Llywodraeth Cymru
Welsh Government

MOTT MACDONALD

JACOBS

A483 Llandeilo Transport Study

Welsh Government

WelTAG Stage One: Strategic Outline Case Report

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1. Introduction & Scope

1.1 Background

Jacobs UK Limited (Jacobs) and Mott Macdonald have been commissioned by Welsh Government to undertake a WelTAG Stage One Assessment to identify the need for a transport improvement scheme to address several issues of concern on the current highway network within the settlements of Llandeilo and Ffairfach in Carmarthenshire.

1.2 Scope of the Study

It is generally acknowledged that the A483 through Llandeilo and Ffairfach experiences operational issues as there are physical, geometric and topographical constraints which restrict the flow of traffic. There are several areas with restricted visibility, a historic highway layout, tight radii of corners and adjacent one-way streets which affect its performance as a strategic route. A number of junctions on the A483 are not in accordance with current highway standards which affects the overall capacity and safety of the network. On-street parking along the A483 occurs as there is limited rear access for retail properties and the majority of residential properties lining the A483 do not have driveways. Footway pavements in many locations are narrow creating a potentially intimidating experience for pedestrians, pram/pushchair and wheelchair users and there is little dedicated cycling infrastructure.

As a result of the congestion created by the above issues, the area also suffers from poor air quality, with the A483 within Llandeilo and to the north of Ffairfach declared an Air Quality Management Area (AQMA). The Carmarthenshire Llandeilo Air Quality Management Area (AQMA) covers the length of the A483 from the roundabout at the intersection of the A476 at Ffairfach, north along Towy Terrace, across Llandeilo Bridge, and then Rhosmaen Street through the town centre until the roundabout junction of the A483 with the A40(T). It was declared an AQMA by Carmarthenshire County Council in 2011 for exceedances of annual mean Nitrogen Dioxide (NO_2). An action plan is currently in place to assess proposals for their potential to improve the air quality within the town.

These issues have been acknowledged by the Welsh Government and The National Transport Finance Plan – 2017 Update[1] includes details of proposed schemes being financed within the current programme for government. Within this document, Annex B provides a list of schemes, of which reference 22 under “Road Schemes to be constructed” refers to a bypass of Llandeilo and Ffairfach as follows:

Table 1.1 - Extract from National Transport Finance Plan – 2017 Update

Reference	National Transport Finance Plan December 2017 Intervention Description	Intervention progress since July 2015
R22	Develop the currently protected route to deliver a combined bypass of Llandeilo and Ffairfach	Carry out a WelTAG appraisal in relation to the scheme, to confirm if a bypass is still required or if alternative solutions can be implemented.

Due to the time that has expired since the protected route was identified it is necessary to review whether or not a bypass is required, and if so what the preferred route should be. This study comprises the first stage of the WelTAG appraisal outlined in Table 1.1. Its purpose is to identify and describe the issues with the transport

[1] https://beta.gov.wales/sites/default/files/publications/2017-12/national-transport-finance-plan-2017-update.pdf

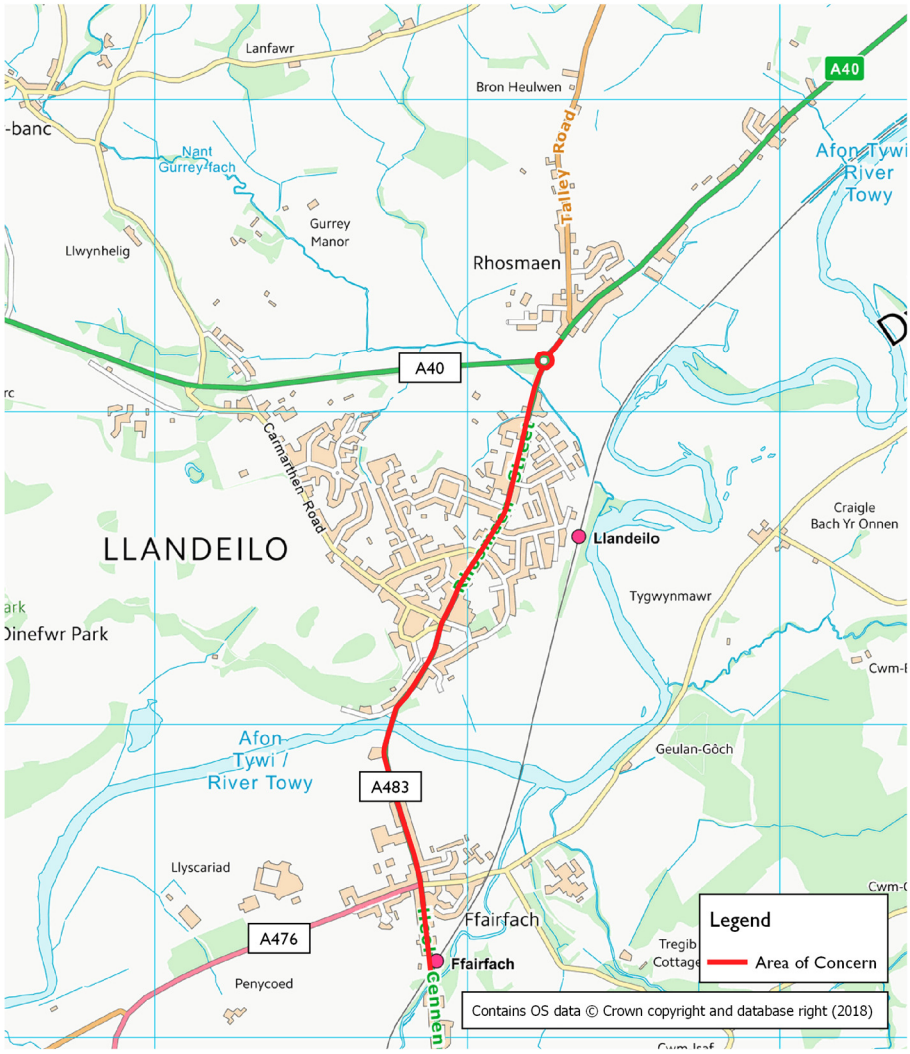
network, and to define a set of objectives to address them. A long list of schemes has then been identified with a high-level, qualitative appraisal undertaken which is used to provide a set of recommendations for further work to be undertaken in WelTAG Stage Two. The appraisal has been undertaken in accordance with the December 2017 version of WelTAG alongside new legislation and policy such as the Well-being and Future Generations Act 2015.

1.3 Study Area

Figure 1-1 below illustrates the area of concern along the A483 within Llandeilo and Ffairfach, which is the focus for this Study. It comprises the A483 from its junction with the A40 to the north of Llandeilo through to south of Ffairfach, beyond the junction with the A476. This is the same area of concern that has been studied previously.

The A483 is situated at the heart of Llandeilo's town centre forming the high street (Rhosmaen Street). The A483 is a 2-way street with parking and loading-only bays located along its length where space allows. Double-yellow lines are present where the road width narrows. There are many side streets running off the A483, many of which have poor visibility for traffic attempting to exit onto the A483. Footways are present throughout the majority of the A483 through Llandeilo and Ffairfach but are narrow in many places, forcing pedestrians to walk single file. To the north of Llandeilo, the A483 meets the A40 and to the south meets the A476 north of Ffairfach Train station.

Figure 1-1 – Study Area within Llandeilo and Ffairfach



1.4 Exclusions from the Scope

A number of assessment criteria have not been appraised at this stage due to the use of a qualitative, desktop-based assessment approach in line with the WelTAG guidance for Stage 1, and a lack of available data to support this at the time of writing the report. As such, transport modelling and environmental modelling have not been carried out, therefore limiting the assessments which can be undertaken further. As a result, the criteria which have not been assessed at this stage include:

- Economy – Land;
- Economy – Transport Costs;
- Economy – Accidents;
- Economy – Changes in Productivity;
- Economy – Capital Costs;
- Economy – Revenue Costs;
- Social and Cultural – Affordability; and
- Social and Cultural – Option and Non-use Values.

It should also be noted that the option appraisal has not been assessed against the Well-being Objectives of Natural Resources Wales, Public Health Wales or Carmarthenshire County Council at this stage. Short-listed options will be assessed against these at WelTAG Stage 2.

1.5 Previous Transport Studies at Llandeilo

Studies regarding transport problems in Llandeilo dates back to 1971. Key dates are:

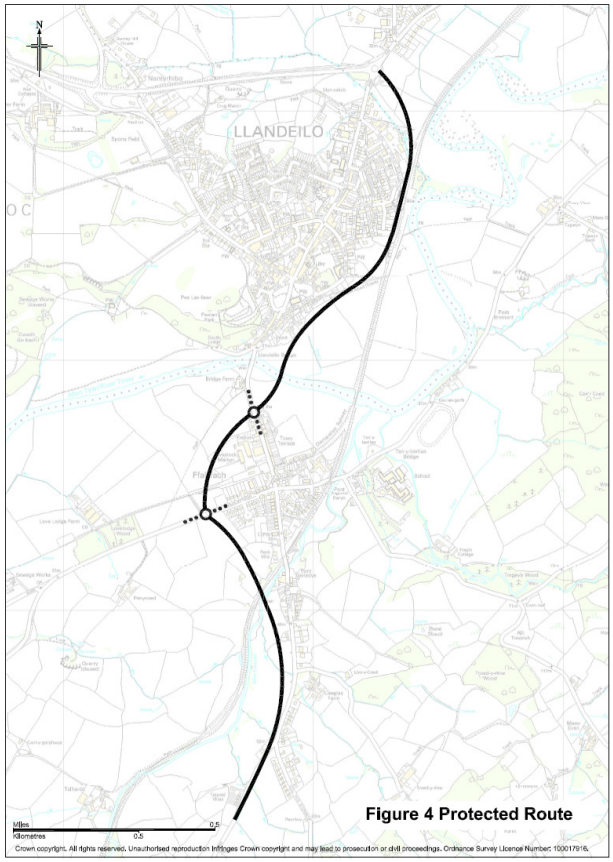
- 1971 - Investigation for provision of a bypass;
- 1974 - Initial Eastern Bypass Public Consultation;
- 1978 - Preferred Route announced (the Original Route);
- 1990 - Further Eastern Bypass Public Consultation;
- 1993 - Eastern Bypass Public Inquiry;

In 1994 the Secretary of State for Wales made a decision to not make the draft orders for the Eastern Bypass. Since that time various rounds of consultation have been undertaken and details regarding work that lead up to the identification of the existing preferred route is set out below.

- 2002 - Publication of Trunk Road Forward Programme (TRFP) (Scheme in Phase 3 i.e. high ranking but needs studies to identify the best solution to the problems. Unlikely to proceed before April 2008);
- 2003 - Trunk Road Review A476 trunking option identified;
- 2003 - Babtie Group commissioned to identify Planning Objectives and Pre-Appraisal Commission;
- 2004 - Supplement to TRFP (Scheme identified as Phase 2 i.e. could be ready to start by April 2010);
- 2005 - Jacobs Babtie report findings of the Planning Objectives and Pre-Appraisal Commission;
- 2005 - Llandeilo and District Civic Trust Public Meeting “Protection of Llandeilo from Heavy Traffic”;
- 2006 - Public consultation options;
- 2007 - Refined preferred route announced (the Refined Route); and
- 2016 – CH2M study which reviewed the Original Route and Refined Route.

The 2007 Refined Preferred Route are shown in Figure 1.2.

Figure 1.2 007 Refined Preferred Route



During the period since the Secretary of State's decision in 1994 additional environmental features have gained statutory protection or have been designated. These are:

- 1998 – Dyffryn Twyi river corridor identified as a Landscape of Outstanding Historic Interest;
- 1998 - River Towy designated a Site of Special Scientific Interest (SSSI) and candidate Special Area of Conservation (cSAC);
- 2004 - River Towy designated a Special Area of Conservation; and
- 2011 – Area Quality Management Area declared in Llandeilo for Nitrogen Dioxide (NO_2).

In undertaking this study, regard has been had to the previous work undertaken on Llandeilo; however, due to the length of time that had elapsed it was considered necessary to identify the problems as they currently present themselves and identify objectives that would act to address these problems.

This study will pay due cognisance to this previous work, and undertake an updated assessment to determine if the previously highlighted issues are still present and if previously proposed interventions are still appropriate.

1.6 Scope of the WelTAG Stage One Report – Strategic Outline Case

WelTAG is a five stage process which takes a project from the identification of problems and project objectives through to post implementation reviews.

The first stage of the WelTAG process is Stage One: Strategic Outline Case [SOC]. 'The purpose of Stage One is to 'understand the issue of concern, explore the context and to present a wide list of possible solutions, sufficient 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.' This SOC will therefore:

- Produce a clear, evidence based description of the issues and the subsequent problems;
- Analyse the factors which are contributing to the issues;
- Establish objectives;
- Produce a long list of options;
- Provide recommendations on the options that should be taken forward to WelTAG Stage Two appraisal by assessing the long list of options; and
- Produce a shortlist of options.

The decision as to which options are taken forward to Stage Two is based on information in the five 'cases' set out above on:

- Their ability to solve the problem;
- Their ability to meet the objectives set;
- Their short and longer term impacts;
- Their deliverability; and
- Their robustness to uncertainty.

At this stage this information is considered to be at a high level based on site visits and desk based research. Where an impact has not yet been assessed this is made clear in this report using the acronym NYA (not yet assessed). A summary table of the impacts identified is provided showing a colour matrix comparison between options.

In accordance with WelTAG, the significance and scale of the impacts of each option will be presented using a seven-point scale, which is outlined in Table 1.2 below:

Table 1.2 - WelTAG Seven-point Assessment Scale

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

The impact assessment will set out:

- A list of social, cultural, environmental and economic impacts considered;
- A summary of the methods used to assess the impacts, including the five ways of working (to the extent that they are relevant to this stage);
- Who / what is affected, and how;
- A summary of the key qualitative and quantitative supporting evidence;
- Consideration of how each option contributes to the Well-being Goals; and
- Consideration of how each option would resolve and potential conflicts.

1.7 Report Structure

The structure of the report is as follows:

- **Section 2:** Outlines the Strategic Case of the Report – the case for change, fit with other policies and objectives;
- **Section 3:** Outlines the Transport Case of the Report – the social and cultural, environment and economic impacts of the change including a value for money assessment;
- **Section 4:** Outlines the Delivery Case of the Report – can the scheme be delivered;
- **Section 5:** Outlines the Financial Case of the Report – is the proposed spend affordable;
- **Section 6:** Outlines the Commercial Case of the Report – how can the scheme be procured, is it attractive to the private sector, is it commercially viable; and
- **Section 7:** Presents the Summary and Recommendations of the Report.

More detailed consideration of the proposed scheme with respect to the Well-being of Future Generations (Wales) Act 2015 is included in Appendix A: Report on the Consideration of the Well-being of Future Generations (Wales) Act 2015.

More detailed information on impact assessment, and drawings of the long-list options are included in the accompanying A483 Llandeilo Transport Study WelTAG Stage One: Impact Assessment Report (IAR) (ref. B2331900-D4-5-002), which also lists information in the project data store.

2. Strategic Case

2.1 Introduction

The rationale for an intervention along the A483 in Llandeilo and Ffairfach reflects concerns raised in previous proposed scheme interventions, site visit observations, updates to various policy documents as well as the outcomes from public and stakeholder engagement.

This section of the report outlines policy updates which are relevant to the study, a review of current highway infrastructure and existing condition of the transport network occurring within the study area, and summarises the outcomes from the first stakeholder workshop.

2.2 Legislative and Policy Context

Since the Refined Preferred Route was announced in 2007 there have been four key pieces of legislation enacted by the Welsh Assembly. These have, in turn, lead to significant changes in Welsh Government Policy. Alongside this, transport policies and planning policies have also been updated.

2.2.1 Key National Legislation

Climate Change Act 2008

The Act imposes a duty on the Secretary of State to reduce UK wide greenhouse gas emissions in 2050 to a level which is at least 80 % below the level of emissions in 1990. It also obliges the Secretary of State to set carbon budgets for successive five-year period and to prepare proposals and policies for meeting those carbon budgets.

The Active Travel (Wales) Act 2013

The Active Travel (Wales) Act 2013 requires the Welsh Government to take reasonable steps to enhance the provision for walkers and cyclists whenever it invests in highway infrastructure. This requirement has been carried forward into an Active Travel Plan for Wales, which states that the Welsh Government 'will therefore ensure that all highway construction and improvement schemes consider walking and cycling provision from the outset'.

Well-being of Future Generations (Wales) Act 2015

In order to strengthen the sustainable development framework in Wales, a pilot National Conversation was launched in February 2014, to define the 'Wales We Want', led by the Commissioner for Sustainable Futures. The Wales We Want Report (Welsh Government and Sustain Wales, 2010), sets out seven foundations for the well-being of future generations. This resulted in the enactment of the Well-Being of Future Generations (Wales) Act 2015. The Act requires public bodies (of which the Welsh Government is one) to carry out sustainable development and defines seven 'well-being' goals.

The Act also outlines five ways of working that public bodies need to think about to show that they have applied the sustainable development principle. Each public body is now required under the Act to publish a set of Well-being Objectives, designed to maximise their contribution to achieving each of the Well-being Goals (see 'Taking Wales Forward: The Welsh Government's Well-being Objectives' section below). The Well-being Goals will form the framework of these objectives, as well as indicators to be used to measure well-being.

More detailed consideration of the proposed scheme with respect to the Well-being of Future Generations (Wales) Act 2015 is included in Appendix A: Report on the Consideration of the Well-being of Future Generations (Wales) Act 2015.

Environment (Wales) Act 2016

Part 1 – Sustainable management of natural resources, of The Environment (Wales) Act 2016 requires all public authorities (including the Welsh Government) to seek to "maintain and enhance biodiversity" where it is within the proper exercise of their functions. The Welsh Government must also seek to "promote the resilience of ecosystems". This ensures that biodiversity is an integral part of the decisions that public authorities take in relation to Wales.

Part 2 - Climate change – provides the Welsh Ministers with powers to put in place statutory emission reduction targets, including at least an 80% reduction in emissions by 2050 and carbon budgeting to support their delivery. This is vital within the context of our existing UK and EU obligations and sets a clear pathway for decarbonisation. It also provides certainty and clarity for business and investment.

2.2.2 Key National Policy and Guidance

One Wales: One Planet – the Sustainable Development Scheme for Wales (2009)

This document sets out the Welsh Government's objectives for achieving the goal of sustainable development (Welsh Assembly Government, 2009). It identifies that more and more businesses are depending on fast, safe and reliable transport networks and services. Improving the productivity of Welsh businesses through reducing journey times for individuals and goods and encouraging international trade through larger and more connected markets provides an attractive investment environment.

Climate Change Strategy for Wales (2010)

The Climate Change Strategy for Wales (Welsh Assembly Government, 2010) sets out the Welsh Government's approach to tackling climate change, focussing on the need to reduce climate change emissions. A key element of this strategy is to promote sustainable travel options, including improved provision for cycling and walking, which also have benefits for health and well-being.

Air Quality Strategy for England, Scotland, Wales and Northern Ireland (2011)

The Air Quality Strategy sets out air quality objectives and policy options to further improve air quality in the UK from today in to the long-term. As well as direct benefits to public health, these options are intended to promote important benefits to quality of life and help to protect the environment.

Taking Wales Forward: The Welsh Government's Well-being Objectives (2016)

The duties on Welsh Ministers under section 3(2)(a) and 7 of the Act requires Well-being Objectives to be developed and published by public bodies, to help maximise the contribution of the Welsh Government (and other public bodies under the same duty) to the seven Well-being Goals outlined in the Act.

On 4 November 2016, the Welsh Government published its Well-being Objectives in *Taking Wales Forward*, which set out how the Welsh Government will use the Act to help deliver its programme for government and maximise its contribution to the seven overarching Well-being Goals that apply to public bodies in Wales (Welsh Government, 2016).

Taking Wales Forward is the Welsh Government's programme for the five-year period 2016-2021. It sets out the Welsh Government's programme to drive improvement in the Welsh economy and public services, delivering a Wales which is:

- prosperous and secure;
- healthy and active;

- ambitious and learning; and
- united and connected.

The above four cross-cutting strategies aim to help the Welsh Government to deliver the promise of its Act.

Prosperity for All: the national strategy (2017)

Prosperity for All: The National Strategy (Welsh Government, 2017) takes the key commitments set out in *Taking Wales Forward* and places them in a long term context. It sets out how they fit with the work of the wider Welsh public service to lay foundations for achieving prosperity for all. It sets out the Welsh Government's vision for each theme, showing how they will contribute to prosperity for all. In developing this national strategy, the Welsh Government has amended the Well-being Objectives previously identified in *Taking Wales Forward* and reduced their number from 14 to 12. The Well-being Statement also sets out how the revised objectives relate to the Well-being Goals in the Well-being Act. *Prosperity for All: a national strategy* is a programme for Government. Since it covers a range of issues, not all of the objectives are relevant to transport infrastructure projects. The Well-being Objective of most relevance is to 'deliver modern and connected infrastructure'.

Prosperity for All: Economic Action Plan (2017)

The *Prosperity for All: Economic Action Plan* (Welsh Government, 2017) sets out how the Welsh Government intends to pool resources, expertise and knowledge to strengthen the economic foundations and future proof the Welsh economy. A key element of this action plan that is relevant to the proposed scheme is an aim to see "all parts of Wales to benefit from economic growth and a fairer distribution of wealth and opportunity."

Natural Resources Wales' Well-being Objectives (2017)

Natural Resources Wales (NRW) published their Well-being Statement in 2017, this document sets out their Well-being Objectives and provides a narrative of why these align with the Well-being Goals. Their Well-being Objectives are:

- Champion the Welsh environment and the sustainable management of Wales' natural resources;
- Ensure land and water in Wales is managed sustainably and in an integrated way;
- Improve the resilience and quality of our ecosystems;
- Reduce the risk of people and communities from environmental hazards like flooding and pollution;
- Help people live healthier and more fulfilled lives;
- Promote successful and responsible business, using natural resources without damaging them; and
- Develop Natural Resources Wales into an excellent organisation, delivering first class customer service.

Public Health Wales' Well-being Objectives (2017)

Public Health Wales published their Well-being Statement and Objectives in March 2017. Their Well-being Objectives are to:

- Build capacity and support system change, to protect and improve health and reduce inequalities.
- Give our children the best start in life including opportunities to grow, play and learn in a healthy and safe environment.
- Support the NHS to deliver high quality, equitable and sustainable services that meet the needs of citizens at every stage of their life.

- Minimise public health risks from current and emerging diseases, environmental hazards and emergencies.
- Influence policy, planning and design to create sustainable, culturally thriving and cohesive communities, to tackle the wider determinants of health and to break the cycle of poverty and disadvantage.
- Maximise the potential of our natural and cultural resources to promote physical and mental health and well-being and contribute to a low carbon, environmentally resilient Wales.
- Strengthen our role in global health and sustainable development, realising the benefits of international engagement.

One Wales: Connecting the Nation: Wales Transport Strategy (2017)

The Wales Transport Strategy (Welsh Assembly Government, 2008a) is an essential part of the Welsh Government's strategic policy agenda, with an overarching aim to achieve an integrated transport system for Wales. The document states that Welsh Government's desire to "achieve a nation with access for all, where travelling between communities and accessing services, jobs and facilities in different parts of Wales is both easy and sustainable, and which will support the growth of our economy". The strategy outlines five strategic priorities for improving connectivity.

Environment Strategy for Wales (2006)

This document sets out the Welsh Government's long term strategy for the environment of Wales. The purpose of the strategy is to provide a framework within which to achieve and environment which is clean, healthy, biologically diverse and valued by the people of Wales. It states that the Welsh Government 'want to see our distinctive Welsh environment thriving and contributing to the economic and social well-being of all the people of Wales'.

The Wales Spatial Plan (2008)

The Wales Spatial Plan – People, Places, Futures was originally adopted in 2004 and was updated in July 2008 (Welsh Assembly Government, 2008). It will be replaced by the National Development Framework which is currently being developed. One of the fundamental principles of The Wales Spatial Plan is sustainable development. The purpose of the Wales Spatial Plan is to ensure that what is done in the public, private and third sectors in Wales is integrated and sustainable. The spatial plan sets out how to achieve sustainable accessibility by balancing the social, economic and environmental impacts of travel while enhancing accessibility.

An Active Travel Action Plan for Wales (2016)

This document sets out the Welsh Government's vision for Active Travel and has been published taking into account the need to deliver against the seven well-being goals in the Well-being of Future Generations (Wales) Act 2015. It notes that increasing rates of active travel in Wales will directly support the achievement of every one of the Well-being Goals. It makes reference to the Design Guidance that was published in December 2014 to supplement the Active Travel Act. That guidance provides advice on the planning, design and construction and maintenance of active travel networks and infrastructure and is to be used at all stages in the process. The Design Guidance is mandatory for highway authorities (including the Welsh Government) when setting out the standards of new and improved infrastructure for walking and cycling.

Planning Policy Wales (2016) and associated Technical Advice Notes (various dates)

Planning Policy Wales (PPW) (Edition 9), published in November 2016, sets out the Welsh Government's commitment to translate sustainable development into the planning system. PPW is supplemented by 21 topic-based Technical Advice Notes (TANs) and two Minerals Technical Advice Notes (MTANs).

Local Air Quality Management in Wales – Policy Guidance (2017)

This document states that local air quality management in Wales should be carried out by:

- Pursuing long-term, enduring solutions to any existing instances of non-compliance with the national air quality objectives;
- Seeking to manage air quality at the same time as achieving other, related outcomes;
- Taking every opportunity to talk to the public about air quality challenges, listen to their concerns and seek their views on potential solutions and their involvement in delivering them;
- Working activity with internal and external partners to mutual benefit in the delivery of desired outcomes; and
- Keeping exposure to air pollution as low as reasonably practicable across the whole of the population, looking out in particular for areas where the national air quality objectives might be at risk of being breached at some point in the future and acting pre-emptively to prevent those breaches from occurring.

2.2.3 Regional Context

Joint Transport Plan for South West Wales 2015 – 2020

The *Joint Transport Plan for South West Wales (2015 – 2020)* [Joint LTP] has been built based on the Regional Transport Plan (2010 – 2015) to *"support a vibrant, skilled, growing and connected regional economy*". The Joint LTP has also been updated to reflect emerging trends which may impact on access needs, as well as reviewing changes since the 2010 plan submission. The Joint LTP also contains numerous objectives for a better connected region which are:

- To improve the efficiency and reliability of the movement of people and freight within and beyond South West Wales to support economic growth in the City Region;
- To improve access for all to a wide range of services and facilities including employment and business, education and training, health care, tourism and leisure activities;
- To improve the sustainability of transport by improving the range and quality of, and awareness about, transport options, including those which improve health and well-being;
- To improve integration between policies, service provision and modes of transport in South West Wales;
- To implement measures which will protect and enhance the natural and built environment and reduce the adverse impact of transport on health and climate change; and
- To improve road safety and personal security in South West Wales.

2.2.4 Local Context

Local Development Plan 2006-2021, Carmarthenshire County Council

Carmarthenshire County Council's Local Development Plan (LDP), which was adopted in December 2014, sets out the spatial vision for the future of Carmarthenshire and a framework to determine the distribution and delivery of growth and development in the county.

Brecon Beacons National Park Authority Local Development Plan

The Brecon Beacons National Park Authority Local Development Plan was adopted in December 2013 and covers the period up to 2022. The adopted LDP forms the development plan for the Brecon Beacons National Park.

Brecon Beacons National Park Authority Well-being Objectives.

The Brecon Beacons National Park Authority has identified 34 projects / actions that form the structure of their Well-being Objectives. These are set out under four Key Work Areas:

- Heritage
- Landscapes and Biodiversity
- Resilient Communities; and
- Sustainable Economic Development.

Carmarthenshire County Council Well-being Objectives (2017)

Carmarthenshire County Council published its Well-being Objectives in 2017. These are:

- Help to give every child the best start in life and improve their early life experiences;
- Help children live healthy lifestyles;
- Continue to improve learner attainment for all;
- Reduce the number of young adults that are Not in Education, Employment or Training;
- Tackle poverty by doing all we can to prevent it, help people into work and improve the lives of those living in poverty;
- Create more jobs and growth throughout the county
- Increase the availability of rented and affordable homes;
- Help people live healthy lives (tackling risky behaviours and obesity);
- Support good connections with friends, family and safe communities;
- Support the growing numbers of older people to maintain dignity and independence in their later years;
- A Council wide approach to support Ageing Well in Carmarthenshire;
- Look after the environment now and in the future; and
- Improve the highway and transport infrastructure and connectivity.

2.3 Existing Situation

2.3.1 Highway Network

The A483 through Llandeilo and Ffairfach is a single-carriageway trunk road which, in parts, is narrower than standard width and therefore vehicles can have difficulty passing each other, resulting in pinch-points on the local network. The A483 has designated parking bays for people accessing local services and loading bays for servicing vehicles, as well as sections which are not restricted and appear to be used by residents for parking due to a lack of driveways: this results in congestion issues. Mapping of Traffic Regulation Orders in place within Llandeilo are included in the associated WelTAG Stage One IAR.

Further to this, the visibility of oncoming vehicles is reduced due to the parked vehicles which presents a potential safety concern. There are also numerous junctions along the A483, where side roads enter/exit from the A483. The visibility splays of some of these junctions is insufficient and raises further concerns of safety.

Speed limit signs along the A483 are frequent and there are variable speed limit signs in place on the approach of the primary schools within Llandeilo. However, there are some instances where speed limit signs are may

confuse drivers. Signing upon approaches to junctions is sufficient, however warning signs to reduce speeds towards roundabouts could be improved.

The A483 Llandeilo bridge is a single-arch Grade II* listed road bridge which provides access from Llandeilo to Ffairfach over the River Towy. Traffic crossing the A483 Llandeilo bridge is limited to 30mph. Vehicles park outside residential houses immediately to the north of the bridge.

There is a lack of options for suitable diversion routes to the A483 through Llandeilo to Ffairfach. Options such as travelling along the A40 then the A48 were discussed at the workshops, however this detour for HGVs/Coaches was dismissed due to the increase in journey time. There have been previous discussions about trunking the A476 and de-trunking the A483, however traffic still needs to use the A483 through Llandeilo and Ffairfach.

Footways within Llandeilo and Ffairfach are narrow due to the width of space available as a result of the historic townscape of the settlements. Difficulties arise for people using a pram/pushchair or wheelchair. There are also issues for people walking with children because of the narrow footways as these result in pedestrians having to walk in single-file.

In addition to this, the quantity and quality of crossing points within Llandeilo and Ffairfach along the A483 are of variable quality with many not equipped with tactile paving/dropped kerbs.

The traffic that travels through Llandeilo can be imposing for people walking and cycling, which means that it is not an attractive location for many non-motorised users. This is further exacerbated by the poor air quality within the town.

There is also a lack of wayfaring information for visitors from Llandeilo or Ffairfach railway stations into Llandeilo town centre.

Little cycling infrastructure is present within both settlements, there are no designated on-road or off-road cycle way's present and few cycle parking facilities. There were however cycle route signs located sporadically through Llandeilo and Ffairfach, primarily providing directions to the railway station.

Without intervention there would be no change to this baseline situation.

2.3.2 Public Transport

The Heart of Wales railway line runs between Swansea and Shrewsbury and there are two railway stations on this line within the study area: Ffairfach and Llandeilo. Journey times are approximately three hours to Shrewsbury and one hour to Swansea, with Ffairfach two minutes' journey time from Llandeilo, and closer to Swansea. Rail patronage at Llandeilo railway station in 2015 and 2016 comprised a total of 17,562 entries and exits, this was considerably greater than Ffairfach railway station which totalled 2,842 entries and exits. These totals were a slight increase from 2014 – 2015, Llandeilo railway station experienced a 1.01% increase and Ffairfach railway station experienced a 0.78% increase.

Llandeilo railway station has recently been modernised, it provides 23 car parking spaces, two disabled car parking spaces, cycle parking, Real-Time Information (RTI) displays for train times, information boards and shelters which provide some seating (but are in need of maintenance) and litter bins. The access has also been resurfaced and has sufficient footway widths and dropped kerbs. The frequency of trains however is limited, Llandeilo railway station offers five services each way Monday - Friday, four services each way on a Saturday and two services on each way a Sunday. Track crossings at Llandeilo railway station is via an uncontrolled level crossing which is a safety issue.

Ffairfach railway station has limited facilities, which include a shelter which provides seating and a litter bin and a RTI display for train times. The railway station has one platform which becomes inaccessible if the level-crossing

barriers are down (as there is no underpass available). Further to this, the footways approaching the railway station are narrow and unsuitable for prams/wheelchair users. Additionally, there is no tactile paving or adequate pedestrian crossing points to access the railway station. The frequency of trains the same as for Llandeilo station.

The quantity and quality of bus stops in Llandeilo and Ffairfach are of a good standard, usually providing a shelter, seating, lighting, bus timetable information and a raised kerb for ease of access onto the buses.

Bus services offer transport to local areas such as Carmarthen, Ammanford, Llandovery and Swansea. However the frequency of buses is limited, with several services running on only certain days. There are approximately 20 services each way in total for Monday to Saturday, with none on Sundays. Table 2.1 summarises the bus services available within Llandeilo and Ffairfach.

Table 2.1 - Bus Services for Llandeilo/Ffairfach

Route No.	Route	Services per day (weekday)	Of which 8:00-9:00	Of which 17:00-18:00	Services per day (Saturday)	Services per day (Sunday)
103	Llandeilo – Rhydaman/Ammanford	3	0	0	3	0
276	Llandeilo – Caerfyrddin/Carmarthen (Tuesday only)	1	1	0	0	0
277	Llandeilo – Caerfyrddin/Carmarthen (Wednesday & Saturday only)	1	1	0	1	0
278	Llandeilo – Caerfyrddin/Carmarthen (Monday & Thursday only)	1	1	0	0	0
279	Llandeilo – Caerfyrddin/Carmarthen (Monday-Thurs & Saturday only)	1	0	0	2	0
280/81	Llandeilo - Caerfyrddin/Carmarthen (Monday – Saturday)	8	0	1	8	0
283	Llandeilo – Caerfyrddin/Carmarthen (Wednesday & Saturday only)	1	0	0	2	0
284	Crug-y-bar – Llandeilo – Rhydama/Ammanford (Friday only)	1	0	0	0	0
X13	Llandeilo – Abertawe/Swansea	6	1	1	6	0
X14	Llandeilo – Builth Wells/Carmarthen (Friday only)	1	0	0	0	0
TOTAL		**N/A**	**N/A**	**N/A**	**22**	**0**

Source: http://www.carmarthenshire.gov.wales/bus-timetables#.WnlsQa5l-70

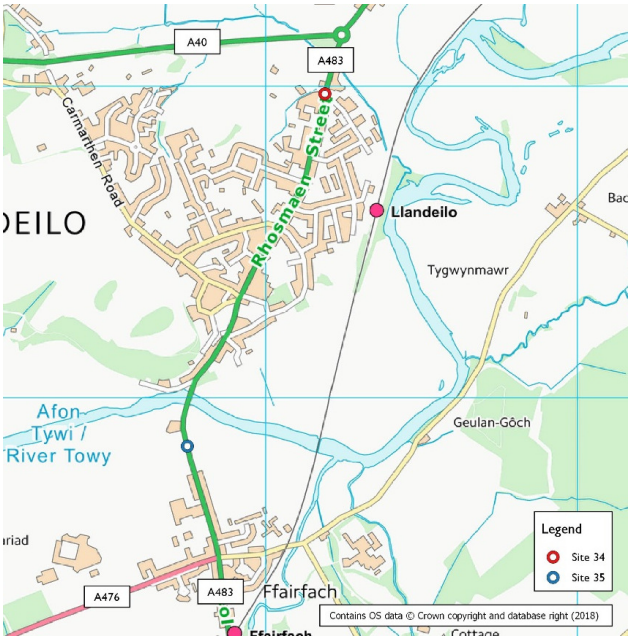
There is a general trend that has resulted in the loss of public transport services that are not cost effective. At the moment there is no reason to suppose that there would be a significant improvement in services, though it is

possible that as a result of Welsh Government initiatives there would not be a further reduction in services through Llandeilo.

2.3.3 Traffic Flows

This section provides a summary of the traffic flows along the A483/Rhosmaen Street within Llandeilo. Traffic count data has been provided by South Wales Trunk Road Agent for two sites, one in Llandeilo and one in Ffairfach. The locations of the two sites are illustrated in Figure 2-1 below.

Figure 2-1 – Location of Site 34 and 35 within Llandeilo



Site 34 is located along the A483/Rhosmaen Street north of Llandeilo town centre in close proximity to Station Road. It collected 12 months of data from January 2014 to December 2014. Site 35 is located along the A483 to the north of Ffairfach, it collected 12 months of data from January 2017 to December 2017. Table 2.2 below presents average daily flows across the year for both sites.

Table 2.2 - Average Daily Traffic Flows

	Site 34		Site 35	
	Northbound	Southbound	Northbound	Southbound
January	3455	3466	4000	4036
February	3607	3601	4210	4215
March	3855	3838	4501	4548
April	3962	3912	4500	4497
May	4053	3992	4546	4568
June	4190	4143	4576	4601
July	4179	4139	4538	4575
August	3882	2444	4412	4447
September	3982	3811	4570	4595
October	3948	2071	4509	4530
November	3776	2675	4552	4589
December	3572	3560	4059	4058

As can be seen from Table 2.2, traffic flows in each direction are generally even, with southbound traffic roughly equalling northbound traffic for example. There is some variation in flow across the year, with June the busiest month and January the quietest. Generally, there are greater vehicle flows during May, June, July, August and September, reflecting the tourist season and an increase in potential visitors to places such as Llandeilo, Dinefwr National Trust Park and the Brecon Beacons National Park.

Across the year traffic flows vary by around 10% - 12%.

Figure 2-2 illustrates how average traffic flow varies across the day at Site 34 northtbound, with figure illustrating the corresponding westbound movements.

Figure 2-2 – Flow profile across the day Site 34 NB

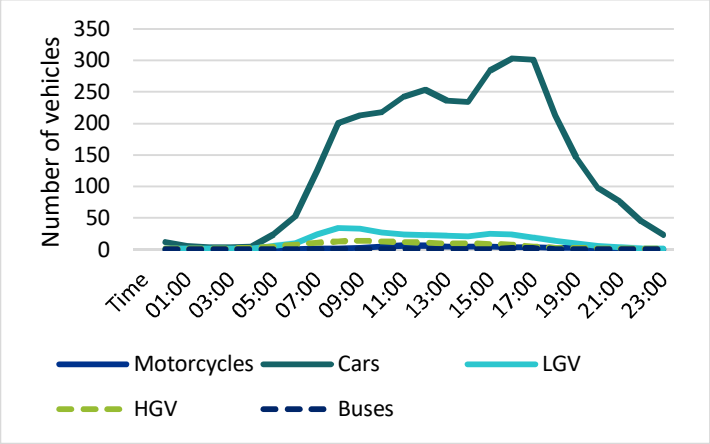


Figure 2-3 – Flow profile across the day Site 34 SB

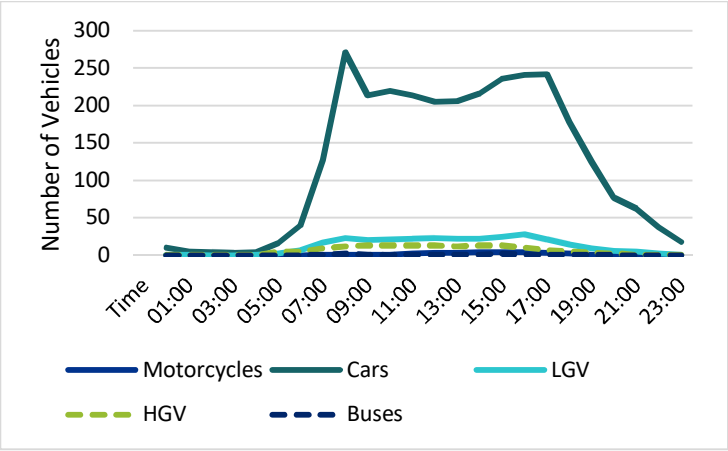


Figure 2-2 illustrates that traffic flow in the northbound direction has an unusual profile with a single peak, in the PM period with traffic flow growing steadily over the day. Figure 2-3 shows that in the southbound direction a more traditional two-peak profile is present but there is a pronounced AM peak. The data therefore indicates that there is likely to be some tidality in traffic flows.

The two figures indicate that around 4% of all traffic using the A483/Rhosmaen Street are HGVs, with 86% cars and the remaining 10% LGVs.

Figure 2-4 illustrates the northbound profile at Site 35 and Figure 2-5 illustrates the corresponding southbound profile.

Figure 2-4 – Flow profile across the day Site 35 NB

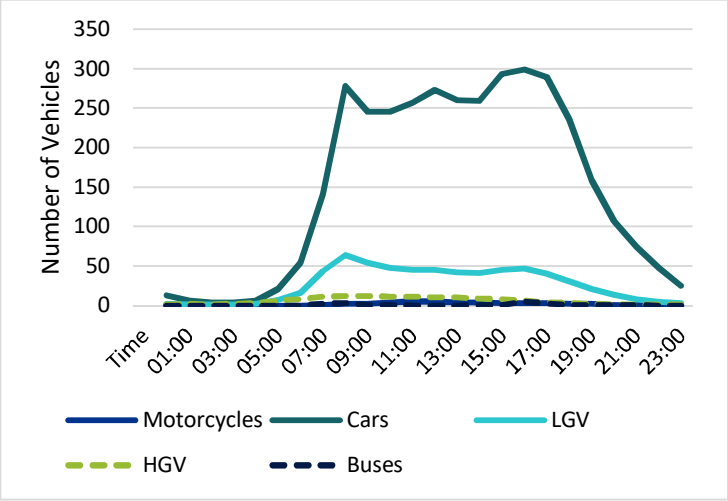
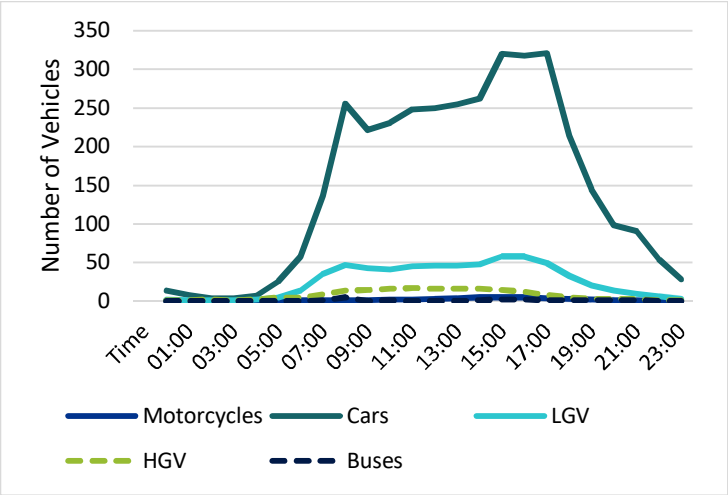


Figure 2-5 – Flow profile across the day Site 35 SB



The two profiles for site 35 are similar, with clear AM and PM peak periods. In both cases the PM peak is slightly busier and also covers a longer period of time. The traffic flows of Site 35 comprise around 3% to 4% HGVs, 80% cars with the remainder being LGVs.

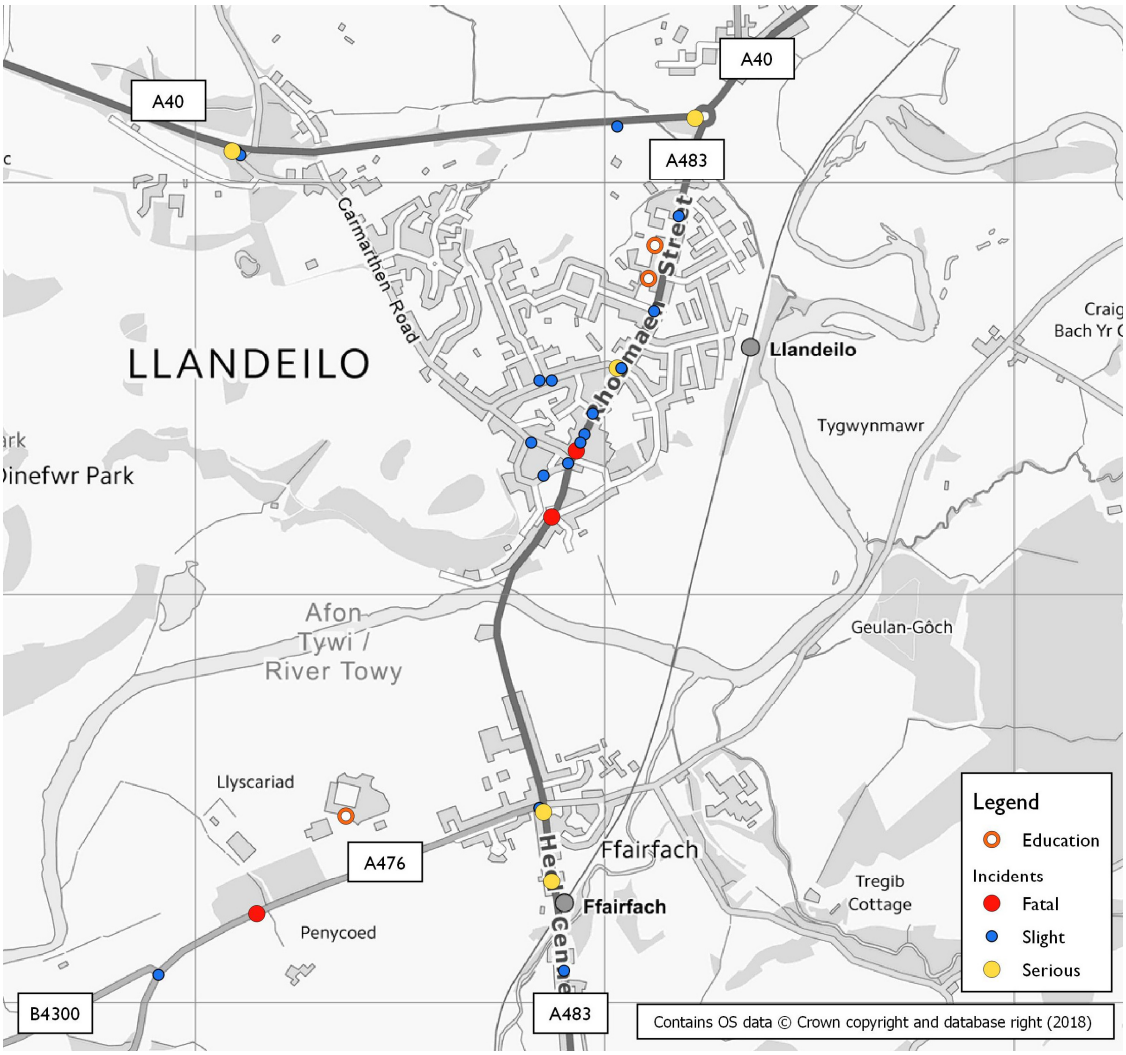
Traffic flows across the two sites are fairly constant through the year, but are higher in the summer months indicating an increase in tourist traffic. There are identifiable peak periods although flows are not notably lower in the inter-peak periods. HGV traffic comprises a relatively small proportion of vehicles at around 4% compared to the Welsh national average (2016) for rural trunk roads of 5.9%[2].

2.3.4 Accident Data Analysis

Personal injury accident (PIA) data was obtained from Welsh Government over a five-year period (2012 – 2016) covering key roads within Llandeilo and Ffairfach such as the A483, A476 and the A40. This was the most up to date information available at the time of accident analysis. The accident data is illustrated in Figure 2-6.

[2] http://gov.wales/docs/statistics/2017/171108-road-traffic-2016-en.pdf

Figure 2-6 – PIA within Llandeilo and Ffairfach



The majority of accidents within Llandeilo and Ffairfach occurred along the A483/Rhosmaen Street in Llandeilo, with two additional clusters of accidents occurring at the A40/Carmarthen Road junction and the A483/A476 roundabout within Ffairfach.

Consultation feedback at the workshops and public forums strongly suggests that minor collisions between pedestrians and motor vehicles are significantly underreported.

The data obtained from Welsh Government has been analysed in the sections below and outlines where collision 'clusters' have occurred as well as identifying the severity level associated with those accidents. A total of 34 accidents occurred from 2012 to 2016, with the greatest number of accidents occurring in 2012, 2015 and 2016.

Accidents are categorised as either fatal, serious or slight, these are defined as follows:

- *Fatal – Includes only those cases where death occurs in less than 30 days as a result of the collision. Fatal does not include death from natural causes or suicide.*

- *Serious – examples are: Fracture, internal injury, severe cuts, crushing, burns (excluding friction), concussion, severe general shock requiring hospital treatment, detention in hospital as an in-patient (either immediately or later), injuries to casualties who die 30 or more days after the collision from injuries sustained in that collision.*
- *Slight – examples are: Sprains that do not necessarily require medical treatment, neck whiplash injury bruises, slight cuts and shock requiring roadside attention.*

The number of serious accidents increased over the five-year period, with four serious accidents occurring in 2016, the greatest number of fatal accidents occurred in 2014. Details of these accidents is set out in Table 2.3

Table 2.3 - Personal Injury Accident Severity Summary

Year	Slight	Serious	Fatal	Total
2012	6	2	0	8
2013	3	0	0	3
2014	4	1	2	7
2015	6	1	1	8
2016	5	3	0	8
Total	**24**	**7**	**3**	**34**

Detailed analysis of PIAs within Llandeilo and Ffairfach are within the WelTAG Stage One IAR.

Without intervention it can be assumed that the study area would continue to experience accidents at a similar level to that presented in Table 2.3, with pedestrians, cyclists and motorists put at risk.

2.3.5 Air Quality

Carmarthenshire County Council have designated the towns of Llandeilo and Ffairfach an Air Quality Management Area (AQMA) in order to manage and improve local air quality. The area was declared an AQMA in 2011 due to annual mean Nitrogen Dioxide (NO2) concentrations that exceed European and national air quality standards. Llandeilo AQMA covers the length of the A483 from the roundabout at the intersection of the A476 at Ffairfach north along Towy Terrace across Llandeilo Bridge into Bridge Street, and then Rhosmaen Street through the town Centre until the roundabout junction of the A483 with the A40(T). Carmarthen County Council developed the Local Air Quality Management Area Action Plan (November 2014) which detailed proposals to reduce air pollution within the AQMA and aimed to achieve an air quality objective of 40µg/m3 or less. Several transport solutions were proposed within the plan, including both bypass and non-bypass options.

Without intervention it is likely that the problem with air quality within the study area would continue, and due to increases in traffic flows that are forecast nationally would increase. This should be considered against the improvements in engine design to reduce emissions and the increased use of electric vehicles over the next decade.

2.4 Identification of Issues of Concern

2.4.1 Introduction

A key part of Stage One is to understand the issues of concern. These issues were identified using the five ways of working set out in the Well-being of Future Generations (Wales) Act 2015 (thinking long-term, prevention, integration, collaboration, and involvement).

2.4.2 Site Visits

Site visits were conducted in November/December 2017 and January 2018 to observe the operation of the road network in Llandeilo and Ffairfach. These visits observed problems along the A483 such as on-road parking, lack of visibility, vehicle type and inadequate NMU infrastructure. Localised congestion was observed within Llandeilo town centre and at Ffairfach roundabout, however the sections of the A483 leading up to these areas performed adequately. The route however is vulnerable to congestion in areas where the historic environment narrows the infrastructure and at peak times due to higher volumes of traffic.

These site visits were undertaken by the project team to gain an understanding of the context of the area ahead of meetings with the public.

2.4.3 Consultation – Workshop 1

Early consultation has taken place as part of this study to identify where there are opportunities for collaboration within the Welsh Government, how solutions in Llandeilo proposed by the Welsh Government could address concerns of other public bodies and aid them in achieving their Well-being Objectives and to ensure the involvement of local people, including their elected representatives. A workshop was undertaken on 16/01/18 in Carmarthen Library where key stakeholders where invited. The following organisations were invited:

- Carmarthenshire County Council (officers of various departments and councillors);
- Llandeilo Town Council (councillors);
- Dyffryn Cennen Community Council (councillors);
- Manordeilo & Salem Community Council (councillors);
- Dyfed Powys Police;
- Mid and West Wales Fire and Rescue Service;
- Welsh NHS Ambulance Trust;
- Hywel Dda Public Health Team;
- Network Rail;
- Arriva Trains Wales;
- Local Business Forum;
- Carmarthenshire Disabled Access Group; and
- Sustrans.

This workshop outlined the scope of this new transport study and explained the changes to legislation and policy since previous studies had taken place. Key issues which had been identified by the project team were set out and attendees were asked to discuss those along with any other issues of concern that they had in respect of transport through Llandeilo and Ffairfach.

2.4.4 Identification of Issues of Concern

Following the workshop, the information provided by attendees and by the project team was considered and the issues of concern where summarised into sixteen key headings. The issues of concern raised by attendees at the workshop were:

- Access to railway station(s)
- Closure of local amenities

- Crossing Rhosmaen Street/A483 (severance)
- Crossing/visibility at Ffairfach roundabout
- Emergency service response time (on call)
- Future developments
- HGV traffic
- Journey reliability/resilience
- Noise levels
- Number of pedestrians
- Parking
- Pedestrian safety
- Poor air quality
- Poor cycling environment
- Public transport (insufficient)
- Road geometry Vs purpose (HGV)
- Road safety
- School traffic
- Traffic discouraging visitors (economic growth constraints)
- Vehicle speeds/acceleration on A483
- Vibration levels

These have been supplemented by issues of concern identified by the project team and are summarised in Table 2.4 below.

Table 2.4 – Issues of Concern

Key Problems	Further Detail
Access to railway stations	There is a lack of pedestrian wayfinding information from Llandeilo Railway Station providing directions for visitors into Llandeilo town centre. In addition, the path down to the railway station is of poor quality and not suitable for less-mobile people and inaccessible to wheelchair users.
Closure of local amenities	There are concerns that the congestion in Llandeilo can depress visitor numbers within the town, which result in economic challenges for businesses.
Crossing Rhosmaen Street / A483 (severance)	The traffic flows through Llandeilo, especially HGVs at peak times can make crossing the A483 along Rhosmaen Street hazardous to pedestrians. There is a zebra crossing within the town as well as pedestrian lights but there is a concern that people crossing the road at other locations are at risk from collisions with through traffic.

Key Problems	Further Detail
Crossing / visibility at Ffairfach roundabout	The pavements at the Ffairfach roundabout are narrow particularly where children walk to get between Llandeilo and Ysgol Bro Dinefwr. Visibility is considered to be poor.
Emergency service response time (on call)	There were specific concerns regarding the length of time it can take on-call fire fighters to arrive at the fire station when there is congestion in Llandeilo and Ffairfach. The fire station is an on-call station, which means that fire fighters have to access the station using their own vehicles before they access the fire tenders, which have blue light priorities through congestion.
Future development	Concerns regarding how attractive Llandeilo is to future development and the ability of the local transport network to cope with any new development as set out in the Carmarthenshire Local Development Plan (there are land allocations within Llandeilo)
Type of vehicle (HGV traffic)	HGVs, cattle trailer's and coaches appear to use the A483 for access to businesses, schools and other towns such as Llandybïe and Ammanford which can cause congestion due to the slow vehicle speeds caused by gradients and width constraints and the amount of space they take up whilst manoeuvring within Llandeilo and Ffairfach.
Journey reliability / resilience	It has been identified that traffic flow is seasonal reflecting the status of Llandeilo as a tourist town with the further attraction of the National Trust park, Llandeilo therefore experiences an increase in vehicles during summer months to that of winter months.
Noise levels	Contributors to noise in the areas of Llandeilo and Ffairfach include the speed of which vehicles are driving at, the types of vehicle, flow of traffic and the proximity of the buildings to carriageways and lack of dispersion because of this.
Number of pedestrians	It is considered likely that the number of pedestrians accessing Llandeilo or Ffairfach on foot is reduced as a result of the traffic flows on the A483 and that improvements to the transport network would encourage active travel by pedestrians.
Parking	Vehicles parked on street conflict with moving traffic resulting in localised congestion. Long-stay parking on the A483 occurs due to a lack of off-street residential parking for many properties in Llandeilo. A combination of unused pay and display car parking at Crescent Road and free car parking at King Street suggest that drivers may be unwilling to pay charges. There also appears to be a lack of enforcement. This results in additional on-street parking, especially in 'Loading Only' bays.
Pedestrian Safety	Non-Motorised Users have to use narrow pavements throughout both Llandeilo and Ffairfach due to the width of space available. The proximity of HGVs to these narrow footways results in an intimidating experience for those walking or cycling. It is also difficult for pram/wheelchair users and people walking with children as the majority of footways would result in pedestrians having to walk in single-file. The quality and number of crossing points within the areas are frequently poor as many are not equipped with tactile paving/dropped kerbs.

Key Problems	Further Detail
Poor air quality	As a result of idling vehicles, stop/starting, manoeuvring around parked vehicles, hill starts (due to the gradient to the north of Llandeilo town centre) and the proximity of the buildings to the carriageway which reduces dispersion, pollution within Llandeilo town centre is problematic. An industrial estate is also located within Llandeilo where manufacturing businesses may contribute to pollution as well. The length of Rhosmaen Street in Llandeilo is currently identified as an Air Quality Management Area.
Poor cycling environment	When a site visit was conducted there were no cyclists observed in Llandeilo or Ffairfach arising from barriers to cycling such as the type of vehicles which use the A483 and the lack of cycling infrastructure in place such as on-road or off-road cycleway. There were also few cycle racks within Llandeilo and Ffairfach, with only Llandeilo railway station providing 3 racks for cyclists to secure their bikes to.
Public transport	The quality of bus stops available in Llandeilo and Ffairfach are of a good standard, however the frequency of buses is sporadic. Llandeilo and Ffairfach railway stations offer Real Time Information displays and information, however the shelters which are provided are in need of maintenance and modernisation. This, as well as the lack of facilities and the infrequency of train services to surrounding villages and towns, may discourage residents and visitors to use public transport.
Road geometry and strategic purpose of A483	A number of junctions and sections of the A483 do not comply with current standards which may reduce the overall capacity and safety of the network. In particular, there are pinch points due to the proximity of buildings which result in localised congestion and narrow footways. Lack of visibility for drivers exiting junctions onto the A483 has been highlighted as an issue which could result in accidents with other vehicles or pedestrians. Furthering this, there is limited rear access for retail properties which are located along the A483 and therefore servicing vehicles have to park and load on-street on the A483. The majority of residential properties within Llandeilo and Ffairfach do not have driveways and therefore have to park on the highway which adds to the congestion issues along the A483. The A483 has topographical constraints, particularly in regards to the incline on the A483 in both directions into Llandeilo town centre, which appears to reach a pinnacle at the zebra crossing. The River Towy as well as the single-arch Grade II* listed road bridge (Llandeilo Bridge) add to the topographical constraints. The Heart of Wales railway line which runs through Ffairfach village and skirt Llandeilo to the east of the town. Due to the historical nature of both Llandeilo and Ffairfach, each area is characterised by listed buildings and conservation areas which impact on the townscape. These impacts include reduced visibility, narrow streets, tight radii of corners and junctions, one-way streets, a listed bridge and a National Trust park parts of Llandeilo town centre are within a conservation area and the Brecon Beacons National Park boundary lies a short distance to the east. Servicing for businesses which line the A483 generally has to be carried from the highway at the front of the properties as there is a lack of rear servicing provision, this further contributing to the congestion issues in Llandeilo town centre.

Key Problems	Further Detail
	There is a lack of potential diversion routes which are suitable for HGVs around Llandeilo and Ffairfach.
Road safety	Safety concerns relate to the visibility of pedestrians attempting to cross the A483 and side streets which lead onto it. Furthering this, due to the historic street layout of Llandeilo and Ffairfach, visibility splays out of a number of key junctions onto the A483 are insufficient and are mainly blocked by historic buildings. There are also conflicting road signs in relation to speed limits which could cause confusion. Convex mirrors are not present in either settlement area which, if implemented, could prove to be beneficial in the future for drivers exiting junctions onto the A483.
School traffic	Ysgol Bro Dinewfr has a large catchment of children resulting in a significant number of coaches travelling to and from the school at the beginning and end of the school day. Many of these coaches are routed through Llandeilo and cause congestion due to the potential for them to cause a convoy. This traffic is also a hazard to children walking or cycling to the school from Llandeilo or Ffairfach. To a lesser extent there are problems with school traffic associated with the three primary schools in Llandeilo and Ffairfach. However, due to the small catchment to each of these schools the number of children coming to school by car is reduced and there are no coach movements required.
Traffic discouraging visitors (economic growth constraints)	The volume of traffic, especially the number of HGVs travelling on the A483 through Llandeilo detract from the attractiveness of the town and its streetscape. There are concerns that this is discouraging visitors from staying in the town to shop or access services.
Traffic speed	There are general observations that drivers do not always abide to speed limits when looking to manoeuvre around obstructions or to avoid congestion. This is also perceived to occur at approach arms to the A483/A40 roundabout Additionally, problems with vehicles driving at inappropriate speeds while passing parked vehicles have been highlighted, which could result in accidents. Conflicting/confusing speed limit signs could result in drivers exceeding speed limits.
Vibration levels	The traffic flows, particularly the HGV movements, cause vibration through Llandeilo. While vibration levels dissipate quickly there are concerns regarding the effect this is having on the listed buildings that are alongside the A483 along Rhosmaen Street.

2.5 Identification of Scheme Objectives

As described in Section 3, the WelTAG guidance sets out that transport intervention proposals should be considered against a set of SMART Objectives. In addition to the Well-being Goals in The Well-being of Future Generations (Wales) Act 2015, national and local Well-being Objectives, and the objectives of the Wales Transport Strategy WelTAG guidance states that scheme specific objectives should be identified that address the particular issues of concern within the area of study.

Eight draft scheme specific objectives (Scheme Objectives) were identified by the project team having reviewed the key issues raised during stakeholder workshop and site visits. These were:

1. Preserve strategic function of A483;
2. Improve pedestrian and cyclist safety within Llandeilo and Ffairfach, including safe routes to school;
3. Reduce community severance within Llandeilo and Ffairfach;
4. Improve journey time reliability through Llandeilo and Ffairfach;
5. Reduce congestion through Llandeilo;
6. Contribute to sustainable economic growth and tourism opportunities in Llandeilo;
7. Reduce exposure to air pollution for sensitive receptors; and
8. Support transition to a low carbon society ensuring the solution is sustainable and resilient which minimises carbon emissions associated with the transport infrastructure which includes improving access to, and provision of public transport.

These draft Scheme Objectives were presented to stakeholders at a second workshop and they were asked to provide feedback as to whether or not they were the correct objectives or were in need of alteration. It was concluded that Objective 5 should be amended to address concerns regarding congestion in Ffairfach as well as in Llandeilo. Objective 5 was duly amended to read:

5. Reduce congestion through Llandeilo and Ffairfach.

Table 2.5 below summarises how the Scheme Objectives relate to the key issues of concern which were identified at the workshops.

Table 2.5 – Intervention Objectives and Key Issues Comparison

Key Issues	Objectives							
	1	2	3	4	5	6	7	8
	Preserve the strategic function of the A483.	Improve pedestrian and cyclist safety within Llandeilo and Ffairfach, including safe routes to school.	Reduce community severance within Llandeilo and Ffairfach.	Improve journey time reliability through Llandeilo and Ffairfach.	Reduce congestion through Llandeilo and Ffairfach.	Contribute to sustainable economic growth and tourism opportunities in Llandeilo.	Reduce exposure to air pollution for sensitive receptors.	Support transition to a low carbon society ensuring the solution is sustainable and resilient which minimises carbon emissions associated with the transport infrastructure which includes improving access to, and provision of public transport.
Access to railway station(s)								
Closure of local amenities								
Crossing Rhosmaen Street/A483 (severance)								
Crossing/visibility at Ffairfach roundabout								
Emergency service response time (on call)								
Future developments								
HGV traffic								

Journey reliability/resilience								
Noise levels								
Number of pedestrians								
Parking								
Pedestrian safety								
Poor air quality								
Poor cycling environment								
Public transport (insufficient)								
Road geometry Vs purpose (HGV)								
Road safety								
School traffic								
Traffic discouraging visitors (economic growth constraints)								
Vehicle speeds/acceleration on A483								
Vibration levels								

Key		
	Fully meets objective	
	Partially meets objective	

2.6 Long List of Options

2.6.1 Introduction

This section outlines the long list of options that are appraised under WelTAG Stage One and the process by which they were identified.

2.6.2 Consultation – Workshop 2

There was a twin level approach to consultation at this stage. Initially, a workshop was held with key consultees to identify potential route options, or where relevant, constraints that should be considered when identifying route options. This workshop took place on 13 February 2018 and the following organisations attended:

- Carmarthenshire County Council;
- Llandeilo Town Council;
- Manordeilo and Salem Community Council;
- Ysgol Bro Dinefwr;
- Ysgol Gynradd Ffairfach;
- Sustrans;
- Mid and West Wales Fire and Rescue Service;
- Carmarthenshire Cycling Forum;
- Llandeilo and District Civic Trust;
- Towy Environment Group;
- SWTRA;
- Network Rail;
- Fisher German on behalf of Mainline Pipelines Ltd.;
- Dyffryn Cennen; and
- Coleg Sir Gar / Carmarthenshire College.

2.6.3 Consultation – Public Forums

This workshop was followed by two public forums where members of the public were asked for their views on the current issues within Llandeilo and Ffairfach, and what potential options could resolve the issues. Mapping showing constraints within Llandeilo, Ffairfach and the surrounding areas were provided as well as blank maps which the public could annotate, identifying where the issues were located and what options could resolve the issue.

The first public forum was attended by 356 people, with a further 52 attendees at the second public forum. Following the public forums, 167 comments forms were completed and 86 drawings (seven alternative route options were identified) were produced, these have been considered when identifying the potential long list of options.

Subsequent to identifying the objectives within Section 4.5 influenced by stakeholder engagement at previous workshops and public forums, potential options have been identified which aim to address the key issues outlined previously. For each option the following is provided:

- A description of the option;
- An explanation of the mechanisms by which the option would address the problem, prevent the problem from getting worse or occurring in the first place;
- The likely social and cultural, environmental and economic impacts of each option, with sufficient detail to rule out options and to allow for the selection of a short list of options for further consideration (the transport case); and
- Key issues and potential 'deal breakers' under the headings of the delivery, financial and commercial cases.

The options have been grouped and are categorised below:

- Town Centre Options;
- Non-Bypass Options;
- Eastern Bypass Options;
- Additional Links;
- Western Bypass Options; and
- Tunnel.

2.6.4 Road Links associated with some Options

Some of the identified long list options will require an additional road link to provide a bypass which will have an optimum beneficial impact on Llandeilo and Ffairfach. The road links would therefore not be constructed in isolation, but only in association with a bypass option. The road links are mainly associated with bypass options located to the east. These options include:

- BE1D;
- BE2;
- BE3A;
- BE3B;
- BE3C;
- BE3D;
- BE4A;
- BE4B;
- BE4C;
- BE4D; and
- BE5A.

2.6.5 Consideration of Non-Transport Sector Solutions

Issues of concern were identified during consultation workshop 1 which included areas such as safety, volume of traffic, road geometry and HGV traffic. It was also confirmed that there are air quality issues within Llandeilo and Ffairfach, as well as environmental constraints. It has been concluded that in order to resolve the issues within Llandeilo and Ffairfach, vehicles which are too large for the inadequate highway such as HGVs and coaches would need to be removed from the current A483 trunk road.

Acoustic barriers are not feasible due to limited space, however there could be scope for secondary insulation/mechanical ventilation to residential properties that are most affected by road traffic noise, although this could affect the setting of listed buildings or the Conservation Area. Air quality solutions could include the installation of electric charging points and implementing a travel plan. However, the most suitable way to alleviate noise and air quality effects would be to smooth the traffic flow by optimising speeds and reducing or removing traffic flows away from residential receptors.

The townscape and cultural heritage of Llandeilo is currently affected by congestion on Rhosmaen Street, therefore removing or reducing congestion is the most suitable solution. Some small scale improvements could be made to provide a beneficial effect to the appearance and setting of the Conservation Area and listed buildings, by decluttering and removing street signs and making the streetscape more usable for pedestrians. However, the improvements would be minimal without alleviating the congestion that is the predominantly affecting the Conservation Area.

Due to this, it has been determined that public transport and non-transport solutions will not resolve the issues within Llandeilo and Ffairfach due to the magnitude of change required. As a result, the long list options do not include public transport and non-transport solutions. The existing environmental constraints caused by traffic congestion on Rhosmaen Street is due to the start-stopping and idling of road vehicles, particularly HGVs. There are few feasible non-transport related solutions that would mitigate the existing situation with regards to noise, air quality, townscape and cultural heritage, and none that would alleviate all adverse environmental effects.

2.6.6 Assumptions used in the Appraisal

Due to the high-level and qualitative approach used in the appraisal, a series of assumptions have been made which are detailed below:

- All town centre options are appraised on the basis of a bypass being constructed, and are being proposed to enhance the active travel and economic potential of the town;
- Any bypass route will become the A483, with the existing road being de-trunked;
- Additional links are appraised on the basis of a suitable bypass being constructed; and
- The tunnel option is assumed to be toll-free.

Indicative plans of all options except the Do-Minimum are in the WelTAG Stage One IAR.

2.6.7 Do-Minimum Option

Reference	Option Name
Do-Minimum	Do-Minimum: No Intervention

2.6.8 Town Centre Options

Reference	Option Name
TC1A	One Way System and a Bypass Option (A)
TC1B	One Way System and a Bypass Option (B)
TC1C	One Way System and a Bypass Option (C)
TC2	Traffic Light System with a Bypass

2.6.9 Non- Bypass Options

Reference	Option Name
NB1	Traffic Lights on Rhosmaen Street
NB2	Removal of Parking on Rhosmaen Street
NB3	HGV Restriction on Rhosmaen Street (Legal sanction)
NB4	HGV Restriction with permits / emissions charge
NB5	HGV Restriction (Legal Sanction) with One Way System
NB6	Combined No-Bypass Option (with HGV Restriction)
NB7	Combined No-Bypass Option (no HGV Restriction)

2.6.10 Eastern Bypass Options

Reference	Option Name
BE1A	Eastern Bypass Option 1 (A)
BE1B	Eastern Bypass Option 1 (B)
BE1C	Eastern Bypass Option 1 (C)
BE1D	Eastern Bypass Option 1 (D)
BE2	Eastern Bypass Option 2
BE3A	Eastern Bypass Option 3 (A)
BE3B	Eastern Bypass Option 3 (B)
BE3C	Eastern Bypass Option 3 (C)
BE3D	Eastern Bypass Option 3 (D)
BE4A	Eastern Bypass Option 4 (A)
BE4B	Eastern Bypass Option 4 (B)
BE4C	Eastern Bypass Option 4 (C)
BE4D	Eastern Bypass Option 4 (D)
BE5A	Eastern Bypass Option 5 (A)
BE5B	Eastern Bypass Option 5 (B)
BE6	Eastern Bypass Option 6

2.6.11 Road Links

Reference	Option Name
ARL1	Road Link 1
ARL2	Road Link 2

2.6.12 Western Bypass Options

Reference	Option Name
BW1	Western Bypass Option 1
BW2	Western Bypass Option 2
BW3A	Western Bypass Option 3 (A)
BW3B	Western Bypass Option 3 (B)
BW3C	Western Bypass Option 3 (C)
BW4	West of Dinefwr (East)
BW5A	West of Dinefwr (A)
BW5B	West of Dinefwr (B)
BW5C	West of Dinefwr (C)
BW6	Far West Route via Dryslwyn

2.6.13 Tunnel

Reference	Option Name
BT1	Tunnel

3. Transport Case

3.1 Methodology

The approach to the WelTAG Stage One level of appraisal is intended to initially assess the expected impacts of the long list of options for tackling the raised issues. The WelTAG 2017 guidance outlines that at this stage "the assessment will be based predominately on currently available evidence" such as passenger, pedestrian, cyclist or traffic counts and surveys. The transport case is thus an assessment of:

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

3.2 Appraisal Criteria

The appraisal has been tabulated using Appraisal Summary Tables (AST) for comparison of the options performances against the appraisal criteria. Options which perform best will then be identified and recommended for further development or implementation.

ASTs extract the core economic, environmental and social impacts from each transport proposal, under the respective appraisal criteria as well as assessing how well a potential solution performs against the objectives. The WelTAG Appraisal criteria is outlined in Table 3.1 to Table 3.3 below:

Table 3.1 – WelTAG Appraisal Criteria – Economic Impacts

Economic Impacts	Assessment
Journey time changes	Assessed
Journey time reliability	Assessed
Land	Not Yet Analysed
Local Economy	Assessed
Transport Costs	Not Yet Analysed
Accidents	Not Yet Analysed
Changes in Productivity	Not Yet Analysed
Capital Costs	Not Yet Analysed
Revenue Costs	Not Yet Analysed

Table 3.2 – WelTAG Appraisal Criteria – Environmental Impacts

Environmental Impacts	Assessment
Noise	Assessed
Air Quality	Assessed
Landscape and Townscape	Assessed
Historic Environment	Assessed
Biodiversity	Assessed
Water Environment	Assessed
Greenhouse Gas Emissions	Assessed
Soils and Geology	Assessed

Table 3.3 – WelTAG Appraisal Criteria – Social and Cultural Impacts

Social and Cultural	Assessment
Accidents	Assessed
Journey Quality	Assessed
Severance	Assessed
Security	Assessed
Physical Activity	Assessed
Access to Employment	Assessed
Access to Services	Assessed
Affordability	Not Yet Analysed
Active Travel	Assessed
Option and Non-use Values	Not Yet Analysed

3.3 Option Appraisal

A summary of the appraisal of each option is provided below. The tables show the summarised option appraisal and states the extent to which the option fulfils the scheme specific objectives set out in section 4 of this report. This option appraisal has not been assessed against the Well-being Objectives of Natural Resources Wales, Public Health Wales or Carmarthenshire County Council at this stage. Short-listed options will be assessed against these at WelTAG Stage 2, it is considered unlikely that any contribution to these third party well-being objectives would be a determining factor in identifying an appropriate short-list of options.

Each option was considered against the Welsh Government's Well-being Objectives set out in Prosperity for All: A National Strategy, with particular reference to 'United and Connected' Well-being Objectives at this stage. More detailed consideration of the shortlisted options with respect to the Well-being of Future Generations (Wales) Act 2015 is included in Appendix A: Report on the Consideration of the Well-being of Future Generations (Wales) Act 2015 (B2331900-D4-5-003).

3.3.1 Do-Minimum Option

This section identifies the potential Do-Minimum option. The table includes a description of the option, indicative location and appraisal which feed into the Appraisal Summary Table.

Table 3.4 Do-Minimum

Description

The Do-Minimum option does not include any improvements to the current scenario of the A483 within Llandeilo and Ffairfach.

Location

Not applicable.

How it tackles the problem

The Do-Minimum Option would not solve problems within Llandeilo and Ffairfach as it anticipated that traffic flows will continue to increase, HGVs would still use the A483 trunk road and thus congestion at the pinch point within Llandeilo would worsen. As a result of this, the air quality within the AQMA is likely to increase.

To what extent it meets the objectives

Objective No	1	2	3	4	5	6	7	8
Met ✓ or x	✓	×	×	×	×	×	×	×

The Do-Minimum option would only meet objection 1 of preserving the strategic function of the A483.

Other relevant issues (key risks, adverse impacts, constraints, and interdependencies)

Key risks: The Do-Minimum option would not resolve the problems and issues of concern outlined during consultation 1.

Adverse impacts: See appraisal below.

Constraints: See appraisal below

Interdependencies: No interdependencies have been identified.

Appraisal

Economy and Social and Cultural

As the A483 and surrounding road network will be unaltered, it is envisioned that traffic flows and have an adverse impact on current congestion issues, particularly at the pinch point in front of the Cawdor within Llandeilo. The appraisal of Economics and Social and Cultural impacts has therefore identified that this option will have a negative affect across all appraisal areas. Congestion issues at the A483/A476/Heol Bethlehem roundabout within Ffairfach will also escalate and larger volumes of vehicles could make the roundabout more dangerous for pedestrians/cyclists crossing adjoining arms. It is also anticipated that the increase in traffic flows would result in a higher percentage of HGVs using the A483 trunk road as well. As this is an identified area of concern, the Do-Minimum Scenario could have a large adverse image on safety within Llandeilo and Ffairfach. As a result, physical activity could experience an adverse impact as well as active travel.

Environment

A neutral effect is anticipated on biodiversity, soils and geology, landscape and the water environment. An adverse effect is anticipated to noise due to increasing congestion and idling vehicles immediately alongside residential areas. An adverse effect is anticipated to air quality as there is the potential for air quality to continue to worsen in this area as traffic flows increase within Llandeilo/Ffairfach. Adverse effects are anticipated to townscape and cultural heritage due to effects that increasing traffic flows would have within a Conservation Area and alongside listed buildings.
Who the Option impacts on
It is expected that there would be a slight adverse impact upon Journey time changes/reliability changes. Furthermore, it is anticipated that there would be a slight adverse impact upon Local Air Quality, Noise, Landscape and Townscape and Cultural Heritage. It is also expected that there will be a slight adverse impact upon Physical activity, Journey quality, Accidents, Access to employment/services, severance and Active Travel.

3.3.2 Town Centre Options

This section identifies the potential long list options for the Town Centre. The tables include a description of the option, indicative location and appraisal which feed into the Appraisal Summary Table. The Town Centre with a Bypass Options are:

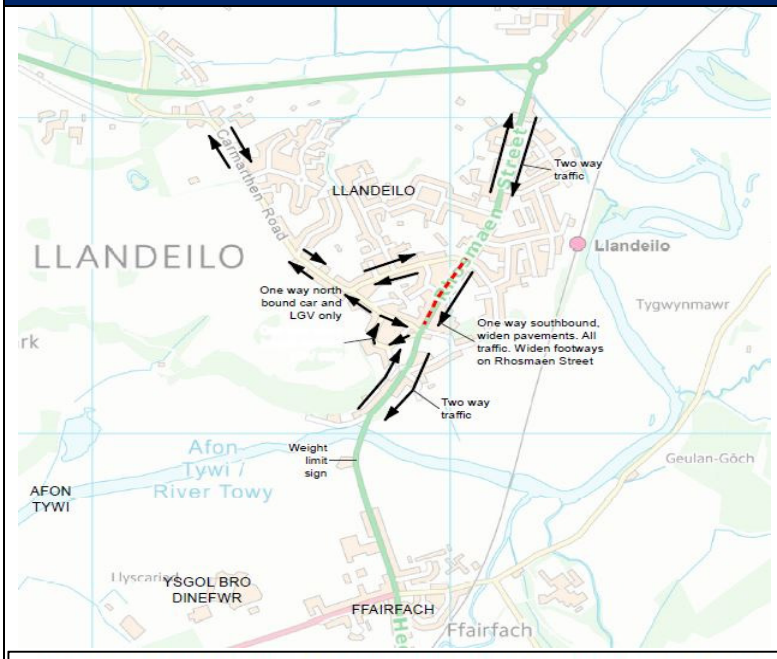
- TC1A – One Way System and a Bypass Option (A);
- TC1B – One Way System and a Bypass Option (B);
- TC1C – One Way System and a Bypass Option (C); and
- TC2 – Traffic Light System and a Bypass Option.

Table 3.5 TC1A – One Way System and a Bypass Option (A)

Description

Town Centre routing restrictions will be installed. Two-way traffic will remain from the junction of A40 and junction of New Road/Carmarthen Street. New Road to remain open to two-way traffic. Rhosmaen Street from New Road/Crescent Road junction to Carmarthen Street and Abbey Terrace changed to one-way southbound but open to all vehicles. Rhosmaen Street between King Street and Ffairfach roundabout is weight restricted. Permitted traffic going north would turn left into King Street then George Street, then onto Carmarthen Street/Carmarthen Road to join the A40 at the existing junction with a potential roundabout. Pavements to be widened within the one-way section of Rhosmaen Street to enable safer use by pedestrians. There will be warning/diversion signs and weight limited signs within Ffairfach to stop HGVs from using Llandeilo Bridge crossing the Afon Tywi.

Location



How it tackles the problem

It should be noted that option TC1A is dependent on the construction of a bypass, the bypass would remove through traffic and improve the resilience of the trunk road network. The following

assessment assumes that the bypass option chosen would result in the intended benefits of the removal of through traffic and that the existing through traffic flows would divert onto the bypass and not continue to flow through the town.TC1A would reduce severance for pedestrians along the A483/Rhosmaen Street within Llandeilo but there would be a slight increase in severance on Carmarthen Road as northbound traffic is re-routed. Pedestrian safety would also improve as well as the cycling environment, the improvement to the streetscape for visitors may result in increased numbers of people shopping in the town and should make the town more attractive for people who pass through it on the way to Dinefwr Park. This option would result in a reduction in air pollution within the AQMA.

This option would contribute to the Welsh Government achieving its Well-being Objectives and support the outcomes of the Wales Transport Strategy.

To what extent it meets the objectives

Objective No	1	2	3	4	5	6	7	8
Met ✓ or ×	✓	✓	✓	Partial	Partial	✓	×	×

This option fulfils the majority of the objectives; however, it does not reduce exposure to air pollution for sensitive receptors or support the transition to a low carbon society. Further to this, the option partially meets the objectives of improving journey time reliability through Llandeilo and Ffairfach as well as reducing congestion within Ffairfach.

Other relevant issues (key risks, adverse impacts, constraints, and interdependencies)

Key risks: One key risk to this option is with the messaging regarding the changes to traffic flows within the town would need to be carefully managed, particularly affecting businesses that might need to change their current way of working. Another key risk is linked to public transport, there would have to be a change in the bus routes for the northbound journeys. This would have to be investigated with bus companies at a later stage to identify ways to accommodate the option.

Adverse impacts: See appraisal below.

Constraints: See appraisal below

Interdependencies: This option is dependent on the construction of a bypass.

Appraisal

Economy and Social and Cultural

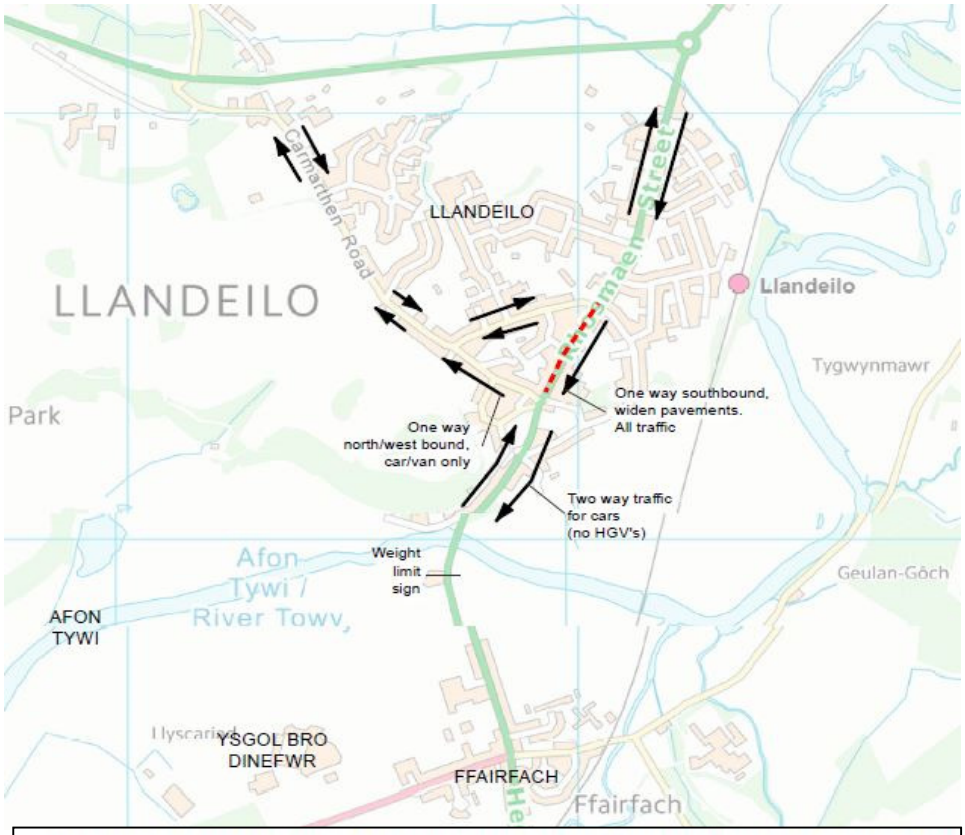
Appraisal of Economics and Social and Cultural impacts has identified that this option has a benefit across the majority of the appraisal areas, varying from slight to moderate beneficial with a negligible impact on security, access to employment and access to services and affordability. The option scores positively for both journey time changes and journey time reliability changes.

Environment

A neutral effect is anticipated upon biodiversity, noise, the water environment and soils and geology. Further to this, a slight beneficial effect is anticipated to landscape and townscape and the historic environment. Additionally, a moderate beneficial effect is anticipated on local air quality.

Who the Option impacts on

All road users should experience benefits with this option with businesses in Llandeilo's town Centre and Dinefwr Park also benefiting as the widening of pavements in the town Centre should improve visitor experience.

Table 3.6 TC1B – One Way System and a Bypass Option (B)
Description
Two-way traffic from the junction of A40 and junction of New Road/Carmarthen Street. New Road to remain open to two-way traffic. Rhosmaen Street from New Road/Crescent Road junction to Carmarthen Street and Abbey Terrace is one way southbound but open to all vehicles. Rhosmaen Street between King Street and Ffairfach roundabout is weight restricted. Permitted traffic going north would turn left into Carmarthen Street then Carmarthen Road to join the A40 at the existing junction with a possible roundabout. Pavements to be widened within the one-way section of Rhosmaen Street to enable safer use by pedestrians. There will be warning/diversion signs and weight limited signs within Ffairfach to stop HGVs from using Llandeilo Bridge crossing the Afon Tywi.
Location
 Contains public sector information licensed under the Open Government Licence v3.0

How it tackles the problem

It should be noted that option TC1B is dependent on the construction of a bypass.TC1B would reduce severance for pedestrians along the A483/Rhosmaen Street within Llandeilo but there would be a slight increase in severance on Carmarthen Road as northbound traffic is re-routed. Pedestrian safety would also improve as well as the cycling environment, the improvement to the streetscape for visitors may result in increased numbers of people shopping in the town and should make the town more attractive for people who pass through it on the way to Dinefwr Park. This option would result in a reduction in air pollution within the AQMA.

This option would contribute to the Welsh Government achieving its Well-being Objectives and support the outcomes of the Wales Transport Strategy.

To what extent it meets the objectives

Objective No	1	2	3	4	5	6	7	8
Met ✓ or x	✓	✓	✓	Partial	Partial	✓	x	x

This option fulfils the majority of the objectives; however, it does not reduce exposure to air pollution for sensitive receptors or support the transition to a low carbon society. Further to this, the option partially meets the objectives of improving journey time reliability through Llandeilo and Ffairfach as well as reducing congestion within Ffairfach.

Other relevant issues (key risks, adverse impacts, constraints, and interdependencies)

Key risks: A key risk for this option is communication regarding the changes to traffic flows within the town which would need to be carefully managed, particularly affecting businesses that might need to change their current way of working.

Adverse impacts: See appraisal below.

Constraints: See appraisal below

Interdependencies: This option is dependent on the construction of a bypass.

Appraisal

Economy and Social and Cultural

Appraisal of Economics and Social and Cultural impacts has identified that this option has a benefit across the majority of the appraisal areas, varying from slight to moderate beneficial with a negligible impact on security, access to employment and access to services and affordability. The option scores positively for both journey time changes and journey time reliability changes.

Environment

A neutral effect is anticipated upon biodiversity, noise, the water environment and soils and geology. Also there is a moderate beneficial effect is anticipated on local air quality. Further to this there is a slight beneficial effect is anticipated to landscape and townscape and the historic environment.

Who the Option impacts on

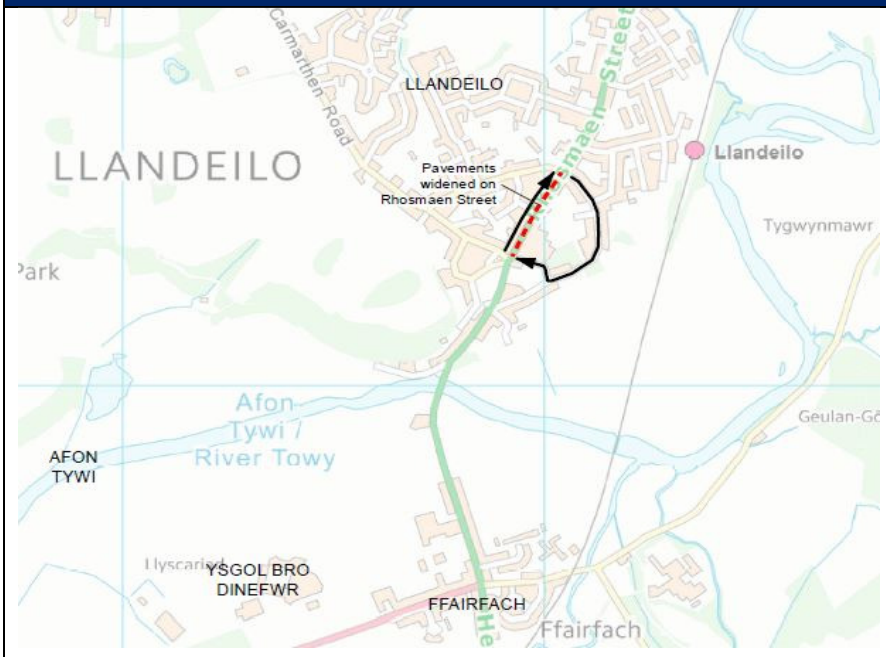
All road users should experience benefits with this option with businesses in Llandeilo's town Centre and Dinefwr Park also benefiting as the widening of pavements in the town Centre should improve visitor experience.

Table 3.7 TC1C – One Way System and a Bypass Option (C)

Description

One-way system using Crescent Road for southbound traffic and Rhosmaen Street for northbound traffic. Pavements to be widened within the one-way section of Rhosmaen Street to enable safer use by pedestrians.

Location



How it tackles the problem

It should be noted that option TC1C is dependent on the construction of a bypass, the bypass would remove through traffic and improve the resilience of the trunk road network. The following assessment assumes that the bypass option chosen would result in the intended benefits of the removal of through traffic and that the existing through traffic flows would divert onto the bypass and not continue to flow through the town. TC1C would reduce severance for pedestrians along the A483/Rhosmaen Street within Llandeilo but there would be a slight increase in severance on Crescent Road as northbound traffic is re-routed. Pedestrian safety would also improve as well as the cycling environment, the improvement to the streetscape for visitors may result in increased numbers of people shopping in the town and should make the town more attractive for people who pass through it on the way to Dinefwr Park. This option would result in a reduction in air pollution within the AQMA.

This option would contribute to the Welsh Government achieving its Well-being Objectives and support the outcomes of the Wales Transport Strategy.

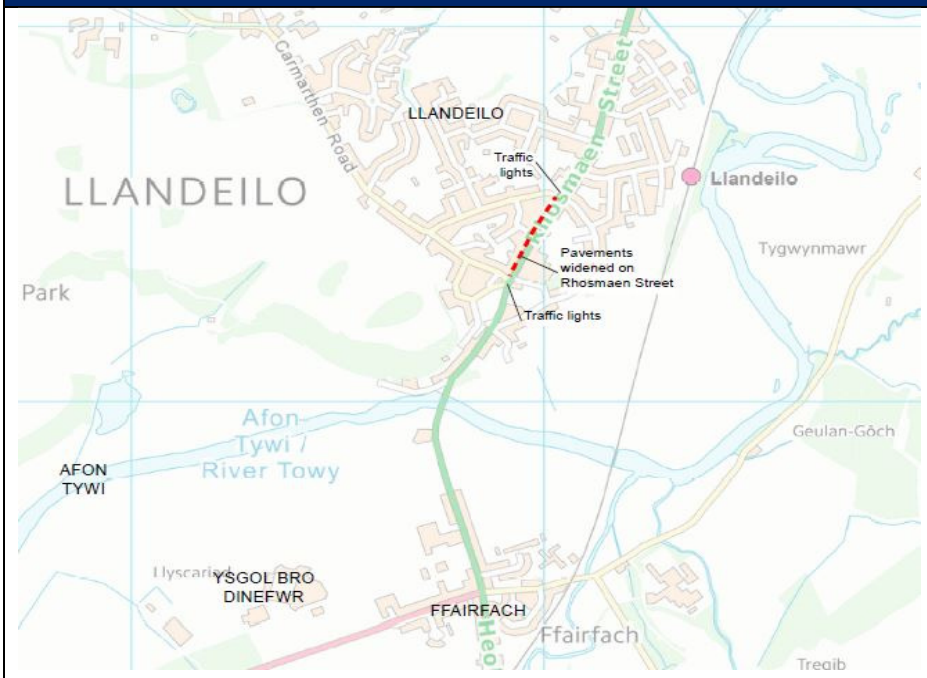
To what extent it meets the objectives								
Objective No	1	2	3	4	5	6	7	8
Met ✓ or ×	✓	✓	✓	Partial	Partial	✓	x	x
This option fulfils the majority of the objectives; however, it does not reduce exposure to air pollution for sensitive receptors or support the transition to a low carbon society. Further to this, the option partially meets the objectives of improving journey time reliability through Llandeilo and Ffairfach as well as reducing congestion within Ffairfach.								
Other relevant issues (key risks, adverse impacts, constraints, and interdependencies)								
Key risks: A key risk for this option is communication regarding the changes to traffic flows within the town which would need to be carefully managed, particularly affecting businesses that might need to change their current way of working *Adverse impacts:* See appraisal below. *Constraints:* See appraisal below *Interdependencies:* This option is dependent on the construction of a bypass.								
Appraisal								
Economy and Social and Cultural								
Appraisal of Economics and Social and Cultural impacts has identified that this option has a benefit across the majority of the appraisal areas, varying from slight to moderate beneficial with a negligible impact on security, access to employment and access to services and affordability. The option scores positively for both journey time changes and journey time reliability changes.								
Environment								
A neutral effect is anticipated upon biodiversity, noise, the water environment and soils and geology due. Further to this, a slight beneficial effect is anticipated for the landscape and townscape and the historic environment. Furthermore, there is a moderate beneficial effect anticipated on local air quality.								
Who the Option impacts on								
The local economy within Llandeilo's town Centre, including businesses, and Dinefwr Park should experience a positive impact with this option. Further to this, walkers and cyclists within Llandeilo's town Centre should experience a benefit due to proposed improvements within the town.								

Table 3.8 TC2 – Traffic Light System and a Bypass Option

Description

Traffic lights would be installed on Rhosmaen Street to enable one-way traffic along the narrowest section of the road. Pavements to be widened within the one-way section of Rhosmaen Street to enable safer use by pedestrians.

Location



How it tackles the problem

It should be noted that option TC2 is dependent on the construction of a bypass, the bypass would remove through traffic and improve the resilience of the trunk road network. The following assessment assumes that the bypass option chosen would result in the intended benefits of the removal of through traffic and that the existing through traffic flows would divert onto the bypass and not continue to flow through the town. TC2 would reduce severance along the A483/Rhosmaen Street within Llandeilo (depending on the bypass option selected) as well as improve journey reliability due to providing a direct, free-flow route which would avoid the pinch points within Llandeilo/Ffairfach (albeit with traffic lights for a short section of Rhosmaen Street). Pedestrian safety should also improve as well as the cycling environment, road safety and may promote visitors as the number of through-traffic journey should decrease with a bypass in place. This may also help reduce the closure of local amenities. HGV and school traffic should also reduce within Llandeilo/Ffairfach as it is anticipated that HGVs would use the bypass rather than Rhosmaen Street as the current A483 would be de-trunked. Further to this, emergency service response times (on call) should improve due to a reduction in traffic using Rhosmaen Street, or emergency service vehicles could use the bypass

which would provide a direct, free-flow route. This option would result in a reduction in air pollution within the AQMA

This option would contribute to the Welsh Government achieving its Well-being Objectives and support the outcomes of the Wales Transport Strategy.

To what extent it meets the objectives

Objective No	1	2	3	4	5	6	7	8
Met ✓ or ×	✓	×	×	×	×	✓	×	×

The majority of the objectives are not fulfilled with this option. It does however preserve the strategic function of the A483 and contribute to economic growth and tourism opportunities in Llandeilo.

Other relevant issues (key risks, adverse impacts, constraints, and interdependencies)

Key risks: no key risks were identified for this option.

Adverse impacts: See appraisal below.

Constraints: See appraisal below

Interdependencies: This option is dependent on the construction of a bypass.

Appraisal

Economy and Social and Cultural

Appraisal of Economics and Social and Cultural impacts has identified that this option has an overall score of slight beneficial, there are some slight negative results within the appraisal such as journey time changes and journey quality. This reflects the nature of a traffic light system and potential time restraints within the traffic light signals as well as queuing.

Environment

A neutral effect is anticipated upon biodiversity, noise, the water environment and soils and geology. Also there is an anticipated slight beneficial effect to landscape and townscape and the historic environment. Furthermore, there is a moderate beneficial effect predicted for the local air quality.

Who the Option impacts on

All road users (light and heavy vehicles as well as bicycles) may benefit from the reduction in journey time changes with this bypass option. However, some users of the Rhosmaen Street may experience an increase in journey time changes due to the traffic light system. Businesses within Llandeilo town Centre and Dinefwr Park should also benefit.

3.3.3 Non- Bypass Options

This section identifies the potential long list options which do not include a bypass. The tables include a description of the option, indicative location and appraisal which feed into the Appraisal Summary Table. The Non- Bypass Options are:

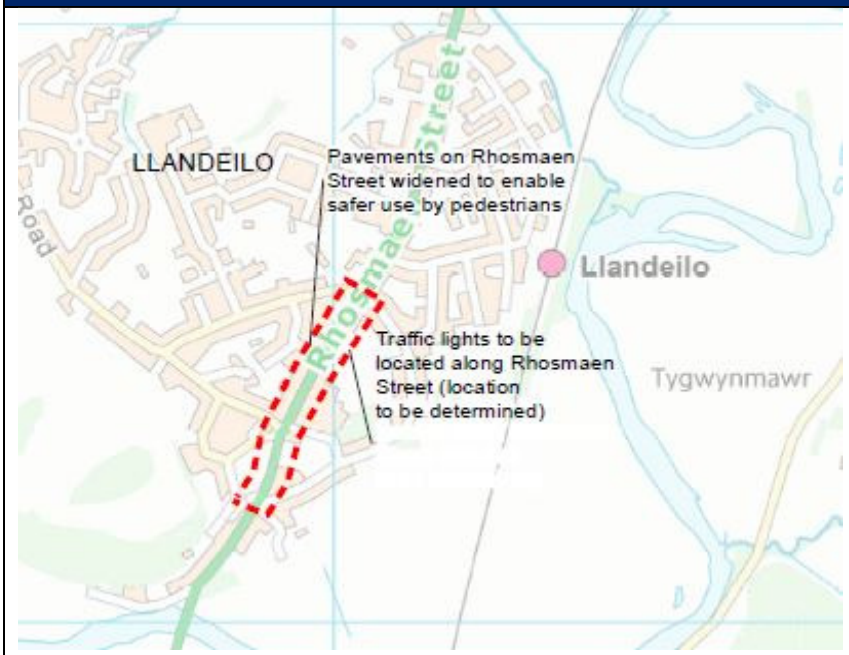
- NB1 – Traffic Lights;
- NB2 – Removal of Parking;
- NB3 – HGV Restriction (legal sanction);
- NB4 – HGV Restriction with permit/emissions charge;
- NB5 – HGV Restriction (legal sanction) plus one-way system;
- NB6 – Combined No- Bypass Option (with HGV restriction); and
- NB7 – Combined No- Bypass Option (No HGV Restriction).

Table 3.9 NB1 – Traffic Lights

Description

Traffic lights would be installed on Rhosmaen Street to enable one-way traffic along the narrowest section of the road. Pavements to be widened within the one-way section of Rhosmaen Street to enable safer use by pedestrians.

Location



How it tackles the problem

NB1 would improve journey time reliability due to providing traffic lights that would improve flows through the pinch points within Llandeilo. Pedestrian safety would also improve as result of the widening of the pavements.

This option would contribute to the Welsh Government achieving its Well-being Objectives and would help deliver some of the long-term outcomes set out in the Wales Transport Strategy.

To what extent it meets the objectives

Objective No	1	2	3	4	5	6	7	8
Met ✓ or ×	Partial	×	×	✓	✓	×	Partial	×

This option fulfils the objectives of improving pedestrian and cyclist safety within Llandeilo and Ffairfach and reducing congestion through Llandeilo. However, it only partially meets objectives 1 and 7 and does not achieve objectives 2, 3, 6 or 8.

Other relevant issues (key risks, adverse impacts, constraints, and interdependencies)

Key risks: The key risk associated with this option is that a traffic light system could increase delays and congestion within Llandeilo town Centre.

Adverse impacts: See appraisal below.

Constraints: See appraisal below

Interdependencies: No interdependencies have been identified at this stage.

Appraisal

Economy and Social and Cultural

Appraisal of Economics and Social and Cultural impacts has identified that this option has an overall score of slight beneficial, there are some slight negative results within the appraisal such as journey time changes, journey quality and severance. This reflects the nature of a traffic light system and potential time restraints within the traffic light signals as well as queuing.

Environment

It is anticipated that there would be a neutral effect upon biodiversity, noise, the water environment and soils and geology. Furthermore, it's predicted that there would be a slight beneficial effect on local air quality and to landscape and townscape and the historic environment.

Who the option impacts on

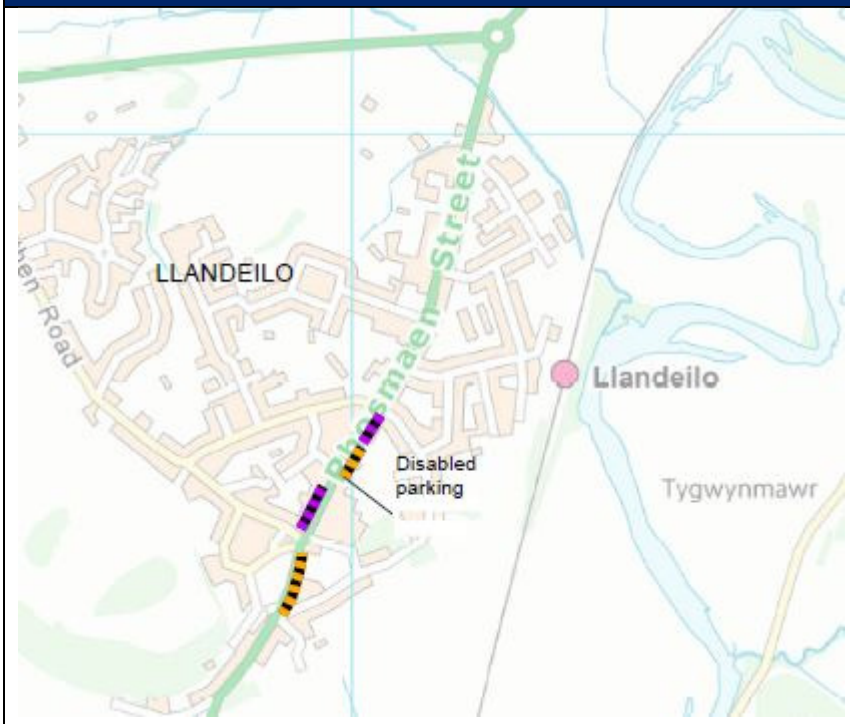
Some road users may dis-benefit from this option due to potential queuing from the proposed traffic lights in Llandeilo town Centre increasing severance and idling vehicles decreasing air quality. However, pedestrians would benefit due to the widening of pavements, this may also improve visitor experience which will benefit some businesses within Llandeilo and Dinefwr Park.

Table 3.10 NB2 – Removal of Parking

Description

Removal of parking along Rhosmaen Street enforced through double yellow lines. Restrictions of 'Loading Only' from 18:00 to 07:00, and then from 10:00 – 15:00 with no parking between 08:00 – 18:00 will be enforced.

Location



How it tackles the problem

NB2 may reduce severance along the A483/Rhosmaen Street within Llandeilo as well as improve journey reliability due to providing a direct, free-flow route which would avoid the pinch points within Llandeilo/Ffairfach. It is also anticipated that vehicle speeds/acceleration on the A483 would reduce due to the reduction in parked vehicles. There would be a slight beneficial effect on air quality within the AQMA.

This option would contribute to the Welsh Government achieving its Well-being Objectives and would help deliver some of the long-term outcomes set out in the Wales Transport Strategy.

To what extent it meets the objectives

Objective No	1	2	3	4	5	6	7	8
Met ✓ or ×	Partial	×	×	✓	✓	×	Partial	×

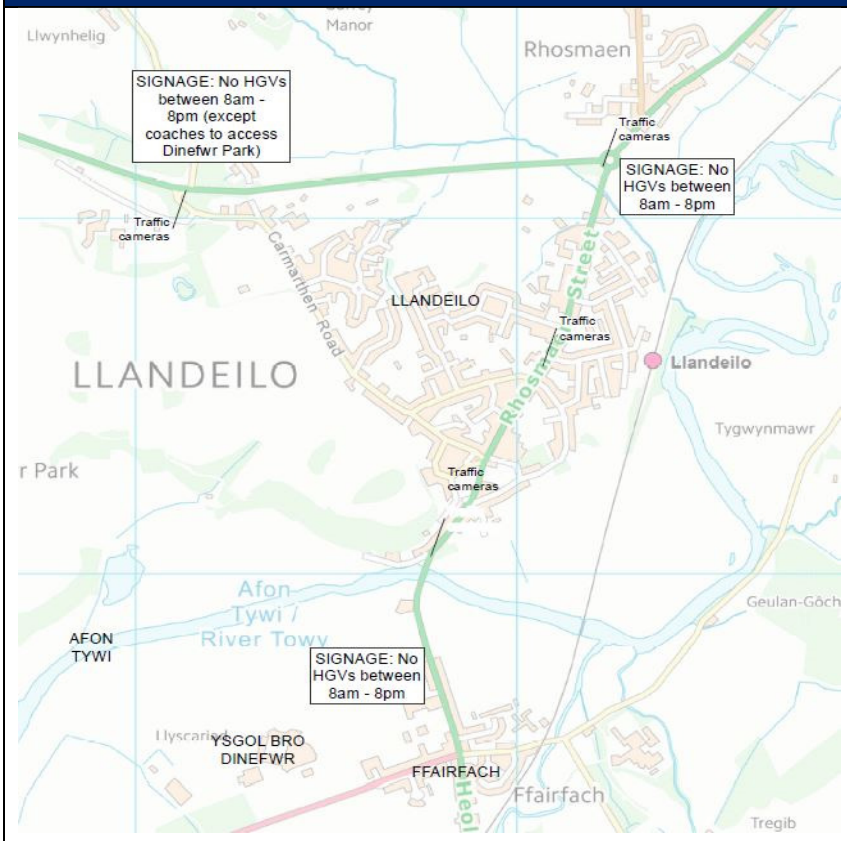
This option fulfils the objectives of improving pedestrian and cyclist safety within Llandeilo and Ffairfach and reducing congestion through Llandeilo. However, it only partially meets objectives 1 and 7 and does not achieve objectives 2, 3, 6 or 8.
Other relevant issues (key risks, adverse impacts, constraints, and interdependencies)
Key risks: The key risk associated with this option is that it is potentially unacceptable to the public. *Adverse impacts:* See appraisal below. *Constraints:* See appraisal below *Interdependencies:* No interdependencies have been identified at this stage.
Appraisal
Economy and Social and Cultural
Appraisal of Economics and Social and Cultural impacts has identified that this option has a slight beneficial across the majority of the appraisal areas with some areas having a negligible impact such as local economy, security and access to employment and services.
Environment
It is anticipated that there would be a neutral effect upon biodiversity, noise, the water environment and soils and geology. Furthermore, it's predicted that there would be a slight beneficial effect on local air quality and to landscape and townscape and the historic environment.
Who the option impacts on
All road users might slightly benefit from this option however; the local economy may dis-benefit due to the removal of parking. The removal of parking with this option has a predicted slight beneficial effect on local air quality. Walkers and cyclists within Llandeilo town Centre may also benefit due to the reduction of parked vehicles along Rhosmaen Street.

Table 3.11 NB3 – HGV Restriction (legal sanction)

Description

Restriction on HGVs through Llandeilo between 08:00 – 20:00, all HGVs to be routed along the A40 to Carmarthen which will be enforced through traffic cameras. This restriction will apply from the A40 roundabout within Rhosmaen to the roundabout within Ffairfach.

Location



How it tackles the problem

NB3 would reduce severance along the A483/Rhosmaen Street for pedestrians as traffic movements would be reduced. It would also improve journey reliability during the day when HGV movements are restricted as it would reduce the number of large vehicle pinch point delays. Pedestrian safety should also improve as well as the cycling environment, road safety and may promote visitors as the number of through-traffic journeys should decrease. Further to this, emergency service response times (on call) should improve due to a reduction in HGV traffic using Rhosmaen Street that can cause delays as a result of negotiating pinch points. This option would result in a reduction in air pollution within the AQMA.

This option would contribute to the Welsh Government achieving its Well-being Objectives and would help deliver some of the long-term outcomes set out in the Wales Transport Strategy.

To what extent it meets the objectives

Objective No	1	2	3	4	5	6	7	8
Met ✓ or ×	×	✓	✓	✓	✓	×	✓	×

This option does not preserve the strategic function of the A483, contribute to sustainable economic growth and tourism opportunities in Llandeilo or support the transition to a low carbon society. It does however improve pedestrian and cyclist safety within Llandeilo and Ffairfach, reduce community severance, improve journey time reliability, reduce congestion through Llandeilo and reduces the exposure to air pollution for sensitive receptors.

Other relevant issues (key risks, adverse impacts, constraints, and interdependencies)

Key risks: One key risk associated with this option is that it will create a longer journey for HGVs to be re-routed towards Carmarthen. Another key associated risk with this option is the additional traffic along the A40 towards Carmarthen from Llandeilo/towards Llandeilo from Carmarthen.

Adverse impacts: See appraisal below.

Constraints: See appraisal below

Interdependencies: No interdependencies have been identified at this this stage.

Appraisal

Economy and Social and Cultural

Appraisal of Economics and Social and Cultural impacts has identified that this option has an overall score of slight beneficial across the appraisal areas, journey time changes and journey time reliability changes have a slight negative impact however.

Environment

It is anticipated that there would be a neutral effect upon biodiversity, noise, the water environment and soils and geology. In regards to air quality it is anticipated that this option would have a moderate beneficial impact. It has also been predicted that this option would have a slight beneficial impact on landscape and townscape and the historic environment.

Who the option impacts on

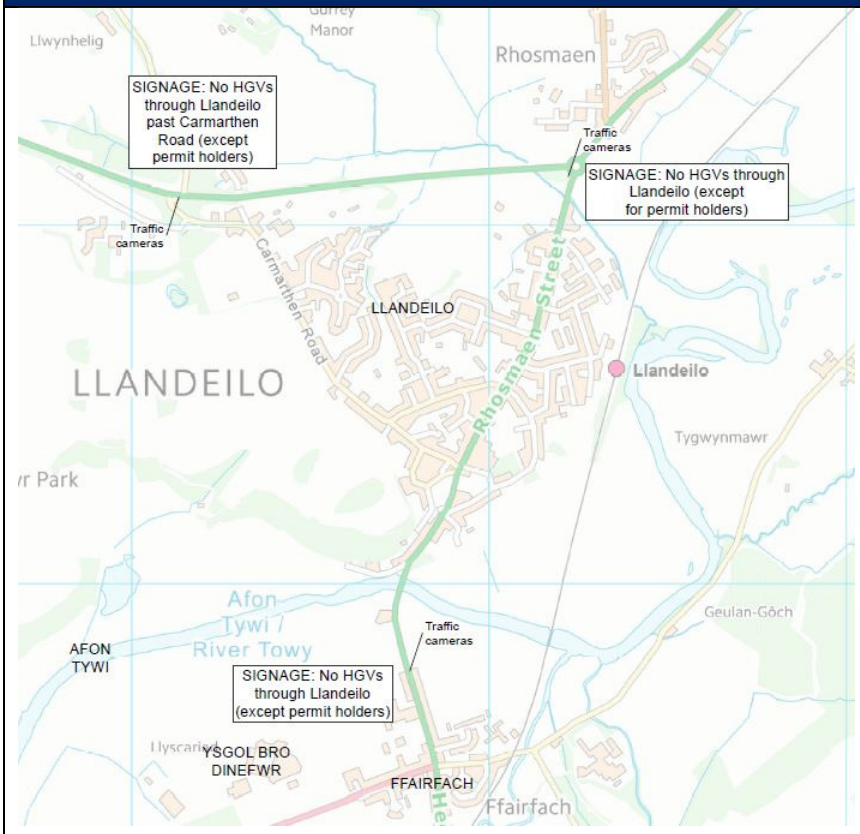
Heavy vehicles users may dis-benefit from this option due to a HGV restriction along the A483. There would however be a beneficial impact for residential properties and businesses situated along the A483 as air quality would improve due to the HGV restriction. Walkers and cyclists would benefit the most within Llandeilo's town Centre due to the reduction of HGVs during certain hours of the day.

Table 3.12 NB4 – HGV Restriction with permit/emissions charge

Description

Restriction on HGVs with the exception of businesses within a certain distance which would be entitled to a free permit. The permit for other businesses will be priced at a cost that makes it more economically viable to go via Carmarthen rather than through Llandeilo and/or Ffairfach. This option would be a similar scheme to congestion charge/emission zone areas.

Location



How it tackles the problem

NB4 would reduce severance along the A483/Rhosmaen Street within Llandeilo due to the removal of the majority of HGV movements through the town. It would also improve journey reliability for car drivers through Llandeilo as delays at pinch points would be reduced. While journey time reliability for HGV drivers is likely to improve there would be a significant increase in journey time, therefore this cannot be seen as an advantage to these road users. This option would not preserve the strategic road network through Llandeilo due to the HGV restrictions. It would result in an improvement in air quality as a result of the reduction in HGV emissions and also reduce the amount of start / stop acceleration for other road users.

This option would contribute to the Welsh Government achieving its Well-being Objectives and would help deliver some of the long-term outcomes set out in the Wales Transport Strategy.

To what extent it meets the objectives

Objective No	1	2	3	4	5	6	7	8
Met ✓ or ×	×	✓	✓	×	✓	×	✓	×

This option would not preserve the strategic function of the A483 or improve journey time reliability through Llandeilo and Ffairfach. Additionally, the option would not contribute to sustainable economic growth and tourism opportunities in Llandeilo or support the transition to a low carbon society.

Other relevant issues (key risks, adverse impacts, constraints, and interdependencies)

Key risks: One key risk associated with this option is the additional traffic along the A40 towards Carmarthen from Llandeilo/towards Llandeilo from Carmarthen.

Adverse impacts: See appraisal below.

Constraints: See appraisal below

Interdependencies: No interdependencies have been identified at this stage.

Appraisal

Economy and Social and Cultural

Appraisal of Economics and Social and Cultural impacts has identified that this option has an overall score of slight beneficial across the appraisal areas, journey time changes and journey time reliability changes have a slight negative impact however.

Environment

It is anticipated that there would be a neutral effect upon biodiversity, noise, the water environment and soils and geology. In regards to air quality it has been predicted that this option would have a moderate beneficial impact. It has also been predicted that this option would have a slight beneficial impact on landscape and townscape and the historic environment.

Who the option impacts on

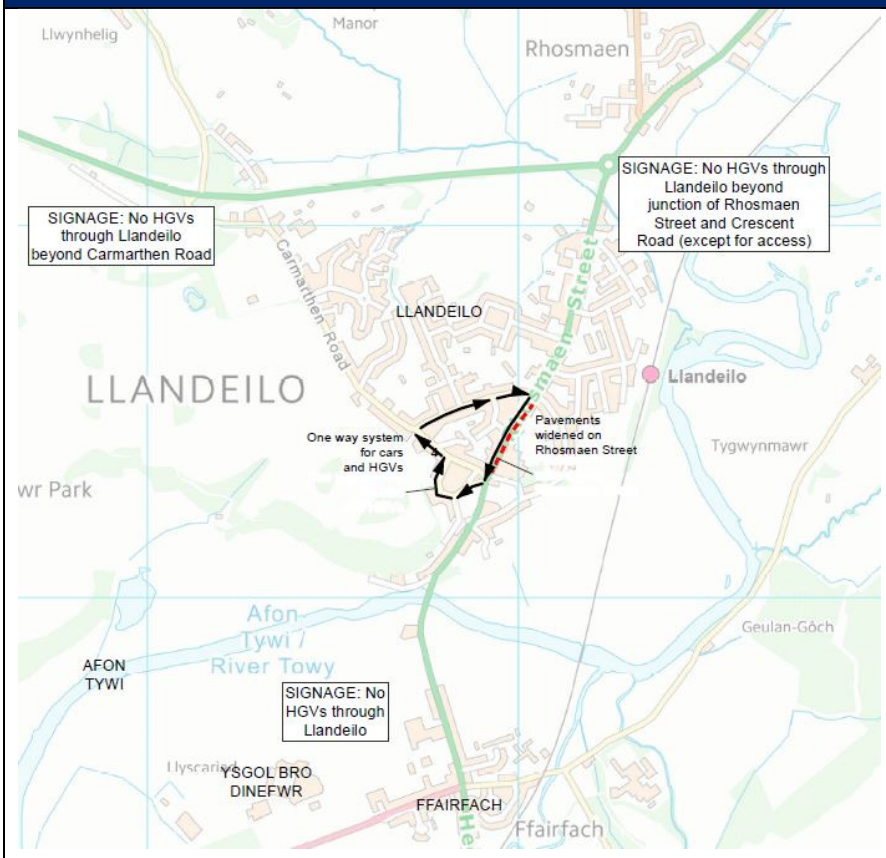
Heavy vehicle users would dis-benefit from this option however, this would have a positive impact on residential properties and businesses in regards to air quality as a result of the reduction in HGVs in the town Centre. Walkers and cyclists would also benefit due to the reduction of HGVs.

Table 3.13 NB5 – HGV Restriction (legal sanction) plus one-way system

Description

One-way system where there would be limited access for HGVs travelling southbound from the A40 onto the A483, with access permitted for deliveries only. Rhosmaen Street would be one-way southbound, and directed to King Street onto Carmarthen Road and back onto the A40. HGVs would be restricted from crossing Llandeilo Bridge crossing the Afon Tywi in a northbound direction and the A483 will be de-trunked**.**

Location



How it tackles the problem

NB5 may reduce severance along the A483/Rhosmaen Street within Llandeilo as well as improve journey reliability due to providing a direct, free-flow route which would avoid the pinch points within Llandeilo/Ffairfach. This option would result in a reduction in air pollution within the AQMA.

This option would contribute to the Welsh Government achieving its Well-being Objectives and would help deliver some of the long-term outcomes set out in the Wales Transport Strategy.

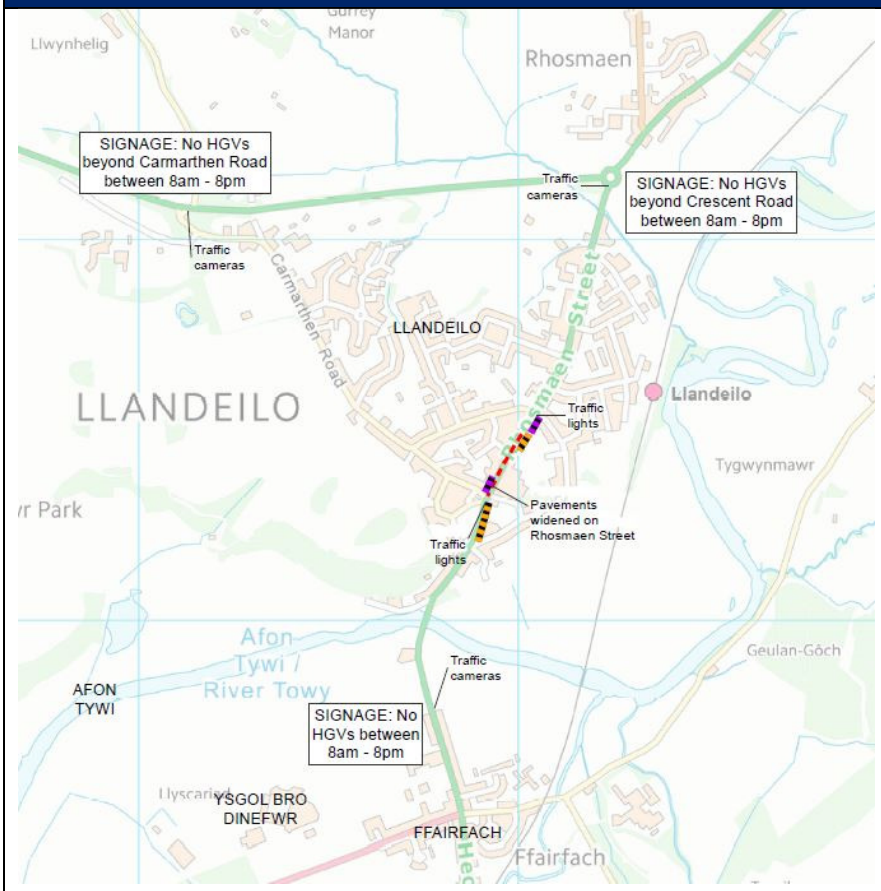
To what extent it meets the objectives								
Objective No	1	2	3	4	5	6	7	8
Met ✓ or ×	×	✓	✓	×	✓	×	✓	×
This option would not preserve the strategic function of the A483 or improve journey time reliability through Llandeilo and Ffairfach. Additionally, the option would not contribute to sustainable economic growth and tourism opportunities in Llandeilo or support the transition to a low carbon society.								
Other relevant issues (key risks, adverse impacts, constraints, and interdependencies)								
Key risks: One key risk associated with this option is that it will create a longer journey for HGVs to be re-routed towards Carmarthen. Another key associated risk with this option is the additional traffic along the A40 towards Carmarthen from Llandeilo/towards Llandeilo from Carmarthen. *Adverse impacts:* See appraisal below. *Constraints:* See appraisal below *Interdependencies:* No interdependencies dependencies have been identified at this stage.								
Appraisal								
Economy and Social and Cultural								
Appraisal of Economics and Social and Cultural impacts has identified that this option has an overall score of slight beneficial across the appraisal areas, journey time changes and journey time reliability changes have a slight negative impact however.								
Environment								
It is anticipated that there would be a neutral impact upon biodiversity, noise, the water environment and soils and geology. In regards to air quality it has been predicted that this option would have a moderate beneficial impact. It has also been predicted that this option would have a slight beneficial impact on landscape and townscape and the historic environment.								
Who the option impacts on								
Heavy vehicle users may dis-benefit from this option however this would have a slight beneficial impact on residential properties and businesses located along the A483 in terms of noise and local air quality. Walkers and cyclists would also benefit from this option due to the reduced volume of HGVs using the A483.								

Table 3.14 NB6 – Combined No-bypass Option (with HGV restriction)

Description

This option is a package of works representing a combination of NB1, NB2 and NB3.

Location



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How it tackles the problem

NB6 would improve journey time reliability due to providing a direct, free-flow route (albeit with lights) which would reduce the pinch points within Llandeilo/Ffairfach. Pedestrian safety would also improve as well as the cycling environment, road safety and may promote visitors as the number of through-traffic journey should decrease. It is also anticipated that vehicle speeds/acceleration on the A483 would reduce due to the reduction in parked vehicles.NB6 would reduce severance along the A483/Rhosmaen Street. This option would result in a reduction in air pollution within the AQMA.

This option would contribute to Welsh Government achieving its Well-being Objectives and help deliver some of the long term outcomes set out in the Wales Transport Strategy.

To what extent it meets the objectives								
Objective No	1	2	3	4	5	6	7	8
Met ✓ or ×	×	✓	✓	×	✓	×	✓	×
This option would not preserve the strategic function of the A483 or improve journey time reliability through Llandeilo and Ffairfach. Additionally, the option would not contribute to sustainable economic growth and tourism opportunities in Llandeilo or support the transition to a low carbon society.								
Other relevant issues (key risks, adverse impacts, constraints, and interdependencies)								
Key risks: One key risk associated with this option is the additional traffic it would create along the A40 towards Carmarthen from Llandeilo/towards Llandeilo from Carmarthen. *Adverse impacts:* See appraisal below. *Constraints:* See appraisal below *Interdependencies:* No interdependencies have been identified at this stage.								
Appraisal								
Economy and Social and Cultural								
Appraisal of Economics and Social and Cultural impacts has identified that this option has an overall score of slight beneficial across all appraisal areas.								
Environment								
It is anticipated that there would be a neutral effect upon biodiversity, noise, the water environment and soils and geology. In regards to air quality it has been predicted that this option would have a moderate beneficial impact. It has also been predicted that this option would have a slight beneficial impact on to landscape and townscape and the historic environment.								
Who the option impacts on								
Light and heavy vehicle users could dis-benefit from this option however, as a result of this it is anticipated that there would be a slight beneficial effect on residential properties and businesses along the A483 in regard to air quality. Walkers and cyclists would probably benefit the most from this option due to the widening of the pavements and reduction of HGVs in the town Centre.								

Table 3.15 NB7 – Combined No-bypass Option (No HGV restriction)

Description

This option is a package of works representing a combination of NB1 and NB2.

Location

How it tackles the problem

NB7 may reduce severance along the A483/Rhosmaen Street within Llandeilo as well as improve journey reliability due to providing a direct, free-flow route which would avoid the pinch points within Llandeilo/Ffairfach. It is also anticipated that vehicle speeds/acceleration on the A483 would reduce due to the reduction in parked vehicles. This option would result in a reduction in air pollution within the AQMA.

This option would contribute to the Welsh Government achieving its Well-being Objectives and help deliver some of the long term outcomes set out in the Wales Transport Strategy.

To what extent it meets the objectives								
Objective No	1	2	3	4	5	6	7	8
Met ✓ or ×	✓	✓	✓	×	✓	×	✓	×
This option fulfils the majority of the objectives. It does not however improve journey time reliability through Llandeilo and Ffairfach, contribute to sustainable economic growth and tourism opportunities in Llandeilo or support the transition to a low carbon society.								
Other relevant issues (key risks, adverse impacts, constraints, and interdependencies)								
Key risks: Some of the key risks associated with this option include potential delays due to the traffic light system, negative impacts on the local economy and negative impacts on services all within Llandeilo town Centre. *Adverse impacts:* See appraisal below. *Constraints:* See appraisal below *Interdependencies:* No interdependencies have been identified at this stage.								
Appraisal								
Economy and Social and Cultural								
Appraisal of Economics and Social and Cultural impacts has identified that this option has an overall score of slight beneficial, with a higher score for social and cultural appraisal and a slightly lower score for economic appraisal.								
Environment								
It is anticipated that there would be a neutral effect upon biodiversity, noise, the water environment and soils and geology. In regards to air quality it has been predicted that this option would have a moderate beneficial impact. It has also been predicted that this option would have a slight beneficial impact on landscape and townscape and the historic environment.								
Who the option impacts on								
It is anticipated that there would be a slight adverse impact on light and heavy vehicle users. However, as a result of this, it is anticipated that there will be a slight beneficial effect on residential properties and businesses in terms of local air quality. Walkers and cyclists would most benefit from this option due to the widening of the footways and the reduction of HGVs in the town Centre.								

3.3.4 Eastern Bypass Options

This section identifies the potential long list for the Eastern Bypass Options. The tables include a description of the option, indicative location and appraisal which feed into the Appraisal Summary Table. The Eastern Bypass Options are:

- BE1A – Eastern Bypass Option 1 (A)
- BE1B – Eastern Bypass Option 1 (B)
- BE1C – Eastern Bypass Option 1 (C)
- BE1D – Eastern Bypass Option 1 (D)
- BE2 – Eastern Bypass Option 2
- BE3A – Eastern Bypass Option 3 (A)
- BE3B – Eastern Bypass Option 3 (B)
- BE3C – Eastern Bypass Option 3 (C)
- BE3D – Eastern Bypass Option 3 (D)
- BE4A – Eastern Bypass Option 4 (A)
- BE4B – Eastern Bypass Option 4 (B)
- BE4C – Eastern Bypass Option 4 (C)
- BE4D – Eastern Bypass Option 4 (D)
- BE5A – Eastern Bypass Option 5 (A)
- BE5B – Eastern Bypass Option 5 (B)
- BE6 – Eastern Bypass Option 6

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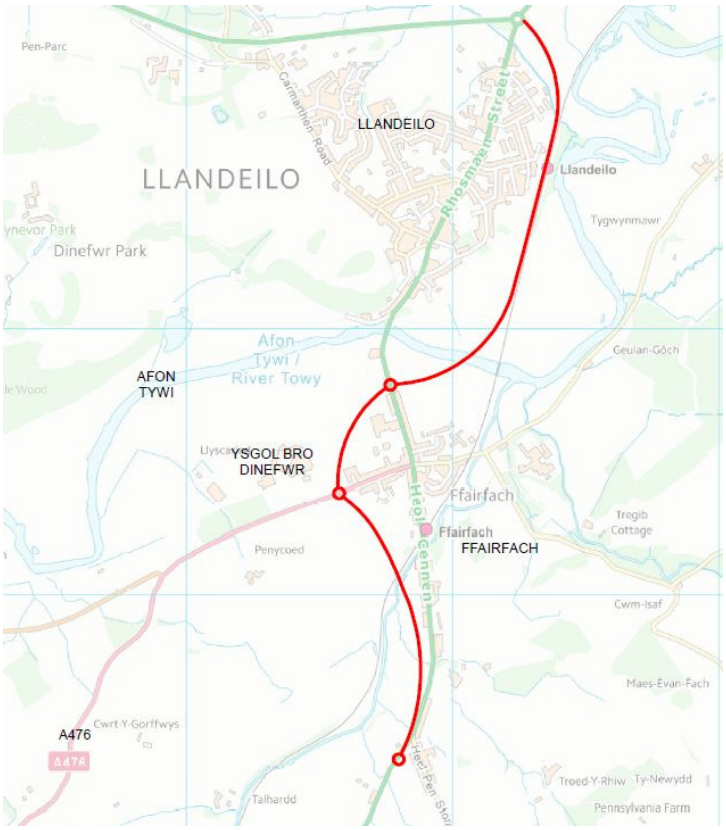
Table 3.16 BE1A – Eastern Bypass Option 1 (A)

Description

Eastern Bypass Option 1 (A) leaves the A40 at the A40/A483 roundabout, heading south east around the boundary of Llandeilo, to the west of the railway line and follows the railway line. The route then heads west, crossing the Afon Tywi then joins the A483 to the south of Llandeilo Bridge. A proposed roundabout would be constructed on the A483 to the south of Llandeilo Bridge. The route then heads further west and joins the A476 to the east of Ysgol Bro Dinefwr. A roundabout is proposed to be constructed on the A476 where the route then heads south east and joins the A483 to the south of Heol Pen Storom.

Location



How it tackles the problem

BE1A would improve journey reliability due to providing a direct, free-flow route which would avoid the pinch points within Llandeilo/Ffairfach. Pedestrian safety within Llandeilo and Ffairfach and may promote visitors as the number of through-traffic journey should decrease with a bypass in place.

HGV and school traffic should also reduce within Llandeilo/Ffairfach as it is anticipated that HGVs would use the bypass rather than Rhosmaen Street as the current A483 would be de-trunked. Further to this, emergency service response times (on call) should improve due to a reduction in traffic using Rhosmaen Street, or emergency service vehicles could use the bypass which would provide a direct, free-flow route.

This option would result in a reduction in air pollution within the AQMA.

To what extent it meets the objectives

Objective No	1	2	3	4	5	6	7	8
Met ✓ or x	✓	Partial	Partial	✓	✓	✓	✓	✓

This option fulfils scheme objectives 1, 4, 5, 6, 7 and 8, and partially meets scheme objectives 2 and 3.

Other relevant issues (key risks, adverse impacts, constraints, and interdependencies)

Key risks: - Time to acquire land and the cost of land acquisition.

- Topography and ground conditions – investigation is required to understand the potential engineering and cost constraints, as well as the associated impacts.
- Potential impact on flooding.

Adverse impacts: See appraisal below.

Constraints: See appraisal below

Interdependencies: - Acquisition of relevant land to facilitate option.

Appraisal

Economy and Social and Cultural

Appraisal of Economics and Social and Cultural impacts has identified that this option scores either beneficial or negligible across the assessment areas other than severance which scores moderate negative impact.

Environment

A neutral effect is anticipated to soils and geology. A neutral effect is anticipated for noise due to a balance of both noise decreases within Llandeilo but increases in areas currently unaffected by road noise. A beneficial effect is anticipated for air quality due to large reduction of vehicle movements. An adverse effect to the water environment and biodiversity is anticipated due to the crossing of a designated water feature and loss of hedgerow habitat. Adverse effects are anticipated to landscape, townscape and cultural heritage due to effects to a scheduled monument, local views and views from Brecon Beacons National Park.

Who the Option impacts on

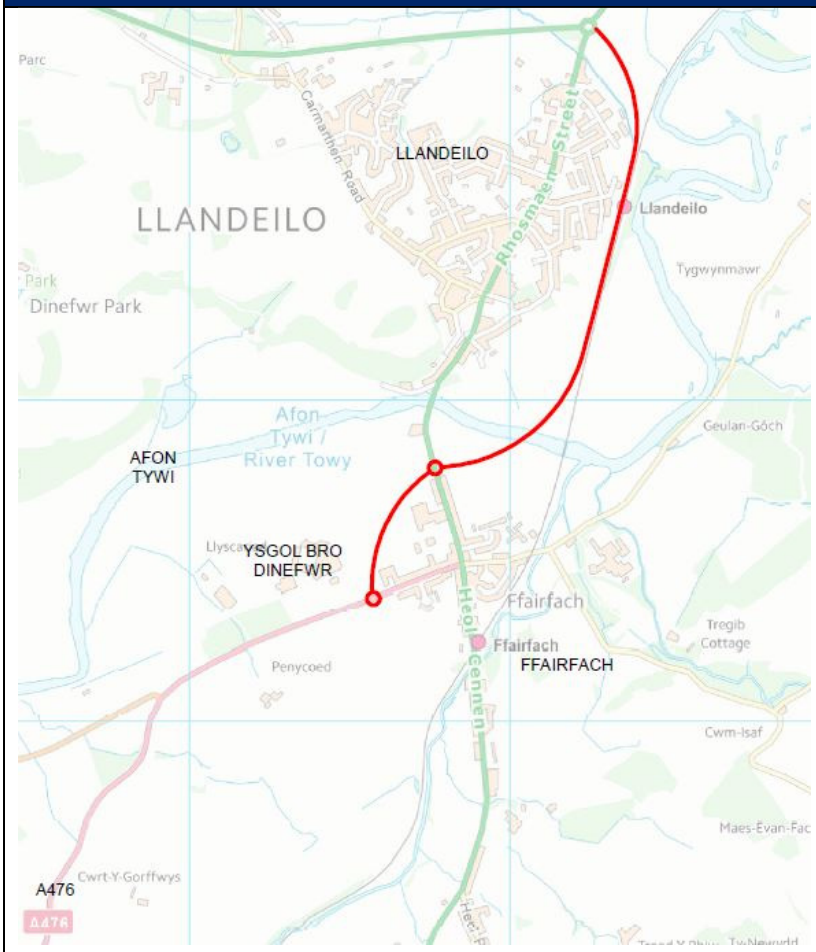
All road users are expected to have a moderate beneficial effect in relation to Journey times and Journey time reliability. The Local economy in Llandeilo's Town Centre is expected to have a slight benefit. A moderate beneficial impact is predicted in relation to Local Air Quality. Walkers and Cyclists are expected to benefit most as a reduction in vehicles using Rhosmaen street.

Table 3.17 BE1B – Eastern Bypass Option 1 (B)

Description

Eastern Bypass Option 1 (B) leaves the A40 at the A40/A483 roundabout, heading south east around the boundary of Llandeilo, to the west of the railway line and follows the railway line, heading west to join the A483 to the south of Llandeilo Bridge. A proposed roundabout would be constructed on the A483 to the south of Llandeilo Bridge.

Location



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How it tackles the problem

BE1B would improve journey reliability due to providing a direct, free-flow route which would avoid the pinch points within Llandeilo/Ffairfach. Pedestrian safety would also improve as well as the cycling environment, road safety and may promote visitors as the number of through-traffic journey would decrease with a bypass in place. HGV and school traffic would also reduce within Llandeilo/Ffairfach as it is anticipated that HGVs would use the bypass rather than Rhosmaen Street as the current A483 would be de-trunked. Further to this, emergency service response times (on call)

would improve due to a reduction in traffic using Rhosmaen Street, or emergency service vehicles could use the bypass which would provide a direct, free-flow route. This option would result in a reduction in air pollution within the AQMA.

To what extent it meets the objectives

Objective No	1	2	3	4	5	6	7	8
Met ✓ or x	✓	✓	✓	✓	✓	✓	✓	✓

This option fulfils all scheme objectives.

Other relevant issues (key risks, adverse impacts, constraints, and interdependencies)

Key risks: - Time to acquire land and the cost of land acquisition, topography and ground conditions investigation is required to understand the potential engineering and cost constraints, as well as the associated impacts on flooding.

Adverse impacts: See appraisal below.

Constraints: See appraisal below

Interdependencies: Acquisition of relevant land to facilitate option.

Appraisal

Economy and Social and Cultural

The majority of the appraisal areas for this option of Economics and Social and Cultural impacts score either beneficial or negligible with the exception of severance which scores slight negative.

Environment

A neutral effect is anticipated to soils and geology. A neutral effect is anticipated for noise due to a balance of both noise decreases within Llandeilo but increases in areas currently unaffected by road noise. A beneficial effect is anticipated for air quality due to a reduction of vehicle movements. An adverse effect to the water environment and biodiversity is anticipated due to the crossing of two designated water features and through loss of hedgerow habitat. Adverse effects are anticipated to landscape, townscape and cultural heritage due to effects to a scheduled monument, local views and views from Brecon Beacons National Park.

Who the option impacts on

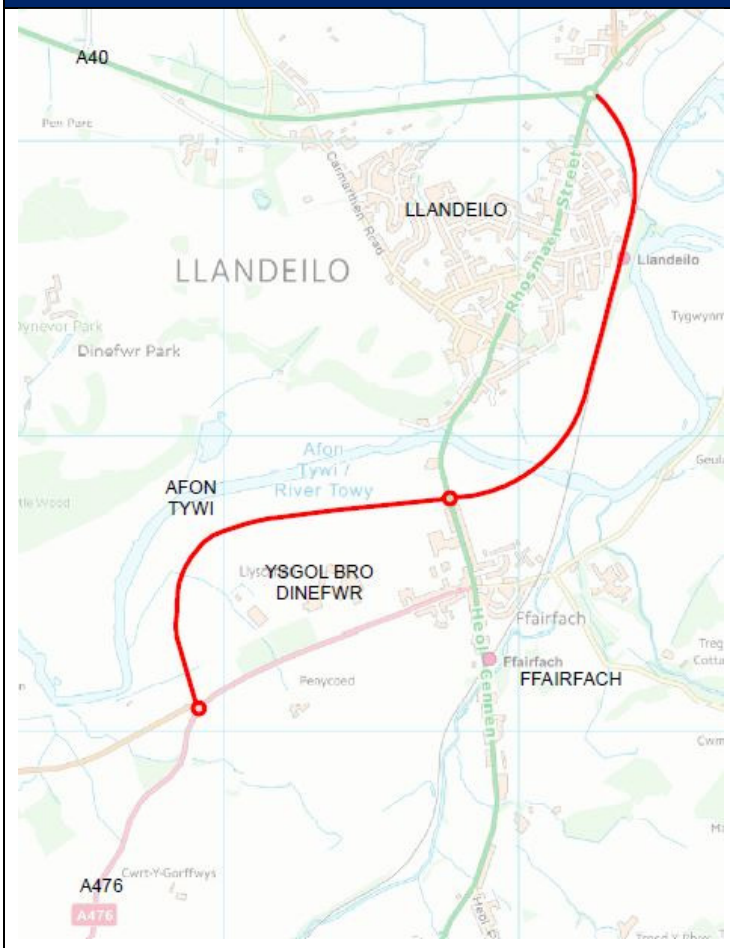
It anticipated a moderate beneficial impact upon Journey time and journey reliability for all road users. There is a slight beneficial impact upon the local economy and the local air quality. It is expected that there would be a large adverse impact upon Landscape and Townscape, Bio-diversity and the Water environment. Furthermore, it is expected that there would be a slight beneficial impact on Active travel, Access to services and employment as well as on Accidents in the area.

Table 3.18 BE1C – Eastern Bypass Option 1 (C)

Description

Eastern Bypass Option 1 (C) leaves the A40 at the A40/A483 roundabout, heading south east around the boundary of Llandeilo, to the west of the railway line and follows the railway line. The route then heads west to join the A483 to the south of Llandeilo Bridge. A proposed roundabout would be constructed on the A483 to the south of Llandeilo Bridge. The route then heads further west and joins the A476 to the west of Ysgol Bro Dinefwr. A roundabout is proposed to be constructed at the junction of the B4300/A476.

Location



How it tackles the problem

BE1C would improve journey reliability due to providing a direct, free-flow route which would avoid the pinch points within Llandeilo/Ffairfach. Pedestrian safety within the town would also improve as a result of the improvements in road safety and may promote visitors as the number of through-traffic journey should decrease with a bypass in place. HGV and school traffic within the town

would also reduce within Llandeilo/Ffairfach as it is anticipated that HGVs would use the bypass rather than Rhosmaen Street as the current A483 would be de-trunked. Further to this, emergency service response times (on call) should improve due to a reduction in traffic using Rhosmaen Street, or emergency service vehicles could use the bypass which would provide a direct, free-flow route. This option would result in a reduction in air pollution within the AQMA.

To what extent it meets the objectives

Objective No	1	2	3	4	5	6	7	8
Met ✓ or x	✓	✓	✓	✓	✓	✓	✓	✓

This option fulfils all scheme objectives.

Other relevant issues (key risks, adverse impacts, constraints, and interdependencies)

Key risks: - Time to acquire land and the cost of land acquisition, topography and ground conditions investigation is required to understand the potential engineering and cost constraints, as well as the associated impacts on flooding.

Adverse impacts: See appraisal below.

Constraints: See appraisal below

Interdependencies: - Acquisition of relevant land to facilitate option.
Acquisition of necessary investment to facilitate option.

Appraisal

Economy and Social and Cultural

The majority of the appraisal areas for this option of Economics and Social and Cultural impacts score either slight beneficial or negligible with the exception of severance which scores slight negative.

Environment

A neutral effect is anticipated to soils and geology. A neutral effect is anticipated for noise due to a balance of both noise decreases within Llandeilo but increases in areas currently unaffected by road noise. A beneficial effect is anticipated for air quality due to a reduction of vehicle movements. An adverse effect to the water environment and biodiversity is anticipated due to the crossing of several designated water features and through loss of hedgerow habitat. Adverse effects are anticipated to landscape, townscape and cultural heritage due to effects to a scheduled monument, local views and views from Brecon Beacons National Park.

Who the option impacts on

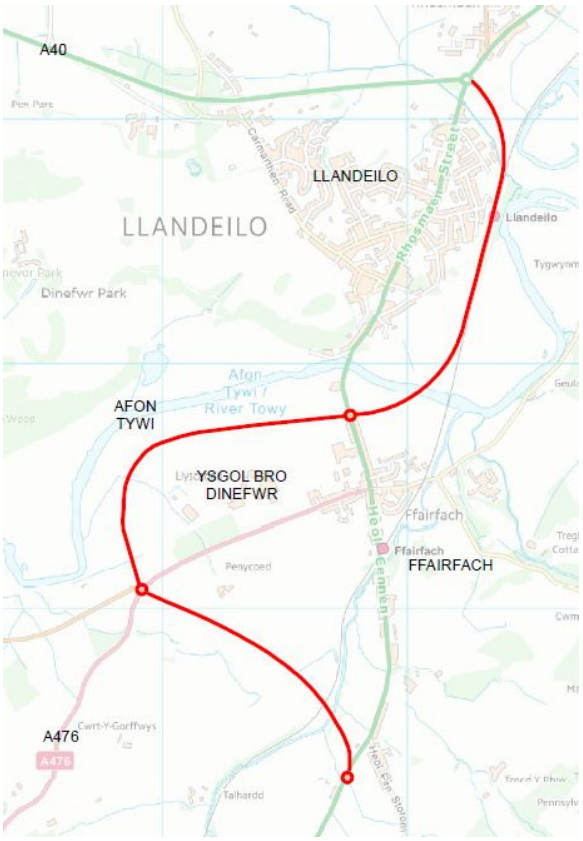
It is expected that there will be a slight beneficial impact on Journey time changes/reliability and also on the local economy. There is also a slight beneficial impact on the Local air quality. It is also expected that there will be a large adverse impact upon Landscape and Townscape, Bio-diversity and the Water environment. In relation to social and cultural there is a slight beneficial impact expected upon Physical activity, Journey quality, accidents and access to employment and services.

Table 3.19 BE1D – Eastern Bypass Option 1 (D)

Description

Eastern Bypass Option 1 (D) leaves the A40 at the A40/A483 roundabout, heading south east around the boundary of Llandeilo, to the west of the railway line and follows the railway line. The route then heads west to join the A483 to the south of Llandeilo Bridge. A proposed roundabout would be constructed on the A483 to the south of Llandeilo Bridge. The route then heads further west and joins the A476 to the west of Ysgol Bro Dinefwr. A roundabout is proposed to be constructed at the junction of the B4300/A476 and a link from the proposed roundabout at B4300/A476 to the A483 south of Heol Pen Storom.

Location



How it tackles the problem

BE1D would reduce severance along the A483/Rhosmaen Street within Llandeilo as well as improve journey reliability due to providing a direct, free-flow route which would avoid the pinch points within Llandeilo/Ffairfach. Pedestrian safety should also improve as well as the cycling environment, road safety and may promote visitors as the number of through-traffic journey should decrease with a bypass in place. Further to this, emergency service response times (on call) should improve due to

a reduction in traffic using Rhosmaen Street, or emergency service vehicles could use the bypass which would provide a direct, free-flow route. The bypass would remove through traffic from the A476 as it passes the entrance to Ysgol Bro Dinefwr. This option would result in a reduction in air pollution within the AQMA.

To what extent it meets the objectives

Objective No	1	2	3	4	5	6	7	8
Met ✓ or x	✓	✓	✓	✓	x	✓	x	x

This option fulfils scheme objectives 1, 2, 3, 4 and 6, however, does not meet scheme objectives 5, 7, 8.

Other relevant issues (key risks, adverse impacts, constraints, and interdependencies)

Key risks: - Time to acquire land and the cost of land acquisition, topography and ground conditions investigation is required to understand the potential engineering and cost constraints, as well as the associated impacts on flooding.

Adverse impacts: See appraisal below.

Constraints: See appraisal below

Interdependencies: - Acquisition of relevant land to facilitate option.
Acquisition of necessary investment to facilitate option.

Appraisal

Economy and Social and Cultural

The majority of the appraisal areas for this option of Economics and Social and Cultural impacts score either slight beneficial or negligible with the exception of severance which scores slight negative.

Environment

A neutral effect is anticipated to soils and geology. A neutral effect is anticipated for noise due to a balance of both noise decreases within Llandeilo but increases in areas currently unaffected by road noise. A beneficial effect is anticipated for air quality due to a large reduction of vehicle movements through the AQMA. An adverse effect to the water environment and biodiversity is anticipated due to the crossing of several designated water features and through loss of hedgerow habitat. Adverse effects are anticipated to landscape, townscape and cultural heritage due to effects to a scheduled monument, listed buildings, local views and views from Brecon Beacons National Park.

Who the option impacts on

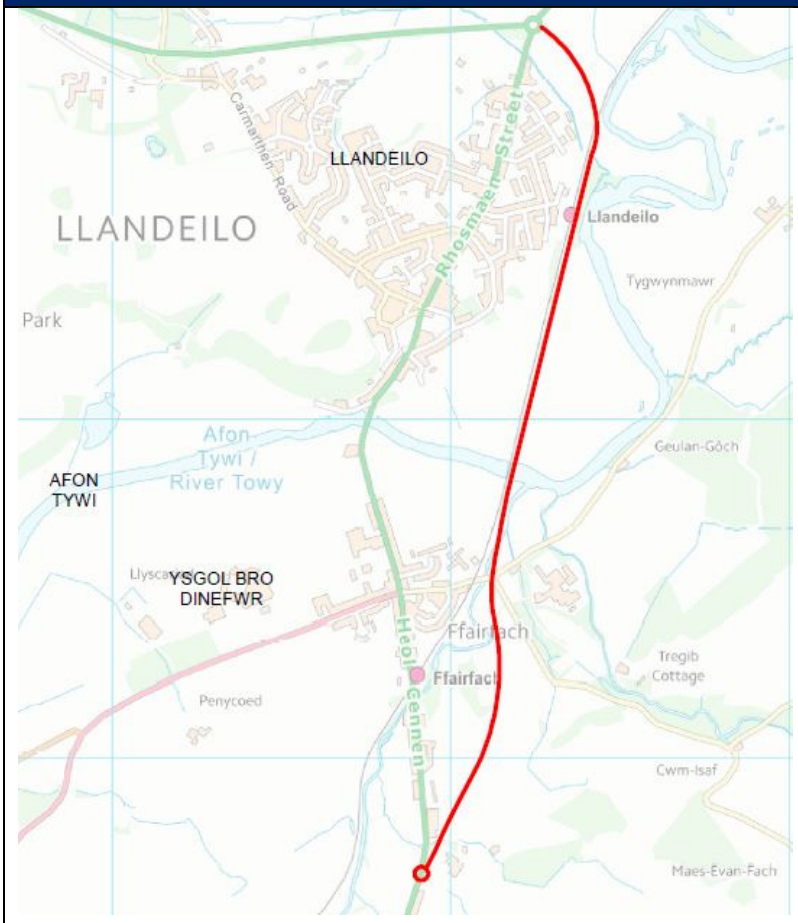
It is expected that there will be a slight beneficial impact on Journey time changes/reliability and also on the local economy. There is also a moderate beneficial impact on the Local air quality. There is also a slight beneficial impact on the Local air quality. It is also expected that there will be a large adverse impact upon Landscape and Townscape, Bio-diversity and the Water environment. In relation to social and cultural there is a slight beneficial impact expected upon Physical activity, Journey quality, accidents and access to employment and services.

Table 3.20 BE2 – Eastern Bypass Option 2

Description

Eastern Bypass Option 2 leaves the A40 at the A40/A483 roundabout, heading south-east around the boundary of Llandeilo before crossing the railway and following the railway line south to Bethlehem Road. From Bethlehem road, the route then heads south to join the A483 to the north of Heol Pen Storom. This option would require a link to the A476.

Location



How it tackles the problem

Subject to the provision of a link between the A476 and A483, BE2 would reduce severance along the A483/Rhosmaen Street within Llandeilo as well as improve journey reliability due to providing a direct, free-flow route which would avoid the pinch points within Llandeilo/Ffairfach. Pedestrian safety should also improve as well as the cycling environment, road safety and may promote visitors as the number of through-traffic journey should decrease with a bypass in place. HGV and school traffic should also reduce within Llandeilo/Ffairfach as it is anticipated that HGVs would use the bypass rather than Rhosmaen Street as the current A483 would be de-trunked. Further to this,

emergency service response times (on call) should improve due to a reduction in traffic using Rhosmaen Street, or emergency service vehicles could use the bypass which would provide a direct, free-flow route. This option would result in a reduction in air pollution within the AQMA.

To what extent it meets the objectives

Objective No	1	2	3	4	5	6	7	8
Met ✓ or x	✓	✓	✓	✓	✓	✓	✓	x

This option meets all the objectives other than objective 8.

Other relevant issues (key risks, adverse impacts, constraints, and interdependencies)

Key risks: - Time to acquire land and the cost of land acquisition, topography and ground conditions investigation is required to understand the potential engineering and cost constraints, as well as the associated impacts on flooding.

Adverse impacts: See appraisal below.

Constraints: See appraisal below

Interdependencies: - Acquisition of necessary investment to facilitate option.
Acquisition of necessary investment to facilitate option.

Appraisal

Economy and Social and Cultural

Appraisal of Economics and Social and Cultural impacts has identified that this option scores for the majority of the appraisal areas of beneficial, particularly journey quality and severance, with a negligible impact on security and affordability, this option also scores a large beneficial for journey time changes.

Environment

A neutral effect is anticipated to soils and geology. A neutral effect is anticipated for noise due to a balance of both noise decreases within Llandeilo but increases in areas currently unaffected by road noise. A beneficial effect is anticipated for air quality due to a large reduction of vehicle movements through the AQMA, although there is potential for air quality worsening east of Llandeilo/Ffairfach. An adverse effect to the water environment and biodiversity is anticipated due to the crossing of several designated water features and through loss of hedgerow habitat. Adverse effects are anticipated to landscape, townscape and cultural heritage due to effects to a scheduled monument, listed buildings, local views and views from Brecon Beacons National Park.

Who the option impacts on

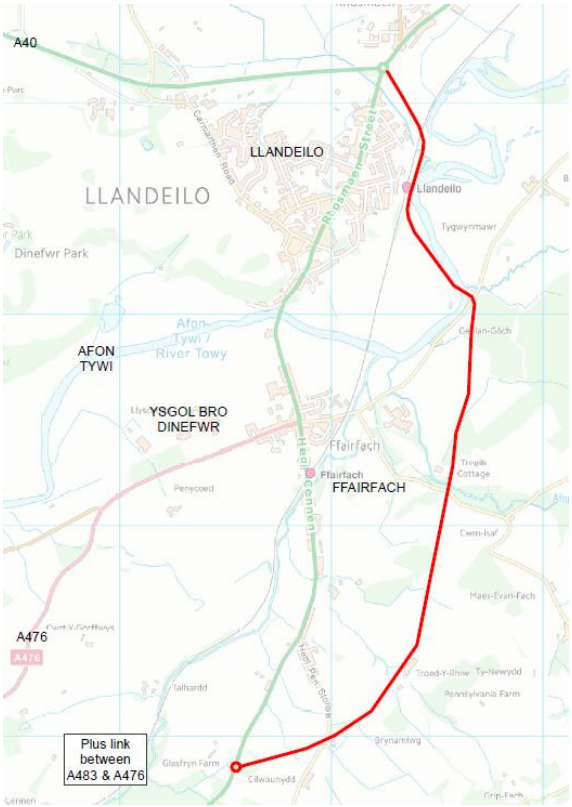
It is expected that there will be a large beneficial impact on Journey time changes and a slight beneficial impact on reliability and also on the local economy. There is also a large beneficial impact on the Local air quality. There is also a slight beneficial impact on the Local air quality. It is also expected that there will be a large adverse impact upon Landscape and Townscape, Bio-diversity and the Water environment. In relation to social and cultural there is a slight beneficial impact expected upon Physical activity, accidents and access to employment and services.

Table 3.21 BE3A – Eastern Bypass Option 3 (A)

Description

Eastern Bypass Option 3 (A) leaves the A40 at the A40/A483 roundabout, heading south-east around the boundary of Llandeilo before crossing the railway and following the railway line south for a short distance before crossing the Afon Tywi, joining Bethlehem Road around Geulan-Goch. From this location the road would continue south avoiding the former secondary school, and link to the A483 to the south of Heol Pen Storom. This option would require a link to the A476.

Location



How it tackles the problem

BE3A would reduce severance along the A483/Rhosmaen Street within Llandeilo (subject to the link between the A476 and A483 being provided) as well as improve journey reliability due to providing a direct, free-flow route which would avoid the pinch points within Llandeilo/Ffairfach. Pedestrian safety should also improve as well as the cycling environment, road safety and may promote visitors as the number of through-traffic journey should decrease with a bypass in place. HGV and school traffic should also reduce within Llandeilo/Ffairfach as it is anticipated that HGVs would use the bypass rather than Rhosmaen Street as the current A483 would be de-trunked. Further to this, emergency service response times (on call) should improve due to a reduction in

traffic using Rhosmaen Street, or emergency service vehicles could use the bypass which would provide a direct, free-flow route. This option would result in a reduction in air pollution within the AQMA.

To what extent it meets the objectives

Objective No	1	2	3	4	5	6	7	8
Met ✓ or x	✓	✓	✓	✓	✓	✓	✓	x

This option meets all the objectives other than objective 8.

Other relevant issues (key risks, adverse impacts, constraints, and interdependencies)

Key risks: - Time to acquire land and the cost of land acquisition, topography and ground conditions investigation is required to understand the potential engineering and cost constraints, as well as the associated impacts on flooding.

Adverse impacts: See appraisal below.

Constraints: See appraisal below

Interdependencies: - This option is dependent on a link between the A476 and A483.

- Acquisition of relevant land to facilitate option.
- Acquisition of necessary investment to facilitate option.

Appraisal

Economy and Social and Cultural

Appraisal of Economics and Social and Cultural impacts has identified that this option scores beneficial across the majority of appraisal areas, particularly journey time quality and reliability with some negligible impact on security and affordability, large beneficial has been scored for severance.

Environment

A neutral effect is anticipated to soils and geology. A neutral effect is anticipated for noise due to a balance of both noise decreases within Llandeilo but increases in areas currently unaffected by road noise. A beneficial effect is anticipated for air quality due to a large reduction of vehicle movements through the AQMA, although there is potential for air quality worsening east of Llandeilo/Ffairfach. An adverse effect to the water environment and biodiversity is anticipated due to the crossing of several designated water features and through loss of hedgerow and ancient woodland habitat. Adverse effects are anticipated to landscape, townscape and cultural heritage due to effects to a scheduled monument, listed buildings, local views and views from Brecon Beacons National Park.

Who the option impacts on

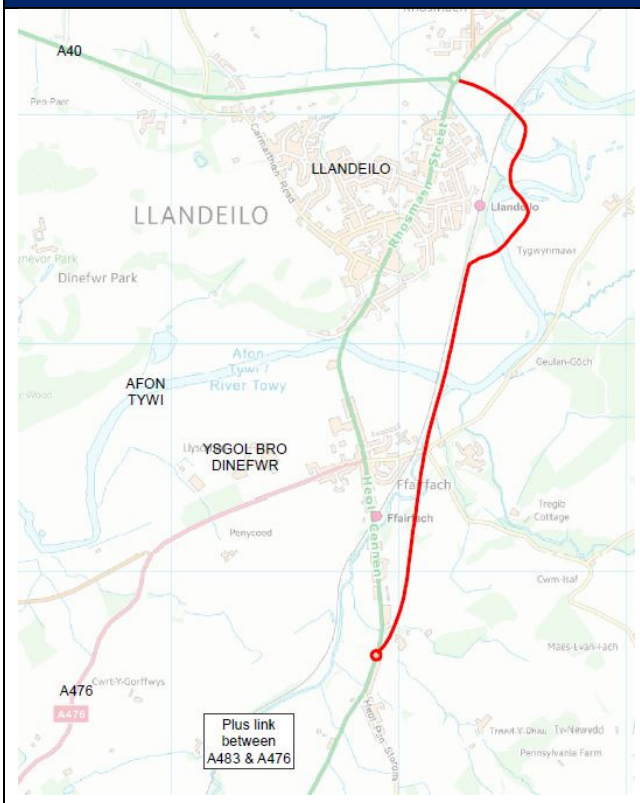
It is expected that there will be a moderate beneficial impact on Journey time changes/reliability and a slight beneficial impact on the local. There is a large beneficial impact on the Local air quality. It is also expected that there will be a large adverse impact upon Landscape and Townscape, Bio-diversity and the Water environment. In relation to social and cultural there is a slight beneficial impact expected upon Physical activity, accidents and access to employment and services.

Table 3.22 BE3B – Eastern Bypass Option 3 (B)

Description

Eastern Bypass Option 3 (B) leaves the A40 at the A40/A483 roundabout, heading south east to cross the railway line and the Afon Tywi, and wraps around to the north east of Llandeilo. From this point to the east of the railway line the route would head south over multiple river crossings. The route would then cross Bethlehem Road between Ffairfach and the former secondary school, linking to the A483 to the north of Heol Pen Storum. This option would require a link to the A476.

Location



How it tackles the problem

In order to be effective this option would have to work in association with a link between the A476 and A483 to the south of Ffairfach. BE3B would reduce severance along the A483/Rhosmaen Street within Llandeilo (depending on the chosen bypass) as well as improve journey reliability due to providing a direct, free-flow route which would avoid the pinch points within Llandeilo/Ffairfach. Pedestrian safety should also improve as well as the cycling environment, road safety and may promote visitors as the number of through-traffic journey should decrease with a bypass in place. HGV and school traffic should also reduce within Llandeilo/Ffairfach as it is anticipated that HGVs would use the bypass rather than Rhosmaen Street as the current A483 would be de-trunked. Further to this, emergency service response times (on call) should improve due to a reduction in traffic using Rhosmaen Street, or emergency service vehicles could use the bypass which would

provide a direct, free-flow route. This option would result in a reduction in air pollution within the AQMA.

To what extent it meets the objectives

Objective No	1	2	3	4	5	6	7	8
Met ✓ or x	✓	✓	✓	Partial	✓	✓	✓	x

This option also scores highly for journey quality and severance, fulfilling scheme objectives 1, 2, 3, 5, 6 and 7, partially meeting scheme objective 4 however it does not meet scheme objective 8.

Other relevant issues (key risks, adverse impacts, constraints, and interdependencies)

Key risks: - Time to acquire land and the cost of land acquisition, topography and ground conditions investigation is required to understand the potential engineering and cost constraints, as well as the associated impacts on flooding.*Adverse impacts:* See appraisal below.

Constraints: See appraisal below

Interdependencies: - Acquisition of relevant land to facilitate option.
- Acquisition of necessary investment to facilitate option.

Appraisal

Economy and Social and Cultural

Appraisal of Economics and Social and Cultural impacts has identified that this option scores for the majority of the appraisal areas of beneficial with a negligible impact on security and affordability, this option also scores a large beneficial for journey time changes.

Environment

A neutral effect is anticipated to soils and geology. A neutral effect is anticipated for noise due to a balance of both noise decreases within Llandeilo but increases in areas currently unaffected by road noise. A beneficial effect is anticipated for air quality due to a large reduction of vehicle movements through the AQMA, although there is potential for air quality worsening east of Llandeilo/Ffairfach. An adverse effect to the water environment and biodiversity is anticipated due to the crossing of several designated water features and through loss of hedgerow habitat. Adverse effects are anticipated to landscape, townscape and cultural heritage due to effects to a scheduled monument, listed buildings and as it passes through Brecon Beacons National Park.

Who the option impacts on

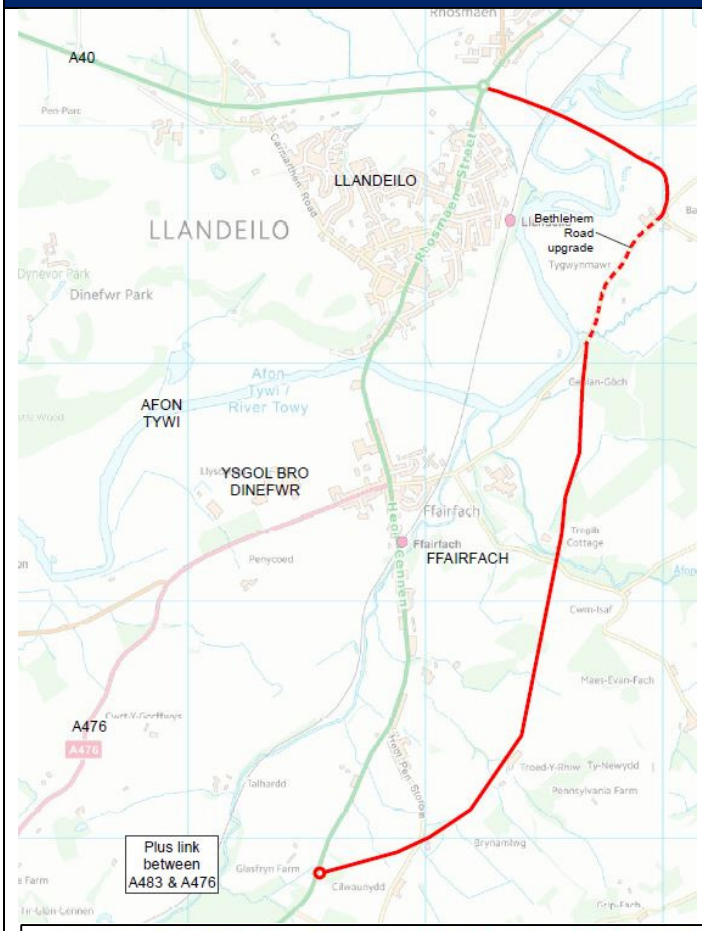
There is expected to be a Large beneficial impact on Journey time changes, a moderate beneficial impact on journey reliability and a slight beneficial impact upon the local economy. There is also a large beneficial impact expected upon Local air quality. Furthermore, it is expected that there will be a large adverse impact upon Landscape and Townscape, Bio-diversity and the Water environment. In relation to social and cultural there is a slight beneficial impact expected upon Physical activity, accidents and access to employment and services.

Table 3.23 BE3C – Eastern Bypass Option 3 (C)

Description

Eastern Bypass Option 3 (C) leaves the A40 at the existing A40/A483 roundabout, heading south east towards Bethlehem Road, crossing the Afon Tywi and railway using a single structure. The route then links to Bethlehem Road near Craigle Bach Yr Onnen, follows Bethlehem Road west to the edge of the Woodland Trust woodland then heads south avoiding the former secondary school playing fields so far as possible, before linking to the A483 to the south of Heol Pen Storum. This option would require a link to the A476.

Location



How it tackles the problem

This option is dependent on a link between the A476 and A483 which would link to the A483 where the bypass links in. BE3C would reduce severance along the A483/Rhosmaen Street within Llandeilo (depending on the chosen bypass) as well as improve journey reliability due to providing a direct, free-flow route which would avoid the pinch points within Llandeilo/Ffairfach. Pedestrian safety should also improve as well as the cycling environment, road safety and may promote visitors as the number of through-traffic journey should decrease with a bypass in place. This may

also help reduce the closure of local amenities. HGV and school traffic should also reduce within Llandeilo/Ffairfach as it is anticipated that HGVs would use the bypass rather than Rhosmaen Street as the current A483 would be de-trunked. Further to this, emergency service response times (on call) should improve due to a reduction in traffic using Rhosmaen Street, or emergency service vehicles could use the bypass which would provide a direct, free-flow route. This option would result in a reduction in air pollution within the AQMA.

To what extent it meets the objectives

Objective No	1	2	3	4	5	6	7	8
Met ✓ or x	✓	✓	✓	✓	✓	✓	✓	x

This option meets all the objectives other than objective 8.

Other relevant issues (key risks, adverse impacts, constraints, and interdependencies)

Key risks: - Time to acquire land and the cost of land acquisition, topography and ground conditions investigation is required to understand the potential engineering and cost constraints, as well as the associated impacts on flooding.
Adverse impacts: See appraisal below.

Constraints: See appraisal below

Interdependencies: - Acquisition of relevant land to facilitate option.
- Acquisition of necessary investment to facilitate option.

Appraisal

Economy and Social and Cultural

Appraisal of Economics and Social and Cultural impacts has identified that this option scores for the majority of the appraisal areas of beneficial with a negligible impact on security and affordability, this option also scores a large beneficial for severance.

Environment

A neutral effect is anticipated to soils and geology. A beneficial effect is anticipated for noise due to noise decreases within Llandeilo/Ffairfach. A beneficial effect is anticipated for air quality due to a large reduction of vehicle movements through the AQMA, although there is potential for air quality worsening east of Llandeilo/Ffairfach. An adverse effect to the water environment and biodiversity is anticipated due to the crossing of a designated water feature and through loss of hedgerow and ancient woodland habitat. Adverse effects are anticipated to landscape, townscape and cultural heritage due to effects to a scheduled monument, listed buildings and as it passes through Brecon Beacons National Park.

Who the option impacts on

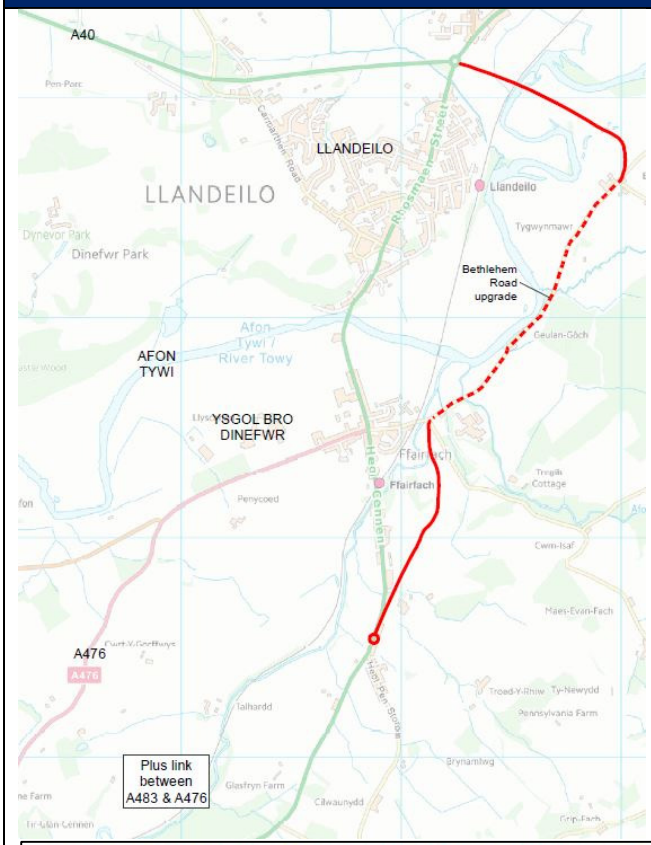
It is expected that there will be a moderate beneficial impact on Journey time changes/reliability and a slight beneficial impact on the local. There is a large beneficial impact on the Local air quality. It is also expected that there will be a large adverse impact upon Landscape and Townscape, Bio-diversity and the Water environment. In relation to social and cultural there is a slight beneficial impact expected upon Physical activity, accidents and access to employment and services.

Table 3.24 BE3D – Eastern Bypass Option 3 (D)

Description

Eastern Bypass Option 3 (D) leaves the A40 at the existing A40/A483 roundabout, heading south east towards Bethlehem Road, crossing the Afon Tywi and railway using a single structure. The route then links to Bethlehem Road near Craigle Bach Yr Onnen, follows Bethlehem Road towards Ffairfach, leaves Bethlehem Road to the west of the former secondary school to join the A483 to the north of Heol Pen Storum. This option would require a link to the A476.

Location



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How it tackles the problem

This option is dependent on the inclusion of a link between the A476 and A483 that would tie in at the point where the bypass joins the A476. BE3D would reduce severance along the A483/Rhosmaen Street within Llandeilo (depending on the chosen bypass) as well as improve journey reliability due to providing a direct, free-flow route which would avoid the pinch points within Llandeilo/Ffairfach. Pedestrian safety should also improve as well as the cycling environment, road safety and may promote visitors as the number of through-traffic journey should decrease with a bypass in place. This may also help reduce the closure of local amenities. HGV and school traffic should also reduce within Llandeilo/Ffairfach as it is anticipated that HGVs would use the bypass rather than Rhosmaen Street as the current A483 would be de-trunked. Further to this, emergency

service response times (on call) should improve due to a reduction in traffic using Rhosmaen Street, or emergency service vehicles could use the bypass which would provide a direct, free-flow route. This option would result in a reduction in air pollution within the AQMA.

To what extent it meets the objectives

Objective No	1	2	3	4	5	6	7	8
Met ✓ or x	✓	✓	✓	✓	✓	✓	✓	x

This option fulfils scheme objectives 1 to 7, however does not meet scheme objective 8.

Other relevant issues (key risks, adverse impacts, constraints, and interdependencies)

Key risks: - Time to acquire land and the cost of land acquisition.
- Topography and ground conditions – investigation is required to understand the potential engineering and cost constraints, as well as the associated impacts.
- Potential impact on flooding.
- It is excepted for the delivery of this option to be long term as a result of land acquisition, further development work and investment required.

Adverse impacts: See appraisal below.

Constraints: See appraisal below

Interdependencies: - Acquisition of relevant land to facilitate option.
- Acquisition of necessary investment to facilitate option.

Appraisal

Economy and Social and Cultural

Appraisal of Economics and Social and Cultural impacts has identified that this option scores beneficial for the majority of the appraisal areas, scoring particularly highly on journey time changes, quality and reliability, and severance, with some negligible impacts for areas such as physical activity, security and affordability.

Environment

A neutral effect is anticipated to soils and geology. A neutral effect is anticipated for noise due to a balance of both noise decreases within Llandeilo/Ffairfach but increases in areas currently unaffected by road noise. A beneficial effect is anticipated for air quality due to a large reduction of vehicle movements through the AQMA, although there is potential for air quality worsening east of Ffairfach. An adverse effect to the water environment and biodiversity is anticipated due to the crossing of a designated waterbody and through loss of hedgerow habitat and indirect impacts to ancient woodland. Adverse effects are anticipated to landscape, townscape and cultural heritage due to effects to a scheduled monument, listed buildings and as it passes through Brecon Beacons National Park.

Who the option impacts on

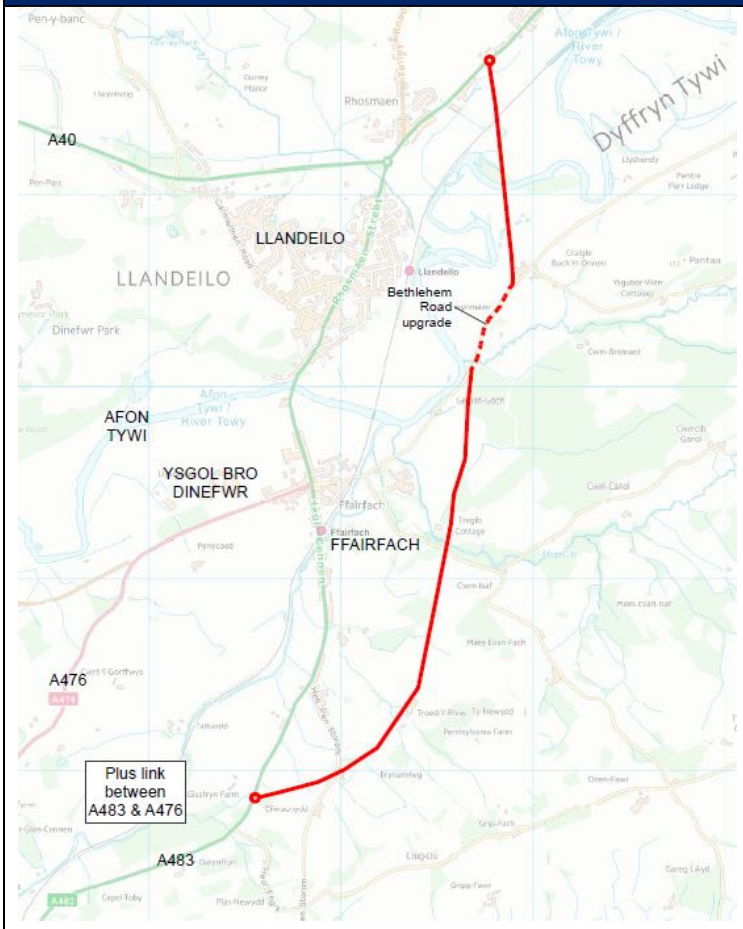
It is expected that there will be a moderate beneficial impact on Journey time changes/reliability and a slight beneficial impact on the local. There is a large beneficial impact on the Local air quality. It is also expected that there will be a large adverse impact upon Landscape and Townscape and Bio-diversity. In relation to social and cultural there is a slight beneficial impact expected upon Physical activity, accidents and access to employment and services.

Table 3.25 BE4A – Mid Rhosmaen Eastern Bypass Option 4 (A)

Description

Mid Rhosmaen Eastern Bypass Option 4 (A) leaves the A40 to the north-east of the A40/A483 roundabout using a new junction by the Plough Inn Hotel. The route then heads south east towards Bethlehem Road, crossing the railway and Afon Tywi. The route then links to Bethlehem Road near Craigle Bach Yr Onnen, follows Bethlehem Road west to the edge of the Woodland Trust woodland then heads south avoiding the former secondary school playing fields so far as possible, before linking to the A483 to the south of Heol Pen Storum. This option would require a link to the A476.

Location



How it tackles the problem

BE4A would reduce severance along the A483/Rhosmaen Street within Llandeilo (depending on a link between the A476 and A483 being provided) as well as improve journey reliability due to providing a direct, free-flow route which would avoid the pinch points within Llandeilo/Ffairfach. Pedestrian safety should also improve as well as the cycling environment, road safety and may promote visitors as the number of through-traffic journey should decrease with a bypass in place.

HGV and school traffic should also reduce within Llandeilo/Ffairfach as it is anticipated that HGVs would use the bypass rather than Rhosmaen Street as the current A483 would be de-trunked. Further to this, emergency service response times (on call) should improve due to a reduction in traffic using Rhosmaen Street, or emergency service vehicles could use the bypass which would provide a direct, free-flow route. This option would result in a reduction in air pollution within the AQMA.

To what extent it meets the objectives

Objective No	1	2	3	4	5	6	7	8
Met ✓ or x	✓	✓	✓	✓	✓	✓	✓	x

This option fulfils scheme objectives 1 to 7, however does not meet scheme objective 8.

Other relevant issues (key risks, adverse impacts, constraints, and interdependencies)

Key risks: - Key risks for this option include the time required to acquire land and the cost of land acquisition as well as topographical risks.

Adverse impacts: See appraisal below.

Constraints: See appraisal below

Interdependencies: - Acquisition of relevant land to facilitate option.

- Acquisition of necessary investment to facilitate option.

Appraisal

Economy and Social and Cultural

Appraisal of Economics and Social and Cultural impacts has identified that this option scores beneficial for the majority of the appraisal areas, with a large beneficial for severance.

Environment

A neutral effect is anticipated to soils and geology. A beneficial effect is anticipated for noise due to noise decreases within Llandeilo/Ffairfach. A beneficial effect is anticipated for air quality due to a large reduction of vehicle movements through the AQMA, although there is potential for air quality worsening to rural properties. An adverse effect to the water environment and biodiversity is anticipated due to the crossing of several designated water features and through loss of hedgerow and ancient woodland habitat. Adverse effects are anticipated to landscape, townscape and cultural heritage due to effects to a scheduled monument, listed buildings and as it passes through Brecon Beacons National Park.

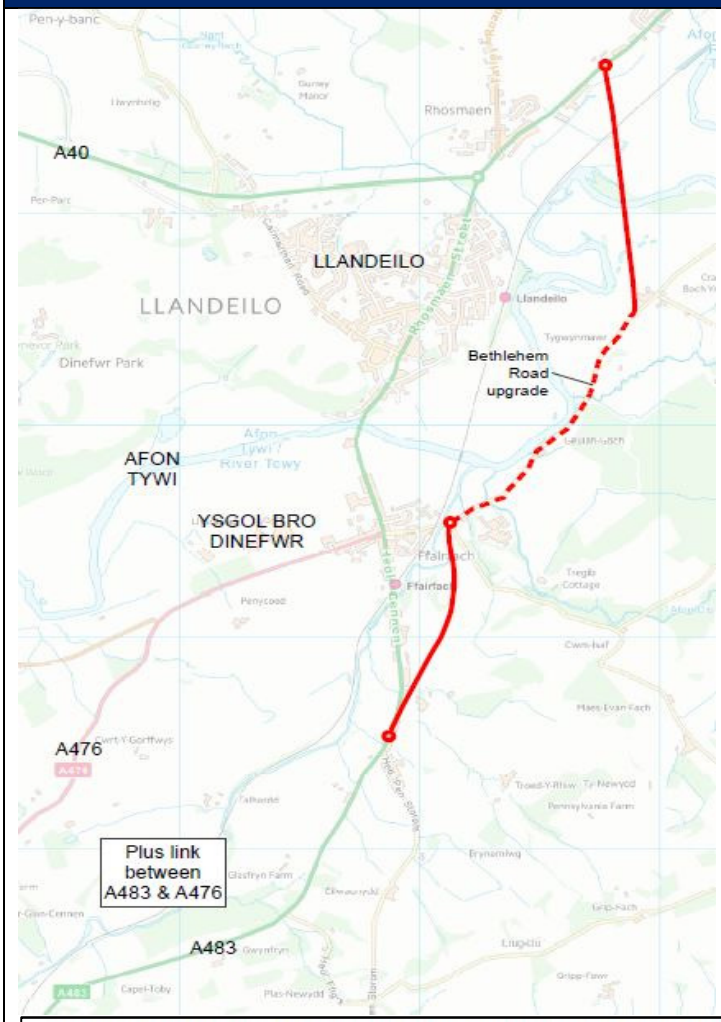
Who the option impacts on

It is expected that there will be a moderate beneficial impact on Journey time reliability and a slight beneficial impact on the journey time changes and local economy. There is a large beneficial impact on the Local air quality. It is also expected that there will be a large adverse impact upon Landscape and Townscape and Bio-diversity. In relation to social and cultural there is a slight beneficial impact expected upon Physical activity, accidents and access to employment and services.

Table 3.26 BE4B – Mid Rhosmaen Eastern Bypass Option 4 (B)

Mid Rhosmaen Eastern Bypass Option 4 (A) leaves the A40 to the north-east of the A40/A483 roundabout using a new junction by the Plough Inn Hotel. The route then heads south east towards Bethlehem Road, crossing the railway and Afon Tywi. The route then links to Bethlehem Road near Craigle Bach Yr Onnen, follows Bethlehem Road west to the edge of the Woodland Trust woodland then heads south avoiding the former secondary school playing fields so far as possible, before linking to the A483 to the south of Heol Pen Storum. This option would require a link to the A476.

Location



How it tackles the problem

This option is dependent on a link between the A476 and A483 in order for the bypass to avoid traffic through Ffairfach. BE4B would reduce severance along the A483/Rhosmaen Street within Llandeilo (depending on the chosen bypass) as well as improve journey reliability due to providing

a direct, free-flow route which would avoid the pinch points within Llandeilo/Ffairfach. Pedestrian safety should also improve as well as the cycling environment, road safety and may promote visitors as the number of through-traffic journey should decrease with a bypass in place. HGV and school traffic should also reduce within Llandeilo/Ffairfach as it is anticipated that HGVs would use the bypass rather than Rhosmaen Street as the current A483 would be de-trunked. Further to this, emergency service response times (on call) should improve due to a reduction in traffic using Rhosmaen Street, or emergency service vehicles could use the bypass which would provide a direct, free-flow route. This option would result in a reduction in air pollution within the AQMA.

To what extent it meets the objectives

Objective No	1	2	3	4	5	6	7	8
Met ✓ or x	✓	✓	✓	✓	✓	✓	✓	x

This option fulfils scheme objectives 1 to 7, however does not meet scheme objective 8.

Other relevant issues (key risks, adverse impacts, constraints, and interdependencies)

Key risks: Key risks include the time and cost required to acquire land, Topography and ground conditions – investigation is required to understand the potential engineering and cost constraints, as well as the associated impacts.

Adverse impacts: See appraisal below.

Constraints: See appraisal below

Interdependencies: - Acquisition of relevant land to facilitate option.
- Acquisition of necessary investment to facilitate option.

Appraisal

Economy and Social and Cultural

Appraisal of Economics and Social and Cultural impacts has identified that this option overall scores beneficial for the appraisal areas, scoring particularly highly on journey time changes and reliability, and severance, with negligible impacts on security and affordability.

Environment

A neutral effect is anticipated to soils and geology. A beneficial effect is anticipated for noise due to noise decreases within Llandeilo/Ffairfach. A beneficial effect is anticipated for air quality due to a large reduction of vehicle movements through the AQMA, although there is potential for air quality worsening to the east of Ffairfach. An adverse effect to the water environment and biodiversity is anticipated due to the crossing of a designated waterbody and through loss of hedgerow habitat. Adverse effects are anticipated to landscape, townscape and cultural heritage due to effects to a scheduled monument, listed buildings and as it is immediately adjacent to Brecon Beacons National Park.

Who the option impacts on

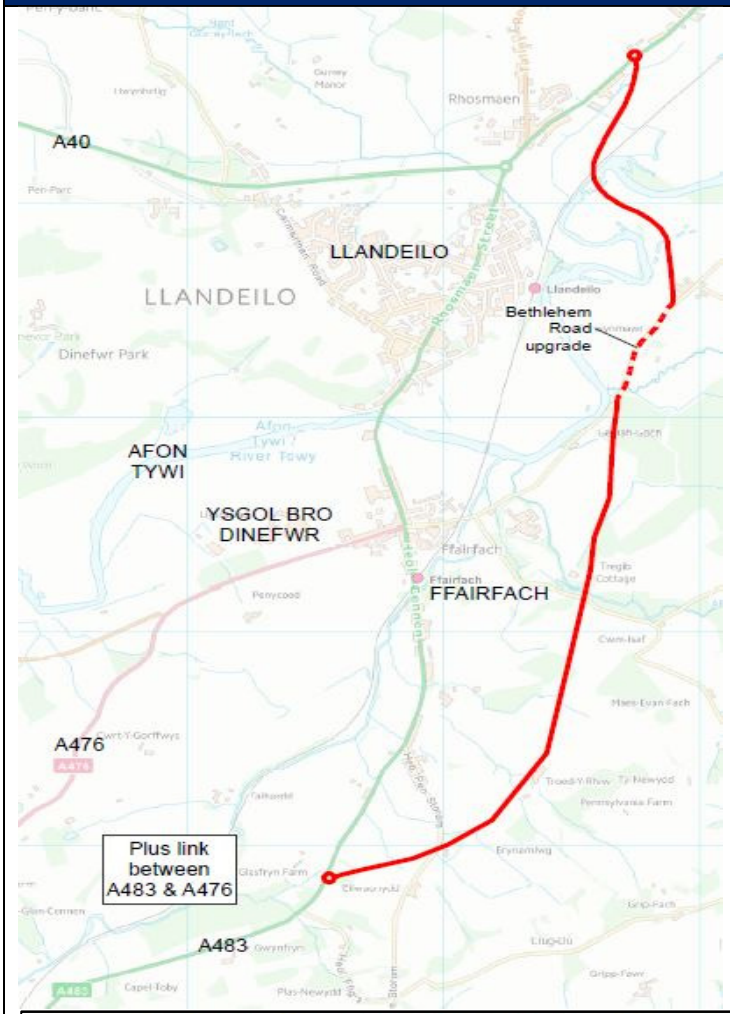
It is expected that there will be a moderate beneficial impact on Journey time changes/reliability and a slight beneficial impact on the local economy. There is a large beneficial impact on the Local air quality. It is also expected that there will be a large adverse impact upon Landscape and Townscape and Bio-diversity. In relation to social and cultural there is a slight beneficial impact expected upon Physical activity, accidents and access to employment and services.

Table 3.27 BE4C – Mid Rhosmaen Eastern Bypass Option 4 (C)

Description

Mid Rhosmaen Eastern Bypass Option 4 (C) leaves the A40 to the north-east of the A40/A483 roundabout using a new junction by the Plough Inn Hotel. The route then heads south west towards Llandeilo railway station before crossing the railway and Afon Tywi using a single structure. The route then links to Bethlehem Road to the south of Craigle Bach Yr Onnen, follows Bethlehem Road west to the edge of the Woodland Trust woodland then heads south avoiding the former secondary school playing fields so far as possible, before linking to the A483 to the south of Heol Pen Storum. This option would require a link to the A476.

Location



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How it tackles the problem

This option is dependent on a link between the A476 and A483 in order to bypass the village of Ffairfach. BE4C would reduce severance along the A483/Rhosmaen Street within Llandeilo

(depending on the chosen bypass) as well as improve journey reliability due to providing a direct, free-flow route which would avoid the pinch points within Llandeilo/Ffairfach. Pedestrian safety should also improve as well as the cycling environment, road safety and may promote visitors as the number of through-traffic journey should decrease with a bypass in place. HGV and school traffic should also reduce within Llandeilo/Ffairfach as it is anticipated that HGVs would use the bypass rather than Rhosmaen Street as the current A483 would be de-trunked. Further to this, emergency service response times (on call) should improve due to a reduction in traffic using Rhosmaen Street, or emergency service vehicles could use the bypass which would provide a direct, free-flow route. This option would result in a reduction in air pollution within the AQMA.

To what extent it meets the objectives

Objective No	1	2	3	4	5	6	7	8
Met ✓ or x	✓	✓	✓	✓	✓	✓	✓	x

This option fulfils scheme objectives 1 to 7, however does not meet scheme objective 8.

Other relevant issues (key risks, adverse impacts, constraints, and interdependencies)

Key risks: - Key risks include the time and cost required to acquire land, Topography and ground conditions – investigation is required to understand the potential engineering and cost constraints, as well as the associated impacts.

Adverse impacts: See appraisal below.

Constraints: See appraisal below

Interdependencies: - Acquisition of relevant land to facilitate option.
- Acquisition of necessary investment to facilitate option.

Appraisal

Economy and Social and Cultural

Appraisal of Economics and Social and Cultural impacts has identified that this option overall scores beneficial impacts across the appraisal areas, with a large beneficial score for severance, and negligible impacts on security and affordability.

Environment

A neutral effect is anticipated to soils and geology. A beneficial effect is anticipated for noise due to noise decreases within Llandeilo/Ffairfach. A beneficial effect is anticipated for air quality due to a large reduction of vehicle movements through the AQMA, although there is potential for air quality worsening to the east of Ffairfach. An adverse effect to the water environment and biodiversity is anticipated due to the crossing of several designated water features and through loss of hedgerow and ancient woodland habitat. Adverse effects are anticipated to landscape, townscape and cultural heritage due to effects to a scheduled monument and as it passes through Brecon Beacons National Park.

Who the option impacts on

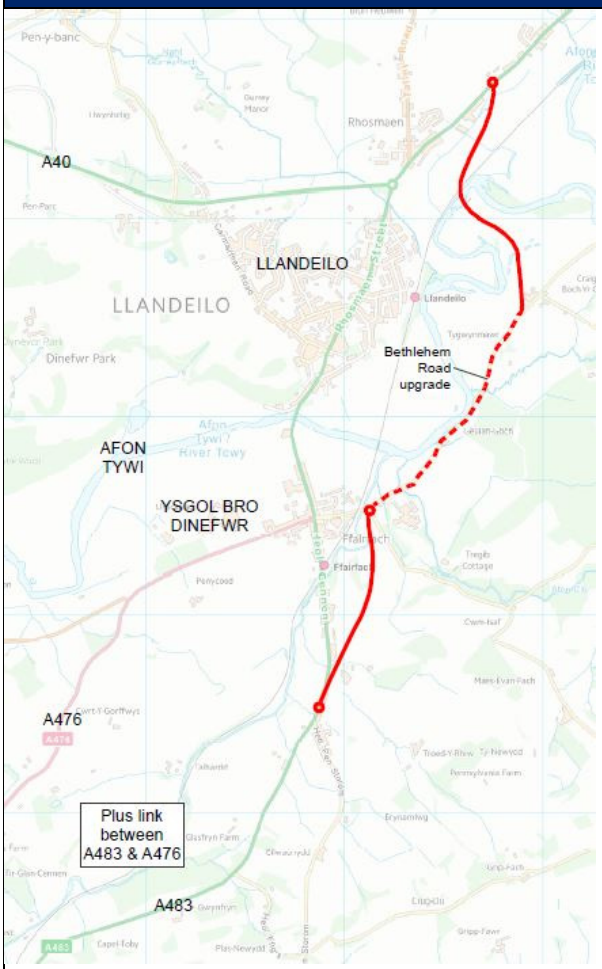
It is expected that there will be a moderate beneficial impact on Journey time reliability and a slight beneficial impact on the local economy and journey time changes. There is a large beneficial impact on the Local air quality. It is also expected that there will be a large adverse impact upon Landscape and Townscape and Bio-diversity. In relation to social and cultural there is a slight beneficial impact expected upon Physical activity, accidents and access to employment and services.

Table 3.28 BE4D – Mid Rhosmaen Eastern Bypass Option 4 (D)

Description

Mid Rhosmaen Eastern Bypass Option 4 (D) leaves the A40 to the north-east of the A40/A483 roundabout using a new junction by the Plough Inn Hotel. The route then heads south west towards Llandeilo station before crossing the railway and Afon Tywi using a single structure. The route then links to Bethlehem Road to the south of Craigle Bach Yr Onnen, follows Bethlehem Road towards Ffairfach, leaves Bethlehem Road to the west of the former secondary school, to join the A483 to the north of Heol Pen Storom. This option would require a link to the A476.

Location



How it tackles the problem

This option is dependent on a link between the A476 and A483. BE4D would reduce severance along the A483/Rhosmaen Street within Llandeilo (depending on the chosen bypass) as well as improve journey reliability due to providing a direct, free-flow route which would avoid the pinch points within Llandeilo/Ffairfach. Pedestrian safety should also improve as well as the cycling

environment, road safety and may promote visitors as the number of through-traffic journey should decrease with a bypass in place. This may also help reduce the closure of local amenities. HGV and school traffic should also reduce within Llandeilo/Ffairfach as it is anticipated that HGVs would use the bypass rather than Rhosmaen Street as the current A483 would be de-trunked. Further to this, emergency service response times (on call) should improve due to a reduction in traffic using Rhosmaen Street, or emergency service vehicles could use the bypass which would provide a direct, free-flow route. This option would result in a reduction in air pollution within the AQMA.

To what extent it meets the objectives

Objective No	1	2	3	4	5	6	7	8
Met ✓ or x	✓	✓	✓	✓	✓	✓	✓	x

This option fulfils scheme objectives 1 to 7, however does not meet scheme objective 8.

Other relevant issues (key risks, adverse impacts, constraints, and interdependencies)

Key risks: - Key risks include the time and cost required to acquire land, Topography and ground conditions – investigation is required to understand the potential engineering and cost constraints, as well as the associated impacts.

Adverse impacts: See appraisal below.

Constraints: See appraisal below

Interdependencies: - Acquisition of relevant land to facilitate option.

- Acquisition of necessary investment to facilitate option.

Appraisal

Economy and Social and Cultural

Appraisal of Economics and Social and Cultural impacts has identified that this option scores beneficial across the majority of the appraisal areas, scoring particularly highly for journey time changes, quality and reliability, and severance, with a negligible impact on security and affordability.

Environment

A neutral effect is anticipated to soils and geology. A neutral effect is anticipated for noise due to a balance of both noise decreases within Llandeilo/Ffairfach but increases in areas currently unaffected by road noise. A beneficial effect is anticipated for air quality due to a large reduction of vehicle movements through the AQMA, although there is potential for air quality worsening to the east of Ffairfach. An adverse effect to the water environment and biodiversity is anticipated due to the crossing of several designated water features and through loss of hedgerow habitat. Adverse effects are anticipated to landscape, townscape and cultural heritage due to effects to a scheduled monument, listed buildings and as it passes immediately adjacent to Brecon Beacons National Park.

Who the option impacts on

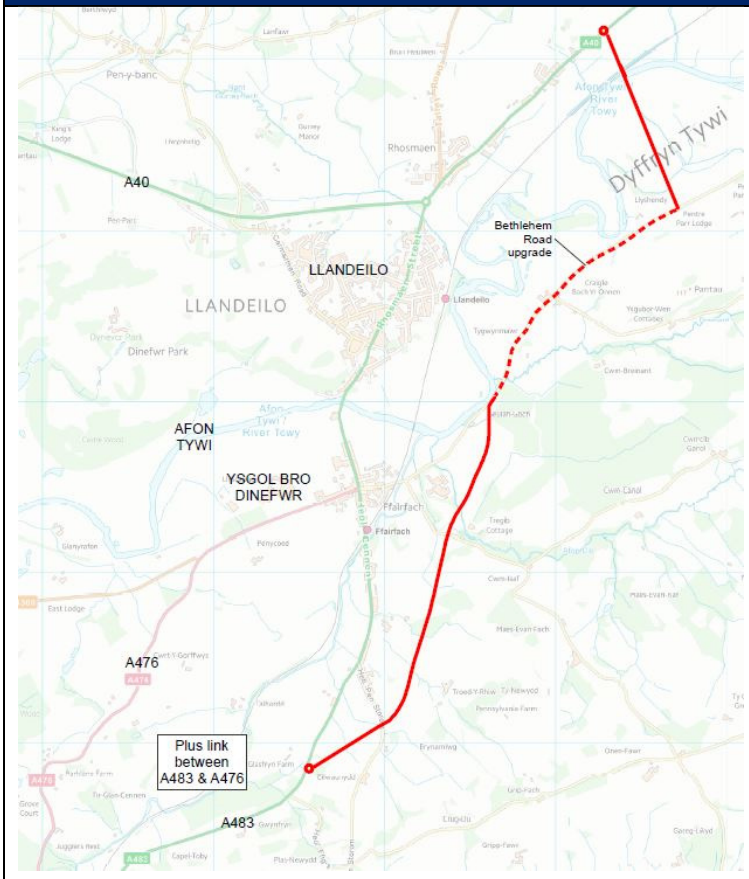
It is expected that there will be a moderate beneficial impact on Journey time changes/reliability and a slight beneficial impact on the local economy. There is a large beneficial impact on the Local air quality. It is also expected that there will be a large adverse impact upon Landscape and Townscape and Bio-diversity. In relation to social and cultural there is a slight beneficial impact expected upon Physical activity, accidents and access to employment and services.

Table 3.29 BE5A – Far Eastern Route 5 (A)

Description

Far Eastern Route 5 (A) leaves the A40 to the east of Rhosmaen, crosses the railway line and Afon Tywi at a single crossing point, and crosses the estuary to meet Bethlehem Road near to Pentre Parr Lodge. Bethlehem Road will be upgraded towards Ffairfach and the route will leave Bethlehem Road near Geulan Goch and link to A483 to the south of residential properties to avoid Heol Pen Storom. The route would avoid playing fields associated with the former secondary school. This option would require a link to the A476.

Location



How it tackles the problem

This option is dependent on a link between the A476 and the A483 in order to reduce congestion and severance within Ffairfach. Without the link to the A476 vehicle drivers are unlikely to use the bypass and would instead continue to travel along Rhosmaen Street. BE5A would reduce severance along the A483/Rhosmaen Street within Llandeilo (depending on the chosen bypass) as well as improve journey reliability due to providing a direct, free-flow route which would avoid the pinch points within Llandeilo/Ffairfach. Pedestrian safety should also improve as well as the cycling environment, road safety and may promote visitors as the number of through-traffic journey should

decrease with a bypass in place. This may also help reduce the closure of local amenities. HGV and school traffic should also reduce within Llandeilo/Ffairfach as it is anticipated that HGVs would use the bypass rather than Rhosmaen Street as the current A483 would be de-trunked. Further to this, emergency service response times (on call) should improve due to a reduction in traffic using Rhosmaen Street, or emergency service vehicles could use the bypass which would provide a direct, free-flow route. This option would result in a reduction in air pollution within the AQMA.

To what extent it meets the objectives

Objective No	1	2	3	4	5	6	7	8
Met ✓ or x	✓	✓	✓	✓	✓	✓	✓	x

This option fulfils scheme objectives 1 to 7, however does not meet scheme objective 8.

Other relevant issues (key risks, adverse impacts, constraints, and interdependencies)

Key risks: - Key risks include the time and cost required to acquire land, Topography and ground conditions – investigation is required to understand the potential engineering and cost constraints, as well as the associated impacts.*Adverse impacts:* See appraisal below.

Constraints: See appraisal below

Interdependencies: - Acquisition of relevant land to facilitate option.
- Acquisition of necessary investment to facilitate option.

Appraisal

Economy and Social and Cultural

Appraisal of Economics and Social and Cultural impacts has identified that this option overall scores beneficial across the appraisal areas, with a large beneficial for severance and journey reliability and quality benefits, with a negligible impact on security and affordability.

Environment

A neutral effect is anticipated to soils and geology. A neutral effect is anticipated for noise due to a balance of both noise decreases within Llandeilo/Ffairfach but increases in areas currently unaffected by road noise. A beneficial effect is anticipated for air quality due to a large reduction of vehicle movements through the AQMA, although there is potential for air quality worsening to the east of Ffairfach. An adverse effect to the water environment and biodiversity is anticipated due to the crossing of several designated water features and through loss of hedgerow and ancient woodland habitat. Adverse effects are anticipated to landscape, townscape and cultural heritage due to effects to a scheduled monument, listed buildings and as it passes through Brecon Beacons National Park.

Who the option impacts on

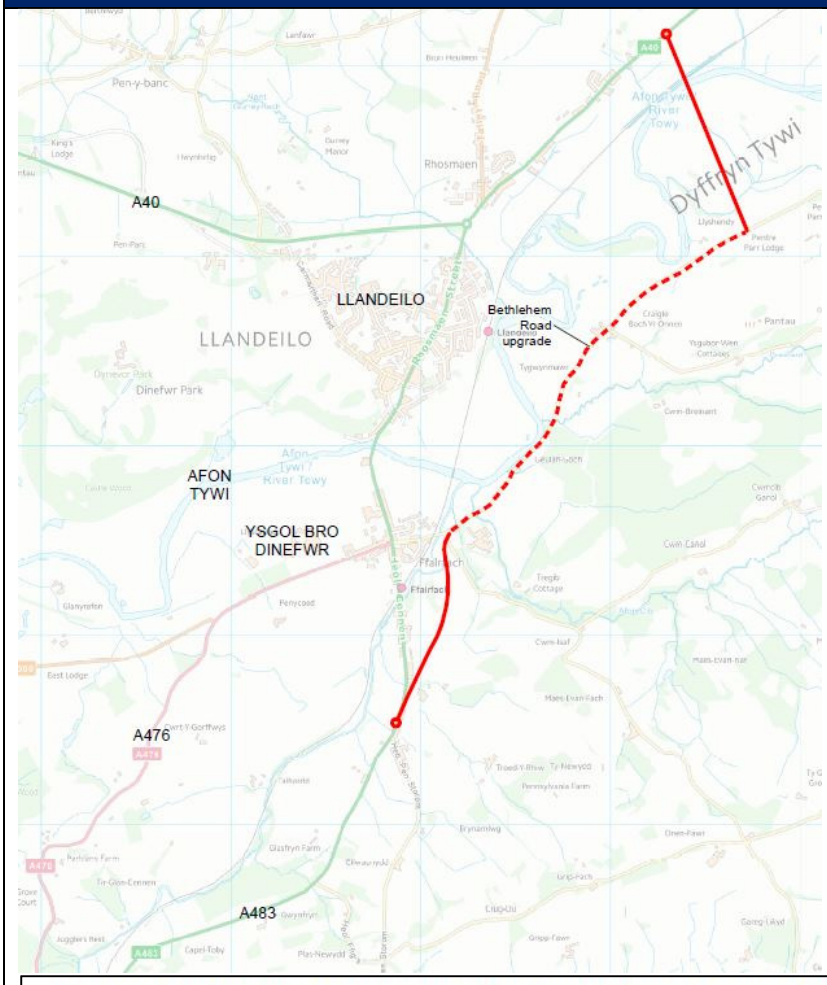
It is expected that there will be a moderate beneficial impact on Journey time reliability and a slight beneficial impact on the local economy and journey time changes. There is a large beneficial impact on the Local air quality. It is also expected that there will be a large adverse impact upon Landscape and Townscape and Bio-diversity. In relation to social and cultural there is a slight beneficial impact expected upon Physical activity, accidents and access to employment and services.

Table 3.30 BE5B – Far Eastern Route 5 (B)

Description

Far Eastern Route 5 (B) leaves the A40 to the east of Rhosmaen, crosses the railway line and Afon Tywi at a single crossing point and crosses the river to meet Bethlehem Road near to Pentre Parr Lodge. Bethlehem Road will be upgraded towards Ffairfach and the route will leave Bethlehem Road to the west of the former secondary school (to the east of the railway line) and wraps to the east of residential properties along Heol Cennen linking to A483 before Heol Pen Storom.

Location



How it tackles the problem

This option is dependent on a link between the A476 and A483 to the south of Ffairfach in order to remove congestion and severance within the community of Ffairfach. Without the link traffic heading north from Cross Hands would probably continue to drive through Llandeilo. BE5B would reduce severance along the A483/Rhosmaen Street within Llandeilo (depending on the chosen bypass) as well as improve journey reliability due to providing a direct, free-flow route which would

avoid the pinch points within Llandeilo/Ffairfach. Pedestrian safety should also improve as well as the cycling environment, road safety and may promote visitors as the number of through-traffic journey should decrease with a bypass in place. This may also help reduce the closure of local amenities. HGV and school traffic should also reduce within Llandeilo/Ffairfach as it is anticipated that HGVs would use the bypass rather than Rhosmaen Street as the current A483 would be de-trunked. Further to this, emergency service response times (on call) should improve due to a reduction in traffic using Rhosmaen Street, or emergency service vehicles could use the bypass which would provide a direct, free-flow route. This option would result in a reduction in air pollution within the AQMA.

To what extent it meets the objectives

Objective No	1	2	3	4	5	6	7	8
Met ✓ or x	✓	✓	✓	✓	✓	✓	✓	x

This option fulfils scheme objectives 1 to 7, however does not meet scheme objective 8.

Other relevant issues (key risks, adverse impacts, constraints, and interdependencies)

Key risks: - Key risks include the time and cost required to acquire land, Topography and ground conditions – investigation is required to understand the potential engineering and cost constraints, as well as the associated impacts.*Adverse impacts:* See appraisal below.

Constraints: See appraisal below

Interdependencies: - Acquisition of relevant land to facilitate option.
- Acquisition of necessary investment to facilitate option.

Appraisal

Economy and Social and Cultural

Appraisal of Economics and Social and Cultural impacts has identified that this option overall scores beneficial across the appraisal areas, scoring particularly highly for journey time reliability, journey quality and severance, with negligible impacts on security and affordability.

Environment

A neutral effect is anticipated to soils and geology. A neutral effect is anticipated for noise due to a balance of both noise decreases within Llandeilo/Ffairfach but increases in areas currently unaffected by road noise. A beneficial effect is anticipated for air quality due to a large reduction of vehicle movements through the AQMA, although there is potential for air quality worsening to the east of Ffairfach. An adverse effect to the water environment and biodiversity is anticipated due to the crossing of several designated water features and through loss of hedgerow habitat. Adverse effects are anticipated to landscape, townscape and cultural heritage due to effects to a scheduled monument, listed buildings and as it passes immediately alongside Brecon Beacons National Park.

Who the option impacts on

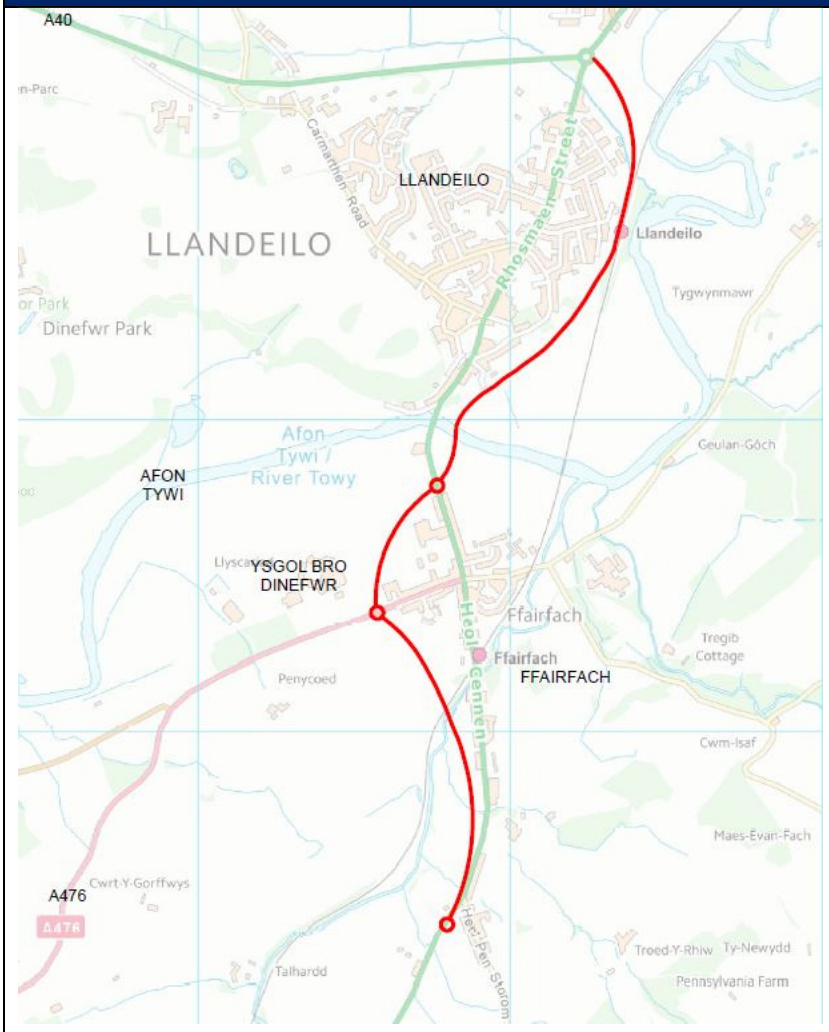
It is expected that there will be a moderate beneficial impact on Journey time reliability and a slight beneficial impact on the local economy and journey time changes. There is a large beneficial impact on the Local air quality. It is also expected that there will be a large adverse impact upon Landscape and Townscape and Bio-diversity. In relation to social and cultural there is a slight beneficial impact expected upon Physical activity, accidents and access to employment and services.

Table 3.31 BE6 – Option formerly known as the Refined Protected Route

Description

This option leaves the A40 at the A40/A483 roundabout, heading south east around the boundary of Llandeilo, to the west of the railway line and follows the railway line, before passing closer to the escarpment than options BE1A – BE1D. It joins the A483 to the south of Llandeilo Bridge. A proposed roundabout would be constructed on the A483 to the south of Llandeilo Bridge.

Location



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How it tackles the problem

BE6 may reduce severance along the A483/Rhosmaen Street within Llandeilo as well as improve journey reliability due to providing a direct, free-flow route which would avoid the pinch points within Llandeilo/Ffairfach. Pedestrian safety should also improve as well as the cycling environment, road safety and may promote visitors as the number of through-traffic journey should decrease with a

bypass in place. HGV and school traffic should also reduce within Llandeilo/Ffairfach as it is anticipated that HGVs would use the bypass rather than Rhosmaen Street as the current A483 would be de-trunked. Further to this, emergency service response times (on call) should improve due to a reduction in traffic using Rhosmaen Street, or emergency service vehicles could use the bypass which would provide a direct, free-flow route. This option would result in a reduction in air pollution within the AQMA.

To what extent it meets the objectives

Objective No	1	2	3	4	5	6	7	8
Met ✓ or x	✓	✓	✓	✓	✓	✓	✓	x

This option fulfils scheme objectives 1 to 7, however does not meet scheme objective 8.

Other relevant issues (key risks, adverse impacts, constraints, and interdependencies)

Key risks: - Key risks include the time and cost required to acquire land, Topography and ground conditions – investigation is required to understand the potential engineering and cost constraints, as well as the associated impacts.*Adverse impacts:* See appraisal below.

Constraints: See appraisal below

Interdependencies: - Acquisition of relevant land to facilitate option.
- Acquisition of necessary investment to facilitate option.

Appraisal

Economy and Social and Cultural

Appraisal of Economics and Social and Cultural impacts has identified that this option scores beneficial across the appraisal areas, scoring particularly highly for journey time reliability, journey quality and severance, with a negligible impact on security and affordability.

Environment

A neutral effect is anticipated to soils and geology. A neutral effect is anticipated for noise due to a balance of both noise decreases within Llandeilo/Ffairfach but increases in areas currently unaffected by road noise. A beneficial effect is anticipated for air quality due to a large reduction of vehicle movements through the AQMA, although there is potential for air quality worsening elsewhere. An adverse effect to the water environment and biodiversity is anticipated due to the crossing of several designated water features and through loss of hedgerow habitat. Adverse effects are anticipated to landscape, townscape and cultural heritage due to effects to a scheduled monument, listed buildings and the impact to local and Brecon Beacons National Park views.

Who the option impacts on

It is expected that there will be a moderate beneficial impact on Journey time reliability and a slight beneficial impact on the local economy and journey time changes. There is a large beneficial impact on the Local air quality. It is also expected that there will be a large adverse impact upon Landscape and Townscape and Bio-diversity. In relation to social and cultural there is a slight beneficial impact expected upon Physical activity, accidents and access to employment and services.

3.3.5 Road Links

This section identifies the potential long list options for the Road Link Options. The tables include a description of the option, indicative location and appraisal which feed into the Appraisal Summary Table. The Road Link Options are:

- ARL1 – A Road Link (1) and
- ARL2 – A Road Link (2).

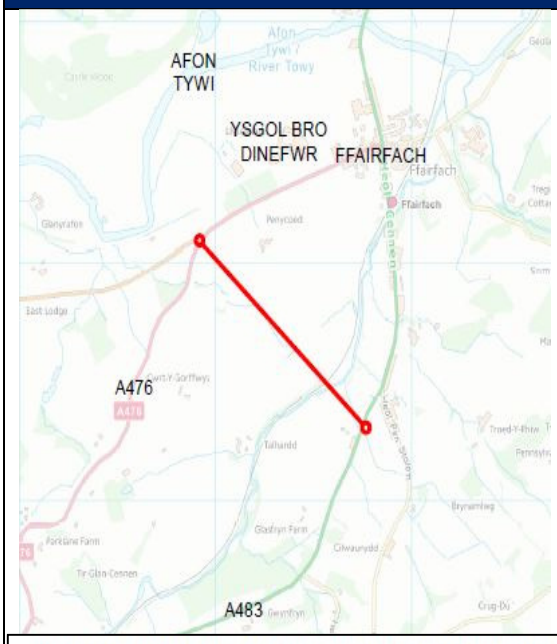
The Road Link Options will only be provided with some Eastern and Western Bypass options. They will not be implemented without a bypass as the links will not individually resolve the associated issues with the A483 through Llandeilo and Ffairfach.

Table 3.32 ARL1 – A Road Link (1)

Description

ARL1 connects the A476 and A483 without the need to pass through Ffairfach. The route starts at the junction between the B4300 and A476 and follows the slight valley, crossing the railway line at approximate NGR SN625 205 then joins the A483 south of Caemen Cottage.

Location



How it tackles the problem

ARL1 may improve journey reliability due to providing a direct, free-flow route which would avoid the pinch points within Llandeilo/Ffairfach. This option would result in the eastern bypass options avoiding Ffairfach which would mean that severance would be reduced, this is likely to encourage people to travel between Ffairfach (extending south past the station) to Llandeilo where they may currently drive. This link would mean that traffic flows past the entrance to Ysgol Bro Dinefwr could be controlled to avoid HGVs (with only buses allowed), this would apply even if there were not an

eastern bypass by then routing traffic through Ffairfach as a north-south link). This route would encourage children to travel to Ysgol Bro Dinefwr by active travel means. By limiting HGV traffic past Ysgol Bro Dinefwr it would mean that HGV traffic would divert to the bypass and would therefore be less likely to switch on to the A483 and travel through Llandeilo. This option would result in a reduction in air pollution within the AQMA.

This option would contribute to the Welsh Government achieving its Well-being Objectives and supports the Welsh Transport Plan.

To what extent it meets the objectives

Objective No	1	2	3	4	5	6	7	8
Met ✓ or ×	✓	×	×	✓	✓	✓	×	×

Option ARL1 does not improve pedestrian and cyclist safety within Llandeilo and Ffairfach or reduce community severance. Additionally, it does not fulfil the objectives of reducing exposure to air pollution or support the transition to a low carbon society. It does however preserve the strategic function of the A483, improve journey time reliability, reduce congestion through Llandeilo and contributes to sustainable economic growth and tourism in Llandeilo.

Other relevant issues (key risks, adverse impacts, constraints, and interdependencies)

Key risks: Key risks associated with this option include is the time and cost needed to acquire land and the topography and ground conditions of the site.

Adverse impacts: See appraisal below.

Constraints: See appraisal below

Interdependencies: The interdependencies associated with this option include the acquisition of relevant land and the necessary investment to facilitate the option.

Appraisal

Economy and Social and Cultural

Appraisal of Economics and Social and Cultural impacts has identified that this option scores a large beneficial for journey time changes, with other beneficial impacts on journey time reliability changes, journey quality, accidents and severance. This option scores negligible for local economy, physical activity, security, access to employment and services, affordability as well as active travel.

Environment

It is anticipated that there will be a neutral effect upon noise, geology and soils with this option. Additionally, a moderate beneficial effect is anticipated on local air quality. However, a slight adverse effect is anticipated upon the water environment and cultural heritage. Furthermore, a moderate adverse effect is anticipated upon biodiversity and to the landscape and townscape.

Who the Option impacts on

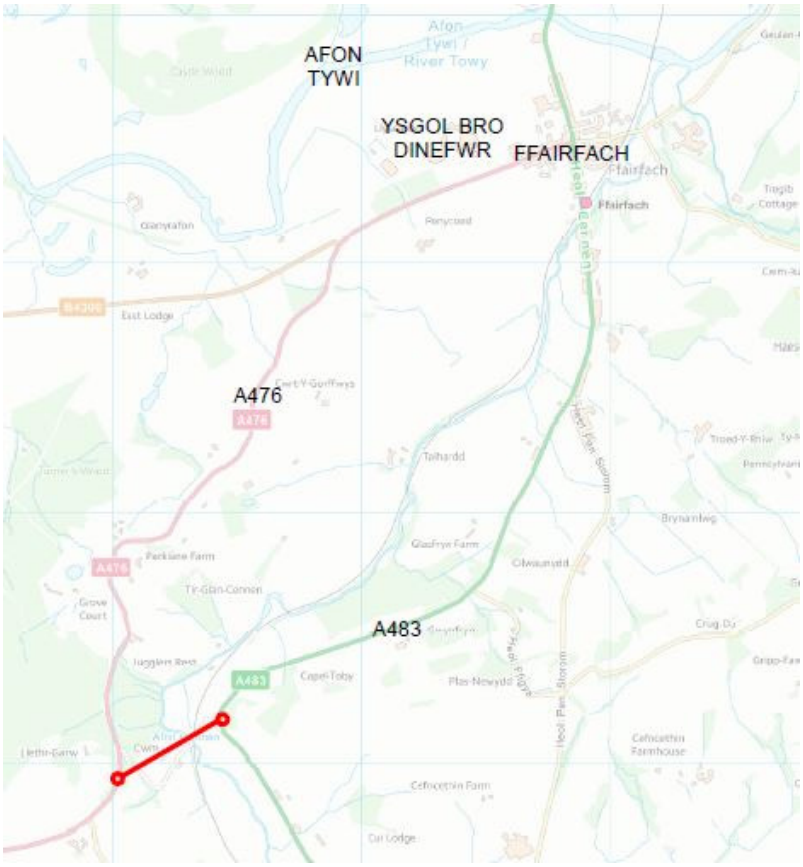
All road users should benefit from this bypass link road. Users of Llandeilo train station and students of Ysgol Bro Dinefwr may benefit from this link road as it will divert traffic away from the school as well as Llandeilo and Ffairfach.

Table 3.33 ARL2 – A Road Link (2)

Description

ARL2 connects the A476 to the A487 without the need to pass through Ffairfach. The route would leave the A476 south of Cwm at approximate NGR BN610 189 crossing the gorge over the railway line and links to A487 at approximately NRG SN 614 191.

Location



How it tackles the problem

ARL2 would provide a link between the A476 and A483 and would result in more HGV traffic using eastern bypass options, without either ARL1 or ARL2 there is a risk that traffic would stay on the existing A483 through Llandeilo rather than divert to the bypass. This option would result in a decrease in congestion and severance within Ffairfach and would also reduce severance between Ffairfach and Llandeilo. This option would result in a reduction in air pollution within the AQMA.

This option would contribute to the Welsh Government achieving its Well-being Objectives and supports the Welsh Transport Plan.

To what extent it meets the objectives								
Objective No	1	2	3	4	5	6	7	8
Met ✓ or ×	✓	×	✓	✓	✓	✓	×	×
This option fulfils the majority of the objectives, however does not improve pedestrian and cyclist safety within Llandeilo and Ffairfach, reduce exposure to air pollution for sensitive receptors or support the transition to a low carbon society.								
Other relevant issues (key risks, adverse impacts, constraints, and interdependencies)								
Key risks: Key risks associated with this option include the time and cost to acquire land. Further to this, topography and ground conditions are a key risk as well as the potential impact on flooding and the delivery time which is expected to be long term as a result of land acquisition. *Adverse impacts:* See appraisal below. *Constraints:* See appraisal below *Interdependencies:* Interdependencies associated with this option include the acquisition of relevant land and the necessary investment to facilitate the option.								
Appraisal								
Economy and Social and Cultural								
Appraisal of Economics and Social and Cultural impacts has identified that this option scores large beneficial for journey time changes, and slight beneficial for journey time reliability changes, journey quality, accidents and severance. This option scores negligible for local economy, physical activity, security, access to employment and services, affordability and active travel.								
Environment								
A neutral effect upon geology and soils is anticipated and also noise as there are very few properties in the vicinity of this option. Further to this, a minor beneficial effect is anticipated on local air quality. However, a moderate adverse effect is anticipated upon biodiversity and landscape and townscape. Furthermore, there is a slight adverse effect anticipated upon the water environment and cultural heritage.								
Who the option impacts on								
All road users should benefit from this bypass link road. Users of Llandeilo train station and students of Ysgol Bro Dinefwr may benefit from this link road as it will divert traffic away from the school as well as Llandeilo and Ffairfach.								

3.3.6 Western Bypass Options

This section identifies the potential long list options for bypasses located to the west of Llandeilo and Ffairfach. The tables include a description of the option, indicative location and appraisal which feed into the Appraisal Summary Table. The Western Bypass Options are:

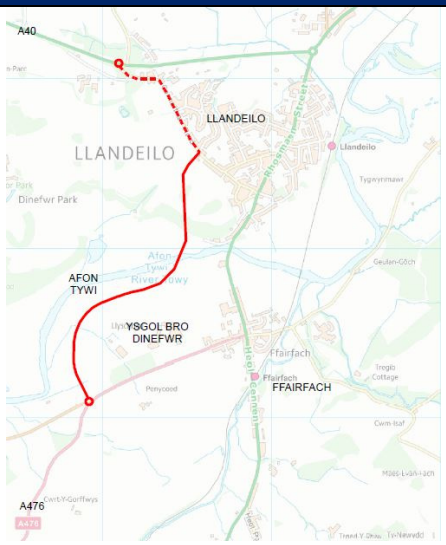
- BW1 – Western Bypass Option 1;
- BW2 – Western Bypass Option 2;
- BW3A – Western Bypass Option 3 (A);
- BW3B – Western Bypass Option 3 (B);
- BW3C – Western Bypass Option 3 (C);
- BW4 – West of Dinefwr (East);
- BW5A – West of Dinefwr (A);
- BW5B – West of Dinefwr (B);
- BW5C – West of Dinefwr (C); and
- BW6 – Far West Route via Dryslwyn.

Table 3.34 BW1 – Western Bypass Option 1

Description

Western Bypass Option 1 leaves the A40 at the existing junction with Carmarthen Road at a new junction. The route then follows Carmarthen Road south to the entrance to the National Trust Dinefwr property and follows the slight dip between mounds south west of the junction of the B4300 and A476.

Location



How it tackles the problem

BW1 would reduce traffic flows, and therefore severance, along the A483/Rhosmaen Street within Llandeilo as well as improve journey reliability due to providing a direct, free-flow route which would

avoid the pinch points within Llandeilo/Ffairfach. This option would not take traffic from the A483 from Ammanford, or if it does then this traffic would be routed past the front of Ysgol Bro Dinefwr. Pedestrian safety should improve with Llandeilo and Ffairfach as well as the cycling environment, road safety and may promote visitors who are coming to Llandeilo as a destination town. HGV and school traffic should also reduce within Llandeilo/Ffairfach as it is anticipated that HGVs would use the bypass rather than Rhosmaen Street as the current A483 would be de-trunked. Further to this, emergency service response times (on call) should improve due to a reduction in traffic using Rhosmaen Street, or emergency service vehicles could use the bypass which would provide a direct, free-flow route. This option would result in a reduction in air pollution within the AQMA.

This option would contribute to the Welsh Government achieving its Well-being Objectives and help deliver some of outcomes of the Wales Transport Strategy.

To what extent it meets the objectives

Objective No	1	2	3	4	5	6	7	8
Met ✓ or x	✓	✓	✓	✓	✓	×	✓	×

The majority of the objectives are fulfilled with this option, however this option does not contribute to sustainable economic growth and tourism opportunities in Llandeilo or support the transition to a low carbon society.

Other relevant issues (key risks, adverse impacts, constraints, and interdependencies)

Key risks: The time to require land and cost of land acquisition, topography and ground conditions, potential impact on flooding and that the National Trust land could be inalienable are all key risks associated with this option.

Adverse impacts: See appraisal below.

Constraints: See appraisal below

Interdependencies: Acquisition of relevant land to facilitate the option and acquisition of necessary investment are interdependencies of this option.

Appraisal

Economy and Social and Cultural

Appraisal of Economics and Social and Cultural impacts has identified that this option overall scores beneficial for the appraisal areas, with negligible impacts on local economy, security, access to employment and services and affordability.

Environment

Overall, a neutral effect for noise and geology and soils is scored, with a moderate beneficial effect anticipated on local air quality. However, a moderate adverse effect is anticipated upon the water environment. Further to this, a large adverse effect is anticipated to landscape and townscape, cultural heritage and biodiversity.

Who the Option impacts on

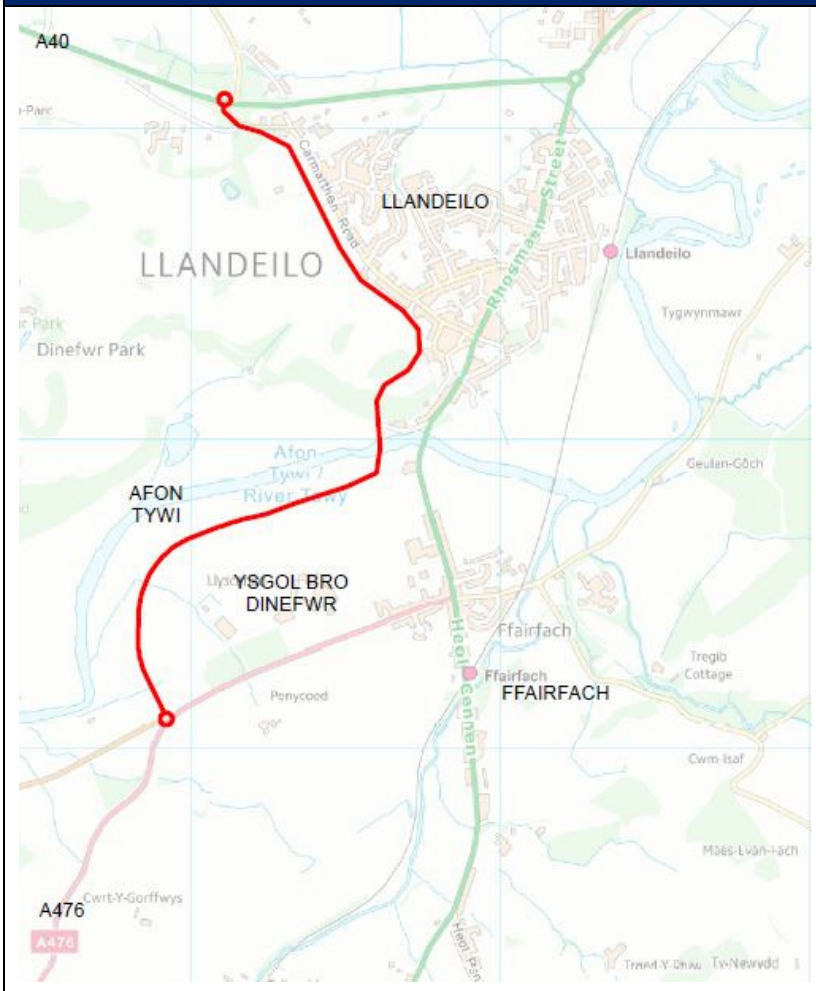
All road users may benefit from this bypass, with businesses in Llandeilo and Dinefwr Park experiencing a neutral impact. Walkers, cyclists and students of Ysgol Bro Dinefwr should also benefit due to a reduction in traffic using the current A483 within Llandeilo/Ffairfach.

Table 3.35 BW2 – Western Bypass Option 2

Description

Western Bypass Option 2 leaves the A40 at the existing junction with Carmarthen Road at a new junction. The route then follows an alignment to the west of Carmarthen Road south of the entrance to National Trust Dinefwr property, then runs to the west of residential properties on Carmarthen Road, Carmarthen Street, George Street, Bank Terrace and Bridge Street before crossing the Afon Tywi to the west of Llandeilo Bridge. The route then wraps west along the route of the Afon Tywi, north of Ysgol Bro Dinefwr and links to the A476 at the existing junction with the B4300.

Location



How it tackles the problem

BW2 may reduce severance along the A483/Rhosmaen Street within Llandeilo and within Ffairfach (for traffic on the A476) as well as improve journey reliability due to providing a direct, free-flow route which would avoid the pinch points within Llandeilo/Ffairfach. Pedestrian safety should also improve

as well as the cycling environment, road safety and may promote visitors as the number of through-traffic journey should decrease with a bypass in place. HGV traffic should also reduce within Llandeilo/Ffairfach as it is anticipated that HGVs would use the bypass rather than Rhosmaen Street as the current A483 would be de-trunked. Further to this, emergency service response times (on call) should improve due to a reduction in traffic using Rhosmaen Street, or emergency service vehicles could use the bypass which would provide a direct, free-flow route. This option would result in a reduction in air pollution within the AQMA.

This option would contribute to the Welsh Government achieving its Well-being Objectives and help deliver some of outcomes of the Wales Transport Strategy.

To what extent it meets the objectives

Objective No	1	2	3	4	5	6	7	8
Met ✓ or x	✓	✓	×	✓	✓	×	✓	×

The majority of the objectives are fulfilled with this option, however this option does not contribute to sustainable economic growth and tourism opportunities in Llandeilo or support the transition to a low carbon society.

Other relevant issues (key risks, adverse impacts, constraints, and interdependencies)

Key risks: The time to require land and cost of land acquisition, topography and ground conditions, potential impact on flooding and that the National Trust land could be inalienable are all key risks associated with this option.

Adverse impacts: See appraisal below.

Constraints: See appraisal below

Interdependencies: Acquisition of relevant land to facilitate the option and acquisition of necessary investment are interdependencies of this option.

Appraisal

Economy and Social and Cultural

Appraisal of Economics and Social and Cultural impacts has identified that this option overall scores beneficial for the appraisal areas, with negligible impacts on local economy, security, access to employment and services and affordability.

Environment

A neutral effect upon geology and soils and noise is anticipated. Further to this, a moderate beneficial effect is anticipated on local air quality. However, a moderate adverse effect is anticipated upon the water environment with an expected large adverse impact for biodiversity, landscape and townscape as well as cultural heritage.

Who the Option impacts on

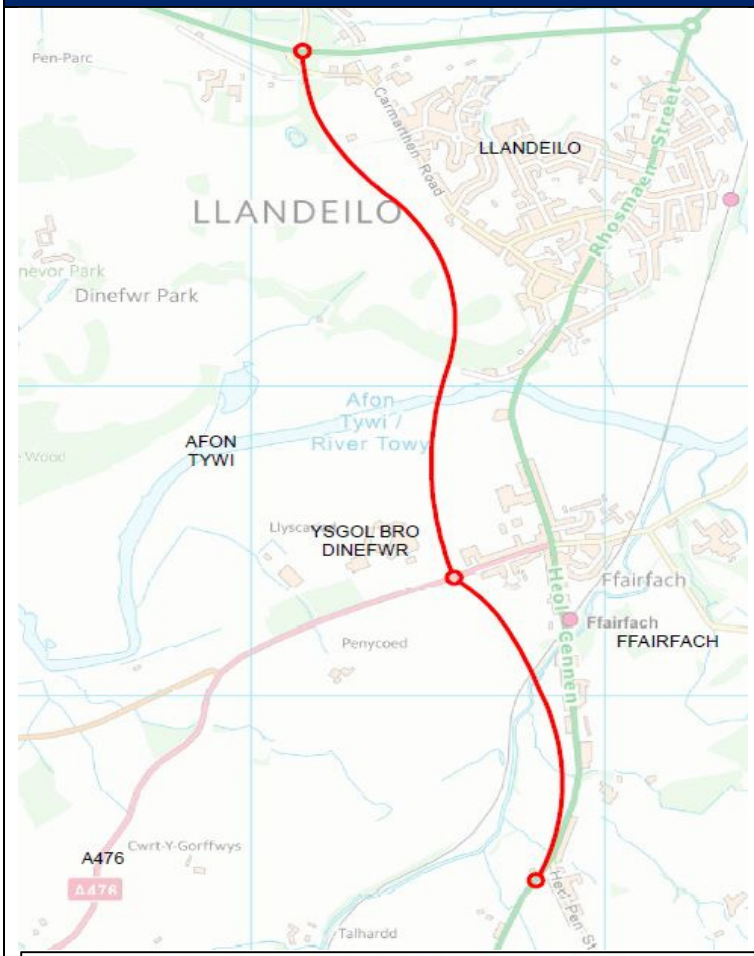
All road users may benefit from this bypass, however businesses in Llandeilo and Dinefwr Park may dis-benefit as the route proposes to go through National Trust land. Walkers, cyclists, students of Ysgol Bro Dinefwr and users of Llandeilo railway station are also likely to benefit due to a reduction in traffic using the current A483 within Llandeilo/Ffairfach.

Table 3.36 BW3A – Western Bypass Option 3 (A)

Description

Western Bypass Option 3 (A) leaves the A40 at the existing junction with Carmarthen Road at a new roundabout. The route then follows Carmarthen Road to the west in a southern direction to the entrance to the National Trust Dinefwr property and follows the 'protected route' to the east of Ysgol Bro Dinefwr and links to the A483 within Ffairfach to the south of Heol Pen Storom.

Location



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How it tackles the problem

BW3A may improve journey reliability due to providing a direct, free-flow route which would avoid the pinch points within Llandeilo/Ffairfach. Pedestrian safety should also improve as well as the cycling environment, road safety and may promote visitors as the number of through-traffic journey should decrease with a bypass in place. HGV traffic should also reduce within Llandeilo/Ffairfach as it is anticipated that HGVs would use the bypass rather than Rhosmaen Street as the current A483 would be de-trunked. Further to this, emergency service response times (on call) should improve due to a reduction in traffic using Rhosmaen Street, or emergency service vehicles could use the bypass

which would provide a direct, free-flow route. This option would result in a reduction in air pollution within the AQMA.

This option would contribute to the Welsh Government achieving its Well-being Objectives and help deliver some of outcomes of the Wales Transport Strategy.

To what extent it meets the objectives

Objective No	1	2	3	4	5	6	7	8
Met ✓ or x	✓	✓	Partial	✓	✓	×	✓	×

The majority of the objectives are fulfilled with this option, however this option does not contribute to sustainable economic growth and tourism opportunities in Llandeilo or support the transition to a low carbon society.

Other relevant issues (key risks, adverse impacts, constraints, and interdependencies)

Key risks: The time to require land and cost of land acquisition, topography and ground conditions, potential impact on flooding and that the National Trust land could be inalienable are all key risks associated with this option. Further to this, the option passes through Dinefwr Park and thus compulsory purchase to require the land may require a special parliamentary procedure.

Adverse impacts: See appraisal below.

Constraints: See appraisal below

Interdependencies: Acquisition of relevant land to facilitate the option and acquisition of necessary investment are interdependencies of this option.

Appraisal

Economy and Social and Cultural

Appraisal of Economics and Social and Cultural impacts has identified that this option has some negative impacts on the local economy and severance however does have beneficial impacts on journey time reliability, physical activity, journey quality, accidents and active travel.

Environment

A large beneficial effect is anticipated on local air quality due to a large reduction of vehicle movements through the AQMA. Also, a neutral effect upon geology and soils is anticipated. However, a slight adverse effect for noise is anticipated as properties to the east of Carmarthen Road are likely to receive noise increases that would not be able to be mitigated. Additionally, a moderate adverse effect is anticipated upon the water environment as it crosses Rivers Tywi and Cennen, a WFD waterbodies along with three tributaries. Further to this, a large adverse effect is anticipated upon biodiversity, landscape and townscape and cultural heritage.

Who the Option impacts on

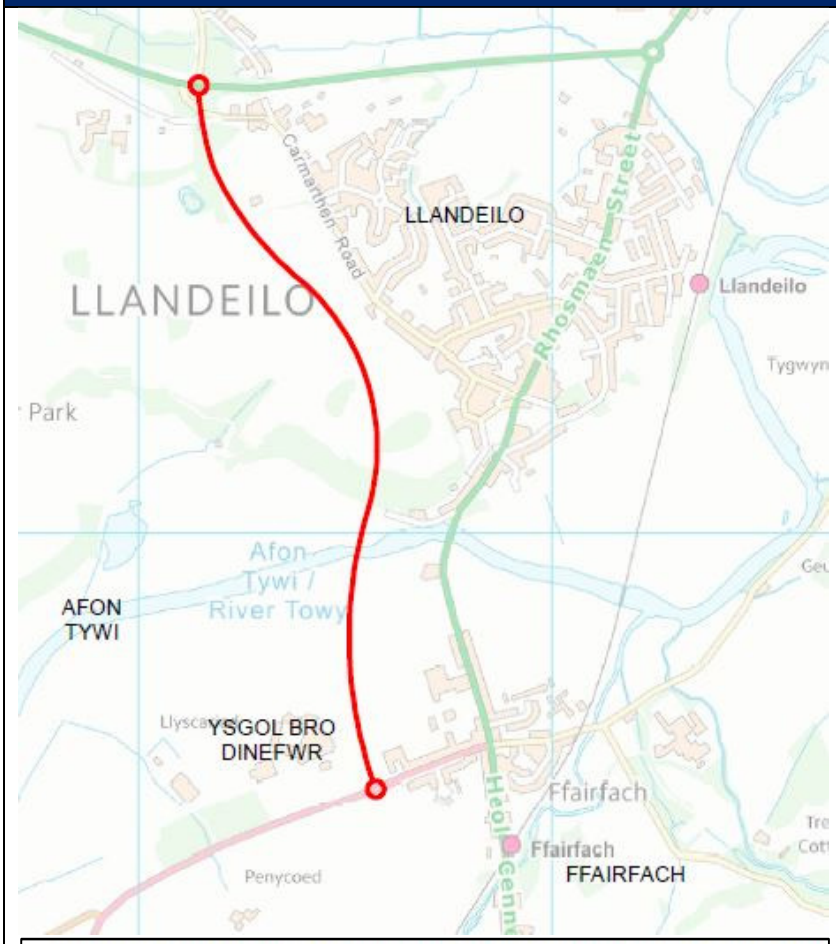
All road users may benefit from this bypass, as well as some businesses in Llandeilo. However, Dinefwr Park would dis-benefit due to the proposed bypass alignment. Properties on the west side of Ffairfach and the rear properties on the A482 to the south of Ffairfach may be negatively impacted upon in terms of noise. Walkers and cyclists should also benefit due to a reduction in traffic using the current A483 within Llandeilo/Ffairfach. However, students of Ysgol Bro Dinefwr would have a dis-benefit due to the proposed option bypass alignment.

Table 3.37 BW3B – Western Bypass Option 3 (B)

Description

Western Bypass Option 3 (B) leaves the A40 at the existing junction with Carmarthen Road at a new roundabout. The route then follows Carmarthen Road to the west in a southern direction to the entrance to the National Trust Dinefwr property and follows the 'protected route' to the east of Ysgol Bro Dinefwr.

Location



How it tackles the problem

BW3B may improve journey reliability due to providing a direct, free-flow route which would avoid the pinch points within Llandeilo/Ffairfach. Pedestrian safety should also improve as well as the cycling environment, road safety and may promote visitors as the number of through-traffic journey should decrease with a bypass in place. HGV traffic should also reduce within Llandeilo/Ffairfach as it is anticipated that HGVs on the A476 would use the bypass rather than Rhosmaen Street as the current A483 would be de-trunked, traffic on the A483 would probably continue to use the route. Further to this, emergency service response times (on call) should improve due to a reduction in traffic using

Rhosmaen Street, or emergency service vehicles could use the bypass which would provide a direct, free-flow route. This option would result in a reduction in air pollution within the AQMA.

This option would contribute to the Welsh Government achieving its Well-being Objectives and help deliver some of outcomes of the Wales Transport Strategy.

To what extent it meets the objectives

Objective No	1	2	3	4	5	6	7	8
Met ✓ or x	✓	×	×	✓	Partial	×	✓	×

The majority of the objectives are not fulfilled with this option. For instance, this option does not contribute to sustainable economic growth and tourism opportunities in Llandeilo or support the transition to a low carbon society. Additionally, it does not improve pedestrian and cyclist safety or reduce community severance within Llandeilo and Ffairfach.

Other relevant issues (key risks, adverse impacts, constraints, and interdependencies)

Key risks: The time to require land and cost of land acquisition, topography and ground conditions, potential impact on flooding and that the National Trust land could be inalienable are all key risks associated with this option. Further to this, the option passes through Dinefwr Park and thus compulsory purchase to require the land may require a special parliamentary procedure.

Adverse impacts: See appraisal below.

Constraints: See appraisal below

Interdependencies: Acquisition of relevant land to facilitate the option and acquisition of necessary investment are interdependencies of this option.

Appraisal

Economy and Social and Cultural

Appraisal of Economics and Social and Cultural impacts has identified that this option has some negative impacts on the local economy and severance however does have beneficial impacts on journey time reliability, physical activity, journey quality, accidents and active travel.

Environment

A moderate beneficial effect is anticipated on local air quality due to a reduction of vehicle movements through the AQMA. Additionally, a neutral effect upon geology and soils is anticipated. A moderate adverse effect is anticipated upon the water environment as the route crosses the River Tywi, a WFD waterbody. Also, a slight adverse effect for noise is anticipated, although it is likely that increases would be partially offset by decreases on the existing road network resulting from re-assignment of traffic flows, without the additional link these may be correspondingly less. Further to this, a large adverse effect is anticipated to landscape and townscape, cultural heritage and biodiversity.

Who the Option impacts on

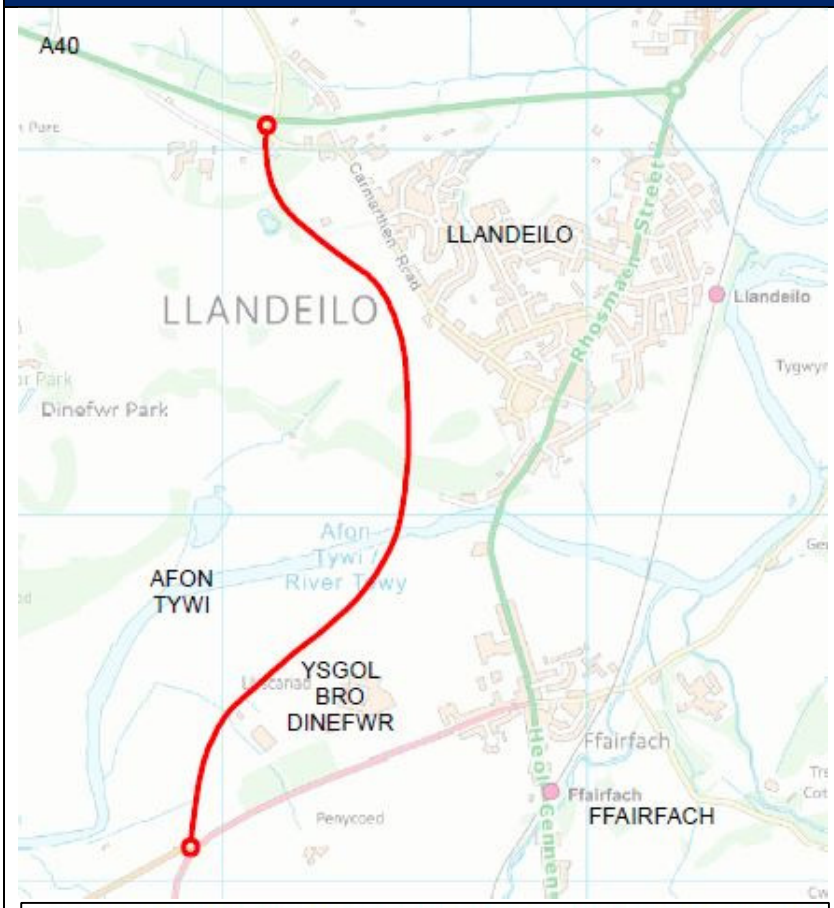
All road users may benefit from this bypass as well as walkers and cyclists within Llandeilo. However, Dinefwr Park and students of Ysgol Bro Dinefwr may dis-benefit due to the proposed bypass alignment.

Table 3.38 BW3C – Western Bypass Option 3 (C)

Description

Western Bypass Option 3 (C) leaves the A40 at the existing junction with Carmarthen Road at a new roundabout. The route then follows Carmarthen Road to the west, in a southern direction to the entrance to the National Trust Dinefwr property then passes to the north of Ysgol Bro Dinefwr and links to the junction of the B4300 and A476.

Location



How it tackles the problem

BW3C may reduce severance along the A483/Rhosmaen Street within Llandeilo as well as improve journey reliability due to providing a direct, free-flow route for traffic currently on the A476 which would avoid the pinch points within Llandeilo/Ffairfach. Pedestrian safety should also improve as well as the cycling environment, road safety and may promote visitors as the number of through-traffic journey should decrease with a bypass in place. HGV traffic should also reduce within Llandeilo/Ffairfach as it is anticipated that HGVs would use the bypass rather than Rhosmaen Street as the current A483 would be de-trunked. Further to this, emergency service response times (on call) should improve due to a reduction in traffic using Rhosmaen Street, or emergency service vehicles

could use the bypass which would provide a direct, free-flow route. This option would result in a reduction in air pollution within the AQMA.

This option would contribute to the Welsh Government achieving its Well-being Objectives and help deliver some of outcomes of the Wales Transport Strategy.

To what extent it meets the objectives

Objective No	1	2	3	4	5	6	7	8
Met ✓ or x	✓	✓	✓	✓	✓	×	✓	×

The majority of the objectives are fulfilled with this option, however this option does not contribute to sustainable economic growth and tourism opportunities in Llandeilo or support the transition to a low carbon society.

Other relevant issues (key risks, adverse impacts, constraints, and interdependencies)

Key risks: The time to require land and cost of land acquisition, topography and ground conditions, potential impact on flooding and that the National Trust land could be inalienable are all key risks associated with this option. Further to this, the option passes through Dinefwr Park and thus compulsory purchase to require the land may require a special parliamentary procedure.

Adverse impacts: See appraisal below.

Constraints: See appraisal below

Interdependencies: Acquisition of relevant land to facilitate the option and acquisition of necessary investment are interdependencies of this option.

Appraisal

Economy and Social and Cultural

Appraisal of Economics and Social and Cultural impacts has identified that this option overall has a beneficial impact across appraisal areas with a beneficial impact on journey quality, there is however a slight negative impact on the local economy.

Environment

A neutral effect upon geology and soils and noise is anticipated. Further to this, a moderate beneficial effect is anticipated on local air quality due to a reduction of vehicle movement through the AQMA. However, a moderate adverse effect is anticipated upon the water environment as the route crosses the River Tywi, a WFD waterbody and two minor tributaries. Also, a large adverse effect is anticipated upon biodiversity, landscape and townscape and cultural heritage.

Who the Option impacts on

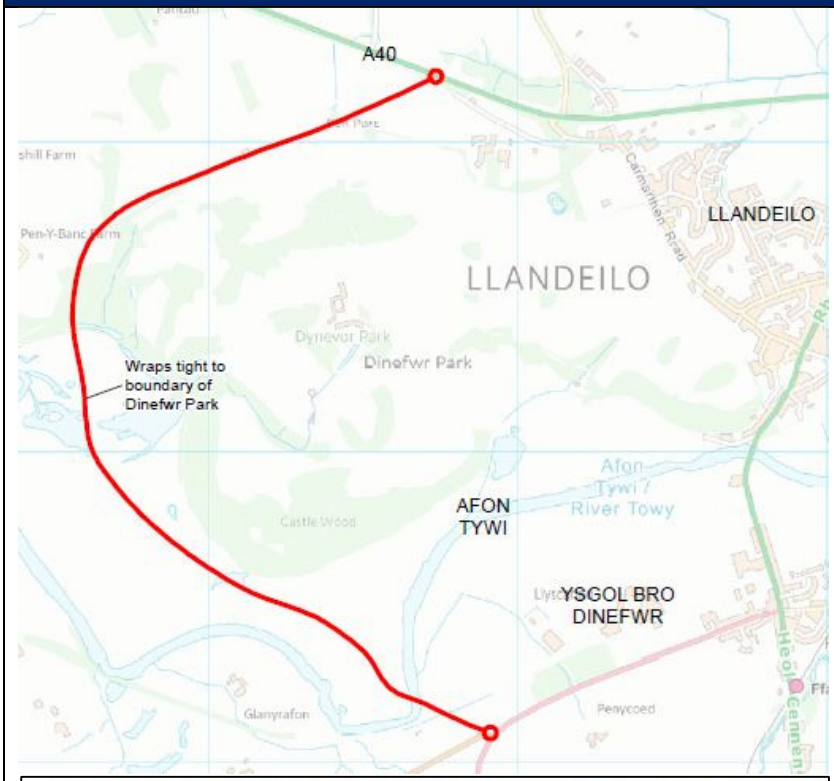
All road users may benefit from this bypass as well as businesses within Llandeilo. However, Dinefwr Park would dis-benefit due to the proposed bypass alignment. Walkers, cyclists and students of Ysgol Bro Dinefwr should benefit due to a reduction in traffic using the current A483 within Llandeilo/Ffairfach.

Table 3.39 BW4 – West of Dinefwr (East)

Description

West of Dinefwr Bypass Option (East) leaves the A40 prior to King's Lodge, wraps around the western boundary of National Trust Dinefwr Park property, links to A476 at the junction of the A476 and B4300.

Location



How it tackles the problem

BW4 may reduce severance along the A483/Rhosmaen Street within Llandeilo as well as improve journey reliability due to providing a direct, free-flow route which would avoid the pinch points within Llandeilo/Ffairfach. Pedestrian safety should also improve as well as the cycling environment, road safety and may promote visitors as the number of through-traffic journey should decrease with a bypass in place. HGV and school traffic should also reduce within Llandeilo/Ffairfach as it is anticipated that HGVs would use the bypass rather than Rhosmaen Street as the current A483 would be de-trunked. Further to this, emergency service response times (on call) should improve due to a reduction in traffic using Rhosmaen Street, or emergency service vehicles could use the bypass which would provide a direct, free-flow route. As a result of the removal of through traffic from the A476 and improvements in traffic flows there should be a decrease in air pollution within Llandeilo and Ffairfach.

This option would contribute to the Welsh Government achieving its Well-being Objectives and help deliver some of outcomes of the Wales Transport Strategy.

To what extent it meets the objectives

Objective No	1	2	3	4	5	6	7	8
Met ✓ or x	✓	Partial	Partial	✓	Partial	×	✓	×

The majority of the objectives are fulfilled with this option, however this option does not contribute to sustainable economic growth and tourism opportunities in Llandeilo or support the transition to a low carbon society.

Other relevant issues (key risks, adverse impacts, constraints, and interdependencies)

Key risks: Some of the key risks associated with this option include topography and ground conditions as well as the potential impact on flooding.

Adverse impacts: See appraisal below.

Constraints: See appraisal below

Interdependencies: Interdependencies include the acquisition of relevant land and necessary investment to facilitate the option.

Appraisal

Economy and Social and Cultural

Appraisal of Economics and Social and Cultural impacts has identified that this option has an overall beneficial impact across appraisal areas, with negligible impacts on security and affordability.

Environment

A neutral effect upon geology and soils is anticipated. A slight beneficial effect for noise is expected, as there are few properties close to the route, which are currently located in a low-noise environment. Further to this, a moderate beneficial effect is anticipated on local air quality due to a reduction of vehicle movements through the AQMA. However, a moderate adverse effect is anticipated upon the water environment as the route crosses the River Tywi, a WFD waterbody and two minor tributaries. Additionally, a large adverse effect is anticipated to landscape and townscape as the route passes through a Landscape of Outstanding Historic Interest, a Conservation Area and is along the edge of a Historic Park and Garden. Also, a large adverse effect is anticipated to cultural heritage and biodiversity.

Who the Option impacts on

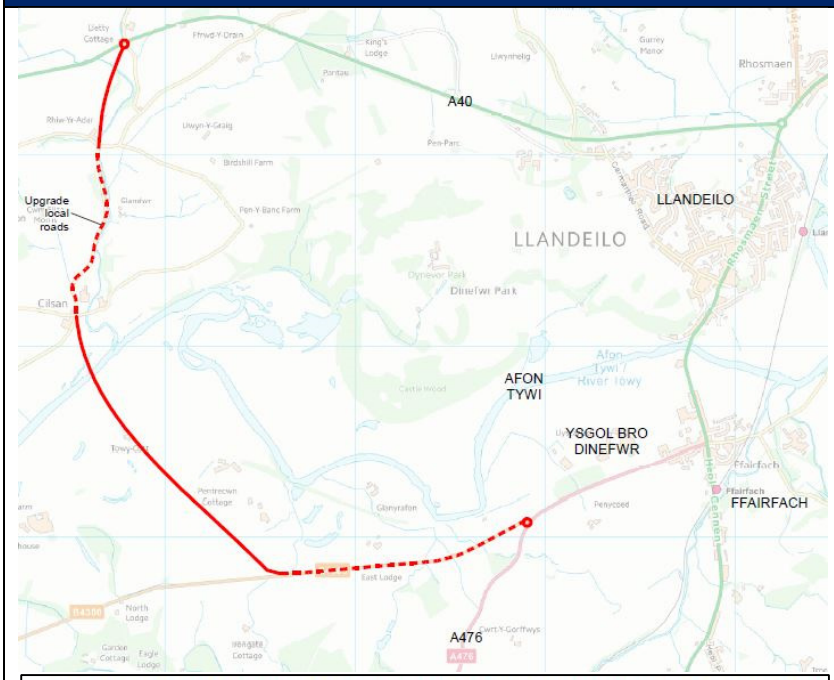
All road users may benefit from this bypass as well as businesses in Llandeilo and Dinefwr Park. However, properties located close to the proposed bypass would however experience increases in noise. Walkers, cyclists and students of Ysgol Bro Dinefwr should also benefit due to a reduction in traffic using the current A483 within Llandeilo/Ffairfach.

Table 340 BW5A – West of Dinefwr (A)

Description

West of Dinefwr Bypass Option (A) leaves the A40 near Lletty Cottage and heads south along local roads which will be upgraded between Rhiw-Yr-Adar and Cilsan. The route then crosses the Afon Tywi and links to the B4300. The route also involves an upgrade of the B4300 and the existing junction with the A476, proposed to be a roundabout.

Location



How it tackles the problem

This option would not divert traffic from the A483 (except with a combination with ARL2) and is unlikely to divert traffic from the A476 due to the additional length of the route. Therefore, any potential benefits of removing through traffic from Llandeilo and Ffairfach are unlikely to be realised. If traffic did divert on to the bypass, there would be a reduction in air pollution within the AQMA.

This option would contribute to the Welsh Government achieving its Well-being Objectives and help deliver some of outcomes of the Wales Transport Strategy.

To what extent it meets the objectives

Objective No	1	2	3	4	5	6	7	8
Met ✓ or x	✓	×	×	✓	×	×	✓	×

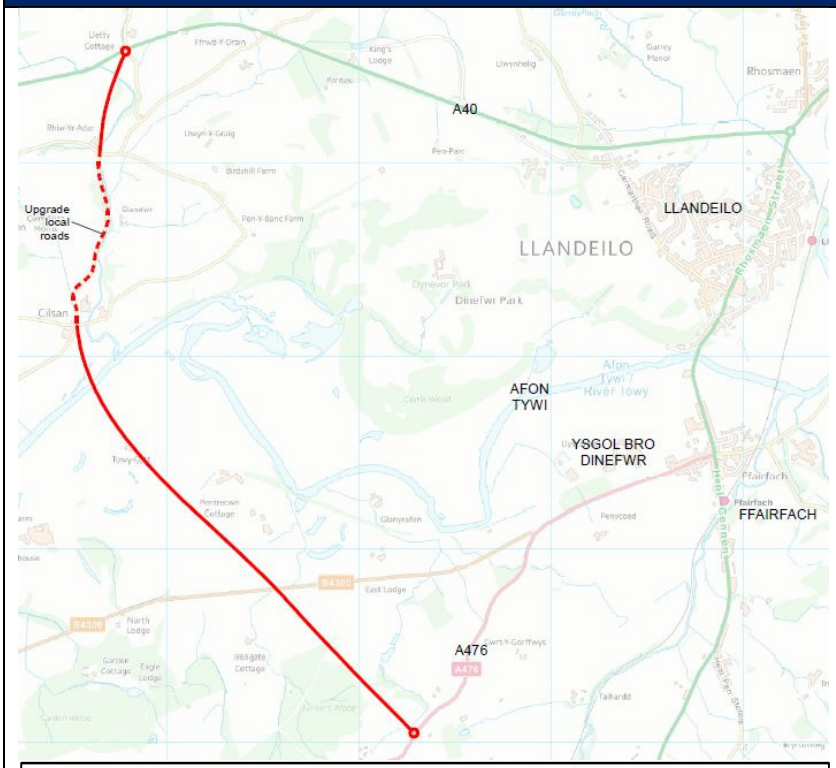
The majority of the objectives are not fulfilled with this option. For instance, this option does not contribute to sustainable economic growth and tourism opportunities in Llandeilo or support the transition to a low carbon society. Additionally, it does not improve congestion through Llandeilo or pedestrian and cyclist safety, it also does not reduce community severance within Llandeilo and Ffairfach.
Other relevant issues (key risks, adverse impacts, constraints, and interdependencies)
Key risks: The time to require land and cost of land acquisition, topography and ground conditions, potential impact on flooding are all key risks associated with this option. *Adverse impacts:* See appraisal below. *Constraints:* See appraisal below *Interdependencies:* Acquisition of relevant land to facilitate the option and acquisition of necessary investment are interdependencies of this option.
Appraisal
Economy and Social and Cultural
Appraisal of Economics and Social and Cultural impacts has identified that this option overall has a beneficial impact, with a slight negative impact on journey time changes, and negligible impacts on local economy, security and affordability.
Environment
A neutral effect upon geology and soils is anticipated, with a slight beneficial effect for noise. Further to this, a moderate beneficial effect is anticipated on local air quality due to a reduction of vehicle movements through the AQMA. However, a moderate adverse effect is anticipated upon the water environment and cultural heritage. Further to this, a large adverse effect is anticipated to landscape and townscape and biodiversity.
Who the Option impacts on
All road users may dis-benefit from this bypass due to the proposed alignment, with businesses in Llandeilo and Dinefwr Park experiencing a neutral impact. Users of Llandeilo train station and students of Ysgol Bro Dinefwr may benefit from this bypass option; however, some businesses may dis-benefit due to the significant diversion.

Table 3.41 BW5B – West of Dinefwr (B)

Description

West of Dinefwr Bypass Option (B) leaves the A40 near Lletty Cottage and heads south along local roads which will be upgraded between Rhiw-Yr-Adar and Cilsan. The route then crosses the Afon Tywi estuary and links to the B4300. The route continues south to link to the A476 at approximate NGR SN 613200.

Location



How it tackles the problem

BW5B may reduce severance along the A483/Rhosmaen Street within Llandeilo (depending on the chosen bypass) as well as improve journey reliability due to providing a direct, free-flow route which would avoid the pinch points within Llandeilo/Ffairfach. Pedestrian safety should also improve as well as the cycling environment, road safety and may promote visitors as the number of through-traffic journey should decrease with a bypass in place. HGV and school traffic should also reduce within Llandeilo/Ffairfach as it is anticipated that HGVs would use the bypass rather than Rhosmaen Street as the current A483 would be de-trunked. Further to this, emergency service response times (on call) should improve due to a reduction in traffic using Rhosmaen Street, or emergency service vehicles could use the bypass which would provide a direct, free-flow route. This option would result in a reduction in air pollution within the AQMA.

This option would contribute to the Welsh Government achieving its Well-being Objectives and help deliver some of outcomes of the Wales Transport Strategy.

To what extent it meets the objectives

Objective No	1	2	3	4	5	6	7	8
Met ✓ or x	✓	×	×	✓	×	×	✓	×

The majority of the objectives are not fulfilled with this option. For instance, this option does not contribute to sustainable economic growth and tourism opportunities in Llandeilo or support the transition to a low carbon society. Additionally, it does not improve congestion through Llandeilo or pedestrian and cyclist safety, it also does not reduce community severance within Llandeilo and Ffairfach.

Other relevant issues (key risks, adverse impacts, constraints, and interdependencies)

Key risks: The time to require land and cost of land acquisition, topography and ground conditions, potential impact on flooding are all key risks associated with this option.

Adverse impacts: See appraisal below.

Constraints: See appraisal below

Interdependencies: Acquisition of relevant land to facilitate the option and acquisition of necessary investment are interdependencies of this option.

Appraisal

Economy and Social and Cultural

Appraisal of Economics and Social and Cultural impacts has identified that this option overall has a beneficial impact, with a slight negative impact on journey time changes, and negligible impacts on local economy, security and affordability.

Environment

A neutral effect upon geology and soils, as well as noise, is anticipated. Also, a moderate beneficial effect is anticipated on local air quality due to a reduction of vehicle movements through the AQMA. However, moderate adverse effects are anticipated for cultural heritage and the water environment and large adverse effects are anticipated upon biodiversity and landscape and townscape.

Who the Option impacts on

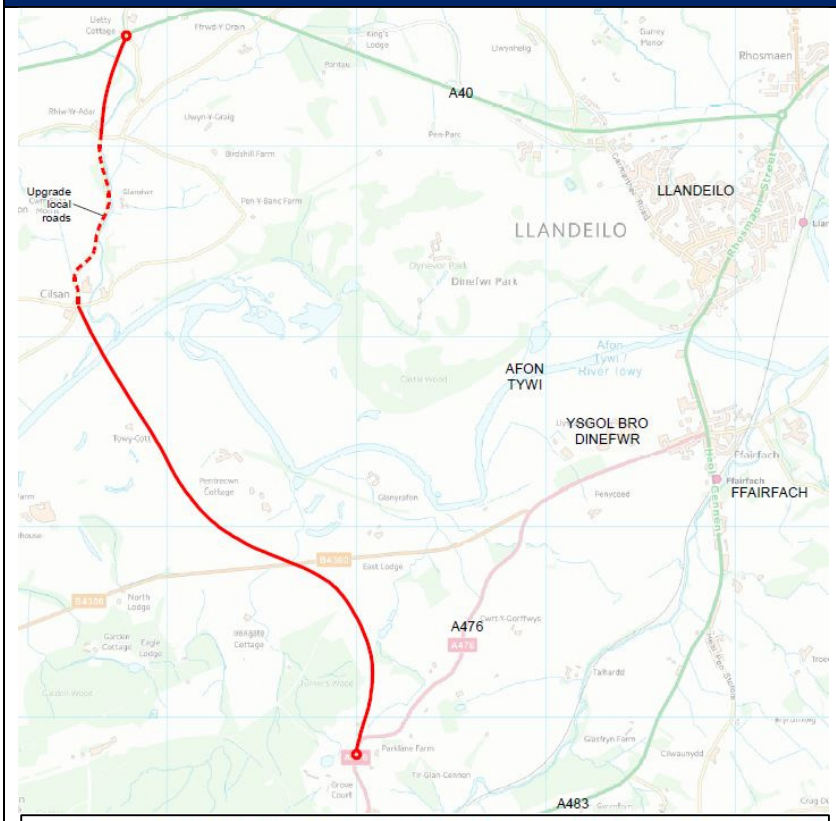
All road users may dis-benefit from this bypass due to the proposed alignment, with businesses in Llandeilo and Dinefwr Park experiencing a neutral impact. Users of Llandeilo train station and students of Ysgol Bro Dinefwr may benefit from this bypass option; however, some businesses may dis-benefit due to the significant diversion.

Table 3.42 BW5C – West of Dinefwr (C)

Description

West of Dinefwr Bypass Option (C) leaves the A40 near Lletty Cottage, heads south, including an upgrade of local roads between Rhiw-Yr-Adar and Cilsan. The route then crosses the Afon Tywi estuary, links to the B4300 and continues south to link to the A476 at approximate NGR SN 610198 (wrapping around the boundary of Turner's wood).

Location



How it tackles the problem

BW5C may reduce severance along the A483/Rhosmaen Street within Llandeilo (depending on the chosen bypass) as well as improve journey reliability due to providing a direct, free-flow route which would avoid the pinch points within Llandeilo/Ffairfach. Pedestrian safety should also improve as well as the cycling environment, road safety and may promote visitors as the number of through-traffic journey should decrease with a bypass in place. HGV and school traffic should also reduce within Llandeilo/Ffairfach as it is anticipated that HGVs would use the bypass rather than Rhosmaen Street as the current A483 would be de-trunked. Further to this, emergency service response times (on call) should improve due to a reduction in traffic using Rhosmaen Street, or emergency service vehicles could use the bypass which would provide a direct, free-flow route. If sufficient vehicles divert from Rhosmaen Street, there should be a decrease in air pollution within Llandeilo.

This option would contribute to the Welsh Government achieving its Well-being Objectives and help deliver some of outcomes of the Wales Transport Strategy.

To what extent it meets the objectives

Objective No	1	2	3	4	5	6	7	8
Met ✓ or x	✓	×	×	✓	×	×	✓	×

The majority of the objectives are not fulfilled with this option. For instance, this option does not contribute to sustainable economic growth and tourism opportunities in Llandeilo or support the transition to a low carbon society. Additionally, it does not improve congestion through Llandeilo or pedestrian and cyclist safety, it also does not reduce community severance within Llandeilo and Ffairfach.

Other relevant issues (key risks, adverse impacts, constraints, and interdependencies)

Key risks: The time to require land and cost of land acquisition, topography and ground conditions, potential impact on flooding are all key risks associated with this option.

Adverse impacts: See appraisal below.

Constraints: See appraisal below

Interdependencies: Acquisition of relevant land to facilitate the option and acquisition of necessary investment are interdependencies of this option.

Appraisal

Economy and Social and Cultural

Appraisal of Economics and Social and Cultural impacts has identified that this option overall has a beneficial impact, with a slight negative impact on journey time changes, and negligible impacts on local economy, security and affordability.

Environment

A neutral effect upon geology and soils, as well as noise, is anticipated. Aadditionally, a moderate beneficial effect is anticipated on local air quality due to a reduction of vehicle movements through the AQMA. However, a moderate adverse effect is anticipated upon the water environment and cultural heritage. Further to this, a large adverse effect is expected upon biodiversity and landscape and townscape.

Who the Option impacts on

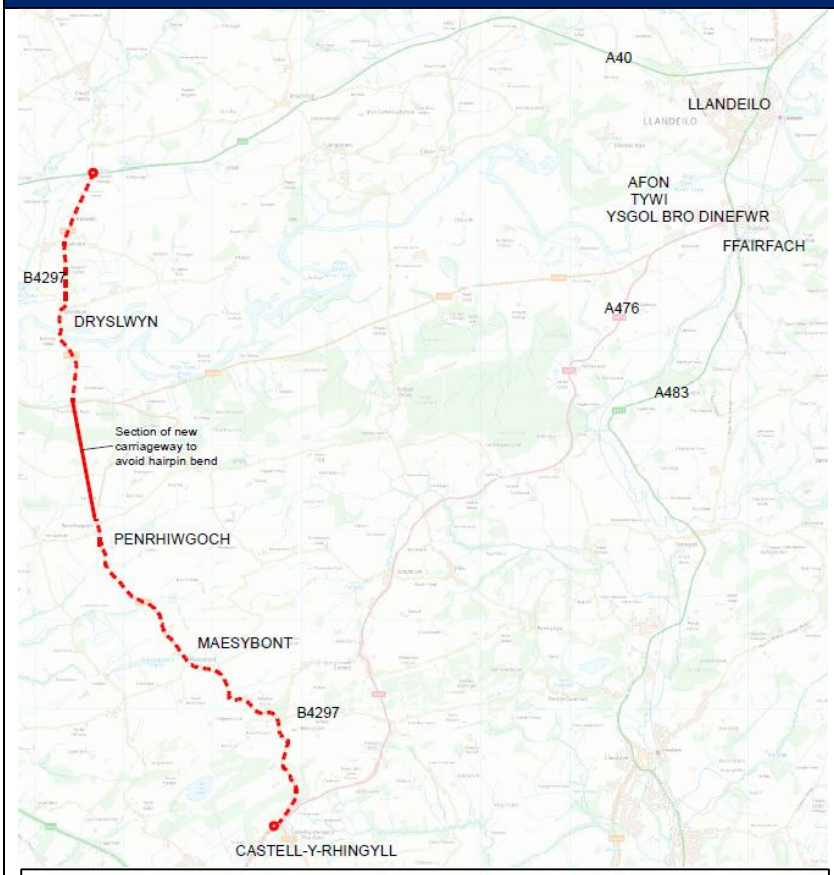
All road users may dis-benefit from this bypass due to the proposed alignment, with businesses in Llandeilo and Dinefwr Park experiencing a neutral impact. Users of Llandeilo train station and students of Ysgol Bro Dinefwr may benefit from this bypass option; however, some businesses may dis-benefit due to the significant diversion.

Table 3.43 BW6 – Far West Route via Dryslwyn

Description

Far West Route via Dryslwyn is located approximately 6km west of Llandeilo. The route leaves the A40 at the junction with the B4297, near Cross Inn Cottage. The B4297 will be upgraded to an A road standard single carriageway (7.3m) which passes through Felindre, Dryslwyn, Penrhiwgoch and Maesybont. The route will then connect into A476 at Castyll-y-rhingyll/The Gate to the north of Cross Hands. It should be noted that Active Travel provision for this option not specified at this point.

Location



How it tackles the problem

BW6 is unlikely to divert significant amounts of traffic off the A483 or A476 as they approach Llandeilo and therefore traffic flows on Rhosmaen Street would remain as they are currently. On this basis, there would not be any significant improvement to address the issues raised in respect of traffic in Llandeilo.

This option would not contribute to the Well-being Objectives of the Welsh Government and is considered not to contribute to any of the outcomes set out in the Wales Transport Plan.

To what extent it meets the objectives								
Objective No	1	2	3	4	5	6	7	8
Met ✓ or x	✓	×	×	×	×	×	×	×
This option only fulfils objective 1 of preserving the strategic function of the A483.								
Other relevant issues (key risks, adverse impacts, constraints, and interdependencies)								
Key risks: The time to require land and cost of land acquisition, topography and ground conditions, potential impact on flooding are all key risks associated with this option. Further to this, the option would not deliver the necessary diversion of traffic which currently uses the A476 or the A483 to head north. *Adverse impacts:* See appraisal below. *Constraints:* See appraisal below *Interdependencies:* Acquisition of relevant land to facilitate the option and acquisition of necessary investment are interdependencies of this option.								
Appraisal								
Economy and Social and Cultural								
Appraisal of Economics and Social and Cultural impacts has identified that this option scores large negative on journey time changes, however the rest of the appraisal scores are either beneficial or negligible.								
Environment								
A neutral effect upon geology and soils is anticipated and a moderate beneficial effect is anticipated on local air quality. However, a slight adverse effect for noise is anticipated, as the majority of this route would be along existing minor roads but there is the potential for large increases at small communities and scattered rural properties. A slight adverse effect is also anticipated to landscape and townscape and cultural heritage. A moderate adverse effect is anticipated upon the water environment as the route crosses the River Tywi and several tributaries, all WFD waterbodies. Further to this, a large adverse effect is anticipated upon biodiversity.								
Who the Option impacts on								
All road users may dis-benefit from this bypass due to the proposed alignment, it is anticipated that businesses in Llandeilo and Dinefwr Park experiencing a neutral impact. Small communities and scattered rural properties may also experience a negative impact in terms of noise. It is anticipated that a neutral impact on users of Llandeilo train station and students of Ysgol Bro Dinefwr would occur; however, some businesses may dis-benefit due to the significant diversion.								

3.3.7 Tunnel

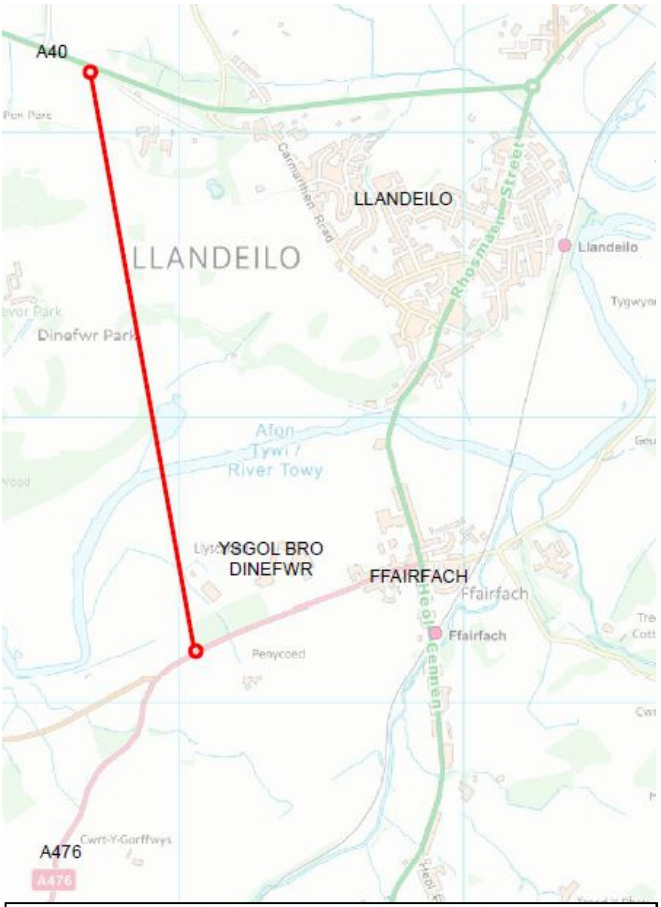
This section outlines the Tunnel option for the A483. Table 3.66 includes a description of the option, indicative location and appraisal which feed into the Appraisal Summary Table.

Table 3.44 BT1 – Tunnel

Description

The tunnel is proposed from the A40 to A476 under Dinefwr Park to the east of King's Lodge.

Location



How it tackles the problem

BT1 may reduce severance along the A483/Rhosmaen Street within Llandeilo (depending on the chosen bypass) as well as improve journey reliability due to providing a direct, free-flow route which would avoid the pinch points within Llandeilo/Ffairfach. Pedestrian safety should also improve as well as the cycling environment, road safety and may promote visitors as the number of through-traffic journey should decrease with a bypass in place. This may also help reduce the closure of local

amenities. HGV and school traffic should also reduce within Llandeilo/Ffairfach as it is anticipated that HGVs would use the bypass rather than Rhosmaen Street as the current A483 would be de-trunked. Further to this, emergency service response times (on call) should improve due to a reduction in traffic using Rhosmaen Street, or emergency service vehicles could use the bypass which would provide a direct, free-flow route. This option would result in a reduction in air pollution within the AQMA.

This option would contribute to the Welsh Government achieving its Well-being Objectives and help deliver some of the long term outcomes set out in the Wales Transport Strategy.

To what extent it meets the objectives

Objective No	1	2	3	4	5	6	7	8
Met ✓ or x	✓	✓	✓	✓	✓	✓	✓	✓

Option BT1 passes all 8 of the objectives however is unlikely to be feasible when looking at the Land and Cost requirements for it. For this reason, the option wasn't shortlisted.

Other relevant issues (key risks, adverse impacts, constraints, and interdependencies)

Key risks: Some key risks associated with this option include the time and cost needed to acquire land and well as the potential topography and ground conditions.

Adverse impacts: See appraisal below.

Constraints: See appraisal below.

Interdependencies: Interdependencies associated with this option include acquisition of relevant land as well as investment to facilitate the option.

Appraisal

Economy and Social and Cultural

Appraisal of Economics and Social and Cultural impacts has identified that this option overall scores beneficial for the appraisal areas, with negligible impacts on security and affordability.

Environment

It is anticipated that there is a neutral effect upon geology and soils and cultural heritage. Additionally, there is a slight beneficial effect for noise and a moderate beneficial effect on local air quality. However, it is anticipated that there is a slight adverse effect is anticipated to landscape and townscape, biodiversity and cultural heritage. Also it is anticipated that a moderate adverse effect will occur upon the water environment.

Who the Options impacts on

All road users should benefit from this option, as well as businesses within Llandeilo's town Centre and Dinefwr Park. There would be no noise increases along the alignment and properties along the A483 within Llandeilo should also benefit. Further to this, walkers and cyclists, students of Ysgol Bro Dinefwr and users of Llandeilo railway station are likely to benefit from this option.

Table 3.45 – Appraisal Summary Table

Area	ID	Scheme Option Description	Overall Score	Economy									Environment								Social and Cultural										Cost of Scheme	Objectives								Shortlisted Option
				Journey time changes	Journey time reliability changes	Transport costs	Accidents	Changes in productivity	Local Economy	Land	Capital costs	Revenue costs	Noise	Local Air Quality	Greenhouse Gas Emissions	Landscape and Townscape	Biodiversity	Cultural Heritage	Water Environment	Soils and Geology	Physical Activity	Journey Quality	Accidents	Security	Access to employment	Access to services	Affordability	Severance	Active Travel	Option and non-use values		Objective 1	Objective 2	Objective 3	Objective 4	Objective 5	Objective 6	Objective 7	Objective 8	
Do-Min Opt	Do-Minimu	Do-Minimum	(-)	(-)	(-)	NYA	NYA	NYA	(-)	NYA	NYA	NYA	(-)	(-)	(0)	(-)	(0)	(-)	(0)	(0)	(-)	(-)	(-)	(0)	(-)	(-)	NYA	(-)	(-)	NYA	Low	Yes	No	No	No	No	No	No	No
Town Centre Options	TC1A	One Way System + Bypass (a)	(++)	(+)	(++)	NYA	NYA	NYA	(+)	NYA	NYA	NYA	(0)	(++)	(0)	(+)	(0)	(+)	(0)	(0)	(++)	(++)	(++)	(0)	(0)	(0)	NYA	NYA	(+)	NYA	High	Yes	Yes	Yes	Partial	Partial	Yes	No	No	Yes
	TC1B	One Way System + Bypass (b)	(++)	(+)	(++)	NYA	NYA	NYA	(+)	NYA	NYA	NYA	(0)	(++)	(0)	(+)	(0)	(+)	(0)	(0)	(++)	(++)	(++)	(0)	(0)	(0)	NYA	NYA	(+)	NYA	High	Yes	Yes	Yes	Partial	Partial	Yes	No	No	No
	TC1C	One Way System + Bypass (c)	(++)	(+)	(++)	NYA	NYA	NYA	(+)	NYA	NYA	NYA	(0)	(++)	(0)	(+)	(0)	(+)	(0)	(0)	(++)	(++)	(++)	(0)	(0)	(0)	NYA	NYA	(+)	NYA	High	Yes	Yes	Yes	Partial	Partial	Yes	No	No	No
	TC2	Traffic Light System + Bypass	(+)	(-)	(+)	NYA	NYA	NYA	(+)	NYA	NYA	NYA	(0)	(++)	(0)	(+)	(0)	(+)	(0)	(0)	(++)	(-)	(++)	(0)	(0)	(0)	NYA	NYA	(+)	NYA	High	Yes	No	No	No	No	Yes	No	No	No
Non-Bypass Options	NB1	Traffic lights	(+)	(-)	(+)	NYA	NYA	NYA	(+)	NYA	NYA	NYA	(0)	(+)	(0)	(+)	(0)	(+)	(0)	(0)	(+)	(-)	(+)	(0)	(0)	(0)	NYA	(+)	(+)	NYA	Low	Partial	No	No	Yes	Yes	No	Partial	No	Yes
	NB2	Removal of parking	(+)	(+)	(+)	NYA	NYA	NYA	(-)	NYA	NYA	NYA	(0)	(+)	(0)	(+)	(0)	(+)	(0)	(0)	(+)	(+)	(+)	(0)	(0)	(0)	NYA	(+)	(+)	NYA	Low	Partial	No	No	Yes	Yes	No	Partial	No	Yes
	NB3	HGV Restriction (legal sanction)	(+)	(-)	(-)	NYA	NYA	NYA	(0)	NYA	NYA	NYA	(0)	(++)	(0)	(+)	(0)	(+)	(0)	(0)	(+)	(0)	(+)	(0)	(0)	(0)	NYA	(+)	(+)	NYA	Low	No	Yes	Yes	Yes	Yes	No	Yes	No	No
	NB4	HGV Restriction with permit / emissions charge	(+)	(-)	(-)	NYA	NYA	NYA	(0)	NYA	NYA	NYA	(0)	(++)	(0)	(+)	(0)	(+)	(0)	(0)	(+)	(0)	(+)	(0)	(0)	(0)	NYA	(+)	(+)	NYA	Low	No	Yes	Yes	No	Yes	No	Yes	No	No
	NB5	HGV Restriction (legal sanction) plus one way system	(+)	(-)	(-)	NYA	NYA	NYA	(0)	NYA	NYA	NYA	(0)	(++)	(0)	(+)	(0)	(+)	(0)	(0)	(+)	(0)	(+)	(0)	(0)	(0)	NYA	(+)	(+)	NYA	Low	No	Yes	Yes	No	Yes	No	Yes	No	Yes
	NB6	Combined No-bypass Option (with HGV restriction)	(+)	(-)	(-)	NYA	NYA	NYA	(0)	NYA	NYA	NYA	(0)	(+)	(0)	(+)	(0)	(+)	(0)	(0)	(+)	(0)	(+)	(0)	(0)	(0)	NYA	(+)	(+)	NYA	Low	No	Yes	Yes	No	Yes	No	Yes	No	Yes
	NB7	Combined No-bypass Option (No HGV restriction)	(+)	(-)	(-)	NYA	NYA	NYA	(0)	NYA	NYA	NYA	(0)	(+)	(0)	(+)	(0)	(+)	(0)	(0)	(+)	(0)	(+)	(0)	(0)	(0)	NYA	(+)	(+)	NYA	Low	Yes	Yes	Yes	No	Yes	No	Yes	No	Yes
Eastern Options	BE1A	Eastern Bypass 1 (A)	(0)	(++)	(++)	NYA	NYA	NYA	(+)	NYA	NYA	NYA	(0)	(++)	(0)	(---)	(---)	(-)	(---)	(0)	(+)	(+)	(+)	(0)	(+)	(+)	NYA	(--)	(+)	NYA	High	Yes	Partial	Partial	Yes	Yes	Yes	Yes	Yes	Yes
	BE1B	Eastern Bypass 1 (B)	(0)	(++)	(++)	NYA	NYA	NYA	(+)	NYA	NYA	NYA	(0)	(+)	(0)	(---)	(---)	(-)	(---)	(0)	(+)	(+)	(+)	(0)	(+)	(+)	NYA	(-)	(+)	NYA	Medium	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
	BE1C	Eastern Bypass 1 (C)	(0)	(+)	(+)	NYA	NYA	NYA	(+)	NYA	NYA	NYA	(0)	(+)	(0)	(---)	(---)	(-)	(---)	(0)	(+)	(+)	(+)	(0)	(+)	(+)	NYA	(-)	(+)	NYA	Medium	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
	BE1D	Eastern Bypass 1 (D)	(0)	(+)	(+)	NYA	NYA	NYA	(+)	NYA	NYA	NYA	(0)	(++)	(0)	(---)	(---)	(-)	(---)	(0)	(+)	(+)	(+)	(0)	(+)	(+)	NYA	(-)	(+)	NYA	High	Yes	Yes	Yes	Yes	No	Yes	No	No	No
	BE2	Eastern Bypass 2	(0)	(+++)	(+)	NYA	NYA	NYA	(+)	NYA	NYA	NYA	(0)	(+++)	(0)	(---)	(---)	(-)	(---)	(0)	(+)	(++)	(+)	(0)	(+)	(+)	NYA	(++)	(+)	NYA	High	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No
	BE3A	Eastern Bypass 3 (A)	(0)	(++)	(++)	NYA	NYA	NYA	(+)	NYA	NYA	NYA	(0)	(+++)	(0)	(---)	(---)	(-)	(---)	(0)	(+)	(++)	(+)	(0)	(+)	(+)	NYA	(++)	(+)	NYA	High	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No
	BE3B	Eastern Bypass 3 (B)	(0)	(+++)	(++)	NYA	NYA	NYA	(+)	NYA	NYA	NYA	(0)	(+++)	(0)	(---)	(---)	(-)	(---)	(0)	(+)	(++)	(+)	(0)	(+)	(+)	NYA	(++)	(+)	NYA	High	Yes	Yes	Yes	Partial	Yes	Yes	Yes	No	No
	BE3C	Eastern Bypass 3 (C)	(+)	(+)	(++)	NYA	NYA	NYA	(+)	NYA	NYA	NYA	(+)	(+++)	(0)	(---)	(---)	(-)	(--)	(0)	(+)	(++)	(+)	(0)	(+)	(+)	NYA	(+++)	(+)	NYA	High	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No
	BE3D	Eastern Bypass 3 (D)	(0)	(++)	(++)	NYA	NYA	NYA	(+)	NYA	NYA	NYA	(0)	(+++)	(0)	(---)	(---)	(-)	(--)	(0)	(+)	(++)	(+)	(0)	(+)	(+)	NYA	(++)	(+)	NYA	High	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No
	BE4A	Mid Rhosmaen East 4A	(+)	(+)	(++)	NYA	NYA	NYA	(+)	NYA	NYA	NYA	(+)	(+++)	(0)	(---)	(---)	(-)	(--)	(0)	(+)	(++)	(+)	(0)	(+)	(+)	NYA	(+++)	(+)	NYA	High	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No
	BE4B	Mid Rhosmaen East 4B	(+)	(++)	(++)	NYA	NYA	NYA	(+)	NYA	NYA	NYA	(+)	(+++)	(0)	(---)	(---)	(-)	(--)	(0)	(+)	(++)	(+)	(0)	(+)	(+)	NYA	(++)	(+)	NYA	Medium	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No
	BE4C	Mid Rhosmaen East 4C	(+)	(+)	(++)	NYA	NYA	NYA	(+)	NYA	NYA	NYA	(+)	(+++)	(0)	(---)	(---)	(-)	(--)	(0)	(+)	(++)	(+)	(0)	(+)	(+)	NYA	(+++)	(+)	NYA	High	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No
	BE4D	Mid Rhosemaen East 4D	(0)	(++)	(++)	NYA	NYA	NYA	(+)	NYA	NYA	NYA	(0)	(+++)	(0)	(---)	(---)	(-)	(--)	(0)	(+)	(++)	(+)	(0)	(+)	(+)	NYA	(++)	(+)	NYA	High	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes
	BE5A	Far Eastern Route (a)	(0)	(+)	(++)	NYA	NYA	NYA	(+)	NYA	NYA	NYA	(0)	(+++)	(0)	(---)	(---)	(-)	(--)	(0)	(+)	(++)	(+)	(0)	(+)	(+)	NYA	(+++)	(+)	NYA	High	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No
	BE5B	Far Eastern Route (b)	(0)	(+)	(++)	NYA	NYA	NYA	(+)	NYA	NYA	NYA	(0)	(+++)	(0)	(---)	(---)	(-)	(--)	(0)	(+)	(++)	(+)	(0)	(+)	(+)	NYA	(++)	(+)	NYA	Medium	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No
	BE6	Protected Refined Route	(0)	(+)	(++)	NYA	NYA	NYA	(+)	NYA	NYA	NYA	(0)	(++)	(0)	(---)	(---)	(-)	(---)	(0)	(+)	(++)	(+)	(0)	(+)	(+)	NYA	(++)	(+)	NYA	Medium	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes
A483 & A476 Link Options	ARL1	A Road Link 1	(0)	NYA	NYA	NYA	NYA	NYA	NYA	NYA	NYA	NYA	(0)	(++)	(0)	(--)	(--)	(-)	(-)	(0)	(0)	(+)	(+)	(0)	(0)	(0)	NYA	(+)	(+)	NYA	Medium	Yes	No	No	Yes	Yes	Yes	No	No	
	ARL2	A Road Link 2	(0)	NYA	NYA	NYA	NYA	NYA	NYA	NYA	NYA	NYA	(0)	(++)	(0)	(--)	(--)	(-)	(-)	(0)	(0)	NYA	(+)	(0)	(0)	(0)	NYA	(+)	(0)	NYA	Medium	Yes	No	Yes	Yes	Yes	Yes	No	No	
Western Options	BW1	West 1	(0)	(+)	(+)	NYA	NYA	NYA	(0)	NYA	NYA	NYA	(0)	(++)	(0)	(---)	(---)	(---)	(--)	(0)	(+)	(++)	(+)	(0)	(0)	(0)	NYA	(+)	(+)	NYA	Medium	Yes	Yes	Yes	Yes	Yes	No	Yes	No	No
	BW2	West 2	(0)	(+)	(+)	NYA	NYA	NYA	(-)	NYA	NYA	NYA	(0)	(++)	(0)	(---)	(---)	(---)	(--)	(0)	(+)	(++)	(+)	(0)	(0)	(0)	NYA	(+)	(+)	NYA	Medium	Yes	Yes	No	Yes	Yes	No	Yes	No	No
	BW3A	West 3A	(0)	(0)	(+)	NYA	NYA	NYA	(-)	NYA	NYA	NYA	(-)	(+++)	(0)	(---)	(---)	(---)	(--)	(0)	(+)	(++)	(+)	(0)	(0)	(0)	NYA	(--)	(+)	NYA	High	Yes	Yes	Partial	Yes	Yes	No	Yes	No	No
	BW3B	West 3B	(-)	(+)	(+)	NYA	NYA	NYA	(-)	NYA	NYA	NYA	(-)	(++)	(0)	(---)	(---)	(---)	(--)	(0)	(+)	(+)	(+)	(0)	(0)	(0)	NYA	(--)	(+)	NYA	Medium	Yes	No	No	Yes	Partial	No	Yes	No	No
	BW3C	West 3C	(0)	(+)	(+)	NYA	NYA	NYA	(-)	NYA	NYA	NYA	(0)	(++)	(0)	(---)	(---)	(---)	(--)	(0)	(+)	(++)	(+)	(0)	(0)	(0)	NYA	(+)	(+)	NYA	High	Yes	Yes	Yes	Yes	Yes	No	Yes	No	No
	BW4	West of Dinefwr (east)	(0)	(+)	(+)	NYA	NYA	NYA	(+)	NYA	NYA	NYA	(+)	(++)	(0)	(---)	(---)	(---)	(--)	(0)	(+)	(+)	(+)	(0)	(+)	(+)	NYA	(+)	(+)	NYA	High	Yes	Partial	Partial	Yes	Partial	No	Yes	No	No
	BW5A	West of Dinefwr (west)(a)	(0)	(-)	(+)	NYA	NYA	NYA	(0)	NYA	NYA	NYA	(+)	(++)	(0)	(---)	(---)	(--)	(--)	(0)	(0)	(0)	(+)	(0)	(+)	(+)	NYA	(0)	(0)	NYA	Medium	Yes	No	No	Yes	No	No	Yes	No	No
	BW5B	West of Dinefwr (west)(b)	(0)	(-)	(+)	NYA	NYA	NYA	(0)	NYA	NYA	NYA	(0)	(++)	(0)	(---)	(---)	(--)	(--)	(0)	(+)	(+)	(+)	(0)	(+)	(+)	NYA	(+)	(+)	NYA	High	Yes	No	No	Yes	No	No	Yes	No	No
	BW5C	West of Dinefwr (west)(c)	(0)	(-)	(+)	NYA	NYA	NYA	(0)	NYA	NYA	NYA	(0)	(++)	(0)	(---)	(---)	(--)	(--)	(0)	(+)	(+)	(+)	(0)	(+)	(+)	NYA	(+)	(+)	NYA	High	Yes	No	No	Yes	No	No	Yes	No	No
	BW6	Far West Route via Dryslwyn	(-)	(---)	(0)	NYA	NYA	NYA	(0)	NYA	NYA	NYA	(-)	(++)	(0)	(-)	(---)	(-)	(--)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	NYA	(0)	(0)	NYA	High	Yes	No	No	No	No	No	No	No	No
	BT1	Tunnel	(+)	(+)	(++)	NYA	NYA	NYA	(+)	NYA	NYA	NYA	(+)	(++)	(0)	(-)	(-)	(0)	(--)	(0)	(+)	(++)	(+)	(0)	(+)	(+)	NYA	(++)	(+)	NYA	High	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No

4. Financial Case

4.1 Introduction

The financial case *'tells you whether an option is affordable in the first place and the long term financial viability of a scheme. It covers both capital and revenue requirements over the life time of the project and the implications of these for the balance sheet, income and expenditure accounts for public sector organisations'.*

This section sets out the financial case of each of the potential options established to resolve the problems that exist and the developed scheme objectives. The study for improvements to the transport infrastructure at Llandeilo is at an early stage and therefore the financial cases for each option are as yet undeveloped due to the limited information available. At this stage the tunnel option has been dismissed due to the significantly greater cost and ongoing maintenance cost associated with this technology.

4.2 Funding

Funding of the capital cost of the scheme will be from Welsh Government. An overall scheme budget of £50m is available. Funding of operation and maintenance (revenue) will be from Welsh Government for trunk road elements, and from Carmarthenshire County Council for non-trunk road elements.

4.3 Capital cost estimate

A Cost Estimate Report was compiled by Corderoy in June 2018, providing estimated capital costs for selected long list options. Those options which were costed were generally the shortest/least expensive within an option series, and also those elements which form part of several options. This provided sufficient information to allocate the estimated cost of each long list option into cost bands. Taking into consideration the available budget, than bands are as follows:

Green (Low) Less than £50m

Amber (Medium) £50m to £60m

Red (High) Greater than £60m

The report is in the WelTAG Stage One IAR. The capital cost are summarised in Table 6.1 as follows:

Table 4.1 Capital cost estimates

Route Option	Construction Cost	Employer's Agent & Detailed Design	Non-Recoverable VAT	Total Cost
BE1A(1)	£56,152,573	£5,615,257	£11,539,354	£73,307,184
BE1A(2)	£61,992,466	£6,199,247	£12,739,452	£80,931,165
BE1B(1)	£36,743,488	£3,674,349	£7,899,850	£48,317,687
BE1B(2)	£42,584,362	£4,258,436	£9,155,638	£55,998,436
BE1C(1)	£43,144,023	£4,314,402	£9,362,253	£56,820,679
BE1C(2)	£48,985,387	£4,898,539	£10,629,829	£64,513,755
BE3D*	£63,024,563	£6,302,456	£10,116,495	£79,443,514
BE3D**	£61,378,362	£6,137,836	£9,782,967	£77,299,165
BE4D*	£78,600,881	£7,860,088	£12,353,923	£98,814,892
BE4D**	£76,954,680	£7,695,468	£12,020,395	£96,670,543
BW3C	£73,937,122	£7,393,712	£15,970,418	£97,301,253

* Including the cost of Option ARL1 which is required in both cases.
** Including the cost of Option ARL2 which is required in both cases.
Those options which show two versions of the cost, (1) and (2), different assumptions have been made for structure lengths.

The above costs include an allowance for the town centre options which would combine with the bypass options.

The discrete estimates for these individual Options are as follows in Table 4.2:

Table 4.2 Capital Cost Estimates of discrete elements of options

Route Option	Construction Cost	Employer's Agent & Detailed Design	Non-Recoverable VAT	Total Cost
BE3D	£37,550,362	£3,755,036	£4,881,547	£46,186,945
BE4D	£53,126,679	£5,312,668	£7,118,975	£65,558,322
ARL1	£25,474,200	£2,547,420	£5,234,948	£33,256,568
ARL2	£23,828,000	£2,382,800	£4,901,420	£31,112,220

The estimated costs contain costs for all known items and also contain assumptions for land purchase, unscheduled items, risk and optimism bias.

The estimated costs will be refined throughout the scheme development stages as the above aspects become known and there is less uncertainty and risk (because the details of the scheme itself is becoming better defined). The estimated costs will also be considered against quantifiable scheme benefits to establish the Benefits Cost Ration (BCR).

5. Commercial Case

5.1 Introduction

The Commercial Case *'tells you if a scheme will be commercially viable, whether it is going to be possible to procure the scheme and then continue it into the future'*.

5.2 Assessment

The Welsh Government will use experienced consultants, who have been involved in similar highways projects to support it in the design of the scheme and developing the specifications. Liaison with the supplier market may inform this process and will help to identify the best format and content, which will facilitate the tendering process.

The commercial case, when developed will be based upon the strategic objectives and expected outcomes, against which alternative procurement options and scenarios will be assessed to:

- Achieve cost certainty, or at least have certainty that the scheme can be delivered within the available funding constraints.
- Minimise further preparation costs with respect to scheme design.
- Obtain contractor experience to design and programming to ensure the implementation programme is robust and achievable.
- Obtain contractor input to risk management and appraisals, including mitigation measures, to capitalise at any early stage on opportunities to reduce construction risk and improve out-turn certainty.

It is important to note there are no significant issues to report at this juncture.

6. Management Case

6.1 Introduction

The Management Case '*tells you if an option is achievable. This case covers the delivery arrangement of the project and then its management during its life time. It covers the arrangements for the procurement, construction and on-going operation of the intervention, details of the monitoring arrangements and the undertaking of the evaluation plan. The management case should embed the five ways of working'*.

The Delivery Case, when fully developed, will consider the following:

- Evidence of similar projects;
- Programme / Project dependencies;
- Governance, organisational structure and roles;
- Programme / Project plan;
- Assurance and Approvals Plan;
- Communications and Stakeholder Management;
- Programme / Project Reporting;
- Risk Management Strategy; and
- Options.

6.2 Review Group

WelTAG 2017 states that at Stage One, *'the management case should set out which organisation and groups will sit on the Review Group that meets at the end of each WelTAG Stage.'*

The Welsh Government project team is currently contacting organisations to establish the Review Group. The makeup of the group is being finalised, and the following organisations have been invited to provide a representative:

<u>Review Panel:</u>

1) Andy Falleyn – Senior Responsible Officer (RSO)
2) Steve Pilliner – Highways - Carmarthenshire County Council
3) Len Wyatt – Environment– Welsh Government Transport
4) Eurgain Powell – Future Generations Commission representative
5) Helen Bowkett – Independent Reviewer
6) Gwyn Smith - Sustrans

It is important to note that, at this time, there are no significant issues to report.

7. Conclusions and Next Stages

7.1 Summary

This study has identified the key problems of concern based on stakeholder workshops and public forums along with professional judgement. The list of problems follows similar themes to those identified during previous studies, which indicate that work undertaken regarding transport solutions for Llandeilo in the past can legitimately be used to inform this new study. The key problems identified were:

- Safety;
- Traffic Speed;
- Network constraints;
- Type of vehicle;
- Parking;
- Services;
- Seasonality of traffic flow;
- Insufficient diversion routes;
- NMU environment;
- No cycling infrastructure;
- NMU wayfinding;
- Public transport quality;
- Pollution; and
- Noise.

Scheme specific objectives were identified to ensure that the potential options would resolve the above key problems. These scheme objectives are:

- Preserve strategic function of A483;
- Improve pedestrian and cyclist safety within Llandeilo and Ffairfach, including safe routes to school;
- Reduce community severance within Llandeilo and Ffairfach;
- Improve journey time reliability through Llandeilo and Ffairfach;
- Reduce congestion through Llandeilo and Ffairfach;
- Contribute to sustainable economic growth and tourism opportunities in Llandeilo;
- Reduce exposure to air pollution for sensitive receptors; and
- Support transition to a low carbon society ensuring the solution is sustainable and resilient which minimises carbon emissions associated with the transport infrastructure which includes improving access to, and provision of public transport.

Assessment work undertaken at Stage One has identified 40 potential options, these options were developed based on information provided by stakeholders at a stakeholder workshop and two public forums and professional judgement.

Each of these 40 options is described in this report and the extent to which it would meet the strategic scheme objectives has been considered. An assessment of each option against their potential to result in positive or negative social and cultural impacts, environmental impacts, and economic impacts. At this stage there are limitations to the extent to which this can be assessed, where this is the case this has been noted in the report.

7.2 Recommendations

The 40 longlisted options have been appraised through the WelTAG Stage One process against the following criteria:

- their ability to prevent, or solve the problem now and in the future;
- their ability to meet the scheme specific objectives and the Welsh Government Well-being Objectives;
- their short and longer-term impacts
- their deliverability; and
- their robustness to uncertainty and potential to drive long lasting change.

On the basis of the appraisal, the highest scoring options and therefore those which are recommended for further consideration at WelTAG Stage Two are set out in Table 7.1.

Table 7.1 : Options to be progressed to Stage Two assessment

Option Reference	Option Description
TCA1	One-way system and bypass
NB1	Traffic lights, no bypass
NB2	Removal of parking, no bypass
NB5	HGV Restriction (legal sanction) plus one-way system
NB6	Combined No-bypass Option (with HGV restriction)
NB7	Combined No-bypass (No HGV restriction)
BE1A	Eastern Bypass Option 1 (A)
BE1B	Eastern Bypass Option 1 (B)
BE1C	Eastern Bypass Option 1 (C)
BE4D	Eastern Bypass Option 4 (D)
BE6	Eastern Bypass Option 6

It is therefore concluded that whilst non-bypass and town centre improvements will deliver benefits, significant improvements are predicted to arise from the construction of a bypass.

7.3 Next Stages – Stakeholder Engagement Strategy

It will be necessary to prepare a detailed consultation strategy to ensure that the ways of working set out in the Well-being of Future Generations (Wales) Act 2015 are fully complied with. At Stage One key stakeholders were identified to ensure early involvement and collaboration, workshops with these organisations was supplemented with public forums where other organisations and individuals were able to input into the process of identifying potential long-list options.

At Stage Two it will be necessary to involve a wider range of organisations: these will include Statutory Environmental Bodies but will also need to include non-governmental organisations. Further consideration is provided in Appendix D.

A key element of this stakeholder engagement strategy will be consultation on the short-list options so that responses can inform the decision on which option to take forward to Stage Three.

Alongside this key consultation regarding options, the Welsh Government will seek to involve the local community, where possible, this work will involve workshops in the local schools. These workshops would be age relevant and in addition to contributing to the Welsh Government's understanding of the local area and potential impacts that any scheme may have on young people, this work would also provide STEM outreach helping to promote interest in science and engineering career paths.

7.4 Next Stages – Further Assessment

Several areas of the WelTAG Appraisal have not been able to be assessed at this stage, or would benefit from more detailed analysis at Stage Two. Therefore, the following tasks are recommended for further work.

7.4.1 Traffic Data

In order to accurately predict the benefits of a scheme it is important to gain an accurate understanding of traffic volumes and trip patterns. Therefore, it is recommended that an extensive data collection programme is undertaken across Llandeilo and Ffairfach including but not necessarily limited to:

- Automatic traffic counters at regular intervals long the A483;
- Manual classified turning counts at key junctions in the area;
- Automatic Number Plate recognition surveys;
- Wi-fi, Bluetooth or Mobile Phone data;
- Video surveys of pinch points on the network including by the Cawdor Hotel;
- Parking beat and dwell time surveys;
- Pedestrian footfall surveys across Llandeilo town centre; and
- Roadside interviews.

7.4.2 Traffic Model

The assessment of traffic in Stage One has solely been based on two sets of available data. Therefore, to gain a true representation of baseline conditions and hence a more accurate prediction of the benefits of any intervention, a detailed traffic model should be built of Llandeilo, Ffairfach and its surrounding area.

Use of a formal traffic model will allow a detailed appraisal of the economic impacts of the shortlisted options.

7.4.3 Geotechnical, Hydrological and Topographical data

Desk study information will be required in order to develop the short-listed options. This will include flood mapping and data, to assess the length of structures in the flood plain, and survey information of the railway line.

7.4.4 Accident Data

The accident data used in the Stage One report indicates that there are a number of locations in Llandeilo and Ffairfach where there are clusters of accidents. A more detailed assessment of full Stats19 data should be obtained from the Police, with full contributory factors to allow further investigation of injury accidents and their economic and social cost. This should also be supported by non-motorised user audits as a number of the accidents involved pedestrians.

7.4.5 Social and Cultural data

Information required will include Census results.

7.4.6 Environmental data

Environmental surveys are necessary in order to assess the potential effects of the scheme upon the local environment and receptors and provide a robust environmental assessment of the existing conditions of the study area surrounding the shortlisted options. The results of these surveys will inform detailed design and reduce environmental impacts through refinement of the design and mitigation.

The following environmental surveys may be required to be undertaken at Stage 2:

- Ecology surveys:
  - Phase 1;
  - Dormouse;
  - Great crested newt;
  - Bat;
  - Badger;
  - Otter;
  - Water vole;
  - Breeding bird;
  - Invertebrate;
- Hedgerow;
- Landscape – summer and winter LVIA;
- Heritage;
- Noise baseline surveys; and,
- Water environment.

7.4.7 Cost information

The cost estimates produced during this Stage One will be updated in Stage Two, as the components of the shortlisted options is developed.

Appendix A

WelTAG Stage One: Report on the Consideration of the Well-being of Future Generations (Wales) Act 2015