacts and an evidence based assessment of:

- What the impacts will be;
- The scale of those impacts;
- Where will they occur; and
- Who/ what will experience them.

3.2 Assessment of Impacts

An assessment of effects for each of the options has been undertaken. A largely qualitative assessment of the impacts against each of the criteria has been undertaken as there is only preliminary data available at this stage in the WeITAG process. The WeITAG seven point assessment scale has been used to present the scale of the impact, as set out in **Table 1.1**. The scale and type of impacts has been determined using the information presented in the Impacts Assessment Report within **Appendix B** and professional judgement.

Option A: Do-minimum		
	Impacts	Scale
Social		
Physical Activity	<ul style="list-style-type: none"> Neutral impact on physical activity, due to low levels of funding currently being invested in the infrastructure. 	
Journey Quality	<ul style="list-style-type: none"> The highway network forms the backbone of the transport network but falls below appropriate standards, with limited overtaking opportunities and long diversionary routes. The substandard road network means that HGVs have a disproportionate impact on communities and other road users (Mid Wales Joint Local Transport Plan, 2015). The implementation of traffic calming on the strategic road network has had a negative impact on the journey quality of car, HGVs and public transport users. Roads within the study area are considered to be high/ medium and medium risk (EuroRAP 2014), together with congestion within Aberystwyth particularly at peak times. A step change in the level of investment in the infrastructure is required to deliver journey quality improvements. 	
Accidents	<ul style="list-style-type: none"> Roads within the study area are considered to be high/ medium and medium risk (EuroRAP 2014). A step change in the level of investment in the infrastructure is required to deliver road safety improvements. 	
Security	<ul style="list-style-type: none"> Neutral impact on security, due to low levels of funding currently being invested in the infrastructure. 	
Access to Employment	<ul style="list-style-type: none"> Outside of the key settlements employment is highly dispersed and accessing employment and key services is constrained by limited services and long travelling distances (all modes). Diminishing revenue funding to support local bus services is putting increased pressure on the provision of services, however recent investment in the Traws Cymru service has resulted in increased passenger on the strategic bus corridor. An increased level of funding is however required to deliver improved access to employment, particularly for the younger age groups. 	
Access to Services	<ul style="list-style-type: none"> The WIMD 2014 for access to services deprivation identifies that large parts of the study area are ranked in the most deprived lower super output areas. Outside of the key settlements key services are highly dispersed and accessing key services is constrained by limited services and long travelling distances (all modes), together with on-going centralisation of education, social services and healthcare provision. For example, 45% of people in Ceredigion and 27% in Carmarthenshire cannot access a NHS Major Acute Hospital by public transport in 60 minutes (2011 Census, National Transport Finance Plan, 2015). A large proportion of retired people live within the study area, who tend to be more reliant on public and community transport to participate fully in the community and get access to essential social and healthcare facilities. Diminishing revenue funding to support local bus services is putting increased pressure on the provision of services, however recent investment in the Traws Cymru service has resulted increased passenger on the strategic bus corridor. An increased level of funding is however required to deliver improved access to services, particularly for younger and retired people who are more reliant on public transport. 	

Affordability	<ul style="list-style-type: none"> The rising cost of transport is resulting in many households struggling to afford to own and run a car, whilst public transport alternatives are often not available. This can lead to transport poverty and social exclusion, particularly for young people trying to access jobs and training (Mid Wales Joint Local Transport Plan, 2015). 	
Severance	<ul style="list-style-type: none"> The strategic road network often passes through the centre of communities. The substandard highway network means that HGVs have a disproportionate impact on communities (Mid Wales Joint Local Transport Plan, 2015). 	
Option and non-use values	<ul style="list-style-type: none"> There is a dependence on the private car as there are limited alternatives available for many journey needs. Outside of the key settlements, employment and services are highly dispersed and accessing employment and key services by public transport is constrained by the limited service provision and long travelling distances, often requiring interchange between different services (Mid Wales Joint Local Transport Plan, 2015). An increased level of funding is however required to deliver realistic and attractive alternatives to the private car. 	
Environmental		
Noise	<ul style="list-style-type: none"> Road transport is the dominant mode of transport for journeys in the region (2011 Census) and thus contributes to noise pollution. No quantitative data on noise levels is available at this stage. 	
Air Quality	<ul style="list-style-type: none"> Road transport is the dominant mode of transport for journeys in the region (2011 Census) and thus contributes to air pollution. No quantitative data on air quality is available at this stage. 	
Greenhouse Gases	<ul style="list-style-type: none"> Road transport is the dominant mode of transport for journeys in the region (2011 Census) and thus contributes to greenhouse gas emissions. No quantitative data on greenhouse gas emissions is available at this stage. 	
Landscape	<ul style="list-style-type: none"> No impact identified. No quantitative data is available at this stage. 	
Townscape	<ul style="list-style-type: none"> The strategic road network often passes through the centre of communities. The substandard highway network means that HGVs have a disproportionate impact on communities (Mid Wales Joint Local Transport Plan, 2015). 	
Historic Environment	<ul style="list-style-type: none"> No impact identified. No quantitative data is available at this stage. 	
Bio-diversity	<ul style="list-style-type: none"> No impact identified. No quantitative data is available at this stage. 	
Water Environment	<ul style="list-style-type: none"> No impact identified. No quantitative data is available at this stage. 	
Economic		
Journey Time Changes	<ul style="list-style-type: none"> The dispersed settlement patterns and low population density result in longer travelling distances and hence travelling times. Due to the substandard road network, limited overtaking opportunities and road safety concerns journey times are unreliable (Mid Wales Joint Local Transport Plan, 2015). A step change in the level of investment in the infrastructure is required to deliver journey time improvements. 	
Journey Time Reliability Changes	<ul style="list-style-type: none"> The dispersed settlement patterns and low population density result in longer travelling distances and hence travelling times. Due to the substandard road network, limited overtaking opportunities and road safety concerns journey times are unreliable (Mid Wales Joint Local Transport Plan, 2015). A step change in the level of investment in the infrastructure is required to deliver journey time improvements. 	
Transport Costs	<ul style="list-style-type: none"> Rising cost of transport is resulting in many households struggling to afford to own and run a car, whilst public transport alternatives are often not available. 	

	This can lead to transport poverty and social exclusion, particularly for young people trying to access jobs and training (Mid Wales Joint Local Transport Plan, 2015).	
Accidents	<ul style="list-style-type: none"> Roads within the study area are considered to be high/medium and medium risk (EuroRAP 2014). A step change in the level of investment in the infrastructure is required to deliver road safety improvements. 	
Changes in Productivity	<ul style="list-style-type: none"> No impact identified. 	
Local Economy	<ul style="list-style-type: none"> No impact identified. 	
Land	<ul style="list-style-type: none"> No impact identified. 	
Capital Costs	<ul style="list-style-type: none"> The delivery of the local and regional transport programmes require continued financial support from the public sector. 	
Revenue Costs	<ul style="list-style-type: none"> Bus services require continued subsidy from the public sector. Rising cost of transport is resulting in many households struggling to afford to own and run a car, whilst public transport alternatives are often not available. 	

Option B: New Rail Route		
	Impacts	Scale
Social		
Physical Activity	<ul style="list-style-type: none"> It is expected that Option B would have a slight beneficial impact on physical activity. 	+
Journey Quality	<ul style="list-style-type: none"> The current road network forms the only transport infrastructure in the region, which is substandard and results in a poor journey quality for all users (light vehicles, HGVs and public transport), the introduction of a new rail route has the potential to improve journey quality for both previous car users and bus passengers (as passengers typically experience a higher journey quality compared to bus journeys). 	++
Accidents	<ul style="list-style-type: none"> It is expected that Option B would have a slight beneficial impact on accidents. 	+
Security	<ul style="list-style-type: none"> The delivery of new stations, if built with appropriate facilities and security features has the potential to improve the perception of passenger personal security. 	+
Access to Employment	<ul style="list-style-type: none"> Option B could improve access to employment, as it would serve the largest settlements in the region (Aberystwyth and Carmarthen) as well as other settlements in between. However, this option would need to be fully integrated with the bus and community transport network, as well as active travel routes to be able to maximise access to employment. Consideration of the towns and settlements to be served by a potential railway line would need to be considered when determining the route alignment to maximise access to employment. 	++
Access to Services	<ul style="list-style-type: none"> Option B could improve access to services, as it would serve the largest settlements in the region (Aberystwyth and Carmarthen) as well as other settlements in between. However, this option would need to be fully integrated with the bus and community transport network, as well as active travel routes to be able to maximise access to employment. Low population density would make it difficult for the rail option to gain access to public transport services within a short travelling distance. Consideration of the towns and settlements to be served by a potential railway line would need to be considered when determining the route alignment to maximise access to employment. 	++
Affordability	<ul style="list-style-type: none"> Rising cost of transport is resulting in many households struggling to afford to own and run a car, the provision of an alternative public transport option has the potential to make travel more affordable for some sections of society, most notable the young and the older sections of society. However, public transport services are often unaffordable for some groups within society. 	+
Severance	<ul style="list-style-type: none"> No impact identified at this stage, however further consideration to this impact area would need to be undertaken when further details of the potential route are known. 	0
Option and non-use values	<ul style="list-style-type: none"> Option B provides alternatives for current journeys and increases the resilience of the transport network, through the provision of a complementary new public transport route. However, in order to maximise the provision of public transport the rail option would need to be fully integrated with bus and community transport services, as well as active travel infrastructure. 	++
Environmental		

Noise	<ul style="list-style-type: none"> No technical information is available at this stage, hence no quantitative data on potential noise impacts is available. Option B has the potential to result in a reduction in noise pollution by potentially encouraging shift for some journeys onto rail from the private car. However Option B could result in an increase in noise for a number of communities, properties and commercial premises along the route, hence an adverse impact is forecast. 	-
Air Quality	<ul style="list-style-type: none"> No technical information is available at this stage, hence no quantitative data on potential air quality impacts is available. Option B has the potential to result in an improvement in air quality by encouraging shift for some journeys onto rail from the private car. 	+
Greenhouse Gases	<ul style="list-style-type: none"> No technical information is available at this stage, hence no quantitative data on potential greenhouse gas impacts is available. Option B has the potential to result in a reduction in greenhouse gas emissions by encouraging shift for some journeys onto rail from the private car. 	+
Landscape	<ul style="list-style-type: none"> The proposed route would utilise the former railway line and would potentially utilise a number of existing tunnels, embankments and bridges, which are generally intact. However, the reinstatement of the railway line would result in a change to the landscape. 	-
Townscape	<ul style="list-style-type: none"> A neutral impact is forecast as the strategic road network would continue to pass through the centre of communities. The substandard highway network means that HGVs have a disproportionate impact on communities (Mid Wales Joint Local Transport Plan, 2015), however the introduction of a new railway has the potential to reduce the number of people using private cars. No quantitative data on the potential mode shift and impact of traffic volumes is available at this stage. 	0
Historic Environment	<ul style="list-style-type: none"> No technical information available – no impacts have been identified at this stage. 	0
Bio-diversity	<ul style="list-style-type: none"> It is known that there are a number of protected sites along the route, which could potentially result in significant environmental impacts¹³. There is no further technical information available on the potential impacts and mitigation options at this stage. 	---
Water Environment	<ul style="list-style-type: none"> No technical information available – no impacts have been identified at this stage. 	0
Economic		
Journey Time Changes	<ul style="list-style-type: none"> Based on an hourly service the journey times could be as short as 90 minutes between Aberystwyth and Carmarthen. However, further work is required on potential journey times by rail that could be delivered between Aberystwyth and Carmarthen. This option could provide a quicker journey compared to the current T1 service which takes approximately 2 hours and 20 minutes between Aberystwyth and Carmarthen, but would be comparable to the current journey by road (approximately 90 minutes). An hourly service is assumed for the purpose of the assessment and there is potential that journey times between Aberystwyth and Carmarthen could be approximately 90 minutes (however this requires further investigation to determine the feasibility – the journey time on the former rail service between Aberystwyth and Carmarthen was approximately 2 hours and 30 minutes)¹⁴. 	+

¹³ AECOM Scoping Study for Full Feasibility Study for Re-opening a Heavy Rail Railway Between Aberystwyth and Carmarthen (2015)

¹⁴ National Assembly for Wales Enterprise and Business Committee Priorities for the future of Welsh Rail Infrastructure March 2016 and Enterprise and Business Committee, Transcript, 3 February 2016, Para 159.

Improving Strategic Transport Connections between Aberystwyth and Carmarthen

	<ul style="list-style-type: none"> Any potential new rail service would need to be fully integrated with the regional and local bus services, as well as with community transport services. 	
Journey Time Reliability Changes	<ul style="list-style-type: none"> Option B has the potential to provide a reliable journey times, however it is expected that journey times would suffer from similar problems to that experienced by other railway lines. 	+
Transport Costs	<ul style="list-style-type: none"> Rising cost of transport is resulting in many households struggling to afford to own and run a car, the provision of an alternative public transport option has the potential to make travel more affordable for some sections of society, most notable the young and the older sections of society. However, public transport services are often unaffordable for some groups within society. 	+
Accidents	<ul style="list-style-type: none"> It is expected that Option B would have a slight beneficial impact on accidents. 	+
Changes in Productivity	<ul style="list-style-type: none"> The delivery of Option B has the potential to improve access to employment and enable some groups of society to take a fully active role within society, particularly the younger groups who may not be able to afford to own a car or do not drive. Any potential new rail service would need to be fully integrated with the regional and local bus services, as well as with community transport services. 	++
Local Economy	<ul style="list-style-type: none"> The delivery of Option B has the potential to improve access to employment and enable some groups of society to take a fully active role within society, particularly the younger groups who may not be able to afford to own a car or do not drive. 	++
Land	<ul style="list-style-type: none"> It is estimated that 3% of the original railway route has been developed, with the majority being at the Aberystwyth end of the line. There are a number of residential and commercial properties built on the line itself where there are limited options to divert. Even there development is not on the line itself, in several locations re-instating the line could affect access to properties. 	---
Capital Costs	<ul style="list-style-type: none"> The scoping study states that highly indicative costs for construction could be up to £505m, plus land and consent costs which bring the total project costs to £750m. However further work is required to provide more accurate cost estimates. 	---
Revenue Costs	<ul style="list-style-type: none"> It is expected that rail services would require subsidy from the public sector. Consideration of the franchise agreements between the Welsh Government and the train operating company. 	---

Option C: Regional Bus Service Enhancement		
	Impacts	Scale
Social		
Physical Activity	<ul style="list-style-type: none"> It is expected that Option C would have a slight beneficial impact on physical activity. 	+
Journey Quality	<ul style="list-style-type: none"> The current road network forms the only transport infrastructure in the region, which is substandard and results in a poor journey quality for public transport users. The introduction of additional services and infrastructure enhancements (for example waiting facilities) would not improve the journey quality for passengers. A step change in the level of investment in the highway infrastructure is required to deliver journey quality improvements. 	-
Accidents	<ul style="list-style-type: none"> It is expected that Option C would have a slight beneficial impact on accidents. 	+
Security	<ul style="list-style-type: none"> The delivery of new bus waiting facilities, if built with appropriate lighting, real time information, shelters and potentially CCTV could improve the perception of passenger personal security. Together with enhanced security features on new buses, such as increased use of glass and CCTV. 	+
Access to Employment	<ul style="list-style-type: none"> Option C could improve access to employment through the provision of additional services, as it would serve the largest settlements in the region (Aberystwyth and Carmarthen) as well as other settlements in between. However, this option would need to be fully integrated with the local bus and community transport network, as well as the longer distance rail network and active travel routes to maximise access to employment. 	++
Access to Services	<ul style="list-style-type: none"> Option C could improve access to services through the provision of additional services, as it would serve the largest settlements in the region (Aberystwyth and Carmarthen) as well as other settlements in between. However, this option would need to be fully integrated with local bus and community transport network, as well as the longer distance rail network and active travel routes to maximise access to employment. 	++
Affordability	<ul style="list-style-type: none"> Rising cost of transport is resulting in many households struggling to afford to own and run a car, the provision of an alternative public transport option has the potential to make travel more affordable for some sections of society, most notably the young and the older sections of society. However, public transport services are often unaffordable for some groups within society. 	+
Severance	<ul style="list-style-type: none"> No impact identified at this stage. 	0
Option and non-use values	<ul style="list-style-type: none"> Option C provides alternatives for current journeys through the provision of increased frequency and additional service routes and increases the resilience of the transport network. However, in order to maximise the provision of public transport Option C would need to be fully integrated with bus and community transport services, as well as active travel infrastructure. 	+
Environmental		
Noise	<ul style="list-style-type: none"> Road transport is the dominant mode of transport for journeys in the region (2011 Census) and thus contributes to noise pollution. The improvements in public transport has the potential to encourage a mode shift away from the private car to the bus thus has the potential to improve noise pollution. However local noise pollution may increase in the larger settlements where a greater number of buses stop and start. No technical information is available at this stage, hence no quantitative data on potential noise impacts is available. 	0

Air Quality	<ul style="list-style-type: none"> Road transport is the dominant mode of transport for journeys in the region (2011 Census) and thus contributes to air pollution. The increase in buses is not expected to have an adverse impact on air quality compared to the do-minimum option. The improvements in public transport has the potential to encourage a mode shift away from the private car to the bus thus has the potential to improve air quality. No technical information is available at this stage, hence no quantitative data on potential air quality impacts is available. 	+
Greenhouse Gases	<ul style="list-style-type: none"> Road transport is the dominant mode of transport for journeys in the region (2011 Census) and thus contributes to greenhouse gas emissions. The increase in buses is not expected to have an adverse impact on greenhouse gas emissions compared to the do-minimum option. The improvements in public transport has the potential to encourage a mode shift away from the private car to the bus thus has the potential to reduce greenhouse gas emissions. No technical information is available at this stage, hence no quantitative data on potential greenhouse gas emission impacts is available. 	+
Landscape	<ul style="list-style-type: none"> No impact identified. No quantitative data is available at this stage. 	0
Townscape	<ul style="list-style-type: none"> The strategic road network often passes through the centre of communities. The substandard highway network means that HGVs have a disproportionate impact on communities (Mid Wales Joint Local Transport Plan, 2015). Moreover, the increase in the number of buses stopping and waiting in towns has the potential to have an adverse impact on the townscape where buses may congregate. 	--
Historic Environment	<ul style="list-style-type: none"> No impact identified. No quantitative data is available at this stage. 	0
Bio-diversity	<ul style="list-style-type: none"> No impact identified. No quantitative data is available at this stage. 	0
Water Environment	<ul style="list-style-type: none"> No impact identified. No quantitative data is available at this stage. 	0
Economic	<ul style="list-style-type: none"> 	
Journey Time Changes	<ul style="list-style-type: none"> Option C could provide a quicker journey time compared to the current T1 service which takes approximately 2 hours and 20 minutes between Aberystwyth and Carmarthen through the provision of additional service frequency and additional service routes, with the potential of providing express services along the existing route. This could have the potential of providing improved journey times, thus more comparable journey times compared to the journey by car (approximately 90 minutes). However to deliver improved journey time savings a step change in the level of investment in the highway infrastructure is required. 	+
Journey Time Reliability Changes	<ul style="list-style-type: none"> Due to the substandard road network, limited overtaking opportunities and road safety concerns journey times are unreliable through the region (Mid Wales Joint Local Transport Plan, 2015). The delivery of enhanced bus services and frequencies would not improve journey time reliability. A step change in the level of investment in the infrastructure is required to improve journey time reliability. 	-
Transport Costs	<ul style="list-style-type: none"> Rising cost of transport is resulting in many households struggling to afford to own and run a car, the provision of an enhanced public transport provision has the potential to make travel more affordable for some sections of society, most notable the young and the older sections of society. 	+
Accidents	<ul style="list-style-type: none"> It is expected that Option C would have a slight beneficial impact on accidents. 	+
Changes in Productivity	<ul style="list-style-type: none"> The delivery of Option C has the potential to improve access to employment and enable some groups of society to take a fully active role within society, 	++

	particularly the younger groups who may not be able to afford to own a car or do not drive.	
Local Economy	<ul style="list-style-type: none"> The delivery of Option C has the potential to improve access to employment and enable some groups of society to take a fully active role within society, particularly the younger groups who may not be able to afford to own a car or do not drive. 	++
Land	<ul style="list-style-type: none"> No impact identified. No quantitative data is available at this stage. 	0
Capital Costs	<ul style="list-style-type: none"> Capital expenditure would be required to deliver the enhancements to bus waiting facilities, however these costs are considered to be low and would be one off capital payments, such schemes are usually delivered by local authorities. 	-
Revenue Costs	<ul style="list-style-type: none"> It is expected that bus services would require subsidy from the public sector. 	--

Option D: Local and Community Transport Enhancements		
	Impacts	Scale
Social		
Physical Activity	<ul style="list-style-type: none"> It is expected that Option D would have a slight beneficial impact on physical activity. 	+
Journey Quality	<ul style="list-style-type: none"> The current road network forms the only transport infrastructure in the region, which is substandard and results in a poor journey quality for public transport users. The introduction of additional local and community transport services and infrastructure enhancements (for example waiting facilities) would not improve the journey quality for passengers. A step change in the level of investment in the infrastructure is required to deliver journey quality improvements. 	-
Accidents	<ul style="list-style-type: none"> It is expected that Option D would have a slight beneficial impact on accidents. 	+
Security	<ul style="list-style-type: none"> The delivery of new bus waiting facilities, if built with appropriate lighting, real time information, shelters and potentially CCTV could improve the perception of passenger personal security. Together with enhanced security features on new buses, such as increased use of glass and CCTV. 	+
Access to Employment	<ul style="list-style-type: none"> Option D could improve access to employment through the provision of additional services. However, the region is characterised by a low population density and dispersed settlement pattern, local and community services enable a more flexible, localised service to be delivered however this may often result in longer journey times and the need to interchange with other services to access employment. Option D would need to be fully integrated with the regional bus network which provides strategic access to the key settlements (Aberystwyth and Carmarthen) as well as rail network and active travel routes to be able to maximise access to employment. 	+
Access to Services	<ul style="list-style-type: none"> Option D could improve access to employment through the provision of additional services. However, the region is characterised by a low population density and dispersed settlement pattern, local and community services enable a more flexible, localised service to be delivered however this may often result in longer journey times and the need to interchange with other services to access key services. Option D would need to be fully integrated with the regional bus network which provides strategic access to the key settlements (Aberystwyth and Carmarthen) as well as rail network and active travel routes to be able to maximise access to employment. 	+
Affordability	<ul style="list-style-type: none"> Rising cost of transport is resulting in many households struggling to afford to own and run a car, the provision of an alternative public transport option has the potential to make travel more affordable for some sections of society, most notable the young and the older sections of society. However, public transport services are often unaffordable for some groups within society. 	++
Severance	<ul style="list-style-type: none"> No impact identified at this stage. 	0
Option and non-use values	<ul style="list-style-type: none"> Option D provides alternatives for current journeys through the provision of increased frequency and additional service routes and increases the resilience of the transport network. However, in order to maximise the provision of public transport Option C would need to be fully integrated with the regional bus network, as well as active travel infrastructure. 	+
Environmental		

Noise	<ul style="list-style-type: none"> Road transport is the dominant mode of transport for journeys in the region (2011 Census) and thus contributes to noise pollution. The increase in buses is not expected to have an adverse impact on noise compared to the do-minimum option. Moreover, the potential shift to local bus services from an enhanced frequency is not expected to sufficient enough to improve noise pollution. No technical information is available at this stage, hence no quantitative data on potential noise impacts is available. 	0
Air Quality	<ul style="list-style-type: none"> Road transport is the dominant mode of transport for journeys in the region (2011 Census) and thus contributes to air pollution. The increase in buses is not expected to have an adverse impact on air quality compared to the do-minimum option. Moreover, the potential shift to local bus services from an enhanced frequency is not expected to sufficient enough to improve air quality. No technical information is available at this stage, hence no quantitative data on potential noise impacts is available. 	0
Greenhouse Gases	<ul style="list-style-type: none"> Road transport is the dominant mode of transport for journeys in the region (2011 Census) and thus contributes to greenhouse gas emissions. The increase in buses is not expected to have an adverse impact on greenhouse gas emissions compared to the do-minimum option. Moreover, the potential shift to local bus services from an enhanced frequency is not expected to sufficient enough to reduce greenhouse gas emissions. No technical information is available at this stage, hence no quantitative data on potential greenhouse gas emission impacts is available. 	0
Landscape	<ul style="list-style-type: none"> No impact identified. No quantitative data is available at this stage. 	0
Townscape	<ul style="list-style-type: none"> The strategic road network often passes through the centre of communities. The substandard highway network means that HGVs have a disproportionate impact on communities and other road users (Mid Wales Joint Local Transport Plan, 2015). Moreover, the increase in the number of buses stopping and waiting in towns has the potential to have an adverse impact on the townscape where buses may congregate. 	--
Historic Environment	<ul style="list-style-type: none"> No impact identified. No quantitative data is available at this stage. 	0
Bio-diversity	<ul style="list-style-type: none"> No impact identified. No quantitative data is available at this stage. 	0
Water Environment	<ul style="list-style-type: none"> No impact identified. No quantitative data is available at this stage. 	0
Economic		
Journey Time Changes	<ul style="list-style-type: none"> Option D could potentially improve journey times by providing additional services and improved service frequency, but journeys typically involve integration with regional services and journey times would be dependent on the degree of integration with other services. However to deliver improved journey time savings a step change in the level of investment in the highway infrastructure is required. 	+
Journey Time Reliability Changes	<ul style="list-style-type: none"> Due to the substandard road network, limited overtaking opportunities and road safety concerns journey times are unreliable through the region (Mid Wales Joint Local Transport Plan, 2015). The delivery of enhanced bus services and frequencies would not improve journey time reliability. 	-
Transport Costs	<ul style="list-style-type: none"> Rising cost of transport is resulting in many households struggling to afford to own and run a car, the provision of an enhanced public transport provision has the potential to make travel more affordable for some sections of society, most notable the young and the older sections of society. 	+

Accidents	<ul style="list-style-type: none"> It is expected that Option D would have a slight beneficial impact on accidents. 	+
Changes in Productivity	<ul style="list-style-type: none"> The delivery of Option D has the potential to improve access employment and enable some groups of society to take a fully active role within society, particularly the younger groups who may not be able to afford to own a car or do not drive. However, in order to access key services interchange with other services would typically be required, including regional services to maximise benefits to the local economy. 	+
Local Economy	<ul style="list-style-type: none"> The delivery of Option D has the potential to improve access employment and enable some groups of society to take a fully active role within society, particularly the younger groups who may not be able to afford to own a car or do not drive. However, in order to access key services interchange with other services, including regional services to maximise benefits to the local economy. 	+
Land	<ul style="list-style-type: none"> No impact identified. No quantitative data is available at this stage. 	0
Capital Costs	<ul style="list-style-type: none"> Capital expenditure would be required to deliver the enhancements to bus waiting facilities, however these costs are considered to be low and would be one off capital payments, such schemes are usually delivered by local authorities. 	-
Revenue Costs	<ul style="list-style-type: none"> It is expected that bus services would require subsidy from the public sector. 	--

Option E: Regional Highway Improvements		
	Impacts	Scale
Social		
Physical Activity	<ul style="list-style-type: none"> It is expected that Option E would have a slight beneficial impact on physical activity. 	+
Journey Quality	<ul style="list-style-type: none"> Option E through the delivery of on-line improvements has the potential to improve journey quality through the removal of pinch points, improving the standard of the carriageway and provision of overtaking opportunities (where possible), together with improving road safety. However, in order for the full benefits to be realised the entire corridor improvements would need to be delivered. The improvements in journey quality have the potential to benefit light traffic, HGVs and public transport. There is also the potential if active travel measures are delivered also that there may be additional benefits to walkers and cyclists. 	++
Accidents	<ul style="list-style-type: none"> Option E through the delivery of on-line improvements has the potential to improve road safety through the removal of pinch points, improving the standard of the carriageway and provision of overtaking opportunities (where possible). 	++
Security	<ul style="list-style-type: none"> No impact identified. 	0
Access to Employment	<ul style="list-style-type: none"> Option E has the potential to improve access to employment by improving journey times and journey reliability, however this option would not enhance the inclusivity and integration of the transport network nor provide alternatives for those who do not drive or own a car to access employment. 	+
Access to Services	<ul style="list-style-type: none"> Option E has the potential to improve access to services by improving journey times and journey reliability, however this option would not enhance the inclusivity and integration of the transport network nor provide alternatives for those who do not drive or own a car to access services. 	+
Affordability	<ul style="list-style-type: none"> No impact identified. 	0
Severance	<ul style="list-style-type: none"> The strategic road network often passes through the centre of communities. The substandard highway network means that HGVs have a disproportionate impact on communities and other road users (Mid Wales Joint Local Transport Plan, 2015). Option E has the potential to reduce severance in some communities if local by-passes are delivered, however it is envisaged that the majority of the improvements would be on-line. 	-
Option and non-use values	<ul style="list-style-type: none"> Option E would not provide alternatives for current journeys but it would increase the resilience of the road network by removing sections that are substandard. 	0
Environmental		
Noise	<ul style="list-style-type: none"> Road transport is the dominant mode of transport for journeys in the region (2011 Census) and thus contributes to noise pollution. It is possible that by improving journey times and the reliability of the road network that more people to choose to travel by private car. However as no quantitative data is available at this stage it is assumed that any potential increase would be low as the scheme would largely deliver on-line improvements and hence no change in noise pollution compared to the do-minimum is forecast. 	-
Air Quality	<ul style="list-style-type: none"> Road transport is the dominant mode of transport for journeys in the region (2011 Census) and thus contributes to air pollution. It is possible that by improving journey times and the reliability of the road network that more people 	-

	<p>to choose to travel by private car. However, as no quantitative data is available at this stage it is assumed that any potential increase would be low as the scheme would largely deliver on-line improvements and hence no change to air quality compared to the do-minimum is forecast.</p>	
Greenhouse Gases	<ul style="list-style-type: none"> Road transport is the dominant mode of transport for journeys in the region (2011 Census) and thus contributes to greenhouse gas emissions. It is possible that by improving journey times and the reliability of the road network that more people to choose to travel by private car. However, as no quantitative data is available at this stage it is assumed that any potential increase would be low as the scheme would largely deliver on-line improvements and hence no change to greenhouse gas emissions compared to the do-minimum is forecast. 	-
Landscape	<ul style="list-style-type: none"> Option E is forecast to deliver largely on-line improvements, however if by-pass options are identified and delivered these would have an adverse impact on landscape. 	-
Townscape	<ul style="list-style-type: none"> The strategic road network often passes through the centre of communities. The substandard highway network means that HGVs have a disproportionate impact on communities and other road users (Mid Wales Joint Local Transport Plan, 2015). The delivery of largely on-line improvements would have a negligible impact on improving the impact of road traffic on the townscape and although there may be an increase in road traffic as journeys by car become more attractive it is not considered that the rise would be significant enough to have an adverse impact on the townscape. 	-
Historic Environment	<ul style="list-style-type: none"> No impact identified. No quantitative data is available at this stage. 	0
Bio-diversity	<ul style="list-style-type: none"> The delivery of road improvements would involve the realignment/ widening of the highway which would involve development of existing agricultural land and hedgerows for examples. Although no quantitative data is available at this stage, it is envisaged that the scheme could have an adverse impact on biodiversity. 	--
Water Environment	<ul style="list-style-type: none"> No impact identified. No quantitative data is available at this stage. 	0
Economic		
Journey Time Changes	<ul style="list-style-type: none"> Option E through the delivery of on-line improvements has the potential to improve journey times by road traffic (car, HGVs and public transport). 	++
Journey Time Reliability Changes	<ul style="list-style-type: none"> Option E through the delivery of on-line improvements has the potential to improve journey time reliability by road traffic (car, HGVs and public transport). 	++
Transport Costs	<ul style="list-style-type: none"> Rising cost of transport is resulting in many households struggling to afford to own and run a car, whilst public transport alternatives are often not available. This can lead to transport poverty and social exclusion, particularly for young people trying to access jobs and training (Mid Wales Joint Local Transport Plan, 2015). The delivery of largely on-line highway improvements would not reduce the transport costs compared to the do-minimum option. 	-
Accidents	<ul style="list-style-type: none"> Option E through the delivery of on-line improvements has the potential to improve road safety through the removal of pinch points, improving the standard of the carriageway and provision of overtaking opportunities (where possible). 	++
Changes in Productivity	<ul style="list-style-type: none"> Option E has the potential to improve access to employment for journeys made by car and existing public transport services, it would not however enable those unable to travel by car or existing public transport services to take a full and active role within society. 	+

<p>Local Economy</p>	<ul style="list-style-type: none"> Option E has the potential to improve access to employment for journeys made by car and existing public transport services, it would not however enable those not able to travel by car or existing public transport services to take a full and active role within society. If local by-passes are implemented they have the potential to both improve and have an adverse impact on the economy of the local community. 	<p>+</p>
<p>Land</p>	<ul style="list-style-type: none"> It is expected that land would need to be purchased in order to deliver the highway improvements. The exact extent and potential costs are unknown at this stage and would require further exploration. 	<p>--</p>
<p>Capital Costs</p>	<ul style="list-style-type: none"> The delivery of the highway improvement options would require significant capital investment from the public sector. 	<p>--</p>
<p>Revenue Costs</p>	<ul style="list-style-type: none"> The highway would continue to require maintenance support from the public sector, as the improvements would largely be on-line improvements it is not envisaged that the scheme would result in significant additional pressure on the increasingly stretched maintenance budgets. 	<p>-</p>

Option F: Multi-modal Option		
	Impacts	Scale
Social		
Physical Activity	<ul style="list-style-type: none"> It is expected that Option F would have a slight beneficial impact on physical activity. 	+
Journey Quality	<ul style="list-style-type: none"> Option F through the delivery of on-line highway improvements has the potential to improve journey quality through the removal of pinch points, improving the standard of the carriageway and provision of overtaking opportunities (where possible), together with improving road safety. However, in order for the full benefits to be realised the entire corridor improvements would need to be delivered. The improvements in journey quality have the potential to benefit light traffic, HGVs and public transport users. There is also the potential if active travel measures are delivered also that there may be additional benefits to walkers and cyclists. 	+++
Accidents	<ul style="list-style-type: none"> Option F through the delivery of on-line improvements has the potential to improve road safety through the removal of pinch points, improving the standard of the carriageway and provision of overtaking opportunities (where possible). 	++
Security	<ul style="list-style-type: none"> The delivery of new bus waiting facilities, if built with appropriate lighting, real time information, shelters and potentially CCTV could improve the perception of passenger personal security. Together with enhanced security features on new buses, such as increased use of glass and CCTV. 	+
Access to Employment	<ul style="list-style-type: none"> Option F could improve access to employment through the provision of additional regional services, as it would serve the largest settlements in the region (Aberystwyth and Carmarthen) as well as other settlements in between. However, this option would need to be fully integrated with the local bus and community transport network, as well as active travel routes to be able to maximise access to employment. The improved journey times achieved through the on-line highway improvements would benefit light traffic, HGVs and public transport users. 	+++
Access to Services	<ul style="list-style-type: none"> Option F could improve access to services through the provision of additional regional bus services, as it would serve the largest settlements in the region (Aberystwyth and Carmarthen) as well as other settlements in between. However, this option would need to be fully integrated with local bus and community transport network, as well as active travel routes to be able to maximise access to employment. The improved journey times achieved through the on-line highway improvements would benefit light traffic, HGVs and public transport users. 	+++
Affordability	<ul style="list-style-type: none"> Rising cost of transport is resulting in many households struggling to afford to own and run a car, the provision of an additional public transport option has the potential to make travel more affordable for some sections of society, most notable the young and the older sections of society. 	++
Severance	<ul style="list-style-type: none"> The strategic road network often passes through the centre of communities. The substandard highway network means that HGVs have a disproportionate impact on communities and other road users (Mid Wales Joint Local Transport Plan, 2015). Option F has the potential to reduce severance in some communities if local by-passes are delivered, however it is envisaged that the majority of the improvements would be on-line. 	-
Option and non-use values	<ul style="list-style-type: none"> Option F provides alternatives for current journeys through the provision of increased frequency and additional service routes and increases the resilience of the transport network, which provides fully integrated regional and local bus, together with community transport. 	+

Environmental		
Noise	<ul style="list-style-type: none"> Road transport is the dominant mode of transport for journeys in the region (2011 Census) and thus contributes to noise pollution. The improvements in public transport has the potential to encourage a mode shift away from the private car to the bus thus has the potential to improve noise pollution, whilst the improvements to the highway could encourage some to drive more frequently. Local noise pollution may increase in the larger settlements where a larger number of buses stop and start. Overall it is considered that the delivery of an integrated public transport system that benefits from the highway works would have an overall neutral impact on noise. No quantitative data is available at this stage. 	0
Air Quality	<ul style="list-style-type: none"> Road transport is the dominant mode of transport for journeys in the region (2011 Census) and thus contributes to air pollution. The increase in buses is not expected to have an adverse impact on air quality compared to the do-minimum option. The improvements in public transport has the potential to encourage a mode shift away from the private car to the bus thus has the potential to improve air quality, whilst the improvements to the highway could encourage some to drive more frequently. Overall it is considered that the delivery of an integrated public transport system that benefits from the highway works would have a minor beneficial impact on air quality. No quantitative data is available at this stage. 	+
Greenhouse Gases	<ul style="list-style-type: none"> Road transport is the dominant mode of transport for journeys in the region (2011 Census) and thus contributes to greenhouse gas emissions. The increase in buses is not expected to have an adverse impact on greenhouse gas emissions compared to the do-minimum option. The improvements in public transport has the potential to encourage a mode shift away from the private car to the bus thus has the potential to improve greenhouse gas emissions, whilst the improvements to the highway could encourage some to drive more frequently. Overall it is considered that the delivery of an integrated public transport system that benefits from the highway works would have a minor beneficial impact on greenhouse gas emissions. No quantitative data is available at this stage. 	+
Landscape	<ul style="list-style-type: none"> Option F is forecast to deliver largely on-line improvements which would have a neutral impact on landscape, however if by-pass options are identified and delivered these would have an adverse impact on landscape. 	-
Townscape	<ul style="list-style-type: none"> The strategic road network often passes through the centre of communities. The substandard highway network means that HGVs have a disproportionate impact on communities (Mid Wales Joint Local Transport Plan, 2015). The delivery of largely on-line improvements would have a negligible impact on improving the townscape and although there may be an increase in road traffic as journeys by car become more attractive it is not considered that the rise would be significant enough to have an adverse impact on the townscape. Moreover, the increase in the number of buses stopping and waiting in towns has the potential to have an adverse impact on the townscape where buses may congregate. 	--
Historic Environment	<ul style="list-style-type: none"> No impact identified at this stage. No quantitative data is available at this stage. 	0
Bio-diversity	<ul style="list-style-type: none"> The delivery of road improvements would involve the realignment/ widening of the highway which would involve development of existing agricultural land and hedgerows for examples. Although no quantitative data is available at this stage, it is envisaged that the scheme could have an adverse impact on biodiversity. 	--

Water Environment	<ul style="list-style-type: none"> No impact identified at this stage. No quantitative data is available at this stage. 	0
Economic		
Journey Time Changes	<ul style="list-style-type: none"> Option F could provide a quicker journey time compared to the current T1 service which takes approximately 2 hours and 20 minutes between Aberystwyth and Carmarthen through the provision of additional service frequency and additional service routes, with the potential of providing express services along the existing route. This could have the potential of providing improved journey times, thus more comparable journey times compared to the journey by road (approximately 90 minutes). This is strengthened by the improvements to the highway network, which would reduce journey times and improve journey reliability, which would benefit all users. 	+++
Journey Time Reliability Changes	<ul style="list-style-type: none"> Option F through the delivery of on-line improvements has the potential to improve journey times by road traffic (car, HGVs and public transport users). 	++
Transport Costs	<ul style="list-style-type: none"> Rising cost of transport is resulting in many households struggling to afford to own and run a car, the provision of an enhanced public transport provision has the potential to make travel more affordable for some sections of society, most notable the young and the older sections of society. 	+
Accidents	<ul style="list-style-type: none"> Option F through the delivery of on-line improvements has the potential to improve road safety through the removal of pinch points, improving the standard of the carriageway and provision of overtaking opportunities (where possible). 	++
Changes in Productivity	<ul style="list-style-type: none"> The delivery of Option F has the potential to improve access to employment and enable some groups of society who take a fully active role within society, particularly the younger groups who may not be able to afford to own a car or do not drive. 	++
Local Economy	<ul style="list-style-type: none"> The delivery of Option F has the potential to improve access to employment and enable some groups of society who take a fully active role within society, particularly the younger groups who may not be able to afford to own a car or do not drive. If local by-passes are implemented they have the potential to both improve and have an adverse impact on the economy of the local community. 	++
Land	<ul style="list-style-type: none"> It is expected that land would need to be purchased in order to deliver the highway improvements. The exact extent and potential costs are unknown at this stage and would require further exploration. 	--
Capital Costs	<ul style="list-style-type: none"> The delivery of the highway improvement options would require significant capital investment from the public sector. The infrastructure enhancements to support the bus services would be low cost however and deliverable in the short term (up to five years). 	--
Revenue Costs	<ul style="list-style-type: none"> The highway would continue to require maintenance support from the public sector, as the improvements would largely be on-line improvements it is not envisaged that the scheme would result in significant additional pressure on the increasingly stretched maintenance budgets. It is expected that bus services would require subsidy from the public sector. 	-

4 Delivery Case

4.1 Overview

The Delivery Case 'covers the delivery arrangements for the project and then its management during its life time'. The WelTAG guidance states that in the Stage One Report the Delivery Case needs to 'set out which organisation and groups within that organisation will sit on the Review Group that meets at the end of each WelTAG stage'.

4.2 Review Group

A Strategic Group has been set up to guide the WelTAG process and have met previously to discuss the project. This group will take on the role of the Review Group and its members are as follows:

- Arriva Trains Wales;
- Carmarthenshire County Council;
- Ceredigion County Council;
- Great Western Railway;
- Network Rail;
- Traws Link Cymru; and
- Welsh Government.

5 Financial Case

5.1 Overview

The financial case 'presents information on whether an option is affordable in the first place and long term financial viability. It covers both capital and annual revenue requirements over the life cycle of the project and the implications of these for the balance sheet, income and expenditure accounts of public sector organisations'.

5.2 Assessment

This WelTAG report represents the Stage One: Strategic Outline Case and the details to inform the financial case are of a preliminary nature at this stage. The financial case for each option is presented in **Table 5.1**, which provides an overall appraisal of the lifetime costs of the project, sources of funding and accounting implications.

At this stage detailed data on the revenue and capital implications are not available, hence a qualitative assessment of the financial case has been undertaken. Further work will be required to determine the forecast lifetime costs of the project with a greater certainty for the options selected for the Stage Two appraisal.

Table 5.1 – Financial Case Assessment

		Lifetime Costs of the Project	Source of Funding	Accounting Implications	
Option A	0	<ul style="list-style-type: none"> The delivery of new capital schemes and the continued support for regional and local bus services, together with community transport requires capital and revenue funding from the public sector. Levels of funding in the region are currently lower compared to other regions across Wales¹⁵. 	<ul style="list-style-type: none"> Local transport fund (capital – to local authorities from the Welsh Government) 	Capital	<ul style="list-style-type: none"> Local authorities
				Revenue	<ul style="list-style-type: none"> Local authorities Traws Cymru – Welsh Government
Option B	---	<ul style="list-style-type: none"> High initial capital costs to implement a new rail route, currently forecast to be in the region of £750m.¹⁶ Revenue implications are likely to exist throughout the lifetime of the project. 	<ul style="list-style-type: none"> Network Rail (capital) Welsh Government (capital and revenue) Local transport fund (capital) 	Capital	<ul style="list-style-type: none"> Welsh Government UK Government
				Revenue	<ul style="list-style-type: none"> Welsh Government
Option C	-	<ul style="list-style-type: none"> Capital costs to deliver bus infrastructure enhancements would be at the commencement of the project. Capital costs to purchase additional buses would be at the commencement of the project, but there would be continued revenue support to maintain the vehicles and purchase replacement vehicles over time. Traws Cymru service is in existing operation, to which this option would be an extension/ enhancement. Revenue implications are likely to exist throughout the lifetime of the project. 	<ul style="list-style-type: none"> Welsh Government (capital and revenue) Local transport fund (capital) 	Capital	<ul style="list-style-type: none"> Welsh Government Local authorities via the local transport fund from Welsh Government
				Revenue	<ul style="list-style-type: none"> Welsh Government based on the current Traws Cymru model
Option D	-	<ul style="list-style-type: none"> Capital costs to deliver bus infrastructure enhancements would be at the commencement of the project. Capital costs to purchase additional buses would be at the commencement of the project, but there would be continued revenue support to maintain the vehicles and purchase replacement vehicles over time. Revenue implications are likely to exist throughout the lifetime of the project. 	<ul style="list-style-type: none"> Local transport fund (capital) Regional Transport Services Grant (revenue) 	Capital	<ul style="list-style-type: none"> Local authorities via the local transport fund from Welsh Government
				Revenue	<ul style="list-style-type: none"> Local authorities via the Regional Transport Services Grant and Bus Services Support Grant from Welsh Government

¹⁵ The allocation of Local Transport Fund to Mid Wales in 2015/16 was only 8.9% (£2.4m) of the all Wales allocation (£26.9m) and 8.17% of funding in 2016/17 compared to allocations of 29.3% and 39.5% in South East Wales in 2015/16 and 2016/17 respectively.

¹⁶ AECOM. Scoping Study for Full Feasibility for Re-opening a Heavy Rail Railway between Aberystwyth and Carmarthen (2015)

<p>Option E</p>		<ul style="list-style-type: none"> • High initial capital costs to deliver the highway infrastructure enhancements. • Revenue implications are likely to exist throughout the lifetime of the project in terms of maintaining the asset. It is assumed that the option would largely be on-line improvements and hence would not significantly impact on the increasingly stretched local authority revenue budgets. 	<ul style="list-style-type: none"> • Local transport fund (capital) • Welsh Government (capital and revenue) • Local authority funding (capital and revenue) • Road safety grant (capital) 	<p>Capital</p>	<ul style="list-style-type: none"> • Local authorities via the local transport fund from Welsh Government
<p>Option F</p>		<ul style="list-style-type: none"> • High initial capital costs to deliver the highway infrastructure enhancements. • Revenue implications are likely to exist throughout the lifetime of the project in terms of maintaining the highway asset. It is assumed that the option would largely be on-line improvements and hence would not significantly impact on the increasingly stretched local authority revenue budgets. • Capital costs to deliver bus infrastructure enhancements would be at the commencement of the project. • Capital costs to purchase additional buses would be at the commencement of the project, but there would be continued revenue support to maintain the vehicles and purchase replacement vehicles over time. • Traws Cymru service is in existing operation, to which this option would be an extension/ enhancement. • Revenue implications of providing bus services are likely to exist throughout the lifetime of the project. 	<ul style="list-style-type: none"> • Local transport fund (capital) • Welsh Government (capital and revenue) • Local authority funding (capital and revenue) • Road safety grant (capital) • Regional Transport Services Grant (revenue) 	<p>Capital</p>	<ul style="list-style-type: none"> • Local authorities via the local transport fund from Welsh Government
				<p>Revenue</p>	<ul style="list-style-type: none"> • Local authorities via the Regional Transport Services Grant and Bus Services Support Grant from Welsh Government • Welsh Government based on the current Traws Cymru model

6 Commercial Case

6.1 Overview

The commercial case covers ‘whether it is going to prove possible to procure the scheme and then to continue with it in the future’.

6.2 Assessment

It not considered possible at this stage to determine the commercial case of each option, given the preliminary information available. In particular, there is no available information on the level and type of involvement of the private sector.

In summary there would be on-going revenue support required for each of the options, but as detailed in the delivery case these are expected to be greatest for the public transport options (Options B, C and D), but the extent of each is unknown. It is assumed that the delivery of largely on-line improvements with the highway improvement option (Option E) would not have a significant impact on the ongoing maintenance budget of the local authorities. At the Stage Two report further exploration into the commercial case would be undertaken on the short list of options.

7 Summary and Next Stage

Overview

Arcadis Consulting (UK) Limited has been commissioned by Ceredigion County Council to develop and appraise potential options for improving strategic transport connections between Aberystwyth and Carmarthen.

The appraisal of options has been undertaken in accordance with the Welsh Government's latest version of the Welsh Transport Planning and Appraisal Guidance (WelTAG) (draft version, June 2016), as agreed with the Welsh Government by email (dated 27th June 2016).

This WelTAG report presents the development, appraisal and evaluation of transport related projects and has been undertaken with the involvement of key stakeholders. This report presents the Stage One: Strategic Outline Case of the WelTAG process.

The WelTAG guide states that the purpose of the Stage One: Strategic Outline Case is to '**understand the issue of concern, explore its context and to present a wide list of possible solutions, with sufficient clarity and depth for the review group to be able to decide whether there are any possible solutions within the transport sector that are worth pursuing and to select a short list of options for more detailed consideration**'.

Study Area

The study area of this appraisal report has considered the region of Mid and West Wales between Aberystwyth and Carmarthen, including all existing transport corridors (highway network and public transport), as well as potential routes for the delivery of new strategic transport corridors between the two key settlements.

Stakeholder Consultation

A stakeholder workshop was undertaken on 21st June 2016 to which representatives from all key stakeholders from across the region representing key employers, public organisations, transport providers and local authority were invited.

The workshop informed all the key stages of the strategic case aspect of the appraisal, whereby stakeholders were asked to discuss and identify problems, opportunities and constraints, set objectives and identify and discuss potential transport options.

Options

Following the discussions with stakeholders the long list of options considered within this WelTAG report are:

- Option A: Do-minimum
- Option B: New rail route
- Option C: Regional bus service enhancements
- Option D: Local and community transport enhancements
- Option E: Regional highway improvements
- Option F: Multi-modal option

Options to be Taken Forward

Following the appraisal of the six options it is recommended that Option A (do-minimum), Option C (regional bus service enhancements), Option E (regional highway improvements) and Option F (multi-modal option) are taken forward to the Stage Two: Outline Business Case for further investigation into the impacts of the option.

Methods to be used to Provide Additional Evidence

It is recommended that in order to provide the necessary additional evidence required to undertake the Stage Two: Outline Business Case that a:

- **Bus and Community Transport Study** – is commissioned to review the existing regional bus service, in terms of timetable, routes and journey times, in order to identify potential additional strategic bus corridors and improvements that could be delivered. The study would provide

information on the potential revenue and capital costs, potential population catchment of the identified new routes and the views of key stakeholders. The review would also need to consider the relationship between the local bus and community transport services and identify innovative ways of delivering a more effective and accessible public transport service between Aberystwyth and Carmarthen and the key settlements in between; and

- **Highway Route Study** – is commissioned to identify largely on-line improvements along each of the key highway routes linking Aberystwyth and Carmarthen (and thus the strategic east-west route corridor namely the A40/ M4 motorway network) encompassing:
 - Aberystwyth – Synod Inn – Llandysul – Carmarthen (A487/ A486/ A484);
 - Aberystwyth – Aberaeron – Lampeter – Carmarthen (A487/ A482/ A485);
 - Aberystwyth – Llanrhystud – Lampeter – Carmarthen (A487/ B4337/ A485); and
 - Aberystwyth – Tregaron – Lampeter – Carmarthen (A487/ A485).

In summary the study would:

- Describe the condition and constraint along each route;
- Identify and appraise potential schemes;
- Identify indicative cost estimates; and
- Undertake an environmental, social and economic assessment.

APPENDIX A

WeITAG Guidance Summary

The WelTAG Guidance

What is WelTAG?

The Welsh Government defines WelTAG as the ‘**framework for thinking about proposed changes to the transport system**’. The WelTAG process is designed to provide a framework for:

- Structuring the thinking around the problem being tackled;
- Identifying possible solutions;
- Refining options so as to maximise the benefits and minimise any adverse impacts; and
- Consider the wide range of possible consequences of implementing the solutions.

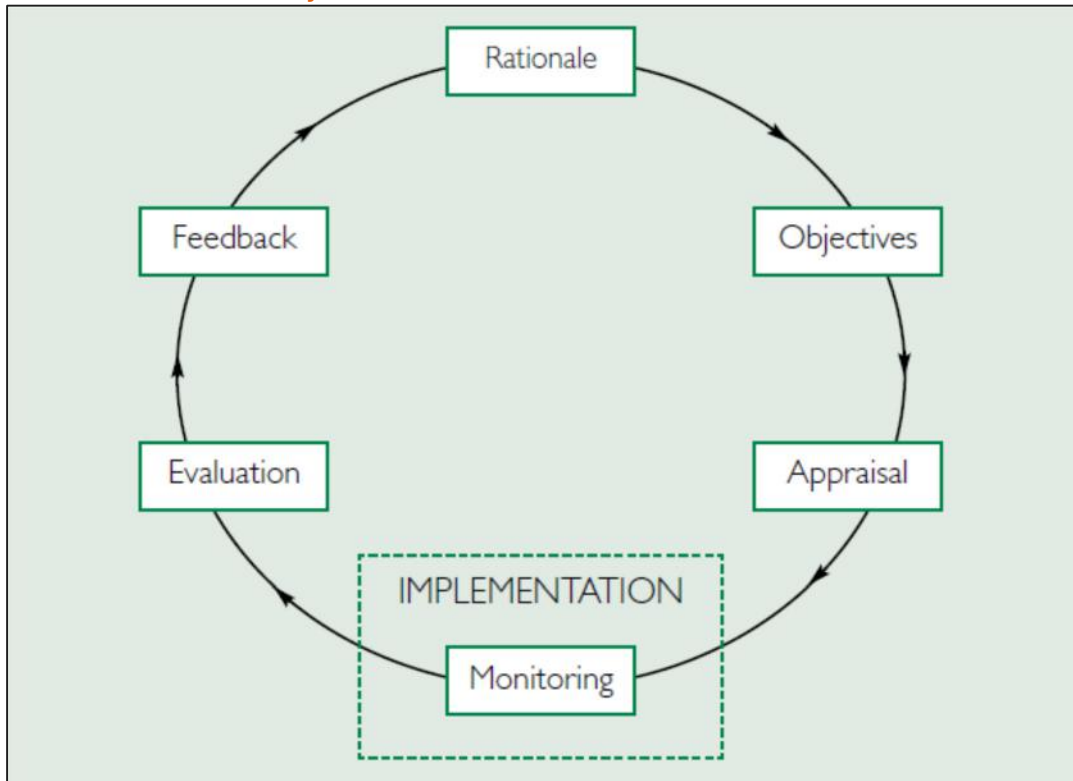
The Welsh Government state that the WelTAG guidance should be applied to all transport interventions regardless of their cost, as it will lead to the design of better and more effective interventions.

What is the WelTAG Process?

WelTAG is based on the ROAMEF cycle (Rationale, Objectives, Appraisal, Monitoring, Evaluation, and Feedback) as shown in **Figure A.1**. It covers the whole of a project lifecycle which runs from the initial identification of an issue that needs addressing to the evaluation of the measures implemented to address that issue. The ROAMEF cycle:

- Starts with a statement of the rationale for the project. This identifies the need for an intervention in the transport system and the development of a set of clear objectives;
- The appraisal stage considers the social, environmental and economic impacts of the scheme. It provides an assessment of how well the project alternatives achieve these objectives, guides the development of those alternatives and guides the selection of the final scheme chosen for implementation;
- The monitoring phase covers the tracking of the performance of the project during and after implementation;
- The evaluation phase applies this information to consider what is working and why; and
- Feedback may lead to modifications of the current project and provides lessons for the development of future schemes.

Figure A.1 – The ROAMEF Cycle¹⁷



The WeITAG Stages

There are five WeITAG stages. The first three stages lead up to the selection of the proposed intervention, whilst the final two stages cover the period during and after implementation. The output produced at the end of each stage is a short document known as a WeITAG stage report. Alongside the WeITAG stage reports is the Impacts Assessment Report, which contains the more detailed analysis that lies behind the material presented in the stage reports. The five stages of WeITAG are summarised in **Table A.1**.

Table A.1 – The Five WeITAG Stages

WeITAG Stage	Task	Action
Stage One: Strategic Outline Case	Understand the problem and develop a long list of possible solutions	Select short list of options
Stage Two: Outline Business Case	Further investigation of the shortlisted options	Select preferred option
Stage Three: Full Business Case	Detailed and thorough appraisal of preferred option	Proceed with preferred option or revisit an alternative
Stage Four: Implementation	Deliver the preferred option	Monitor impacts and make modifications if necessary
Stage Five: Post Implementation	On-going operation of the preferred option	Evaluate the intervention and record lessons learnt

¹⁷ Welsh Transport Planning and Appraisal Guidance (WeITAG) (draft version, June 2016)

Five Case Model

The WelTAG guidance is compatible with the Welsh Government's Five Case Model for Public Sector Business Cases. The contents of each WelTAG stage report must be presented using the structure of the Five Case Model used by the Welsh Government and HM Treasury. The five cases are as follows:

- **Strategic case** – the case for change, together with the fit with policies and objectives;
- **Transport case** – the social, environment and economic impacts of the change including a value for money assessment;
- **Delivery case** – the deliverability of the scheme;
- **Financial case** – the affordability of the scheme; and
- **Commercial case** – the commercial viability of the scheme.

The amount of detail available for each of the five cases will vary between the cases in the early stages of the WelTAG process. The WelTAG guidance states that during Stage One:

- The strategic case will be almost fully developed as this sets out the need for change;
- The transport case will provide an initial assessment of the expected impacts of each of a long list of options for tackling the issue under consideration. The assessment will be based predominately on currently available evidence; and
- The delivery, commercial, and financial cases will be of a preliminary nature but must consider all the key issues which would affect the selection of options taken forward for further investigation.

Appraisal of Impacts

A WelTAG guidance states that the appraisal of impacts should consider:

- The wide range of possible impacts of the current situation caused by the problem under examination;
- The likely impacts into the future if no action is taken; and
- The difference the proposed intervention would make and any other impacts that would result from implementation of the proposed solution.

The impacts should be presented under three headings; social, environmental and economic. The WelTAG guidance states that each of the impacts presented in **Table A.2** should always be considered, but the list is not exhaustive. The aim of the WelTAG appraisal at each stage is to present a summary of each potential impact, indicating the nature of the impact, its severity and which groups of people or locations will be affected.

Table A.2 – WelTAG Appraisal Impacts

Social	Environmental	Economic
<p>Physical activity: the amount of walking, cycling and other physical exercise undertaken by people</p> <p>Journey quality: (no detail provided)</p> <p>Accidents: the number and severity of injuries</p> <p>Security: how safe do people feel</p> <p>Access to employment: how many jobs can people reach and what is the journey time</p> <p>Access to services: impact on journeys to key services such as health facilities, schools</p> <p>Affordability: is there any change to the cost of travel paid by users</p> <p>Severance: do any groups of people become separated from others or facilities they regularly use</p> <p>Option and non-use values: does the scheme provide alternatives for current journeys and does it change the resilience of the transport system</p>	<p>Noise: does anyone experience a change in noise levels</p> <p>Air quality: are there changes in air quality</p> <p>Greenhouse gases: is there a change in the amount of greenhouse gases emitted</p> <p>Landscape: is there a visual or other impact on the landscape</p> <p>Townscape: is there a visual or other impact on the townscape</p> <p>Historic Environment: are there any changes in areas of historical interest</p> <p>Biodiversity: is there an impact on wildlife and the number of species</p> <p>Water Environment: is there an impact on water courses</p>	<p>Journey time changes: across all affected modes for users and non-users of the scheme</p> <p>Journey time reliability changes: changes in the variation in journey times between times of days and between journeys made at the same time each day</p> <p>Transport costs: monetary costs paid by those travelling e.g. vehicle operating costs, tolls, public transport fares</p> <p>Accidents: the cost of accidents</p> <p>Changes in productivity: availability of suitable labour for employers, changes in agglomeration effects</p> <p>Local economy: how does the scheme affect the sectors in the local economy</p> <p>Land: does the scheme reduce the amount of agricultural land, does it open up development sites</p> <p>Capital costs: to the public sector, to private sector from the scheme itself and from the impacts</p> <p>Revenue costs: to the public sector, to private sector, to end users from the scheme itself and from the impacts</p>

APPENDIX B

Stage One: Strategic Outline Case Impacts Assessment Report

Improving Strategic Transport Connections between Aberystwyth and Carmarthen

Improving Strategic Transport Connections between Aberystwyth and Carmarthen

STAGE ONE: STRATEGIC OUTLINE CASE

IMPACTS ASSESSMENT REPORT

1 Introduction

1.1 Stage One Impacts Assessment Report

This report presents the Stage One: Strategic Outline Case Impacts Assessment Report. The WelTAG guidance states that the WelTAG report should be supported by an Impacts Assessment Report. The Impacts Assessment Report 'is a live document which is maintained and grows throughout the five WelTAG stages. It becomes a permanent record of the appraisal work on the proposed transport intervention. It contains the detailed evidence behind the summary information provided to decision makers in the Stage reports'.

1.2 Appraisal Methodology

In accordance with the WelTAG guidance the significance and scale of the impacts throughout the assessment has been appraised using a seven-point scale. The seven-point scale used throughout the appraisal is presented in **Table 1.1**.

Table 1.1 – WelTAG Seven-Point Assessment Scale

Large beneficial	+++
Moderate beneficial	++
Slight beneficial	+
Neutral	0
Slight adverse	-
Moderate adverse	--
Large adverse	---

1.3 Report Structure

The structure of this report is as follows:

- **Section 2** – presents a summary of the policy framework at the local, regional and national level;
- **Section 3** – presents the context of the study;
- **Section 4** – sets out the detailed information which have informed the strategic case; and
- **Section 5** – summarised the data sources used within the study, in accordance with the WelTAG guidance.

2 Policy

2.2 Overview

This section provides a summary of the policy framework within which this study sits.

2.3 National

Wales Transport Strategy (2008)

The Wales Transport Strategy (WTS) published in 2008 sets out the Welsh Government's aim to improve transport. The WTS focuses on the role that transport can play in delivering the wider policy agenda of integrating transport with spatial planning, economic development, education, health, social services, environment and tourism, whilst meeting the strategic agenda and the implementation framework of the (then) Wales Spatial Plan. The vision of the WTS is *"to promote sustainable transport networks that safeguard the environment while strengthening our country's economic and social life"*.

The WTS sets out five priorities, which provide additional strategic direction and work towards the long-term outcomes and maximise the scope for local solutions to transport challenges within a consistent national framework. The five priorities are:

- Reducing greenhouse gas emissions and other environmental impacts;
- Improving public transport and better integration between modes;
- Improving links and access between key settlements and sites across Wales and strategically important all-Wales links;
- Enhancing international connectivity; and
- Increasing safety and security.

The WTS has three key sustainable transport themes and a number of desired outcomes, which underpin the strategy. The three themes underpinning the strategy are:

- Achieving a more effective and efficient transport system;
- Achieving greater use of the more sustainable and healthy forms of travel; and
- Minimising demand on the transport system.

Well-being of Future Generations (Wales) Act 2015

The Act strives to improve the social, economic, environmental and cultural well-being of Wales. The vision is *'in 2050, Wales will be the best place to live, learn, work and do business'*. The Act makes the public bodies listed in the Act consider the long term, work better with people and communities and each other, prevent problems and deliver a joined-up approach.

The draft goals to represent what the long term economic, social and environmental well-being of Wales would look like are:

- Wales is prosperous and innovative;
- Wales uses a fair share of natural resources;
- Communities across Wales are safe, cohesive and resilient;
- People in Wales participate in our shared culture, with a thriving living Welsh language;
- People in Wales are healthier; and
- Wales is a more equal nation.

National Transport Finance Plan (2015) and Evidence Base (2015)

The purpose of the National Transport Finance Plan (2015) is to provide the timescale for financing schemes, the timescale for delivering schemes, detail the estimated expenditure, and identify the likely source of financing to enable delivery.

The plan includes both revenue and capital initiatives, ranging from specific schemes to others where further investigatory and development work is required. The relevant schemes to this study include:

- **RI18** – Consideration must be given for opportunities to bring disused railways back into the transport network subject to viability through feasibility studies and economic appraisal/evaluations on a case by case basis (2015/17 delivery period);
- **BCT2** – Develop options for targeted funding for bus and community transport services (2015 and beyond 2020 delivery period), focusing on rural services, access to health facilities, including hospitals and other key health facilities and access to employment sites;
- **BCT10** – Evaluate the effectiveness of Bwcbabus and similar schemes and use that evidence to inform future approach to demand-led transport services, particularly in rural areas (2015/16 delivery period);
- **BCT12** – Work with local authorities and bus operators to identify congestion and pinch points on the network that impact on bus reliability and punctuality, and ensure that solutions are integrated into wider highway improvements programme;
- **BCT14** – Develop a package of bus priority measures along key strategic corridors (both schemes have a delivery period from 2015 and beyond 2020); and
- **BCT6** – Implement greater central management of Traws Cymru services and determine if there is a viable business case to introduce new Traws Cymru services (2015/18 delivery period).

Network Rail Welsh Route Study (2016)

The Network Rail Welsh Route Study (2016) sets out a plan for a future railway that is at the heart of the economy. It sets out choices for the funders of the railway to sustain economic growth and sustainable communities. These choices would mean more seats for passengers, more frequent services, faster journeys, improved connectivity and more journey opportunities, and accommodating changes in demand for freight services.

The report highlighted that stakeholders in Mid Wales raised the following issues during the development of the study:

- The importance of improving connectivity between Mid Wales and key UK centres. These specifically related to the aspiration for an improved all day frequency along the Cambrian Main Line, and improved connectivity between the Heart of Wales Lines and other UK centres; and
- Aspirations to open new lines, many of which have been closed for many years.

Network Rail is supporting a number of organisations who are promoting the opening of new railway lines, including the Aberystwyth to Carmarthen line.

2.4 Regional

Mid Wales Joint Local Transport Plan (2015)

The Local Transport Plan (LTP) has been jointly produced by the three Mid Wales local authorities of Ceredigion, Powys and Gwynedd (Meirionnydd area). The plan sets out the intended outcomes and higher level interventions for transport in Mid Wales and was approved in May 2015. The Local Transport Plans are statutory policy which determines the strategy and programme for transportation and transport infrastructure.

The vision of the plan is that *'The Mid Wales Local Authorities will plan for and deliver in partnership an integrated and affordable transport system in the region that facilitates economic development, ensures access for all to services and opportunities, sustains and improves the quality of community life, and makes an active contribution to the management of carbon and the quality of the environment'*.

The LTP interventions are for the short, medium and longer term to achieve the vision, with the timescale within the period to 2030 dependent on levels of funding available and aspects of deliverability such as the relationship to developments coming forward within the period. The relevant higher level interventions are:

- Improving Strategic Connections;
- Improving Accessibility to Employment and Services;
- Encouraging Walking and Cycling;

- Integrated Public Transport Networks; and
- Improving Safety and Security.

The plan identifies schemes (subject to funding) to fulfil the higher level interventions. The relevant schemes to this study are as follows:

- **A486 Post Bach to Synod Inn Highway Improvement Scheme** – Phase 2 of the A486 Post Bach to Synod Inn Transport Improvement Scheme will complete the final element of the Ceredigion Link Road Stage 1, which delivers highway enhancements to improve the regional highway network. The A486 is the vital artery between Ceredigion and the M4 corridor as well as an important tourist route to the Cardigan Bay coast;
- **Strategic Bus Corridor Infrastructure Improvements** – The local authorities are seeking to improve local bus service infrastructure along key strategic routes by providing a high quality, consistent waiting facilities in line with Statutory Quality Bus Partnership Standards;
- **Capital Enhancements for Public, Fleet and Community Transport** – Capital funding stream for public transport, local authorities and partner fleet and community transport/ voluntary sector to purchase new or replacement vehicles and to support central journey management and scheduling systems to improve efficiency of operations and to increase capacity; and
- **Bwcabus Capital Investment Programme** – Scheme to support the continued operation and possible extension of the successful Bwcabus scheme within Ceredigion providing capital funding for associated infrastructure and for dedicated new or replacement vehicles.

Joint South West Wales Local Transport Plan (2015)

The Joint South West Wales Local Transport Plan was published in January 2015 and formally approved by the Welsh Minister in May 2015. It is a joint plan published by four local authorities including Carmarthenshire County Council (CCC). The plan provides the framework for improving connectivity to, from and within the region for the period 2015 – 2020.

The vision of the plan is *“to improve transport and access within and beyond the region to facilitate economic regeneration, reduce deprivation and support the development and use of more sustainable and healthier modes of transport”*.

The short term programme includes the following relevant schemes (subject to funding):

- **Carmarthenshire Strategic Transport Corridors and Interchanges** – Continuation of ongoing improvements to main bus corridors;
- **Pembrokeshire Strategic Bus Corridor Improvements** – Bus stop infrastructure improvements to key bus corridor routes, including the new Traws Cymru route from Haverfordwest to Aberystwyth and to improve connectivity and access between the County’s main settlements; and
- **Bwcabus** has been identified as a short-term regional transformational connectivity project, which relates to proposed infrastructure improvements including stop upgrades and information systems.

The relevant longer term aspirations (to 2030) include:

- **Carmarthen East Link** – Highway improvement to the A48 and wider trunk road network from A484 leading from North Carmarthenshire;
- **North Carmarthenshire to Ceredigion Link Roads Alltwalis to Llandysul** – Highway improvement of accessibility to North Carmarthenshire and recently created Teifi Valley Growth Zone; and
- **Highway Network Improvements** – Key junctions service / infrastructure improvements at key stations to improve accessibility to employment opportunities.

Revenue funding is essential to maximising connectivity on the region, which supports maintenance for roads, cycling and walking routes and public transport interchanges. It supports vital bus or community transport links where no viable commercial solution exists particularly (although not exclusively) in rural areas. The plan has the following five year aspirations for revenue funding:

- Protecting and growing existing connectivity services including the Traws Cymru long distance coach network and innovative public transport solutions; and

- Develop community transport services where appropriate to meet demands for lower density flows.

Growing Mid Wales Strategy Terms of Reference (September 2015)

Ceredigion and Powys are proposing to grow the economy of Mid Wales by establishing a regional partnership structure and a strategic framework to promote and develop sustainable economic development in Mid Wales. 'Growing Mid Wales' is an advisory, not an executive, group to identify priorities and opportunities for strategic regional investment.

A Ceredigion County Council Cabinet Report on the proposal (November 2014) sets out that the strategic high level aims of Growing Mid Wales are to:

- Encourage interaction with businesses, higher and further education, and with public and private sector stakeholders;
- Identify key themes and sectors, and priorities for investment;
- Support business led innovation, enterprise and investment in Mid Wales;
- Support the delivery of Powys Local Growth Zones, SIROLI and the Teifi Rural Growth Zone concepts;
- Engage with the Central Wales Economic Forum and the Mid Wales Regional Tourism Forum.
- To secure wider collaborative and transformational working with key partners organisations and the business community; and
- To agree roles, responsibilities and improved delivery arrangements in the promotion of economic development.

The aim is to establish a framework for an effective and efficient collaborative working arrangement with Welsh Government, focussing upon the creation of jobs and growth for the benefit of Mid Wales. The creation of jobs and growth requires an integrated approach in transport, planning, housing and economic development. This prompts the adoption of a wider and more integrated structure to support the region.

Investing in Strategic Transport Corridors in the Marches – The Marches Local Enterprise Partnership (May 2016)

The focus of investment by the Marches LEP will be on strategic transport corridors, which connect the main settlements of The Marches with adjacent regions, the rest of the UK and the key international gateways (ports and airports). The Strategic East – West Central Transport Corridor identified connections to Mid Wales as a primary transport network component.

Teifi Valley Growth Zone

The Minister for Economy, Science and Transport established the Teifi Valley Task and Finish Group in June 2013 to explore how the local growth zone model may be applied to the Teifi Valley. The group was asked to consider policy options to encourage and support jobs, economic growth and offer the opportunity of testing different types of interventions which are sensitive to the Valley's local economic circumstances, growth challenges and prominent use of the Welsh language.

In June 2014 the Welsh Government made the decision to proceed to set up the Local Growth Zone. The work is ongoing and will require active consideration of a number of options. The full report will inform and instigate debate and discussions on future formulation of Welsh Government policy in this area.

2.5 Local

Ceredigion Local Development Plan (2013)

The Ceredigion County Council Local Development Plan (LDP) (2013) sets out policies and specific proposals for the development and use of land in Ceredigion from 2007 up to 2022. An objective of

the LDP is 'to assist in improving the potential for sustainable travel; equality of access; and the connectivity of the county for the sake of its economy, its communities and their health and well-being'.

The policies relevant to this study are:

- **Policy DM03 Sustainable Travel** states that 'development should minimise the need to travel, provide opportunity for and promote sustainable modes of transport in Ceredigion'.
 - Priority for the siting of public/community transport interchanges instigated at a strategic level should be given to service centres and settlements on the principal transport routes.
- **Policy DM04 Sustainable Travel Infrastructure as a Material Consideration** states that 'the protection, enhancement or complementary development of former or existing transport infrastructure with potential to provide for more sustainable travel will be a material consideration in all development'.
 - The need to make the most of opportunities for walking, cycling and the use of public transport. This should be achieved by re-instating infrastructure that has fallen into disuse where that will serve new development in a sustainable way.
 - Transport infrastructure with potential to provide for more sustainable travel in the Ceredigion context includes existing/former/disused railway lines and rail sidings, public rights of way, footways and transport interchanges.
 - Recognition of the potential functional and tourism/recreational value of former railway lines and associated land holdings for cycling, walking and riding as well as for potential locomotive enthusiast-based tourism development.
 - The Proposals Map indicates lengths of the former Aberystwyth – Carmarthen railway line which have not been developed for other purposes
 - The Definitive Map and Statement is a legal document, a register of all public rights of way in Ceredigion. Section 11 requires that local authorities seek to protect and enhance the rights of way network as a recreational and environmental resource.

The LDP identifies the significance of collaborative and cross border working, with specific reference with Carmarthenshire. These have implications in terms of transport infrastructure and service requirements.

Carmarthenshire Local Development Plan (2014)

The Local Development Plan (LDP) for Carmarthenshire County Council was adopted in 2014. The LDP sets out the spatial vision for the future of Carmarthenshire, and a framework for the distribution and delivery of growth and development up to 2021. The vision for the LDP is "*Carmarthenshire will be a prosperous and sustainable County of contrasts. It will have distinctive rural, urban and coastal communities, a unique culture, a high quality environment and a vibrant and diverse-economy. The County will offer a high quality of life within safe, accessible and inclusive communities. Everyone will have access to good quality employment, a suitable mix of housing and to community and recreational facilities – all within a clean and green environment.*"

The objectives elaborate upon the LDP vision and focus on the deliverability of the LDP. Relevant to transport is Strategic Objective SO10 'to contribute to the delivery of an integrated and sustainable transport system that is accessible to all'. It is recognised that improvements to transport linkages between areas of Carmarthenshire and beyond offer potential benefits in attracting new businesses and employers into the area.

An integrated and sustainable transport system is fundamental to the delivery of the strategy and is underpinned through strategic objective SO10. The strategy with its emphasis on the existing transport infrastructure recognises the diversity of the County and the variable quality and range of infrastructure provision (including highways and public transport) between the urban and rural areas.

The relevant policies to this study are:

- Policy TR6 Redundant Railway Corridors states that 'Development proposals which do not prejudice the re-use of redundant rail corridors for potential future recreational and rail development purposes will be permitted'; and
- The Plan area has a number of former railway lines which offer considerable benefit for recreational activities including cycle routes, footpaths and bridleways. Consideration also needs to be given to the potential future re-use of rail routes when considering proposals, which may impact upon the continuity and availability of the route.

3 Context

3.1 Introduction

This section presents a summary of the issues and opportunities within the study area. The Mid Wales Joint Local Transport Plan (2015) forms a key source of data setting out the context of the study.

3.2 Study Area Overview

The study area is characterised by a pattern of towns and small settlements and deeply rural areas, with Aberystwyth and Carmarthen being the largest centres. The Wales Spatial Plan Update (2008) defines Aberystwyth as a primary settlement consistent with its role as a strategic centre for Central Wales and its national significance for Wales. Aberystwyth provides 'a range of national institutions, organisations and regional services with a pivotal role in supporting the settlements of the area'. Aberystwyth's population grew by 12% over the decade from 2001. The town represents a significant location of employment and education for the sub-region with a population of approximately 18,000.¹⁸

The Wales Spatial Plan Update (2008) identifies Carmarthen as a primary settlement with a strategic role in three Spatial Plan Areas. It states that 'Carmarthen plays a key role reaching to the east, west and north as a regional centre for retailing, health care, administration and agriculture. Investment in the town has made it increasingly popular as an attractive place to live, work and visit'. Carmarthen has a population of 14,185 which grew by 3% from 2001 to 2011. Within the study area Tregaron (1,213) and Lampeter (2,970) have significantly smaller populations (2011 Census).

Overall the study area suffers from poor access to services and jobs, possessing relatively weak internal and external links, poor public transport and limited levels of rail accessibility. This together with dispersed settlement patterns has resulted in a high dependency on the car and long journey distances to access employment and key services. These issues and opportunities are discussed in more detail in the sections below.

3.3 Access to Employment and Recreation

Generally, access to employment within the study area is regarded as poor, as set out in the Mid Wales Joint Local Transport Plan:

- The dispersed settlement patterns and the low population density have implications for the provision of sustainable public transport services and consequently there is a greater dependence on the private car. It also means that a greater proportion of the population travel longer distances to work.
- Car ownership is generally higher in the study area compared to the urban areas, 18.8% of households within Ceredigion have no car to a car, whilst the level is 18.4% in Carmarthenshire compared to 29% in Cardiff¹⁹.
- The car is the dominant mode of travel to work across Ceredigion (65.4% of journeys) and Carmarthenshire (65.4%), which is higher than the urban area of Cardiff where 62% of journeys are undertaken by car²⁰.
- The National Transport Finance Plan 2015 – Evidence Base (2015) states that across Wales 12.1% of people travel actively to work and that Mid Wales has the highest proportion of people that travel actively to work (15.8%).
- The National Transport Finance Plan 2015 – Evidence Base (2105) states that the 2011 Census data shows that 44.63% of people in Ceredigion cannot access a NHS Major Acute Hospital by public transport within 60 minutes, while it is 27.11% within Carmarthenshire. 35.17% of Ceredigion

¹⁸ <http://www.aberystwyth.org.uk/more/statistics.shtml>

¹⁹ 2011 Census

²⁰ 2011 Census

residents cannot access further education within 60 minute journey by public transport, whilst 46.22% of Carmarthenshire and 40.26% Ceredigion residents cannot access higher education within 60 minutes by public transport.

- Outside of the key settlements, employment is highly dispersed and accessing employment and key services by public transport is constrained by the limited service provision and long travelling distances, often requiring interchange between different services. Many services offer limited journeys, providing access during the day time to shops and services but often not fitting with commuting times or shift patterns.
- Distance travelled to work is higher in the study area compared to the more urbanised areas of Wales (2011 Census), as shown in **Figure 3.1**²¹.
- The RAC Foundation has reported that while motoring costs seem to have fallen in real terms, this disguises the fact that while the (often discretionary) cost of buying a new or second hand vehicle has been falling, (non-discretionary) operating costs such as fuel and insurance have risen significantly quicker than inflation. While the cost of bus and rail fares has risen quicker than average wages, as shown in **Figure 3.2**²².
- Sustrans Cymru²³ state that transport poverty is inherently difficult to measure but have used an indicator of transport poverty, the number of households that would need to spend 10 per cent or more of their income on the costs of running a car (whether or not they are actually running one). This includes most households that cannot afford a car at all. For the poorest households, research shows this figure can be as high as 25 per cent (Social Exclusion Unit, 2003, Making the Connections).
- The Sustrans Cymru report states that around half of all people in Wales could already be struggling with the costs of running a car and state that between 40-50% of the population of Carmarthenshire are reported to be experiencing transport poverty and between 30-40% of population of Ceredigion, as shown in **Figure 3.3**.
- The rising cost of transport is resulting in many households struggling to afford to own and run a car, whilst public transport alternatives are often not available, which is resulting in transport poverty. This can lead to social exclusion particularly for young people trying to access jobs and training.
- Mid Wales attracts some 1.75 million tourists²⁴. It is estimated that 88% of visitors travel by car to reach Mid Wales and most of these continue to use the car to travel around once there. Most visitors drive over 300 miles to and from their holiday in this area and a further 300 miles or more a week while there²⁵. However the increase in use of rail and bus services in the summer show the importance of public transport services for tourists.
- The key settlements of the region have large employment catchment areas (Aberystwyth, Carmarthen, Lampeter, Teifi Valley), as demonstrated by **Figures 3.4 – 3.7**. The largest draw of the Aberystwyth workforce is from central Wales and along the west coast (Aberaeron and Cardigan) but extends as far as Haverfordwest and Carmarthen to the south. The Carmarthen workforce is shown to travel from north of the town and extends as far as Aberystwyth, whilst Lampeter is shown to draw the majority of its workforce from Ceredigion rather than Carmarthenshire to the south.
- The movement of commuters between Carmarthenshire and Ceredigion is illustrated in **Figure 3.8**. It can be seen that the largest inflow and outflow of commuters within Carmarthenshire is with Swansea, whereas for Ceredigion the largest inflow and outflow of commuters is with Carmarthenshire. However, given that the number of commuters in and out of Carmarthenshire is

²¹ 2011 Census

²² RAC Foundation - <http://www.racfoundation.org/data/cost-of-transport-index>

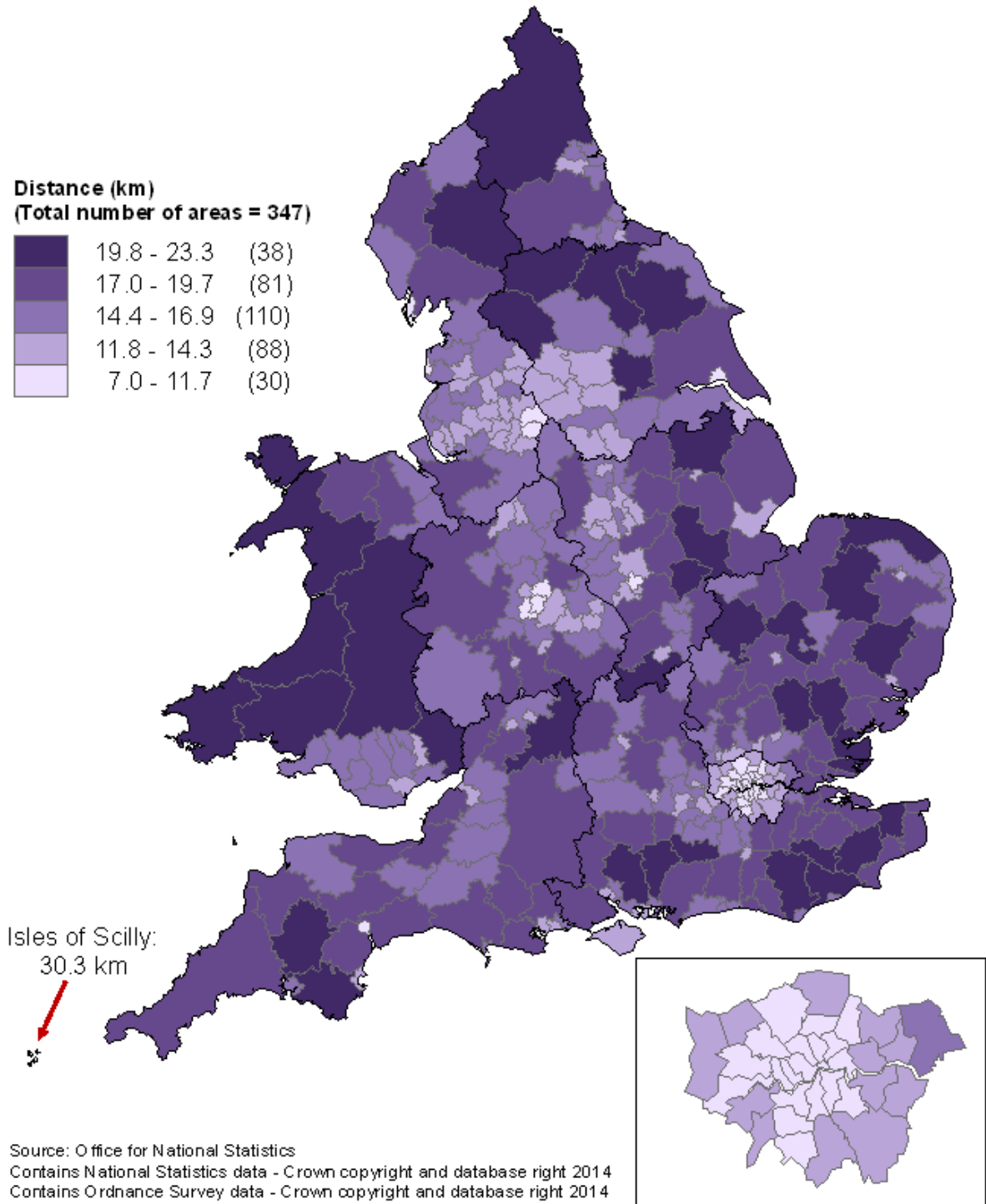
²³ Sustrans Cymru - http://www.sustrans.org.uk/sites/default/files/images/files/Access%20Denied_eng.pdf

²⁴ UK Tourist 2009, Visit Britain

²⁵ Brecon Beacons and Powys Visitor Transport Plan

larger, there appears to be relatively equal numbers of people travelling each way between the authorities.

Figure 3.1 – Distance Travelled to Work²⁶



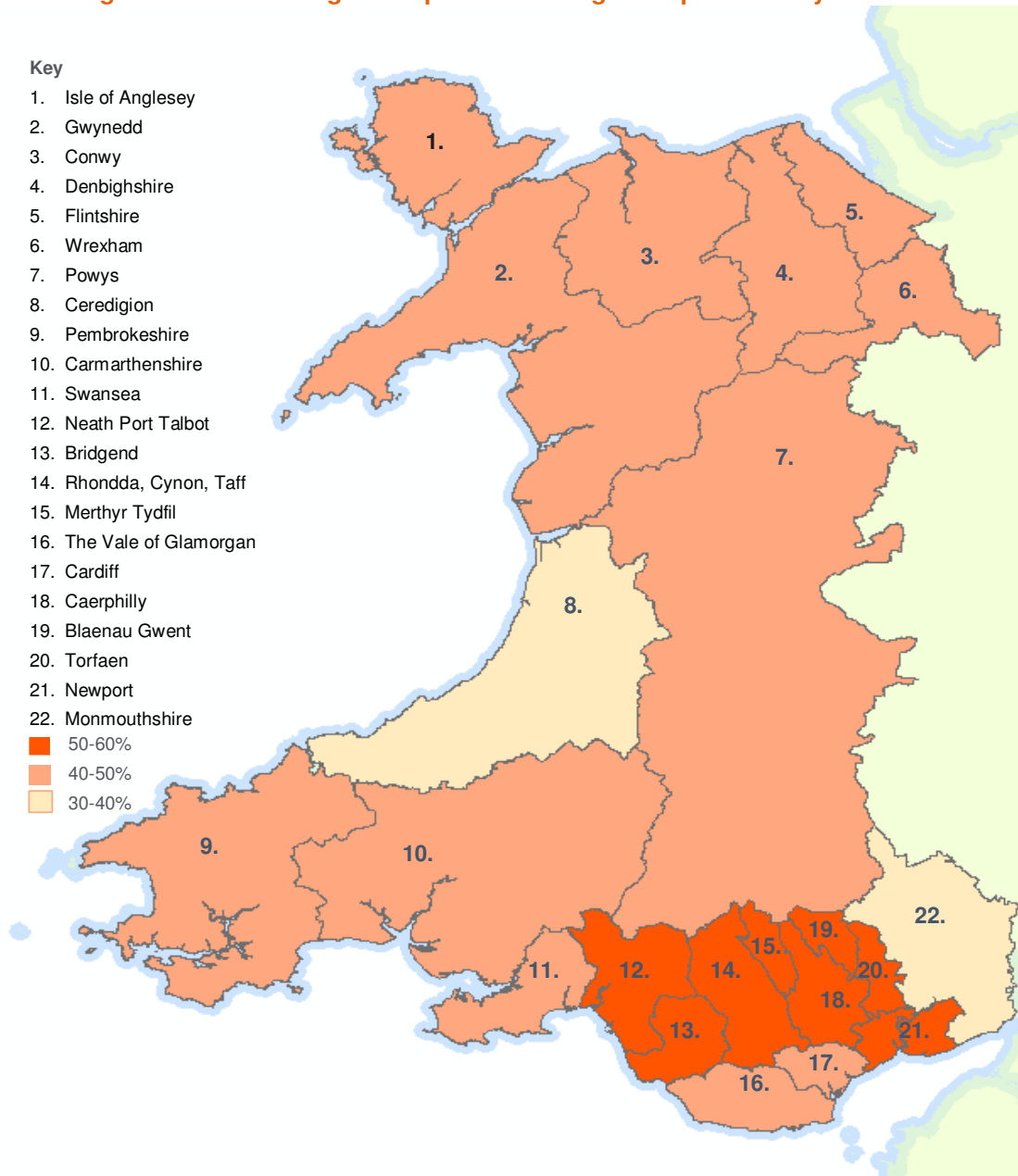
²⁶ 2011 Census

Figure 3.2 – Change in the Cost of Travel in the Last 10 Years²⁷



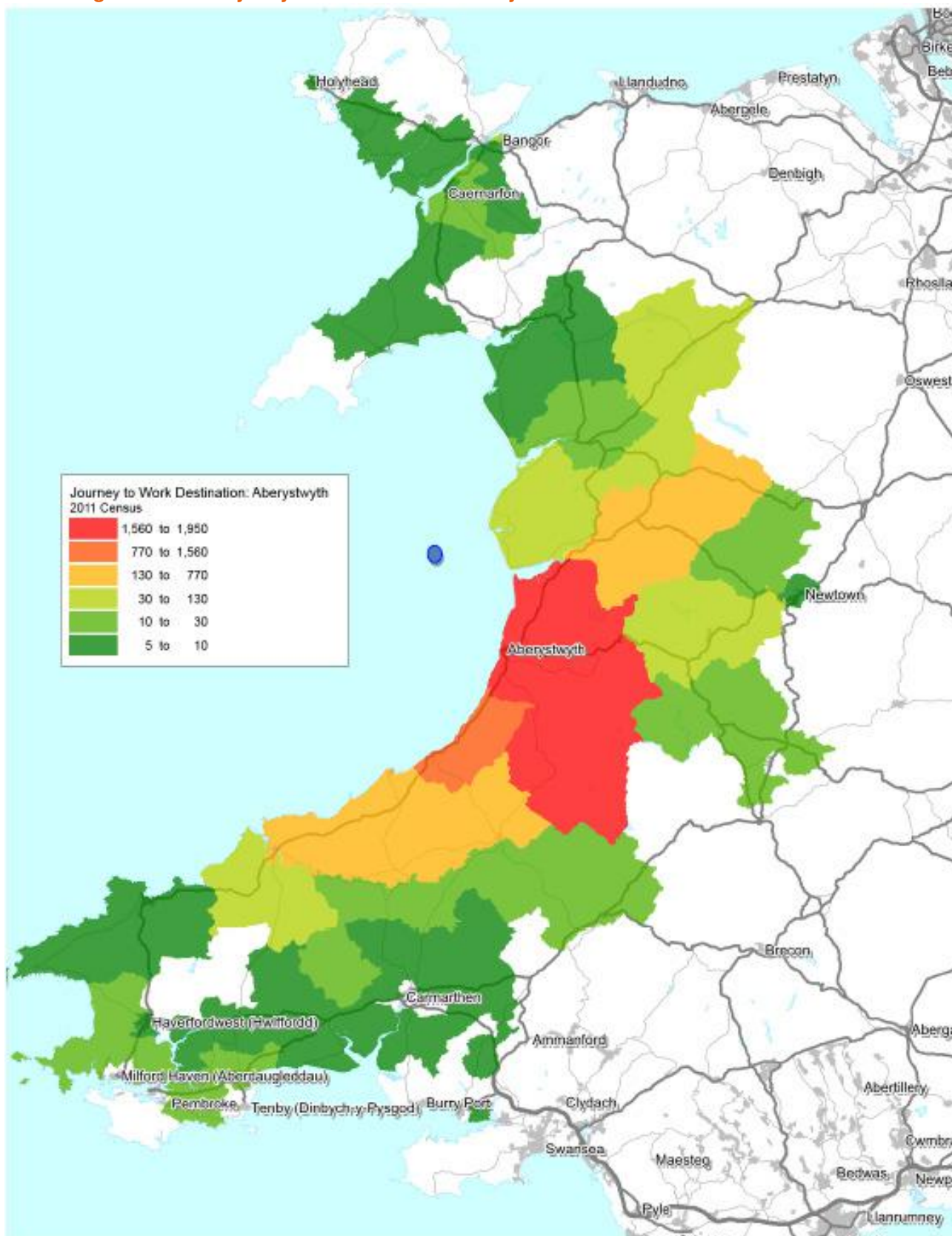
²⁷ RAC Foundation - <http://www.racfoundation.org/data/cost-of-transport-index>

Figure 3.3 – Percentage of Population Facing Transport Poverty²⁸



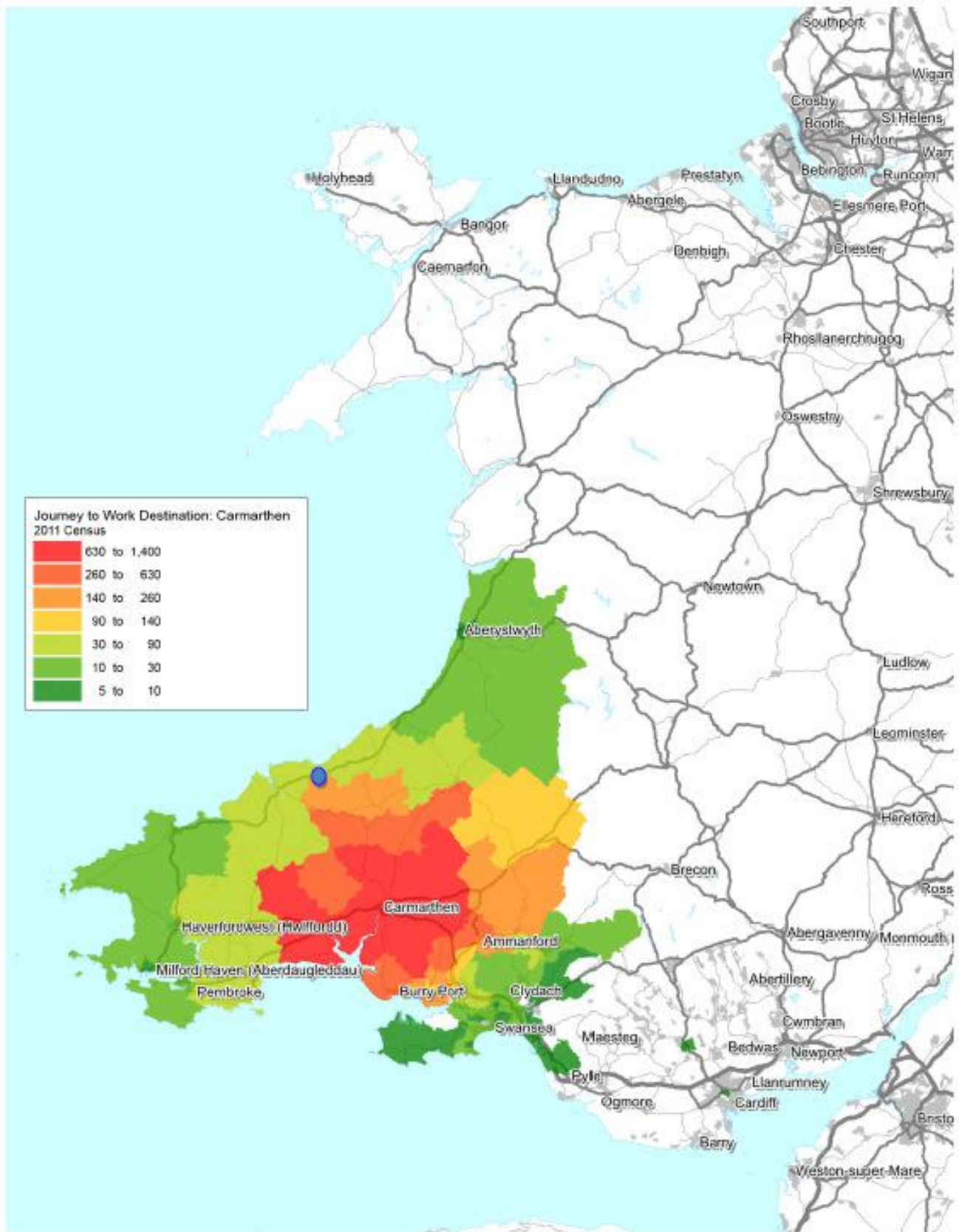
²⁸ Sustrans Cymru - http://www.sustrans.org.uk/sites/default/files/images/files/Access%20Denied_eng.pdf

Figure 3.4 – Aberystwyth 2011 Census Journey to Work²⁹



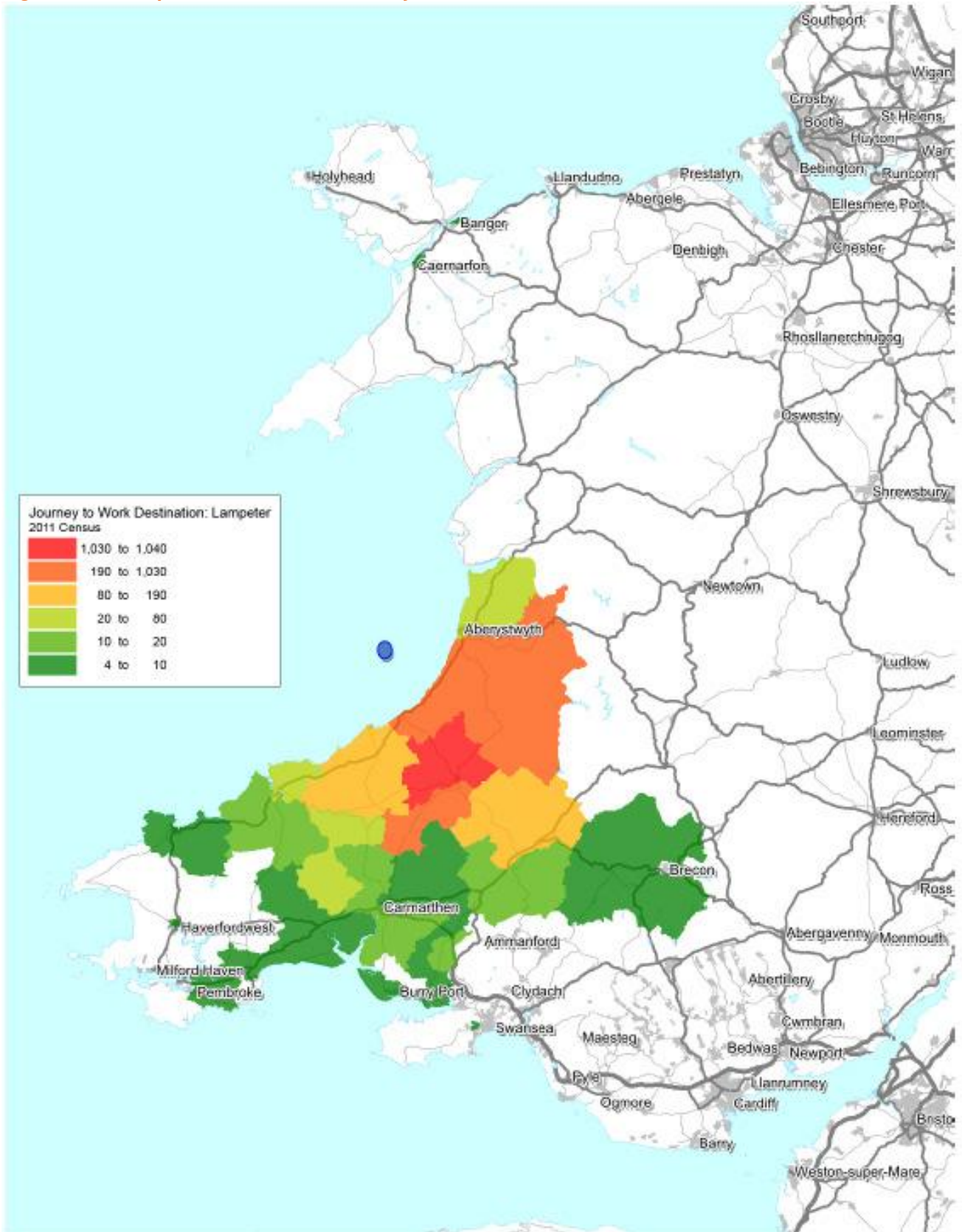
²⁹ AECOM Mid and North Wales – 2011 Journey to Work Analysis (2014)

Figure 3.5 – Carmarthen 2011 Census Journey to Work³⁰



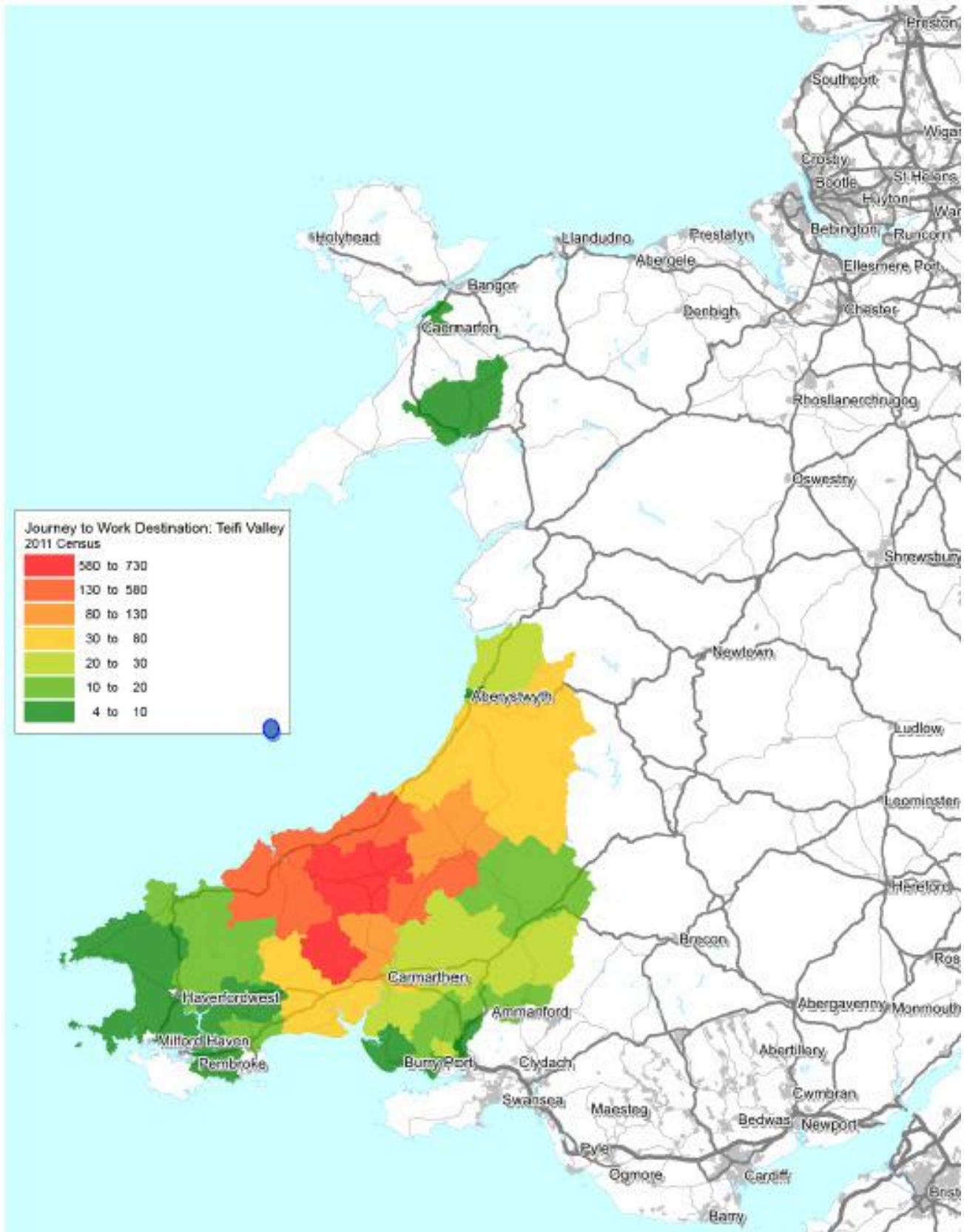
³⁰ AECOM Mid and North Wales – 2011 Journey to Work Analysis (2014)

Figure 3.6 – Lampeter 2011 Census Journey to Work³¹



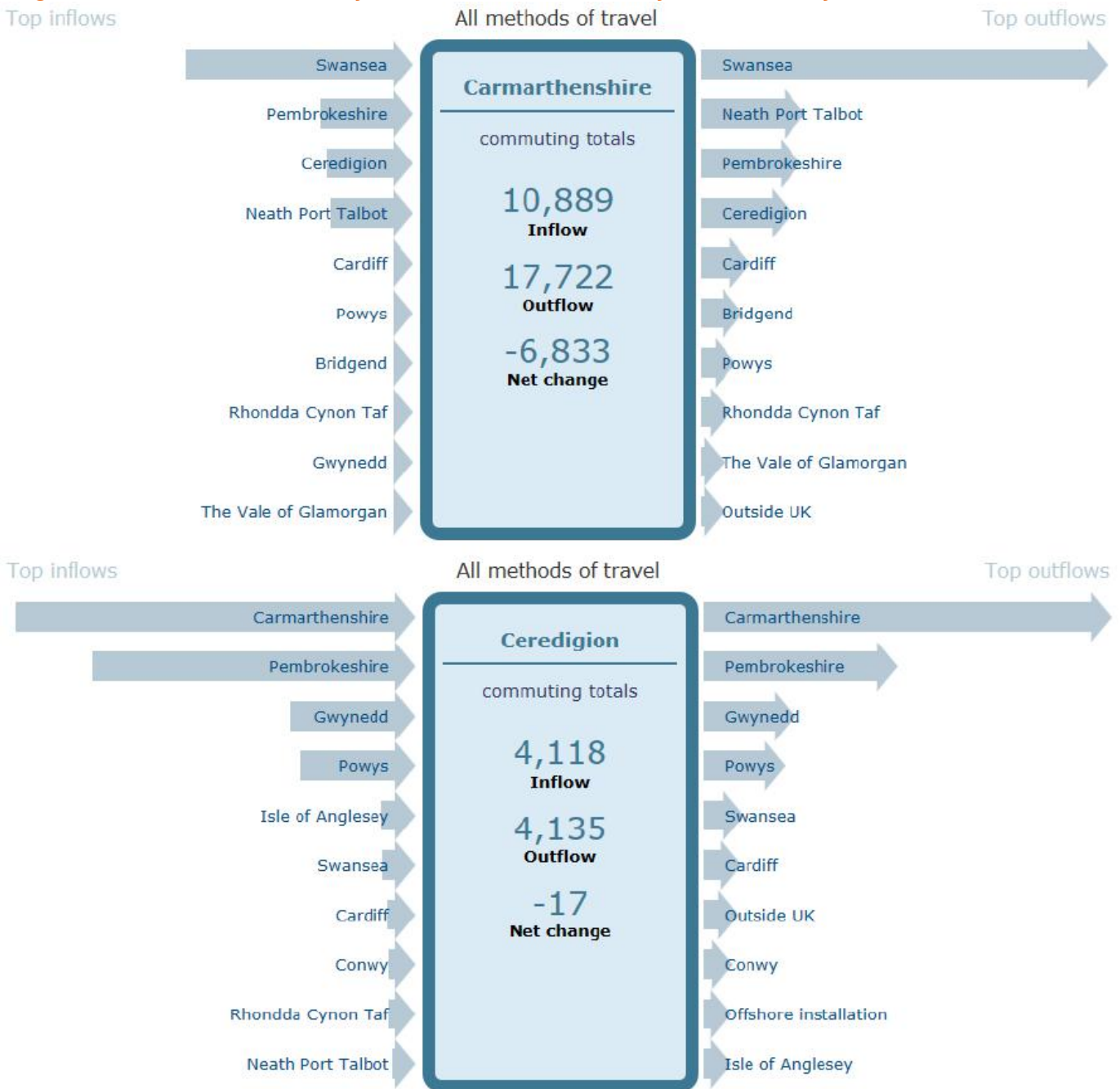
³¹ AECOM Mid and North Wales – 2011 Journey to Work Analysis (2014)

Figure 3.7 – Teifi Valley 2011 Census Journey to Work³²



³² AECOM Mid and North Wales – 2011 Journey to Work Analysis (2014)

Figure 3.8 – 2011 Census Journey to Work Commuter Flows by Local Authority ³³



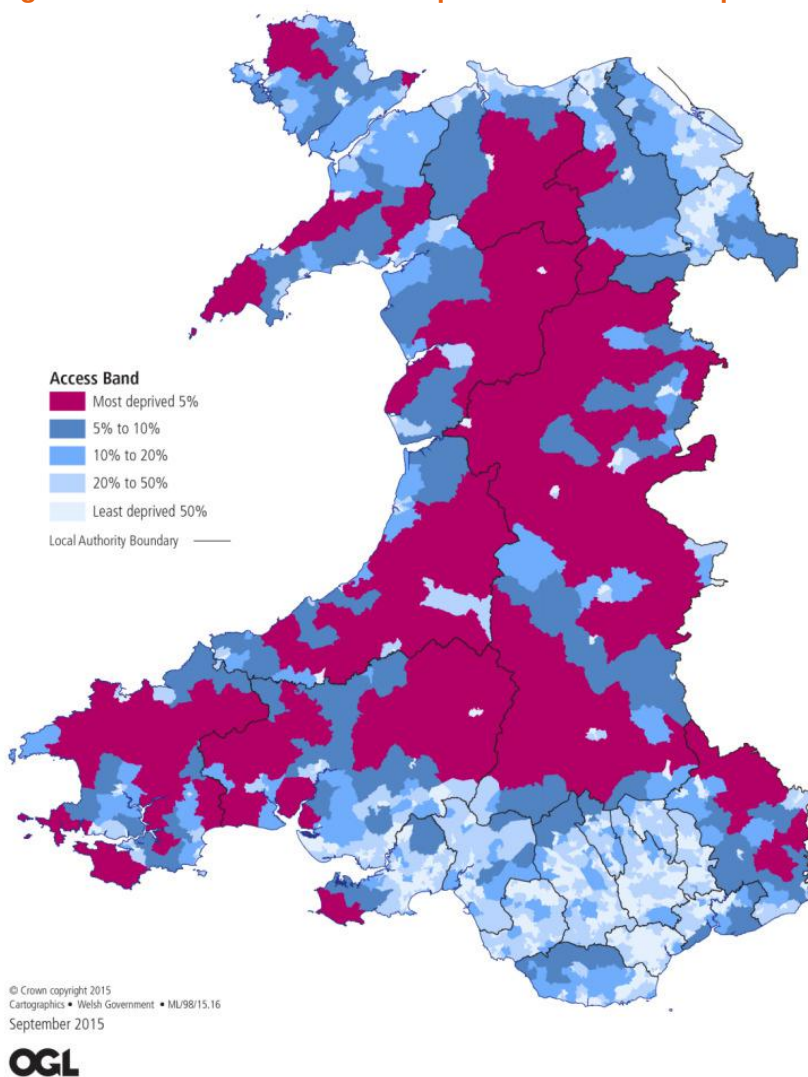
3.4 Access to Services

Generally, access to services within the study area is poor as also described in the Mid Wales Joint Local Transport Plan:

- **Figure 3.9** shows the Welsh Index of Multiple Deprivation (WIMD) 2014 for access to services deprivation. It identifies that large parts of the study area are ranked in the most deprived lower super output areas. The areas surrounding Aberystwyth and Carmarthen are however less deprived than the more remote rural areas.

³³ AECOM Mid and North Wales – 2011 Journey to Work Analysis (2014)

Figure 3.9 – Access to Services Deprivation for Lower Super Output Areas in Wales³⁴



- A large proportion of retired people live within the study area, who tend to be more reliant on public and community transport to be able to lead an active life, participate fully in the community, and get access to essential social and healthcare facilities.
- Consolidation and changes in education, social services and healthcare provision are on-going. This may lead to an increased need to travel for some of the most vulnerable residents. Gaining access to healthcare in rural Mid Wales is an acute issue. The only District General Hospital is Bronglais in Aberystwyth. Residents in Ceredigion must travel to Carmarthen or Haverfordwest for certain healthcare services.
- There are difficulties accessing healthcare, from long journey times for ambulances in emergency situations, to day long trips to access consultant appointments, and difficulties in co-ordinating GP “same day appointment” systems with infrequent bus services.
- Scheduled bus services are not appropriate for all circumstances, particularly for those requiring door-to-door transport and where population levels are low as to make bus services unsustainable. Community transport and taxis have a crucial role to play in providing for these needs. Community transport offers flexibility and allows innovative and cost effective approaches to meeting access

³⁴ Welsh Government - Analysis of the Access to Services Domain in the Welsh Index of Multiple Deprivation by type of settlement, 2014 (<http://gov.wales/docs/statistics/2015/151006-analysis-access-services-domain-wimd-type-settlement-2014-en.pdf>)

needs. There are good examples of provision of community transport services and it will be a challenge for the future to build on these.

3.5 Rail

- There are currently no north-south rail routes within the study area.
- There is considerable scope for an enhanced passenger service along the Heart of Wales and both the Cambrian Main and Coast lines. The recent investment on the Cambrian Main Line provides the opportunity to support an hourly service and potentially to open and reopen stations to significantly enhance the potential of the line.
- Over the last five years (2010/11 – 2014/15), rail station patronage increases have been observed at Carmarthenshire from 399,000 to 428,000 passengers in 2014/15 (7% increase) and a 2% decline at Aberystwyth (311,000 passengers in 2010/11 to 304,000 passengers in 2014/15)³⁵.
- Aberystwyth Railway Station recently benefited from investment via Network Rail's National Station Improvement Programme, the station buildings were upgraded to create a modern station with better facilities for passengers, together with a step-free access to the platforms and a new canopy providing cover from the side entrance to the street front.

3.6 Bus

There are a number of challenges to the delivery of an integrated transport network:

- The study area has a very small and dispersed settlement pattern, which poses distinct challenges for the delivery and development of public and community transport services.
- The bus network largely serves historic key population centres and access to many of the existing and emerging larger employment sites, requires timely or complicated interchange, often involving trips with a number of operators. Frequency of service and longer journey times is inadequate to provide a sufficient offer to compete with the car.
- Lack of accessible and seamless ticketing across the region hinders encouragement of modal shift and limits travel horizons, particularly for more deprived communities.
- Public transport modal share for journeys to work in Mid Wales is generally low, with 3.4% and 3.2% of journeys undertaken in Ceredigion and Carmarthenshire respectively³⁶, compared to 13.7% in Cardiff.
- A 2013 survey showed that only 35.6% of residents of Mid Wales use the bus once a week (5.7% of residents travel by bus daily, 19.9% 2-3 times a week and 10% weekly). The survey showed that of those who never travel by bus, 36% do not because there is no service, 23.8% prefer the car and 17% state it is because services are limited, inconvenient and unreliable³⁷.
- The delivery of public and community transport services has been shaped by the lack of investment and sustained resourcing that has prevailed over the past years.
- The allocation of Local Transport Fund to Mid Wales in 2015/16 was only 8.9% (£2.4m) of the all Wales allocation (£26.9m) and 8.17% of funding in 2016/17 compared to allocations of 29.3% and 39.5% in South East Wales in 2015/16 and 2016/17 respectively.
- Also the 2016/17 Bus Services Support Grant for the South West Wales region was £11m (20.98%), whilst it was £754,000 for Ceredigion representing 3.03%, this compares to £11.1m for the South East of Wales representing 44.55%.
- There is potential to improve the provision of public and community transport across the region, as a means to reduce the reliance on the private car.
- There is a high uptake of concessionary bus passes in the region. For example within Ceredigion County Council there are 18,200 active concessionary bus passes as of September 2016. This has risen since 2012 when there were 16,700 active passes.

³⁵ Office of Road and Rail

³⁶ 2011 Census

³⁷ TraCC Telephone Survey 2013 – TraCC Monitoring Report 2012/13

- Community transport meets the transport needs of communities where these needs are not or cannot be adequately met by public and/ or commercial transport. Community transport activity can range from providing accessible door to door transport for people of all ages with mobility problems, to helping the social inclusion of a wide range of people who otherwise would not be able to participate in the normal activities of everyday life, education, training and employment. In rural areas community transport can lessen the effects of geographical isolation by giving better access to local and regional centres.
- Bwcabus is a fully accessible local community bus service which is tailored to the needs of passengers by operating in response to pre-booked journey requests. The service operates from 7am – 7pm Monday to Saturday. The service enables people to travel between local towns and villages within the Bwcabus zone or connect to the main line bus services to travel further afield to places such as Aberaeron, Aberystwyth, Cardigan and Carmarthen, as shown in **Figures 3.10**.
- Traws Cymru longer distance bus services are an important part of the integrated public transport network in Wales. Funded by the Welsh Government, the buses provide public transport for many communities across Wales, providing an accessible and affordable service between Carmarthen and Aberystwyth Bus Stations via Lampeter. **Figures 3.10 and 3.11** shows the Traws Cymru services and local bus services operating within the study area. The T1 service has an hourly frequency (weekdays and Saturdays) between Aberystwyth – Lampeter – Carmarthen with an approximate journey time of 2 hours 20 minutes. It connects with Bwcabus services at Lampeter, Pencader, Felinfach and Aberaeron. The T5 service operates an hourly service between Aberystwyth and Haverfordwest, it connects with the T1 service in Aberaeron and rail services at Aberystwyth, Haverfordwest, Fishguard / Goodwick and Fishguard Harbour stations.
- Improvement in the delivery of regional bus services has resulted in increased numbers of passengers using the services. For example the former X40 service (now the Traws Cymru T1 service) had 102,000 passengers in 2010/11 which grew to 235,000 in 2013/14 when route became the T1 service. The patronage grew further to 240,000 in 2014/15³⁸.
- The Welsh Government announced in November 2016 that TrawsCymru's new T1C service between Aberystwyth and Carmarthen will replace the previous 701 service which was operated by Lewis Coaches before it went into administration in August 2016. The service will commence on 5th December 2015 and is a once per day extension of the existing service T1 (Aberystwyth to Carmarthen) to Swansea and Cardiff. The service will be reviewed after six months.

³⁸ TraCC Board (29th October 2015) – Strategic Regional Transport :- Welsh Government National Transport Finance Plan 2015 – “The Plan”

Figure 3.10 – Bwcabus Services³⁹

Llwybrau'r Prif Wasanaethau Bysiau / Mainline Bus Routes

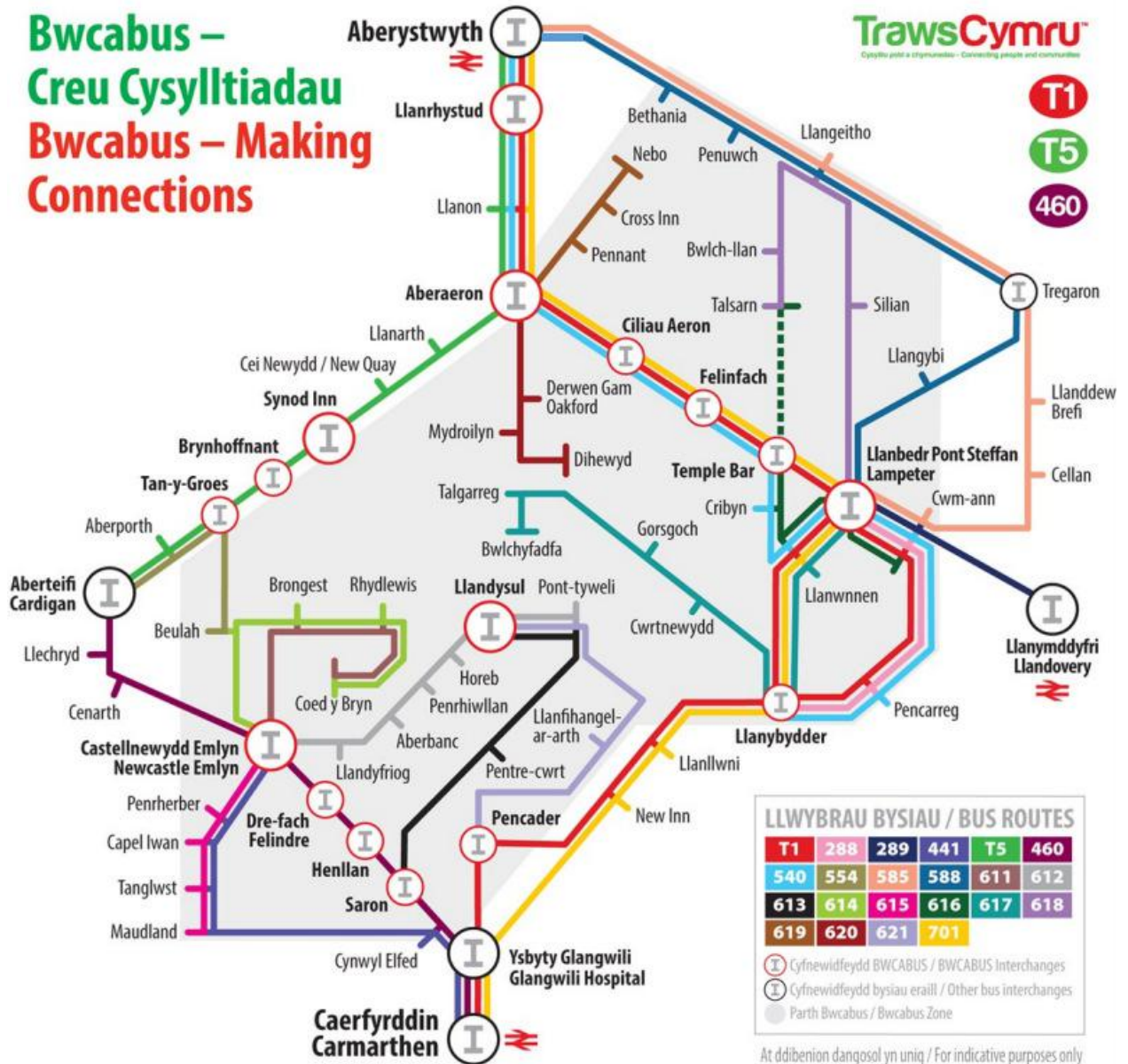
Llwybrau Bwcabus Routes

Parth Bwcabus Zone



³⁹ http://www.bwcabus.traveline-cymru.info/uploads/Bwcabus_Graphic_Map/Simple_Map_2016_copy.jpg

Figure 3.11 – Bwcabus and Connecting Services⁴⁰



- Analysis of public transport journeys has been undertaken for this study using TRACC software to demonstrate which areas are within, 30, 60 and 90 minute public transport journey of Aberystwyth Bus Station, Carmarthen Bus Station, and Tregaron, the resultant isochrones are shown in **Figures, 3.12, 3.13 and 3.14** respectively⁴¹.
- The analysis shows that journey times between the key settlements within the region are long. The journey time between Aberystwyth and Carmarthen via the T1 service is currently approximately 2 hours and 20 minutes for a 45 mile journey which can be undertaken 90 minute by car.
- Carmarthen is a 90 minute bus journey from Cardigan (27 mile and 50 minute journey by car) and Lampeter (23 mile and 45 minute journey by car).

⁴⁰ http://www.bwcabus.traveline-cymru.info/uploads/2015_Dec_-_Map_with_Symbols_4_web.pdf

⁴¹ The analysis has utilised National Public Transport Data Repository bus data (utilising the most recently available data) including both timetable and stop referencing information. It has been assumed that there is a maximum travel distance of 400 metres to a stop and a maximum interchange distance between services of 500 metres. The calculations are based on timetable information for a Monday between 07:00-09:00 (which is considered representative) and only assesses services with a frequency of at least one service per hour.

- Aberystwyth is a 60 minute journey from Tregaron and 90 minutes from Cardigan (40 mile and 70 minute journey by car), Lampeter (25 mile and 45 minute journey by car) and Llanbydder.
- The above analysis illustrates that the same journey takes considerably longer by bus compared to the same journey undertaken by car.
- **Table 3.1** provides a summary of the key local bus services operating within the study area, which are in addition to the regional bus services discussed above. Overall it can be seen that the majority of services have a frequency of less than an hour and a lack of evening and weekend provision. A number of town based services, such as the Aberystwyth town circular and the Carmarthen Park and Ride services have been included to demonstrate the impact service frequency can have on connections.
- As part of the evidence base to support the TraCC Regional Bus and Community Transport Network Strategy (2014) the catchment population of local and regional bus services was calculated. The population within each output area is spread out based on a combination of the 2011 census, OS Open Data settlement line and OpenStreetMap land use areas to weight the population to the parts of the output area that people are more likely to live. The catchment population is the number of people within a buffer zone of 800m of the entirety of the route. This aims to capture all the potential users of the service, while also providing an indication of the number of people the route can provide access to in order to capture the potential social element of bus travel. Although the exercise was undertaken in 2013 it illustrates the indicative catchment population of some of the services identified in this study, the data is presented in **Table 3.1** where it is available.

Table 3.1 – Local Bus Services⁴²

Bus No.	Route	Catchment Population	Monday – Friday			Saturday			Sunday	
			Freq	First	Last	Freq	First	Last	First	Last
PR1	Carmarthen – Park & Ride	-	30 mins	0700	1855	30 mins	0700	1855	-	-
206	Cardiff – Glangwili Hospital	-	Every 2 hours	0841	1823	2 hours	0841	1823	-	-
460	Carmarthen – Cardigan	19,542	Hourly	0625	1944	Hourly	0625	1944	-	-
281	Carmarthen – Llandovery	-	4 buses per day	0605	0744	4 buses per day	0605	1744	-	-
B12	Carmarthen Bus Station – Glynderi	-	3 buses per day	0945	1513	3 buses per day	0945	1513	-	-
215	Carmarthen – Llanpumpsaint	-	3 buses per day	0905	1819	3 buses per day	0905	1819	-	-
279	Llandeilo – Carmarthen	-	2 buses per day	1245	1650	2 buses per day	1245	1650	-	-
616	Talsarn – Cwmann	4,048	2 buses per day	0925	1224	2 buses per day	0925	1224	-	-
585	Lampeter – Aberystwyth	27,375	Every 2 hours	0635	1858	Every 2 hours	0635	1858	-	-
588	Lampeter – Aberystwyth	22,459	3 buses per day	0825	1851	3 buses per day	0825	1851	-	-
T22	Aberystwyth – Cwmystwyth	17,747	Every 3 hours	0825	1726	-	-	-	-	-
304	Aberystwyth – Penparcau	15,713	Hourly	0715	1740	Hourly	0715	1740	-	-
305	Aberystwyth – Waunfawr	-	Hourly	1025	1645	-	-	-	-	-
301	Aberystwyth – Aberystwyth	-	Every 2 hours	0815	1718	Every 2 hours	0815	1718	-	-
302	Aberystwyth town circular	-	Every 2 hours	0740	1817	Every 2 hours	0930	1817	-	-
526	Aberystwyth – Penrhyncoch	18,654	Hourly	0715	1544	Hourly	0715	1544	-	-
503	Aberystwyth – Park & Ride	-	20 mins	0800	1819	20 mins	0800	1819	-	-

⁴² Traveline Cymru

Figure 3.13 – Bus Journey Times from Carmarthen Bus Station

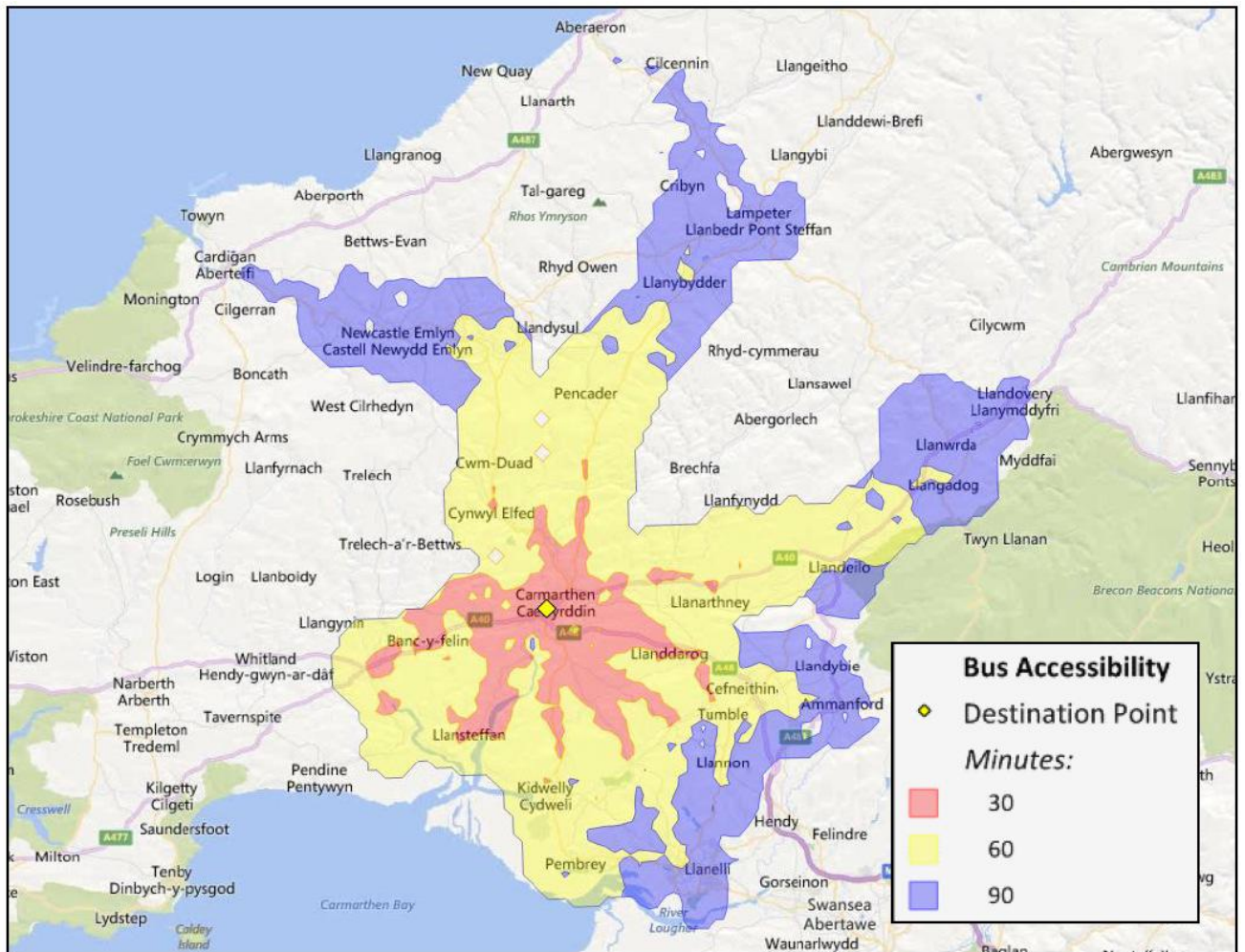
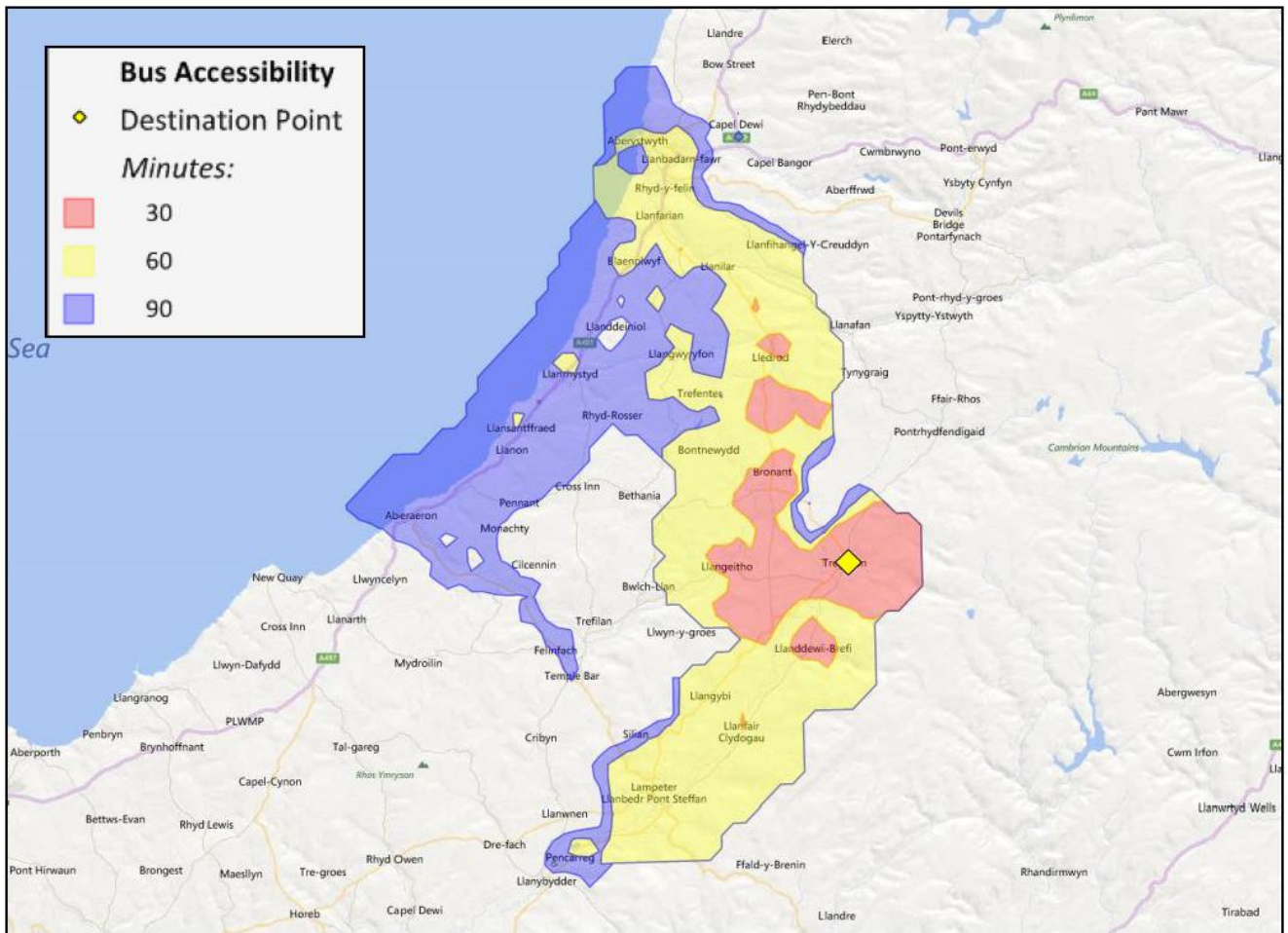


Figure 3.14 – Bus Journey Times from Tregaron

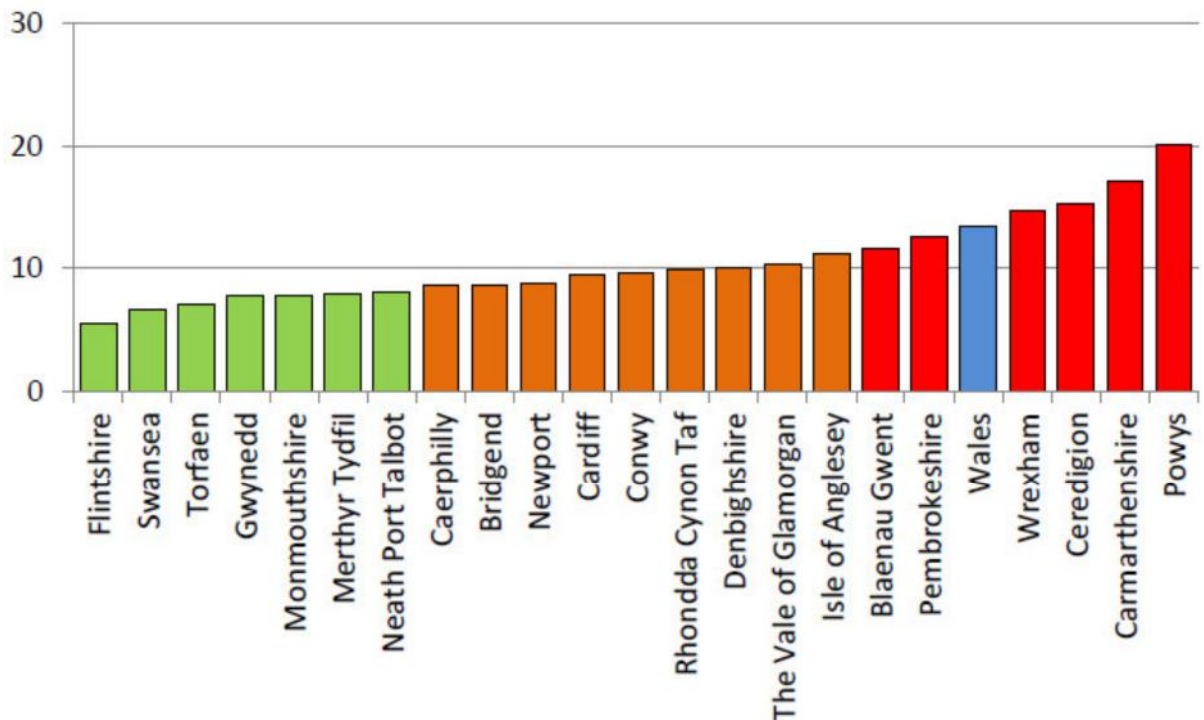


3.7 Highway Network

- The highway network forms the backbone of the transport network within the study area. The lack of rail infrastructure between Aberystwyth and Carmarthen means that the road network is the only linkage between the two towns and settlements in between. This emphasises the importance of the road network, which facilitates movement by the private car, as well as providing the infrastructure for bus and community transport and walking and cycling links. However, despite the importance of the highway network in places it falls below appropriate standards.
- In 2012/13 13.4% of Ceredigion’s roads were in a ‘poor’ condition, as shown in **Figure 3.15**⁴³. The condition of roads improved in all local authorities since 2011/12, with the exception of Blaenau Gwent, Cardiff, Powys, Gwynedd and Carmarthenshire.

⁴³ Ceredigion County Council – Local Government Performance 2012/13

Figure 3.15 – Percentage of Roads in Overall Poor Condition



- The key highway routes within the study area linking Aberystwyth and Carmarthen (and thus the strategic east-west route corridor namely A40/ M4 motorway network) are:
 - Aberystwyth – Synod Inn – Llandysul – Carmarthen (A487/ A486/ A484);
 - Aberystwyth – Aberaeron – Lampeter – Carmarthen (A487/ A482/A485);
 - Aberystwyth – Llanrhystud – Lampeter – Carmarthen (A487/B4337/A485); and
 - Aberystwyth – Tregaron – Lampeter – Carmarthen (A487/A485).
- The A487 is part of the trunk road network, whilst the remainder of the roads form part of the county road network.
- The National Transport Finance Plan 2015 – Evidence Base (2015) states that average vehicle speeds in Mid Wales are quite low, generally between 40-50mph on trunk roads and between 30-40mph on county roads. Although some sections have been improved in recent years the constraints of the rural landscape and the settlements on the main routes mean the scope for further significant journey speed improvements is limited.
- The key issues with the highway network are around journey time reliability, overtaking opportunities, road safety and journey times. The substandard highway network means that heavy goods vehicles (HGVs) have a disproportionate impact on communities and other road users and there are limited overtaking opportunities.
- Due to the lack of rail routes all freight in the region is transported by road.
- While traffic volumes are generally low in comparison to other more urbanised areas of Wales, the road network capacity is limited by alignment and width, with no overtaking lane sections to provide dedicated overtaking opportunities, means that journey times are long and often less reliable. The Department of Transport 2015 Count Point Data along the key roads within the study area are shown in **Table 3.2**.

Table 3.2 – Department of Transport Count Point Data

Road	Count ID	Total Traffic Flows	HGVs
A482	578	2,869	7%
A484	40593	2,201	6%
A485	50593	7,585	5%
A486	40598	2,527	4%
A487	77054	10,937	3%

- The strategic road network often passes through the centre of communities, where traffic speeds are generally reduced and in some places traffic calming measures are implemented. Traffic calming measures have recently been implemented at Alltwalis and Llanllwni in the form of speed bumps. Whilst measures seek to address safety, there is an impact on journey times on these strategic links.
- Analysis of journey times and journey distances between Aberystwyth and Carmarthen using the AA Route Journey Planner⁴⁴ illustrates that the average travelling speed is between 34 – 36 miles per hour, as shown in **Table 3.3**.

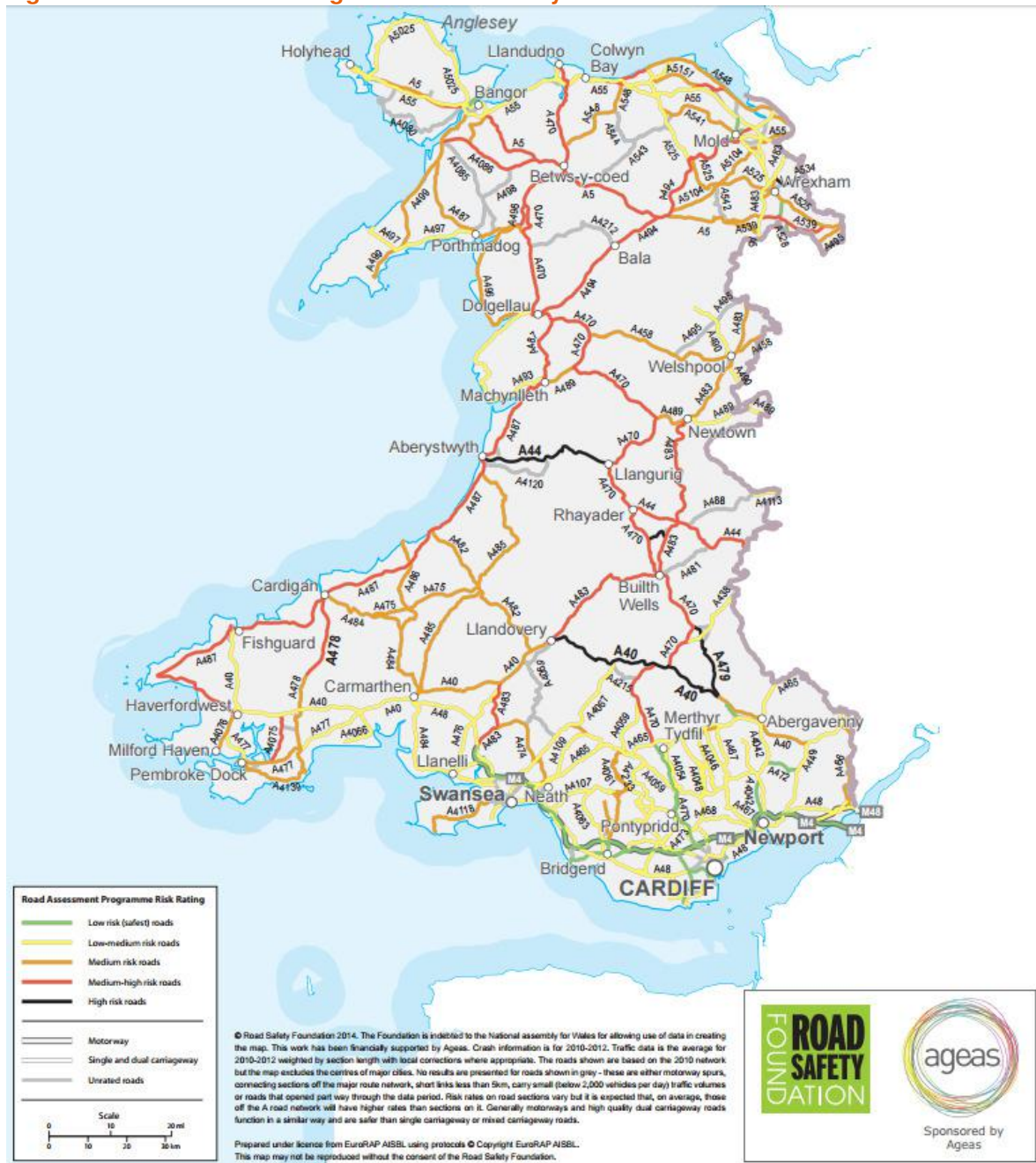
Table 3.3 – Aberystwyth to Carmarthen Journey Times and Travelling Speeds

Route	Distance (miles)	Time	Speed (mph)
Aberystwyth to Carmarthen via Felinfach – Cribyn – Llanbydder	45.7	1 hour 21 minutes	34
Aberystwyth to Carmarthen via Aberaeron and A484	48.9	1 hour 22 minutes	36
Aberystwyth to Carmarthen via Aberaeron and A485	48.8	1 hour 24 minutes	35

- The EuroRAP 2014 risk rating of motorways and A Roads in Wales is available on the Road Safety Foundation, as shown in **Figure 3.16**. The plan shows the statistical risk of death and serious injury occurring on motorways and A-road network for 2010-2012 in Wales. A487 is assessed to be a medium-high risk road, while the A482, A484, A485 and A486 are assessed to be medium risk roads.
- The transport network suffers from vulnerability to the impacts of climate change, notably flooding and high winds.
- The National Transport Finance Plan 2015 – Evidence Base (2015) states that the UK Climate Change risk assessment was published in 2012 and this evidence was used to identify the issues for transport in Wales. The National Transport Finance Plan 2015 – Evidence Base (2015) states that flooding of roads and railways, and the associated disruption, is projected to increase. Not only does this affect some of the main roads including motorways, but many rural communities can be cut off if their access roads flood. Some of the main railway lines in Wales are particularly vulnerable to flooding including those on the west and north coasts.
- The nature of the road network is such that if there are incidents on the network, alternative routes often involve a considerable detour for traffic, with for example a collision on the A487 south of Aberystwyth meaning traffic has to re-route via the B-roads around Cross Inn.

⁴⁴ AA Route Planner – <http://www.theaa.com/route-planner/index.jsp>

Figure 3.16 – 2014 Risk Rating of Wales Motorways and A Roads⁴⁵



⁴⁵ http://www.roadsafetyfoundation.org/media/30846/rrm_britain_2014_-_wales_region.pdf

3.8 Previous Studies

Study of North – South Road Link from Ceredigion to Carmarthen. Section 2 Engineering Evaluation (Dyfed County Council, 1987)

The existing county roads (A484, A485 and A486) have a number of undesirable features such as poor alignments, substandard widths, inadequate visibility and excessive gradients, which provide inadequate access to facilities within Ceredigion, to Carmarthen and the M4 motorway. In summary the key problems were identified as:

- Carriageway widths rarely exceed 6.5 metres, with the majority less than 6.0 metres, except in towns;
- Some towns and villages have only limited lengths of footpaths resulting in pedestrians walking in the carriageway and causing unnecessary hazards for both drivers and pedestrians;
- Parking facilities off the carriageway are not provided for in all the built-up areas. Parked vehicles restrict the free movement of traffic;
- The general lack of lay-by facilities combined with the narrow verges, do not allow broken down vehicles to leave the carriageway and thus obstructions can arise;
- Narrow bridges; and
- Limited safe overtaking opportunities.

The study concluded that some 108km of the total 115km would require improvements, but stated that improvement schemes should focus on the most critical sections due to the cost, hence focusing on sections with unusually high accident rates, where existing design speed is at or below 30mph and sections which cause excessive delays to road users. It recommended that to improve the accessibility and reduce journey times to the Ceredigion Area and northwards from the M4/A48 corridor resources would be best spent on improving the:

- A485, B4459, B4336 and A486 corridor (Carmarthen to Synod Inn) as the principal route to Ceredigion (the first phase of which has been completed); and
- Improving links from Llandysul to Cardigan and from Windy-Ridge to Lampeter.

Study of North – South Road Link from Ceredigion to Carmarthen. Section 3 Economic Assessments (Dyfed County Council, 1987)

The study concluded that the delivery of the road improvements form an important part of an integrated package of measures to stimulate rural regeneration and as a contribution to improving the perception of the area. Image improvement and the building of confidence can be seen to be significant elements in economic regeneration.

At the time development agencies responsible for the area agreed that potential inward investment has been deterred because of poor communications. Investment in roads was highlighted as required to overcome this with justification for investment on regional grounds in order to reduce the adverse effects of this perception of remoteness and improve the areas' image. This would assist in attracting inward investment, retaining existing economic activities, and increasing tourism.

Scoping Study for Full Feasibility Study for Re-opening a Heavy Rail Railway between Aberystwyth and Carmarthen (AECOM, 2015)

AECOM were commissioned by Welsh Government to prepare a Scoping Study for a full feasibility study for re-opening a heavy rail railway between Aberystwyth and Carmarthen in 2015. The purpose of the report was to set out the issues to be considered under a full feasibility study into re-opening the line, and to provide a scope, programme and cost for that study.

The report was commissioned in response to Traws Link Cymru's aspirations (the Traws Link Cymru campaign is a campaign group calling for the re-instatement of rail links in west Wales) to re-open the Aberystwyth to Carmarthen railway line which was closed to passenger traffic in 1965, with a section remaining open for freight until 1973.

The study concludes that the original route would not necessarily be the optimal route, although it is recognised that the topography of the area does not readily lend itself to alternative alignments. Reasons for potentially diverting away from the original route include reducing environmental impacts, reducing costs and possibly attracting higher patronage. At a number of locations along the original route Special Areas of Conservation and Sites of Special Scientific Interest are located, particularly at Afon Tywi and Afon Teifi, as well as a Wetlands of International Importance at Cors Caron and the raised peat bog north of Tregaron (Ramsar designated).

In summary the report highlights that:

- Over 97% of the approximately 90km original route remains undeveloped, with the most significant development at the Aberystwyth end of the route;
- The core formation, including tunnels, embankments and bridges has generally remained intact;
- Tunnels, embankments and other potentially costly engineering solutions to avoid impact on private dwellings, yet maintain a suitably level alignment, would need to be evaluated on a section-by-section basis; and
- The topography of the route would make it particularly challenging to widen the formation to two tracks, allowing the heritage Gwili Railway to continue to operate on separate tracks in parallel with a non-stop franchised service. Sharing tracks would be extremely complex both technically and commercially. An alternative would be a new direct alignment, requiring approximately 3km of tunnel, but shortening the line by approximately 3.4km, reducing the journey time.

With many uncertainties regarding the potential route AECOM concluded that it would be difficult to produce an estimate to construct a new railway with any degree of accuracy. New tunnels and other major structures which may be required to mitigate environmental and other constraints on the original route are particularly difficult to price in the absence of specialist surveys. At this stage, therefore, it was only possible to give a highly indicative figure for the cost of construction which could be up to £505m, plus land and consent costs which could bring the total project costs to £750m. It recommended that a full feasibility study is undertaken to provide greater certainty.

4 Strategic Case

4.1 Overview

This section of the Impacts Assessment Report sets out the evidence, data and methods that have been used to support the Strategic Case, which is set out in the main WelTAG Stage One report.

4.2 Identification of Problems, Opportunities and Constraints

Overview

The problems (or issues), constraints and opportunities of the study area are the drivers of the proposals for a transport intervention. This section identifies the problems (existing and future), constraints of the study area, as well as the potential opportunities within the transportation and land-use system. The identification of problems, constraints and opportunities has been done through analysing local data, reference to previous feasibility reports and policy and stakeholder consultation. Section 3 of this Impacts Assessment Report sets out the context and evidence behind the problems, opportunities and constraints presented below.

The stakeholder workshop informed the identification of problems and opportunities, a list of problems and opportunities derived from the Mid Wales Joint Local Transport Plan (2015) were presented to stakeholders as a starting point for discussion, as presented in **Appendix B** of the WelTAG Stage One report.

Identification of Problems

The draft problems as presented at the stakeholder workshop were as follows:

- Poor journey time reliability;
- Poor highway condition and road safety;
- Long distances to access key services and jobs;
- Dependence on the private car;
- Lack of available affordable transport for some communities;
- Lack of connections to the long distance rail network;
- People with no access to a car may be excluded from accessing jobs, leisure and tourism;
- Limited evening and weekend services;
- Disproportionate impact of road freight on the highway network;
- Public transport journeys can be complex and less attractive due to the need to interchange(s); and
- Increased risk to the resilience to climate change.

Following feedback from the workshop the problems have been identified as:

- **P1:** Unreliable journey times (e.g. limited overtaking opportunities);
- **P2:** Poor highway condition and road safety;
- **P3:** Long distances to access key services and jobs;
- **P4:** Dependence on the private car;
- **P5:** Transport Poverty, lack of available affordable transport for some communities;
- **P6:** Lack of connections to the long distance rail network;
- **P7:** People with no access to a car may be excluded from accessing jobs, leisure and tourism;
- **P8:** Limited evening and weekend bus services;
- **P9:** Disproportionate impact of road freight on the highway network;
- **P10:** Public transport journeys can be complex and less attractive due to the need to interchange;
- **P11:** Increased risk to the resilience to climate change;

- **P12:** Poor integration of bus services;
- **P13:** Dispersed population; and
- **P14:** Speed restrictive measures have detrimental impact on journey time and comfort.

Identification of Opportunities

The opportunities of the study area have been identified to assist in ensuring that the identified objectives and options are realistic and take into account the nature of the study area. The draft opportunities as presented at the stakeholder workshop are as follows:

- Increase active travel opportunities;
- Facilitate economic growth;
- Integration of public transport (bus and rail);
- Inclusive access to services;
- Innovation and collaboration to improve rural transport delivery;
- Improve access to employment and tourism;
- Rail freight; and
- Improve road safety.

Following feedback from the workshop the opportunities have been identified as:

- **O1:** Increase active travel opportunities;
- **O2:** Facilitate economic growth;
- **O3:** Integration of public transport (bus, rail) and Active travel;
- **O4:** Inclusive access to services (including health and higher education);
- **O5:** Innovation and collaboration to improve rural transport delivery;
- **O6:** Improve access to employment and tourism;
- **O7:** Rail freight;
- **O8:** Improve road safety;
- **O9:** Promotion and marketing of all modes;
- **O10:** Fill the gap in the public transport network;
- **O11:** Reduce the adverse environmental impacts of the transport system; and
- **O12:** New development to be accessible by sustainable modes.

Identification of Constraints

The constraints of the study area have been identified to assist in ensuring that the identified objectives and options are realistic and take into account the nature of the study area. The draft constraints as presented at the stakeholder workshop are as follows:

- Limited availability and sustainability of funding;
- Topography;
- Environmental considerations; and
- Recent developments.

Following feedback from the workshop the constraints have been identified as:

- **C1:** Limited availability and sustainability of funding;
- **C2:** Topography;
- **C3:** Environmental considerations; and
- **C4:** Current land uses.

4.3 Objectives

Identification of Objectives

The objectives for the intervention have been derived from general and transport-specific objectives as set by the Welsh Government. A summary of the Welsh Government's over-arching objectives are presented in **Section 2** of the Impacts Assessment Report. The development of the objectives for the intervention has also taken into account particular issues and opportunities identified within the study area as set out in **Section 3** of the Impacts Assessment Report.

The objectives have largely been derived from the outcomes of the Mid Wales Joint Local Transport Plan (2015), which were derived from national objectives and issues and opportunities of Central Wales. The outcomes were presented as a list of draft proposed objectives at the stakeholder workshop for discussion (as presented in **Appendix B** of the WelTAG Stage One report).

The Mid Wales Joint Local Transport Plan (2015) outcomes formed basis of drafted objectives presented to stakeholders at the workshop for discussion and are as follows:

- Access to Key Destinations and Markets
 - Improve efficiency, reliability, resilience, and connectivity of movement (people and freight by all modes)
- Access to Employment and Services
 - Promote inclusive, integrated and affordable access to key services and employment
 - Focus on access to regeneration/ growth areas
 - Focus on areas deprived in terms of access to services
- Improving Health and Well-being
 - Improving and promoting active travel (both recreation and necessary trips)
- Improved Safety and Security
 - To improve actual and perceived safety and security of travel by all modes.
- Benefits and Minimised Impacts on the Environment
 - Improve local and global environment (natural and built) and minimise negative impacts
 - Adaptation to the effects of climate change

Following the feedback received from the workshop the objectives were amended to be:

- **Objective 1:** Access to and from Key Destinations, Markets and Transport Hubs
 - Improve efficiency, reliability, resilience, and connectivity of movement (people and freight by all modes)
- **Objective 2:** Access for Employment and Services (health and education)
 - Promote inclusive, integrated and affordable access to key services and employment
 - Focus on access to regeneration/ growth areas
 - Focus on areas deprived in terms of access to services
- **Objective 3:** Improving Health and Well-being
 - Improving and promoting active travel (both recreation and necessary trips)
- **Objective 4:** Improved Safety and Security
 - To improve actual and perceived safety and security of travel by all modes
- **Objective 5:** Benefits and Minimised Impacts on the Environment
 - Minimise impacts on the local and global environment (natural and built)
 - Adaptation to the effects of climate change

Verification of Objectives

The objectives have been verified to determine how they contribute to:

- Resolving problems of the study area;

- The Wales Transport Strategy outcomes; and
- The Welsh Government’s Strategic Priorities.

Table 4.1 illustrates the extent to which the objectives address the identified transport problems. The appraisal demonstrates that each of the identified problems are directly addressed by at least one objective.

Table 4.1 – Relationship of Objectives to Problems

Objectives	Potential Problems													
	P1	P2	P3	P4	P5	P6	P7	P8	P9	P10	P11	P12	P13	P14
1	++	++	+++	++	+	++	+	+	++	+	++	+	++	++
2	+	+	++	++	+++	++	+++	++	0	++	0	+++	++	0
3	0	0	0	++	+	0	0	0	+	0	0	+	0	0
4	+	+++	0	+	0	0	0	0	+	0	0	0	0	0
5	0	0	0	++	0	0	0	+	++	++	+++	+	0	0

Table 4.2 shows a positive relationship between the objectives and the Wales Transport Strategy outcomes.

Table 4.2 – Objectives Relating to the WTS Outcomes

Wales Transport Strategy Outcomes		Objectives				
		1	2	3	4	5
Social	Improve access to healthcare	+	+++	0	0	0
	Improves access to education, training and lifelong learning	+	+++	0	0	0
	Improving access to shopping and leisure facilities	+	+++	0	0	0
	Encourage healthy lifestyles	0	0	+++	0	0
	Improve the actual and perceived safety of travel	+	0	0	+++	0
Economic	Improve access to employment opportunities	+	+++	0	0	0
	Improve connectivity within Wales and internationally	++	0	0	0	0
	Improve the efficient, reliable and sustainable movement of people	+++	+++	++	0	++
	Improve access to visitor attractions	+	+++	0	0	0
Environmental	Increase the use of more sustainable materials	0	0	0	0	+++
	Reduce the contribution of transport to greenhouse gas emissions	0	++	++	0	+++
	Adapt to the impacts of climate change	0	++	++	0	+++
	Reduce the contribution of transport to air pollution and other harmful emissions	0	++	++	0	+++
	Improve the impact of transport on the local environment	0	++	++	0	+++
	Improve the impact of transport on our heritage	0	++	++	0	+++
	Improve the impact of transport on biodiversity	0	++	++	0	+++

Table 4.3 shows a positive relationship between the objectives and the Strategic Priorities.

Table 4.3 – Objectives Relating to the Strategic Priorities

Strategic Priorities	Objectives				
	1	2	3	4	5
Reducing greenhouse gas emissions and other environmental impacts from transport	0	++	++	0	+++
Integrating local transport	++	+++	++	+	0
Improving access between key settlements and sites	+++	+++	0	0	0
Enhancing international connectivity	++	0	0	0	0
Increasing safety and security	+	0	0	+++	0

Final Objectives

Following this verification Objective 2 has been strengthened to specifically identify the need to promote inclusive, integrated and affordable access to key services and employment by public transport. The final objectives are as follows:

- **Objective 1:** Access to and from Key Destinations, Markets and Transport Hubs
 - Improve efficiency, reliability, resilience, and connectivity of movement (people and freight by all modes)
- **Objective 2:** Access for Employment and Services (health and education)
 - Promote inclusive, integrated and affordable access to key services and employment by public transport
 - Focus on access to regeneration/ growth areas
 - Focus on areas deprived in terms of access to services
- **Objective 3:** Improving Health and Well-being
 - Improving and promoting active travel (both recreation and necessary trips)
- **Objective 4:** Improved Safety and Security
 - To improve actual and perceived safety and security of travel by all modes
- **Objective 5:** Benefits and Minimised Impacts on the Environment
 - Minimise impacts on the local and global environment (natural and built)
 - Adaptation to the effects of climate change

4.4 Developing Options

The next stage of the WelTAG process is to develop options that alleviate the identified problems and achieve the objectives. At the workshop stakeholders were asked to identify and discuss potential options to improve the strategic transport connections between Aberystwyth and Carmarthen. A number of proposals were generated (including a do-minimum) in advance of the stakeholder workshop, in order to inform and encourage discussion, which are presented in **Appendix B** of the WelTAG Stage One report. These multi-modal options were derived from analysis of the recent policy documents (mainly the Joint Local Transport Plans) and previous studies.

The proposed options as presented at the workshop for discussion are as follows:

- **Do- Minimum**
 - Appraise options against a Do-Minimum Scenario representing the continuation of current levels of services and investment
- **New rail route**
 - New rail route connecting Aberystwyth and Carmarthen

- Passenger services and freight opportunities
- **Regional bus service enhancements**
 - Traws Cymru service frequency enhancements (weekday, weekend and evenings)
 - Route extensions
 - Infrastructure enhancements
- **Local and community bus service enhancements**
 - Existing local service frequency enhancements (weekday, weekend and evenings)
 - Improved network coverage and community transport enhancements
 - Improve connections with the regional services
 - Infrastructure enhancements
- **Regional highway improvements**
 - Road safety and journey time improvements
 - Active travel enhancements
 - A482, A484, A485, A486 and A487 improvements
- **Combination of model options**
 - Multi-modal option?

Following the discussions by stakeholders the long list of options considered in this WelTAG report are:

- **Option A: Do-minimum**
- **Option B: New rail route**
- **Option C: Regional bus service enhancements**
- **Option D: Local and community transport enhancements**
- **Option E: Regional highway improvements**
- **Option F: Multi-modal option**

The stakeholders were asked to comment on the strengths and weaknesses of each option, the feedback has been summarised and is presented in **Appendix B** of the WelTAG Stage One report.

5 Data Source

5.1 Overview

In accordance with the WelTAG guidance this section summarises the data sources used in and to inform this WelTAG Stage One: Strategic Outline Case.

5.2 Data Sources

The sources of data used within this Stage One appraisal are as follows:

- AECOM (2013) Data Collection and Analysis of Evidence on Integrated Transport Infrastructure and Services in North West and Mid Wales
- AECOM (2014) Mid and North Wales – 2011 Journey to Work Analysis
- AECOM (2015) Scoping Study for Full Feasibility Study for Re-opening a Heavy Rail Railway between Aberystwyth and Carmarthen
- Brecon Beacons National Park Authority and Powys County Council (2012) Brecon Beacons and Powys Visitor Transport Plan
- Bwcabus website –
www.bwcabus.traveline-cymru.info/uploads/Bwcabus_Graphic_Map/Simple_Map_2016_copy.jpg
- Carmarthenshire County Council (2015) Joint Local Transport Plan for South West Wales
- Ceredigion County Council (2015) Mid Wales Joint Local Transport Plan
- Department of Transport (2015) Count Point Data. www.dft.gov.uk/traffic-counts/cp.php (accessed June 2016)
- Dyfed County Council (1987) Study of North – South Road Link from Ceredigion to Carmarthen. Section 2 Engineering Evaluation
- Dyfed County Council (1987) Study of North – South Road Link from Ceredigion to Carmarthen. Section 3 Economic Assessments
- National Assembly for Wales Enterprise and Business Committee (2016) Priorities for the future of Welsh Rail Infrastructure
- Office for National Statistics. 2011 Census Aggregate Data.
- Office of Rail Regulation. 2013-14 Annual Statistical Release – Rail Finance (2015)
- Office of Road and Rail (2015) Estimates of Station Usage 2014/15 Report and Data.
- RAC Foundation. www.racfoundation.org
- Road Safety Foundation (2014) Risk Rating of Britain's Motorways and A Roads Wales http://www.roadsafetyfoundation.org/media/30846/rrm_britain_2014_-_wales_region.pdf
- Sustrans Cymru –
www.sustrans.org.uk/sites/default/files/images/files/Access%20Denied_eng.pdf
- TraCC (2014) TraCC Regional Bus and Community Transport Network Strategy
- TraCC (2013) TraCC Monitoring Report 2012/13
- TraCC (2015) TraCC Board (29th October 2015) Strategic Regional Transport – Welsh Government National Transport Finance Plan 2015
- Visit Britain (2009) UK Tourist 2009
- Welsh Government (2014) Analysis of the Access to Services Domain in the Welsh Index of Multiple Deprivation by type of settlement. <http://gov.wales/docs/statistics/2015/151006-analysis-access-services-domain-wimd-type-settlement-2014-en.pdf>
- Welsh Government (2015) National Transport Finance Plan
- Welsh Government (2015) National Transport Finance Plan – Evidence Base (2015)
- Written Evidence submitted by the Welsh Government to the Welsh Affairs Committee (August 2016)

APPENDIX C

Stakeholder Workshop

Stakeholder Worksop 21st June 2016 – Stakeholder Attendance List

Organisations Represented
Bus Users Cymru
Cambrian Railway Partnership
Ceredigion Association of Voluntary Organisations (CAVO)
Ceredigion County Council
Dyfed Powys Police
Great Western Railway
Llanbadarn Fawr Community Council/ One Voice Wales
Natural Resources Wales
Network Rail
Railfuture Wales
Sustrans
Traws Link Cymru
Welsh Government

Aberystwyth to Carmarthen Strategic Transport Improvements

WelTAG Planning Stage Workshop | 21st June 2016

Incorporating

EC HARRIS
BUILT ASSET
CONSULTANCY

Hyder 

Overview

Overview

- Study to appraise potential options for strategic transport improvements between Aberystwyth and Carmarthen
- WelTAG (Welsh Transport Planning and Appraisal Guidance) Stage One
- Baseline review – current policy, data collection, existing transport provision
- Stakeholder workshop – to inform WelTAG Planning Stage
 - Identification of problems, opportunities and constraints
 - Setting of objectives
 - Identification of options
 - Options discussion

Problems, Opportunities and Constraints

Problems:

- Poor journey time reliability
- Poor highway condition and road safety
- Long distances to access key services and jobs
- Dependence on the private car
- Lack of available affordable transport for some communities
- Lack of connections to the long distance rail network
- People with no access to a car may be excluded from accessing jobs, leisure and tourism
- Limited evening and weekend services
- Disproportionate impact of road freight on the highway network
- Public transport journeys can be complex and less attractive due to the need to interchange(s).
- Increased risk to the resilience to climate change

Opportunities:

- Increase active travel opportunities
- Facilitate economic growth
- Integration of public transport (bus and rail)
- Inclusive access to services
- Innovation and collaboration to improve rural transport delivery
- Improve access to employment and tourism
- Rail freight
- Improve road safety

Constraints:

- Limited availability and sustainability of funding
- Topography
- Environmental considerations
- Recent developments

Setting Objectives

Draft Proposed Objectives:

- **Access to Key Destinations and Markets**
 - Improve efficiency, reliability, resilience, and connectivity of movement (people and freight by all modes)
- **Access to Employment and Services**
 - Promote inclusive, integrated and affordable access to key services and employment
 - Focus on access to regeneration/ growth areas
 - Focus on areas deprived in terms of access to services
- **Improving Health and Well-being**
 - Improving and promoting active travel (both recreation and necessary trips)
- **Improved Safety and Security**
 - To improve actual and perceived safety and security of travel by all modes.
- **Benefits and Minimised Impacts on the Environment**
 - Improve local and global environment (natural and built) and minimise negative impacts
 - Adaptation to the effects of climate change

Identifying Options

Modal options

- **Do- Minimum**
 - Appraise options against a Do-Minimum Scenario
- **New rail route**
 - New rail route connecting Aberystwyth and Carmarthen
 - Passenger services
 - Freight opportunities
- **Regional Highway improvements**
 - Road safety improvements
 - Journey time improvements
 - Active travel enhancements
 - A486 and A487
- **Regional bus service enhancements**
 - TrawsCymru service frequency enhancements (weekday, weekend and evenings)
 - Route extensions
 - Infrastructure enhancements
- **Local and community bus service enhancements**
 - Existing local service frequency enhancements (weekday, weekend and evenings)
 - Improved network coverage
 - Community transport enhancements
 - Improve connections with the regional services
 - Infrastructure enhancements
- **Combination of model options**
 - Multi-modal option?

Conclusions

Conclusions

- Outcomes:
 - Discussion of problems, opportunities and constraints
 - Objective setting
 - Option identification and discussion
- Next steps

Thank You

Summary of the Stakeholder Feedback Received at the Workshop

Option A – Do-minimum

Strengths	Weaknesses
<ul style="list-style-type: none"> Reduce journey times with programmed road improvements 	<ul style="list-style-type: none"> Funding for bus services and infrastructure reducing
<ul style="list-style-type: none"> Cheapest in the short term 	

Option B – New Rail Route

Strengths	Weaknesses
<ul style="list-style-type: none"> Existing routes and rail beds still in place 	<ul style="list-style-type: none"> Environmental considerations including the potential impact of noise pollution
<ul style="list-style-type: none"> Potential for freight transport – HGVs are problematic on the local highway network 	<ul style="list-style-type: none"> Impact on protected sites along the route
<ul style="list-style-type: none"> Connect local communities along the route to rail services 	<ul style="list-style-type: none"> Low population density and dispersed settlement patterns
<ul style="list-style-type: none"> Potential to provide shorter journey times by rail to key destinations such as Cardiff 	<ul style="list-style-type: none"> Use of the former route will miss some key towns
<ul style="list-style-type: none"> Rail network which could link the whole of Wales 	<ul style="list-style-type: none"> Expensive ticket prices
<ul style="list-style-type: none"> Potential to encourage greater use of public transport 	<ul style="list-style-type: none"> High level of capital investment required – tunnelling option in Aberystwyth could be costly and purchase of land
<ul style="list-style-type: none"> More passenger facilities on trains compared to buses 	<ul style="list-style-type: none"> Disturbance to people directly affected during construction
<ul style="list-style-type: none"> Potential to attract inward investment 	<ul style="list-style-type: none"> Relocation of the Gwili Railway
<ul style="list-style-type: none"> Potential mode shift from car and HGVs to rail – environmental benefits 	<ul style="list-style-type: none"> Displace new developments which have been constructed along the proposed route or potentially use prime agricultural farmland
<ul style="list-style-type: none"> Potential to provide access to services 	
<ul style="list-style-type: none"> Benefit existing rail network and would take pressure off the road network 	
<ul style="list-style-type: none"> Potentially fill gaps in the existing public transport network 	
<ul style="list-style-type: none"> Improved connections between north and south Wales 	
<ul style="list-style-type: none"> Potential connections between universities 	
<ul style="list-style-type: none"> Better journey comfort compared to bus 	

Option C – Regional Bus Service Enhancements

Strengths	Weaknesses
<ul style="list-style-type: none"> Deliverable in the short term and flexible (routes can be modified to accommodate demand) 	<ul style="list-style-type: none"> Journey times dependent on the road network
<ul style="list-style-type: none"> Encourage modal shift to bus 	<ul style="list-style-type: none"> Public perception of bus
<ul style="list-style-type: none"> More sustainable than car travel 	<ul style="list-style-type: none"> Quality of the journey experience – buses typically slower and less comfortable than car and buses lack facilities such as toilets, refreshments etc.
<ul style="list-style-type: none"> Uses existing highway network infrastructure 	<ul style="list-style-type: none"> May stimulate less regenerate compared to rail
<ul style="list-style-type: none"> Accessible and inclusive 	<ul style="list-style-type: none"> Capacity issues for disabled people and people with push chairs
<ul style="list-style-type: none"> Relatively economic fares (vs typically higher rail fares) 	<ul style="list-style-type: none"> Would require investment in infrastructure
<ul style="list-style-type: none"> Flexible (route and frequency) 	<ul style="list-style-type: none"> Improvements to bus services only apply significantly if significant highway improvements are undertaken
<ul style="list-style-type: none"> Concessionary travel benefits 	<ul style="list-style-type: none"> Uncertain future funding
<ul style="list-style-type: none"> Already an established service – Traws Cymru brand etc. 	<ul style="list-style-type: none"> Poor integration between bus and rail and bus and bus services
	<ul style="list-style-type: none"> Guided bus option – expensive

Option D – Local and Community Transport Enhancements

Strengths	Weaknesses
<ul style="list-style-type: none"> Bwcabus services feed into major interchanges 	<ul style="list-style-type: none"> Unsustainable serving all areas with same consistent service
<ul style="list-style-type: none"> Closest service to communities 	<ul style="list-style-type: none"> Long journey times along the road network
<ul style="list-style-type: none"> Inclusive 	<ul style="list-style-type: none"> Public perception of bus
<ul style="list-style-type: none"> Can be part of combined ticketing 	<ul style="list-style-type: none"> Available service information – timetables, apps etc.
<ul style="list-style-type: none"> Growing patronage 	<ul style="list-style-type: none"> Most vulnerable to loss of funding
	<ul style="list-style-type: none"> Connectivity with other existing services
	<ul style="list-style-type: none"> Capacity issues for disabled people and people with push chairs
	<ul style="list-style-type: none"> Ad hoc patchy services not very accessible (requires local knowledge)
	<ul style="list-style-type: none"> Poor integration between bus and rail and bus and bus services
	<ul style="list-style-type: none"> Poor journey quality

Option E – Regional Highway Improvements

Strengths	Weaknesses
<ul style="list-style-type: none"> • Universal benefits for cars, buses, goods vehicles and active travel modes 	<ul style="list-style-type: none"> • Delivery of new infrastructure would have high capital investment
<ul style="list-style-type: none"> • Linkages to more communities and places 	<ul style="list-style-type: none"> • Potential to encourage more road traffic
<ul style="list-style-type: none"> • Improving existing infrastructure such as the removal of pinch points can be potentially low cost 	<ul style="list-style-type: none"> • Local environmental impacts
<ul style="list-style-type: none"> • Improve road safety 	<ul style="list-style-type: none"> • Potential to bypass local communities
<ul style="list-style-type: none"> • More reliable journey times 	<ul style="list-style-type: none"> • Poor network resilience
<ul style="list-style-type: none"> • Improve access to key services and employment 	<ul style="list-style-type: none"> • Highway only improvements do not encourage a shift to sustainable modes
	<ul style="list-style-type: none"> • Potentially new road freight has disproportionate impact on the infrastructure
	<ul style="list-style-type: none"> • Require the purchase of land (cost and time implications)

Option F – Multi-modal Option

Strengths	Weaknesses
<ul style="list-style-type: none"> • A combination would work if all other options (highway improvements, public transport services etc.) all feed in together 	<ul style="list-style-type: none"> • Long term could be deterred
<ul style="list-style-type: none"> • Complimentary funding option – where the most profitable assist the least profitable 	
<ul style="list-style-type: none"> • Quick fixes to strengthen existing infrastructure and services 	
<ul style="list-style-type: none"> • Offers package of solution both short and long term. 	

Improving Strategic Transport Connections between Aberystwyth and Carmarthen

Arcadis (UK) Limited

Arcadis Cymru House
St Mellons Business Park
Fortran Road
Cardiff
CF3 0EY
United Kingdom
T: +44 (0)29 2079 9275

[arcadis.com](https://www.arcadis.com)

