Agenda Item No.

THE VALE OF GLAMORGAN COUNCIL

ENVIRONMENT AND REGENERATION SCRUTINY COMMITTEE: 25th JUNE, 2019

REFERENCE FROM CABINET: 1ST APRIL, 2019

**"C638 WELTAG STAGE TWO M4 TO A48 UPDATE (NST) (SCRUTINY - ENVIRONMENT AND REGENERATION) -**

The Cabinet Member for Neighbourhood Services and Transport presented the report which provided Cabinet with an update on progress of the WelTAG Stage Two transport study being undertaken on the M4 Junction 34 to A48 transport corridor and following a meeting of the Review Group for this Study, the report also identified the further work that is being undertaken in respect of:

1. Undertaking environmental surveys and investigations to further inform the recommendations of the Stage Two report.

2. Taking account of the consultation responses to update the concept design of the highway link and junction options.

3. Progressing the proposed Parkway Station at the M4 Junction 34 to a GRIP2 Feasibility Study process (i.e. Governance for Railway Investment Projects).

4. Making recommendations for the progression to a WelTAG Stage Three (Full Business Case) following completion of the additional studies being undertaken as part of the WelTAG Stage Two process and award of Capital Transport Grant funding by Welsh Government.

The Cabinet Member for Regeneration and Planning commented that the high level of traffic experienced on Port Road over the weekend, demonstrated the need for the proposals to be progressed, and he was keen for these to be taken forward. The Cabinet Member for Neighbourhood and Transport agreed with concerns regarding congestion and advised that he was also keen to see the scheme to build a Dinas Powys by-pass progress similarly.

This was a matter for Executive decision.

Cabinet, having considered the report and all of the issues and implications contained therein

RESOLVED

(1) T H A T the progress made on the WelTAG studies relating to improving the transport network corridor from the M4 Junction 34 to the A48 be noted.

(2) T H A T this matter be referred to Environment and Regeneration Scrutiny Committee for consideration.

(3) T H A T, subject to consideration by the Environment and Regeneration Scrutiny Committee the progression of the WelTAG studies for the M4 Junction 34 to the A48 to WelTAG Stage Three be endorsed, subject to the Welsh Government Capital Transport Grant funding applied for being made available.

Reasons for decisions

(1) To update members on progress made on the scheme.

(2) To allow this report to be scrutinised.

(3) To enable progression of the studies to WelTAG Stage Three in principle."

Attached as Appendix - Report to Cabinet: 1st April, 2019

Agenda Item:

| | |
|---|---|
| Meeting of: | **Cabinet** |
| Date of Meeting: | **Monday, 01 April 2019** |
| Relevant Scrutiny Committee: | Environment and Regeneration |
| Report Title: | WelTAG Stage Two M4 Junction 34 to A48 Update |
| Purpose of Report: | To update Cabinet on progress with the WelTAG Stage Two M4 Junction 34 to A48 Study and make recommendations for the next steps. |
| Report Owner: | Cabinet Member for Neighbourhood Services and Transport |
| Responsible Officer: | Miles Punter - Director of Environment and Housing Services |
| Elected Member and Officer Consultation: | Cabinet Member for Neighbourhood Services and Transport<br>Cabinet Member for Regeneration and Planning<br>Head of Neighbourhood Services and Transport<br>Group Manager Transport Services<br>Passenger Transport Manager<br>Operational Manager Engineering<br>Accountant Environment and Housing Services<br>Operational Manager Finance<br>Head of Regeneration and Planning<br>Legal Services (Committee Reports) |
| Policy Framework: | This report is a matter for Executive decision by Cabinet |

Agenda Item:

Executive Summary:

This Report provides Cabinet with an update on progress of the WelTAG Stage Two transport study being undertaken on the M4 Junction 34 to A48 transport corridor and following a meeting of the Review Group for this Study, the report also identifies the further work that is being undertaken in respect of:

1. Undertaking environmental surveys and investigations to further inform the recommendations of the Stage Two report.

2. Taking account of the consultation responses to update the concept design of the highway link and junction options.

3. Progressing the proposed Parkway Station at the M4 Junction 34 to a GRIP2 Feasibility Study process (i.e. Governance for Railway Investment Projects).

4. Making recommendations for the progression to a WelTAG Stage Three (Full Business Case) following completion of the additional studies being undertaken as part of the WelTAG Stage Two process and award of Capital Transport Grant funding by Welsh Government.

## Recommendations

1. That the progress made on the WelTAG studies relating to improving the transport network corridor from the M4 Junction 34 to the A48 is noted.
2. That this matter is referred to Scrutiny Committee (Environment and Regeneration) for consideration.
3. That, subject to consideration by Scrutiny Committee (Environment and Regeneration) the progression of the WelTAG studies for the M4 Junction 34 to the A48 to WelTAG Stage Three is endorsed, subject to the Welsh Government Capital Transport Grant funding applied for being made available.

## Reasons for Recommendations

1. To update members on progress made on the scheme.
2. To allow this report to be scrutinised.
3. To enable progression of the studies to WelTAG Stage Three in principle.

## 1. Background

**1.1** The Council commissioned Arcadis Consulting (UK) Limited to develop and appraise potential options for improving the strategic transport network encompassing corridors from M4 Junction 34 to the A48 (Five Mile Lane) including the Pendoylan corridor (or alternative routes between Junction 34 and the A48).

**1.2** The appraisal of options is being undertaken in accordance with the Welsh Governments latest version of WelTAG (December 2017) including advice on the appraisal in relation to the Future Generations of Wales (2015) Act Well-being Goals.

**1.3** The WelTAG Stage 1 report was prepared by Arcadis Consulting (UK) Ltd and considered by the Review Group on 27th November 2017 and referred to the Council's Environment and Regeneration Scrutiny Committee on the 30th November 2017. The report considered the problems, opportunities and constraints, established objectives and appraised options. As a result, Environment and Regeneration Scrutiny Committee endorsed the following three options to be assessed against the do-minimum in a WelTAG Stage Two study:

- Option B - a highway route to the east of Pendoylan;
- Option C - a highway route to the west of Pendoylan; and
- Option G - a Parkway Station with Park and Ride facility and bus integration near to M4 Junction 34.

**1.4** Following the preparation of a Draft Stage Two report (March 2018) and consideration by the Review Group on 27th March 2018, consultation then took place with stakeholders and the public on the options during a period from April to July 2018, including three days of public exhibition where members of the study team and Vale of Glamorgan Council officers were available to discuss the study with attendees. The responses received to the consultation from the various sources (online, paper survey forms and written emails and letters) were provided to Arcadis. These responses were analysed, and a Consultation Report has been prepared which accompanies this report (Appendix C).

**1.5** An updated Final Draft WelTAG Stage Two report was prepared in September 2018. This included consideration of the consultation responses which are reflected in the Conclusions and Recommendations section. The options and the assessment were as presented to the public and the consultation responses were taken into account to inform the next steps.

**1.6** The updated Final Draft WelTAG Stage Two report was presented to the Review Group meeting on 2nd October 2018. As a result of this meeting, it was agreed that there were a number of further items of study that were required before recommendations could be finalised on the next steps for a Stage Three WelTAG study.

**1.7** A Local Transport Fund application was made to Welsh Government to enable the identified additional study aspects to take place. Following approval of the funding, a competitive tender process took place for the undertaking of the 'Stage Two Plus" commission. Arcadis Consulting (UK) Limited was appointed to undertake the study. The study is ongoing.

## 2. Key Issues for Consideration

**2.1** **The Draft WelTAG Stage Two Outline Business Case** appraises in greater detail than Stage One the short list of options for tackling the problems, opportunities and constraints in relation to the Five Case Business Model: the strategic, transport, management, financial and commercial case.

**2.2** The Outline Business Case report is accompanied by the Impact Appraisal Report (IAR). Its purpose is to provide a permanent record of the appraisal work on the proposed transport intervention and contains the detailed evidence behind the summary of information provided to decision makers in the Stage reports. Therefore, the WelTAG Stage Two Impacts Assessment Report has since been updated from the Stage One document to include new or revised information available since the previous report was prepared (Appendix B refers).

**2.3** The problems and opportunities were identified in the Stage One report as:

*Identified Problems*

| Reference | Problem |
|---|---|
| P01 | Poor highway infrastructure between M4 Junction 34 and the A48 leading to poor access for local communities and businesses. |
| P02 | Poor sustainable access to Cardiff Airport and strategic destinations. |
| P03 | High use of the private car for local and regional trips (e.g. journeys to work). |
| P04 | Existing congestion issues at M4 Junction 34 and on the A48 which are likely to worsen with the committed developments in the area. |
| P05 | Poor infrastructure and local connectivity by walking and cycling. |
| P06 | Environmental issues associated with high use of the car, including adverse greenhouse emissions and noise pollution. |
| P07 | Accessibility for HGVs. |
| P08 | Adverse road safety conditions along existing routes non-compliant to current DMRB highway standards. |

*Identified Opportunities*

| O1 | Improved connections to link the airport to Strategic Opportunity Areas (SOAs) e.g. Llantrisant and other regional centres. |
|---|---|
| O2 | National significance of Cardiff Airport. |
| O3 | Growth of Cardiff Airport and investment in St. Athan EZ infrastructure. |
| O4 | Five Mile Lane upgrade will significantly improve access between the A48 and Cardiff Airport. |
| O5 | Potential to create connections between M4 Junction 34 and A48 to continue Five Mile Lane route. |
| O6 | Northernmost 500m section of route near M4 Junction 34 of good standard with existing bridges over the River Ely which is a Site of Special Scientific Interest (SSSI) and mainline railway. |
| O7 | Proposed improvement at Bonvilston end of route, connecting to Sycamore Cross. |
| O8 | Potential for Park and Ride and bus and cycle connections. |

**2.4** The objectives were set for the study in order to address the problems, opportunities and constraints as set out below. These were accompanied by details of what success would look like and how it would be measured:

| Ref | Objective |
|---|---|
| 1 | Enhance connectivity to Cardiff Airport and strategic employment sites in the region. |
| 2 | Increase transport options for strategic access and access to and from local communities. |
| 3 | Improve network resilience and road safety on the M4, A48 and A4232 corridors and other connecting roads. |
| 4 | Protect and enhance the historic, built and natural environment including the landscape and settlement character of the study area. |
| 5 | Minimise impacts on communities and support social inclusion and health and well-being. |

**2.5** The Stage Two report options examined were as follows (Appendix A refers in detail):

Option B (a highway route to the east of Pendoylan);
Option C (a highway route to the west of Pendoylan); and
Option G (Parkway Station with 'park and ride' facility and bus integration near to M4 junction 34).

Against a do minimum option.

**2.6** In the strategic case, the shortlisted options have been assessed in terms of how each would tackle the identified problems, to what extent it meets the objectives, including contributing to local, regional, and national well-being objectives, as well as key risks, adverse impacts, constraints and dependencies.

**2.7** The transport case analysis included the results of traffic modelling and estimation of the benefit to cost ratio for the two highways options and the impact on the environment, economic, social and cultural impacts identified and appraised.

**2.8** At this stage, a high-level assessment of a new Parkway Station was provided but required further appraisal following the award of the franchise agreement and discussions with Transport for Wales.

**2.9** The appraisal in summary showed that:

- A strategic highway link between the M4 Junction 34 and the A48 offers potentially substantial benefits in terms of connectivity and appears to represent value for money, although both highway options (B and C) vary in terms of cost with the eastern alignment potentially being greater in cost, as it includes for the risk item of constructing an elevated section of road to avoid the flood plain. However, both highway options perform similarly in terms of the social, environmental, cultural and economic assessment. The differences are related to the water environment, whereby the eastern alignment presents more potential impacts on the floodplain, and on residential amenity, as a consequence of the western alignment impacts on more properties (albeit there is a small number for each option). On the basis of greatest economic advantage, the western alignment route is the best performing option.

- In addition, the provision of a Parkway Station could bring substantial travel benefits at a regional scale. However, it would require a highway link in order to facilitate access to the station from the Vale of Glamorgan, as in the two highway options considered. Without the highway link, the Parkway Station may offer benefits, but these would be focused on the M4 corridor and communities to the north, rather than offering improved connectivity for the Vale of Glamorgan. The Parkway Station requires technical feasibility work and economic forecasting as part of the Network Rail 'Governance for Railway Investment Project' process (GRIP), but it is a positive sign of commitment from the Welsh Government/ Transport for Wales that the principle of a new station in the Miskin area has been incorporated into the new rail franchise. It should also be noted that there were some comments made by stakeholders that the option of a Bus Park and Ride at Junction 34 should also be retained, which might be best considered as part of discussions on a Parkway Station.

- The outline business case has also considered the 'do-minimum' situation and identified relative changes from the 'do-something' options in comparison. However, without an intervention, traffic conditions on the corridor are expected to worsen with a significant increase in traffic forecast on both the strategic and local road network.

- Therefore, on the basis of appraisal of options, it is considered in the report that the western alignment for the highway link and the Parkway Station proposals are preferred options for further consideration, given in particular that the western alignment avoids the potential floodplain issues and associated costs.

**Consultation on Options**

**2.10** The Consultation Report provides an overview of the consultation process and detailed analysis of responses from the public consultation events. Responses from both Stages 1 and 2 are included alongside each other in order to provide a comprehensive overview of the consultation to date (Appendix C refers).

**2.11** The Consultation Report identifies that there was significant engagement in the consultation process by stakeholders and the public, with 444 people attending events and a high number of responses received within the consultation period. In summary:

- There were significant objections to either highway option or the principle of a new road, with concerns centred on the lack of justification for the intervention; whether there are other options that would be more beneficial; and the impact on the communities and the environment.

- Support for the highways proposals was registered by a proportion of respondents, including some business responses.

- A range of specific issues were raised relating to the highway alignments, notably with concerns over the impact on access to Peterston-Super-Ely of suggested changes to the routeing of traffic.

- The Western alignment was slightly preferred when compared to the Eastern alignment, mainly due to the concern over flooding issues for the Eastern alignment and visual impact on the existing communities (although the majority of respondents did not support either highway option).

- There was overall support for a Parkway Station in the vicinity of Junction 34, and this being seen as beneficial as a standalone proposal (whether or not there is a highway link improvement to support it).

**2.12** In addition, there were concerns relating to the WelTAG process and the consultation that has taken place in Stage One and Stage Two. Where these have given rise to formal complaints, these have been responded to by the Vale of Glamorgan Council. It should be emphasised that WelTAG is a step by step process to aid decision making and the guidance asks that engagement takes place at each stage, as has occurred. Whilst decisions have been made to proceed with further work on options, no commitment has been made on proceeding with any scheme at any stage.

**Review Group Outcomes**

**2.13** The Review Group met on 2nd October 2018 to consider the findings of the Stage Two report including the consultation responses as detailed in the Consultation Report. The composition of the Review Group is detailed in the Minutes (Appendix D). The purpose of the Review Group was to consider if the technical WelTAG process that has been completed by Arcadis Consultancy (UK) Ltd was done so correctly, but noting that any decision on the way forward remains the responsibility of the Vale of Glamorgan Council's Cabinet.

**2.14** The meeting involved a presentation to the Review Group by Arcadis Consulting (UK) Limited followed by discussion. The minutes of the meeting are included as

Appendix D. As a result of the meeting, a number of outcomes were agreed as set out below:

**2.15** **Surveys and Investigations**: A full programme of environmental surveys and investigations would need to be undertaken, agreed through the EIA scoping process at any Stage Three. Early surveys which would help to de-risk the scheme include:

- Phase 1 habitat surveys of the corridor including woodland habitats to identify potential for protected species;

- Devise and undertake a programme of ecological surveys including European protected species and Ancient Woodland surveys, agreeing scope with County ecologist and NRW; and

- Undertake a desk top study of archaeological remains and identify requirements and undertake further investigations including geophysical surveys and potentially trial trenching.

**2.16** **Highway Link Concept Design**: The design up to the planning stage should consider the following, as a result of responses to the consultation:

- Undertake a desk top study of archaeological remains and identify requirements and undertake further investigations including geophysical surveys and potentially trial trenching. Provision of a full access junction for Peterston-Super-Ely from the new link.
- The need for keeping all minor lanes open or if some can be closed off to reduce the extent of elevated sections.
- Minimising visual and noise intrusion through landscaping and other mitigation measures.
- Ecological mitigation.
- Drainage and flooding mitigation.
- Minimising impacts on ecology and archaeology, following the initial surveys.

**2.17** In addition, there are concerns regarding the congestion issues at Weycock Cross. The Review Group recognised that there would be advantages in considering the feasibility of linking from Five Mile Lane to a location on the A4226 west of the Weycock Cross roundabout. This could assist in maximising the strategic benefits of a link from Junction 34.

**2.18** **Preparation of an updated business case with a revised economic appraisal**. The South East Wales Transport Modelling (SEWTM) should be used to test a refined scheme, including:

- A do-minimum model incorporating updated transport network changes (such as removal of Severn Bridge Tolls) and any changes in development proposals in the area.

- A do-something option with the stagger removed from the Sycamore Cross junction and junction provision on the route following design revisions.
- Incorporation of improvements at Junction 34 as being investigated in a separate WelTAG study for Junction 33 to Junction 35.
- Inclusion of a link from Five Mile Lane to the west of Weycock Cross.
- Updated costs based on the revised option.

**2.19** The Review Group recognised that it is possible that as a result of early survey and investigations, there are issues that affect the balance of appraisal at Stage Two between the Western and Eastern alignments. It was recommended that there is an opportunity for review by the Review Group and Vale of Glamorgan Council to consider whether this remains the best way forward.

**2.20** Park and Ride Station: The Review Group discussed this and agreed that the key considerations for the next stage will be:

- Best location for station and impact on rail operations and timetabling.
- Requirements for station facilities and parking, sustainable travel connections and highway access.
- Identification of the most appropriate site taking into account environmental constraints.
- Forecast patronage and business case.

It was recommended that this is progressed via the GRIP 1 process.

**WelTAG Stage Two Plus and Stage Three**

**2.21** Following the Review Group's draft agreed outcomes, the Welsh Government awarded the Council additional funding to undertake the further transport appraisal work to supplement the WelTAG Stage Two M4 Junction 34 to A48 study in order to assist with the decision as to whether to progress to Stage Three (Stage 2 Plus). The aspects included in this stage are:

- Parkway Station GRIP2 feasibility study (including demand forecasting using SEWTM); and
- Highway Link (east and west routes) further work including:
    - Ecology studies
    - Drainage and Flooding flood Product 4 data Pack
    - Cultural Heritage desk based and consultation with relevant bodies
    - Geotechnical Desk Based Study (ground conditions)
    - Highway link concept design
    - Junction Modelling
- Land Searches and Access arrangements
- Project Management, Consultations and Meetings

- A revised Stage Two WelTAG study

**2.22** The WelTAG Stage Two Report is on-going, and the outcomes will be reported to the Review Group and Cabinet in due course. This will complete the Stage Two study and make recommendations for an option or options to progress to a Stage Three WelTAG Full Business Case.

**2.23** The Council has submitted an application to Welsh Government for additional Capital Transport Grant funding in order to progress the recommendations once agreed to WelTAG Stage Three. A funding decision is awaited.

## 3. How do proposals evidence the Five Ways of Working and contribute to our Well-being Objectives?

**3.1** Improvements are needed to realise the strategic development and employment opportunities associated with the Cardiff Airport – St Athan EZ, which will offer economic development benefits for South Wales as a whole.

**3.2** The current transport connectivity of the Vale of Glamorgan, in the context of the EZ and airport, is sub-optimal in terms of journey times, journey time reliability, public transport coverage and the routeing of strategic traffic. If these issues are not addressed, there is a risk that the opportunities offered by the EZ may not be fully realised. Connections between the population of and employment opportunities within the Vale and the A4119 corridor/ Rhondda Valleys are currently poor.

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

**3.4** Within the Vale of Glamorgan itself, the current transport infrastructure is considered to be having a negative impact on the area, particularly in terms of congestion and journey time reliability. The highway network through and near to the Pendoylan corridor between M4 Junction 34 and the A48 is extensively poor. Sustainable transport options are also restricted.

**3.5** Current traffic congestion and resilience issues will be exacerbated in the future with traffic growth. The options considered in the WelTAG Stage Two report offer long term solutions to address the existing issues by providing a highway connection between the M4 at Junction 34 and the A48, as well as a parkway station serving transport movements along the M4 corridor and the northern part of the Vale.

**3.6** The options under consideration offer the opportunity to reduce the future traffic issues and subsequent economic impacts as identified above through the provision of a highway connection between the M4 at Junction 34 and the A48, as well as a parkway station.

**3.7** The additional work being undertaken in the WelTAG Stage Two Plus study aims to prevent as far as possible environmental impacts of potential interventions through early consideration of environmental conditions and design solutions.

**3.8** The options under consideration involve the integration of rail, bus, active travel and vehicle modes in a Parkway Station and highway links.

**3.9** The WelTAG studies have been and are being undertaken in an integrated manner to consider and takes account of other schemes and proposals:

- The upgrade of Five Mile Lane from the A48 to Weycock Cross;
- Cardiff Airport/ St Athan EZ Masterplan;
- South Wales Metro and Wales and Borders Rail Franchise;
- WelTAG Stage Two study for the M4 J32-35; and
- Development proposals of the LDP and those for the adjacent local authorities.

**3.10** The corridor from M4 Junction 34 to Cardiff Airport / St Athan Enterprise Zone is part of a wider strategic goal for the Cardiff Capital City Regional Transport Authority and is therefore supported regionally. In undertaking the WelTAG Stage One and Two studies, there has been collaboration with the adjacent Local Authorities of Rhondda Cynon Taff, Cardiff and Bridgend; Welsh Government; Transport for Wales and other key transport stakeholders.

**3.11** Stakeholder workshops and public consultation has been carried out to inform the study. A high level of response was received through the engagement process. The Review Group brings together key stakeholders to oversee the studies. A Stage Three study would involve full consultation in due course.

## 4. Resources and Legal Considerations

**Financial**

**4.1** The studies have been financed to date by Welsh Government Capital Transport Grant funding. £64,613 was spent in 2017/18 which was funded by Welsh Government Grant.

**4.2** The Welsh Government awarded the Council an additional £158,300 Capital Transport Grant funding (2018/19) to undertake the additional WelTAG Stage Two Plus study.

**4.3** The Council has submitted an application to Welsh Government for £940,000 Capital Transport Grant funding (2019/20) to progress the scheme to WelTAG Stage Three.

**Employment**

**4.4** Consultants, Arcadis Consulting (UK) Limited have been commissioned to undertake the technical work on this Project because the technical skills required to do so are not available within the Council.

**4.5** The Review Group is led by the Head of Neighbourhood Services and Transport and all technical documents are reviewed and amended as appropriate by the Council's professional officers.

**Legal (Including Equalities)**

**4.6** The appraisal of options has been undertaken in accordance with Welsh Government's latest version of WelTAG (December 2017) including advise on the appraisal in relation to the Well-being goals set out in the Well-being of the Future Generations (Wales) Act 2015.

**4.7** The Vale of Glamorgan Local Development Plan (2017) was adopted by the Council on the 28th June 2017, which sets out the vision, objectives, strategy and policies for managing development in the Vale of Glamorgan. It also seeks to identify the infrastructure that will be required to meet anticipated growth in the Vale of Glamorgan area up to 2026. The LDP states that priority will be given to schemes that improve highway safety, accessibility, public transport, walking and cycling. The LDP's of the neighbouring Authorities of Bridgend, Cardiff and Rhondda Cynon Taff have also been noted.

**4.8** The Vale of Glamorgan Local Transport Plan (2015) acknowledges the requirement for a collaborative approach for the future development of the Capital Region, the LTP seeks to identify the sustainable transport measures required to ensure Vale of Glamorgan Council adheres to current requirements and good practice, to allow for a sustainable transport environment for the period 2015 to 2020, as well as looking forward to 2030. The plan therefore seeks to secure better conditions for pedestrians, cyclists and public transport users and to encourage a modal shift away from the single occupancy car. The LTP also 'seeks to tackle traffic congestion by securing improvements to the strategic highway corridors for commuters who may need to travel by car'. The LTP for Cardiff (2015) has also been noted.

**4.9** The provision of a well organised transport network helps to increase mobility and accessibility.

## 5. Background Papers

Appendix A. Improving Strategic Transport Encompassing Corridors from M4 Junction 34 to the A48 WelTAG Stage Two: Outline Business Case

Appendix B. Improving Strategic Transport Encompassing Corridors from M4 Junction 34 to the A48 WelTAG Stage Two: Impacts Assessment Report

ARCADIS Design & Consultancy for natural and built assets

# IMPROVING STRATEGIC TRANSPORT ENCOMPASSING CORRIDORS FROM M4 JUNCTION 34 TO THE A48

## WelTAG Stage Two: Outline Business Case

FINAL DRAFT FOR REVIEW

AUGUST 2018



Incorporating

EC HARRIS BUILT ASSET CONSULTANCY

Hyder

# Improving Strategic Transport Encompassing Corridors from M4 Junction 34 to the A48

## WelTAG Stage Two: Outline Business Case

| | |
|---|---|
| Author | MF |
| Checker | JH |
| Approver | JH |
| Report No | 10013270-ARC-XX-XX-RP-TP-0001 |
| Date | AUGUST 2018 |

## VERSION CONTROL

| Version | Date | Author | Changes |
|---|---|---|---|
| D01 | 22.03.2018 | MF | First draft for Issue |
| D02 | 31.08.2018 | MF | Final Draft for Review |

# CONTENTS

# APPENDICES

# FIGURES



# TABLES

# 1 Introduction

## 1.1 Purpose of the Study

Arcadis Consulting (UK) Limited has been commissioned by Vale of Glamorgan Council to develop and appraise potential options for improving the strategic transport network encompassing corridors from M4 Junction 34 to the A48 (Five Mile Lane) including the Pendoylan Corridor (or alternative). The appraisal of options has been undertaken in accordance with the Welsh Government's latest version of WelTAG (December 2017[1]) including advice on the appraisal in relation to the Future Generations of Wales (2015) Act Well-being Goals[2].

This WelTAG report presents the development, appraisal and evaluation of the transport options recommended for further consideration at the end of Stage One. It has been undertaken with the involvement of key stakeholders and the general public. This report presents the Stage Two: Outline Business Case of the WelTAG process.

The WelTAG Stage One report was prepared by Arcadis and considered by the Review Group on 27th November 2017 and referred to the Vale of Glamorgan Council Scrutiny Committee on the 30th November 2017[3], where the recommendations of the report were endorsed. The report considered the problems, opportunities and constraints, established objectives and appraised a long list of options. As a result, three options were selected to be assessed against the do-minimum, namely:

- Option B – a highway route east of Pendoylan;
- Option C – a highway route west of Pendoylan; and
- Option G – Parkway Station with Park and Ride facility and bus integration near to M4 Junction 34.

Prior to this report, Welsh Government commissioned Peter Brett Associates to assess the 'Case for Change' for addressing connectivity issues for strategic employment sites in the Vale of Glamorgan. This work was completed in December 2017. The purpose of this study is to clearly demonstrate and elaborate the 'case for change' - that is, to provide a clear rationale for making an investment, its strategic fit, and how the investment will further the aims and objectives of Welsh Government and its partners. The report concludes with next steps being to undertake a WelTAG appraisal to identify suitable options to address the issues, which is the purpose of this report. The key elements of the Case for Change report have been extracted to inform the Strategic Case within this WelTAG Stage Two report and the full report is included in Appendix A.

## 1.2 The Appraisal Area

The appraisal area encompasses the existing transport corridors from the M4 Junction 34 to the A48 (Five Mile Lane) including the Pendoylan Corridor (or alternative). The Stage Two assessment considers the impact of transport options on the appraisal area as well as the wider, strategic network.

## 1.3 WelTAG Stage Two: Outline Business Case

The WelTAG guidance states that the purpose of the Stage Two: Outline Business Case is to 'examine in greater detail the short list of options for tackling the problem under consideration'. During Stage Two, the appraisal team needs to consider how the proposed solution will lead to the desired outcomes, maximising contribution to objectives and well-being goals and use this understanding to refine the design of the options and identify key dependencies and constraints. At the end of the stage, the report should provide the Review

[1] https://beta.gov.wales/sites/default/files/publications/2017-12/welsh-transport-appraisal-guidance.pdf

[2] https://beta.gov.wales/sites/default/files/publications/2017-12/weltag-2017-supplementary-guidance-the-well-being-of-future-generations-wales-act-2015.pdf

[3] http://www.valeofglamorgan.gov.uk/en/our_council/Council-Structure/minutes,_agendas_and_reports/minutes/Scrutiny-ER/2017/17-11-30.aspx

Group with the evidence required to select a preferred option to take forward for Stage Three. As such, this Stage Two: Outline Business Case report:

- Sets out any changes that have occurred in the transport system and wider context since Stage One;
- Describes the process of developing the shortlisted options to a more developed solution for assessment;
- Describes how each option would meet the objectives set out in Stage One;
- Presents a Five Case Assessment for each option with a separate presentation of the strategic, transport, management, financial and commercial case for each option and the contribution towards the well-being goals;
- Determines whether there are any transport options that can address the issues identified, contributes positively to the well-being goals and objectives and can be delivered within technical and financial constraints;
- Selects a preferred option to be taken forward to Stage Three and establishes the methods to be used for further evidence and work to meet legislative requirements; and
- Documents the decisions of the Stage Two Review Group and the basis for these decisions.

This Stage Two report follows the principle of proportionate appraisal. For the key areas affecting decision making it provides a quantitative appraisal, and some areas of appraisal are largely qualitative.

The guidance identifies that at the end of Stage Two *'the strategic and transport cases must be virtually complete, and more information provided on the delivery, commercial and financial cases for the shortlisted options'*. The report provides stakeholders and decision makers with sufficient information and understanding of the problems and potential solutions to commit further resources to taking forward options to Stage Three.

In accordance with the WelTAG guidance the significance and scale of the impacts throughout the assessment has been appraised using a seven-point scale, as presented in Table 1.

*Table 1 WelTAG Seven-Point Assessment Scale*

| Impact Description | Rating |
|---|---|
| Large beneficial | +++ |
| Moderate beneficial | ++ |
| Slight beneficial | + |
| Neutral | 0 |
| Slight adverse | - |
| Moderate adverse | -- |
| Large adverse | --- |

## 1.4 Wider Context

The Stage Two: Outline Business Case Impacts Assessment Report provides the wider circumstances and context of the issues that are the subject of the transport appraisal. The detailed evidence, data and analysis underlying the statements made in the Stage Two report is provided in the Impacts Assessment Report. The report has been updated in August 2018 to reflect the recent announcements on the rail franchise and the relationship to options for the study area.

## 1.5 Consultation

Following the preparation of a Draft Stage Two report, consultation has taken place with stakeholders and the public on the options during a period from April to July 2018, including three days of public exhibition where members of the study team and Vale of Glamorgan Council officers were available to discuss the study with attendees. The responses received to the consultation from the various sources (online, paper survey forms and written emails and letters) have been provided to Arcadis. These responses have been analysed and a Consultation Report has been prepared which accompanies this report.

In preparing the updated, Final Draft WelTAG Stage Two report, the responses have been considered and are reflected in the Conclusions and Recommendations section. The options and the assessment are as presented to the public and the consultation responses inform the next steps.

## 1.6 Report Structure

In accordance with the WelTAG guidance the structure of this report is as follows:

- Chapter 2: Strategic Case;
- Chapter 3: Transport Case;
- Chapter 4: Financial Case;
- Chapter 5: Commercial Case;
- Chapter 6: Management Case; and
- Chapter 7: Conclusions and Recommendations.

# 2 Strategic Case

## 2.1 Overview

The Strategic Case addresses the need for change, providing an evidence-based description of the current situation, describes the likely funding situation if no action is taken and presents the reasons why an intervention is required. The strategic case includes analysis of the factors leading to the problem and the development of possible solutions, establishes objectives and provides a narrative as to how each of the solutions is intended to change the situation.

## 2.2 Scope

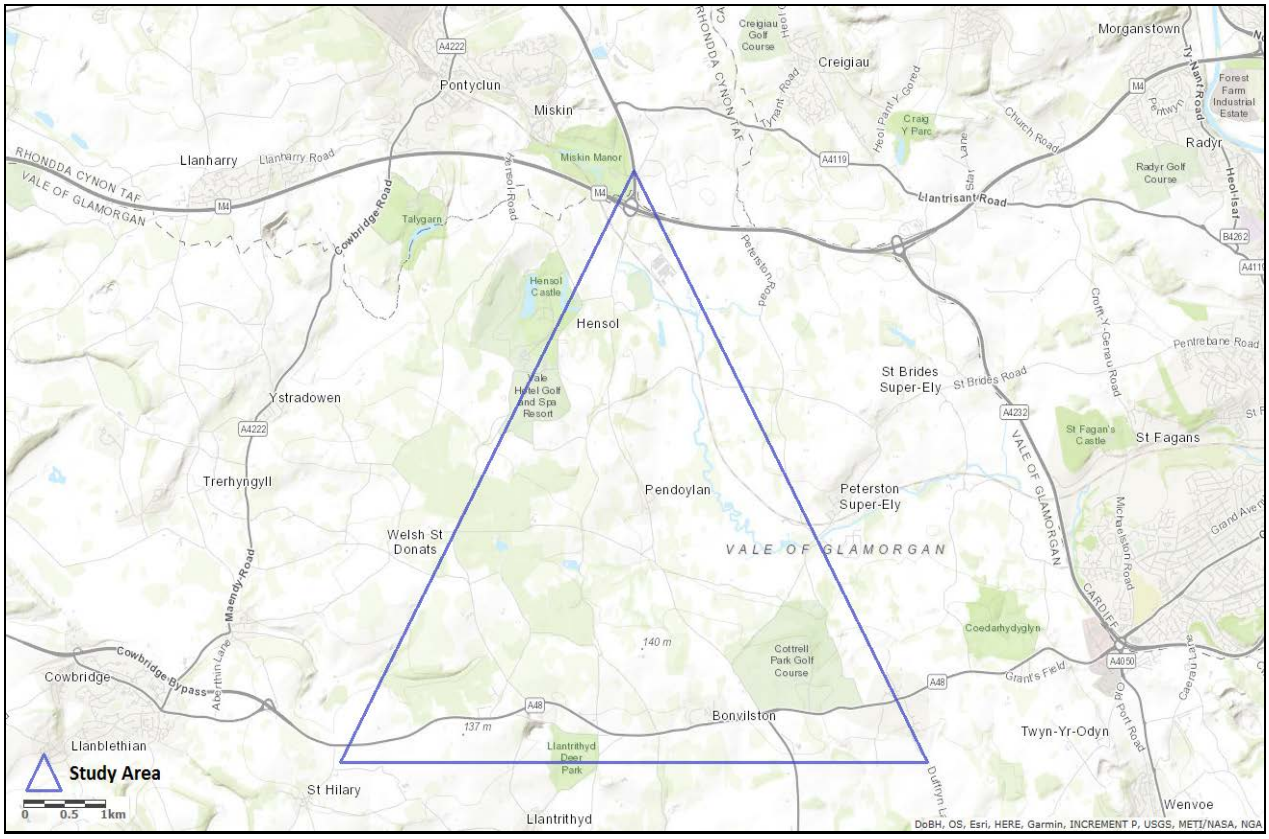
The scope of the study is to consider solutions to improve transport connectivity between the M4 Junction 34 and Five Mile Lane, in order to improve strategic connectivity to strategic employment locations as well as Cardiff Airport. The study firstly considers the Strategic Case, based on a strategic study area, as defined in the Case for Change Report in Appendix A, and extracted below.

The strategic study area as outlined in Figure 1 includes the ten local authorities within the Cardiff Capital Region (Cardiff, Monmouthshire, Torfaen, Blaenau Gwent, Newport, Caerphilly, the Vale of Glamorgan, Merthyr Tydfil, Rhondda Cynon Taf and Bridgend) as well as three of the four members of the Swansea Bay City Region (Swansea, Neath Port Talbot and Carmarthenshire).

*Figure 1 Strategic Study Area (Case for Change report)*


The study secondly focusses on a local appraisal area representing approximately 24 Sq. Kilometres defined by Junction 34 to the north, and in a triangle approximately 7.3km from either side of the A48 Sycamore Cross junction, as illustrated in Figure 2. The data analysis for the local appraisal area is contained in the accompanying Impact Assessment Report.

*Figure 2 Local Appraisal Area*[4]




## 2.3 The Case for Change

### 2.3.1 Strategic Issues and Opportunities

The 'Case for Change' is set out in the Peter Brett Associates report contained in Appendix A. This forms a fundamental aspect of the Strategic Case, and thus the summary is included below.

#### Why is the case for improving connectivity to the Vale of Glamorgan being considered?

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

- The emergence of the Cardiff Airport – St Athan Enterprise Zone (EZ) in the Vale of Glamorgan presents a strategically important economic development and employment opportunity for South Wales as a whole. **It is anticipated that this development will create 4,000 new jobs, with further indirect and induced employment across South Wales.**
- As part of the development of the Cardiff Capital Region and corresponding City Deal, there is a desire to improve transport connectivity across South East Wales, safeguarding and promoting employment and investment and attracting and retaining population. It is envisaged that judicious and targeted investment will ensure that the Capital Region remains attractive and competitive.
- Through an arms-length company, Welsh Government owns and operates Cardiff International Airport. Surface access to the airport has frequently been cited as a problem and there is a desire within Welsh

[4] Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, Geobase, IGN, Kadaster NL, Ordinance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, © OpenStreetMap contributors, and the GIS User Community

Government to consider options for improving connectivity to and from the airport within the boundaries of European Union (EU) State Aid rules.

From a **local** perspective:

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

## What is the policy fit?

The key policies at the local, regional and national levels, highlighting the policies and proposed delivery programmes and schemes that are relevant to this study are presented in Section 2 of the Case for Change Report (Appendix A) and in more detail at the local level in the Impacts Assessment Report.

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

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

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

- The emerging National Development Framework and Strategic Development Plans are likely to support the development of key sites within the Vale of Glamorgan, including the EZ. This would provide a firm policy basis for supporting accessibility improvements to these sites.
- Powering the Welsh Economy, the document underpinning much of the Cardiff Capital Region City Deal, emphasises the need for investment in improved transport connectivity to both promote economic development and address existing transport problems.
- A Growth Strategy for the Swansea Bay City Region recognises the need for improved connectivity between the City Region, the rest of Wales, the UK more generally and internationally. Access to Cardiff Airport is specifically noted as a desired outcome.

## Land-Use Development Baseline

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

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

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

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

## Socio-Economic Baseline

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

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

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

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

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

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

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

## Transport Connectivity Baseline

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

- Whilst the M4 provides high quality strategic access points to the Vale of Glamorgan, the local road network within the Vale is generally of a single carriageway standard and suffers significant congestion around the primary 'gateway' of Culverhouse Cross. Accessibility analysis shows that the need to route via Junction 33 of the M4 and the busy Culverhouse Cross does have a negative impact on both journey length and reliability.
- The most direct route from the M4 to the EZ is via Junction 34 of the M4. However, the connecting road is of a poor quality with lengthy single-track sections and poor visibility. The Junction 34 option has become a rat run for those travelling to the Vale of Glamorgan from the west, with negative implications for communities along the route, including Pendoylan village.
- Whilst there is a reasonable public transport network connecting Cardiff City Centre with the Airport (and, to a much lesser extent, St Athan), connections from elsewhere in the Capital Region and areas to the west are limited, infrequent and generally require interchange. It is notable that those currently working in the EZ area generally travel to work by car.
- Public transport journey times to the Vale of Glamorgan generally and the EZ specifically are well in excess of those by car.
- Freight access to and from the Vale of Glamorgan is sub-optimal, with issues associated with journey time reliability, routeing through broadly residential areas and a circuitous route to West Wales. The area around Cardiff Airport has a high proportion of freight intensive industries, whilst the focus of the EZ on aerospace and manufacturing means that there is likely to be significant growth in freight movements from the Vale of Glamorgan in the medium-term. The provision of appropriate freight routes to the M4 is a key consideration of any future improvements to Vale of Glamorgan connectivity.

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

Moreover, the accessibility analysis undertaken (as contained in the report in Appendix A) found that relatively modest reductions in journey times to/ from the Vale of Glamorgan would significantly increase the labour market and business-to-business catchment of the EZ.

## The Future of Cardiff International Airport

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

Analysis of the Civil Aviation Authority (CAA) Passenger Survey data points to the issue of Cardiff Airport being uncompetitive within its target market. There is a significant proportion of leakage – the analysis shows that 58% of South Wales residents surveyed use Bristol, Birmingham and Gatwick when taking a flight, with the overall proportion of leakage likely to be higher if e.g. Heathrow, Manchester etc were included within the analysis. Benchmarking has also demonstrated that Cardiff is also relatively poorly served in terms of both short and long-haul routes when compared with other EU peripheral secondary airports (Glasgow & Edinburgh and Dublin, for example).

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

## Why invest in improved transport connectivity?

As explained above, improvements in transport connectivity to and from the Vale of Glamorgan would assist in improving the accessibility of the EZ and would better connect jobs to labour and businesses to other businesses within the study area. This concept has been encapsulated by Peter Brett Associates in a logic map (see Figure 3), which is an effective way of visually presenting the linkages between the infrastructure being delivered and the potential outcomes and impacts that could be generated. It is noted that the case for change report places the importance on the WelTAG study to generate a preferred option.

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

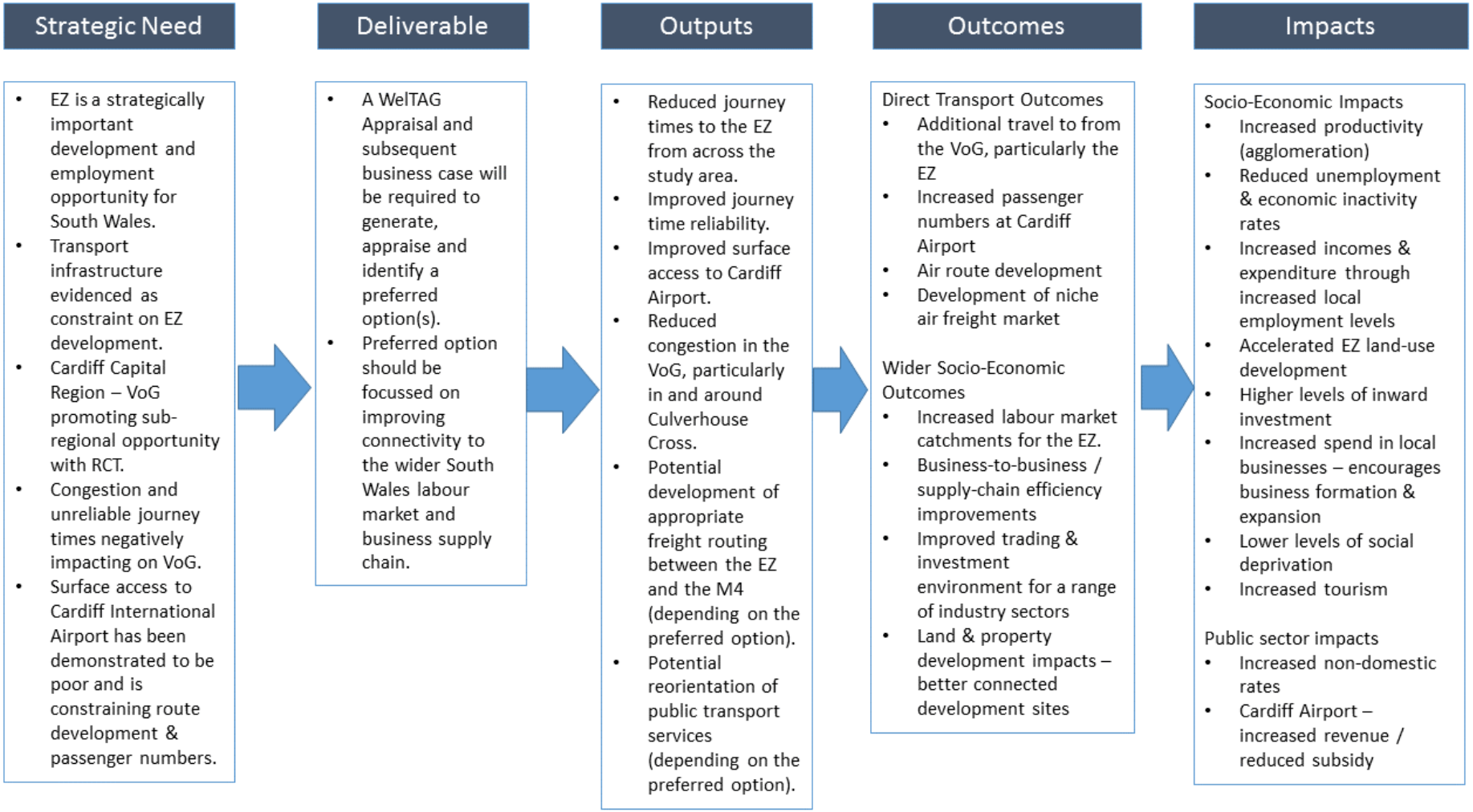
## Conclusions: The Case for Change

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

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

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

*Figure 3 Logic Map from the Case for Change Report (Peter Brett Associates)*



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

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

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

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

### 2.3.2 Local Appraisal Area Issues and Opportunities

Alongside the strategic case for change, the analysis for this WelTAG study report has focussed on the specific issues within the local appraisal area. This reiterates that the highway network through and near to the Pendoylan corridor between M4 Junction 34 and the A48 is extensively poor, comprising narrow lanes with limited passing opportunities, restricted speed as a result of adverse route alignments, and is predominantly non-compliant to current Design Manual for Roads and Bridges (DMRB) standards.

Sustainable transport options are also restricted with no immediate access to local and regional rail services or robust provision for cycling, and although local bus services do operate through Pendoylan village, services are subject to the constraints of the road network and delay. There is a high reliance on car travel to access services and employment with limited public transport options.

Traffic congestion and resilience issues evident throughout the region are particularly affecting the M4 corridor and the A48/ A4232 at Culverhouse Cross during peak commuting hours. There is high car dependency within the local area with 92% of those living within the study area. As a result of congestion, and when there are incidents on the M4, the Pendoylan corridor also functions as a ‘rat-run’.

It is proposed to upgrade ‘Five Mile Lane’ from the A48 to the A4226 north west of Barry. This could have the effect of altering trip patterns on the road network including through Pendoylan village. In addition, the resilience of the strategic network throughout this area is anticipated to deteriorate in the medium to long term with committed development planned for the region.

There are subsequently opportunities to introduce and establish an enhanced and sustainable transport network by improving strategic connectivity southwards from M4 Junction 34 to the A48 and beyond. If no action is taken, it is anticipated that traffic congestion and resilience problems will continue to worsen on the strategic routes, leading to an increasing level of traffic routeing through the Pendoylan area to avoid delays.

### 2.3.3 Summary of Problems and Opportunities

The identified issues that require addressing are summarised below, which have been identified through the Case for Change report, reference to previous feasibility reports and policy, and consultation with stakeholders and members of the public as part of the Stage One WelTAG study. The identified problems are as presented in Table 2.

*Table 2 Identified Problems*

| Reference | Heading |
|---|---|
| P01 | Poor highway infrastructure between M4 Junction 34 and the A48 leading to poor access for local communities and businesses. |
| P02 | Poor sustainable access to Cardiff Airport and strategic destinations. |
| P03 | High use of the private car for local and regional trips (e.g. journeys to work). |
| P04 | Existing congestion issues at M4 Junction 34 and on the A48 which are likely to worsen with the committed developments in the area. |
| P05 | Poor infrastructure and local connectivity by walking and cycling. |
| P06 | Environmental issues associated with high use of the car, including adverse greenhouse emissions and noise pollution. |
| P07 | Accessibility for HGVs. |
| P08 | Adverse road safety conditions along existing routes non-compliant to current DMRB highway standards. |

The opportunities of the study area have been identified to assist in ensuring that the identified objectives and options are realistic as well as maximise opportunities and consider the context of the study area. Following feedback from the stakeholder workshop and public consultation in Stage One, the opportunities have been identified as illustrated in Table 3.

*Table 3 Identified Opportunities*

| Reference | Opportunity |
|---|---|
| O1 | Improved connections to link the airport to Strategic Opportunity Areas (SOAs) e.g. Llantrisant and other regional centres. |
| O2 | National significance of Cardiff Airport. |
| O3 | Growth of Cardiff Airport and investment in St. Athan EZ infrastructure. |
| O4 | Five Mile Lane upgrade will significantly improve access between the A48 and Cardiff Airport. |
| O5 | Potential to create connections between M4 Junction 34 and A48 to continue Five Mile Lane route. |
| O6 | Northernmost 500m section of route near M4 Junction 34 of good standard with existing bridges over the River Ely which is a Site of Special Scientific Interest (SSSI) and mainline railway. |
| O7 | Proposed improvement at Bonvilston end of route, connecting to Sycamore Cross. |
| O8 | Potential for Park and Ride and bus and cycle connections. |

### 2.3.4 Involvement of Stakeholders

There are a wide range of key stakeholders for this study, who are in summary:

- The communities of Pendoylan, St Nicholas with Bonvilston and Peterston-Super-Ely who directly experience the existing issues of traffic through the lanes, and will also be most affected by transport proposals;
- Businesses in the appraisal area and its vicinity, including Renishaw's, Vale Resort Hotel, Welsh Rugby Union as well as local agricultural, tourism, leisure, and other small businesses;
- The Vale of Glamorgan Council and the neighbouring authorities of Rhondda Cynon Taff and Cardiff;
- Transport network providers including Cardiff Airport, Network Rail, Welsh Government and Transport for Wales;
- Transport operators including Cardiff Bus and New Adventure Travel and Arriva Trains Wales;
- Road haulage businesses represented by the Road Haulage Association; and
- The wider business community of the affected local authorities.

#### Stakeholder Engagement Process

The strategy has been to involve the stakeholders throughout the WelTAG stages, with key stakeholders also represented on the Review Group. The public have been consulted at both Stages One and Two to gain feedback on issues, objectives and options. The WelTAG reports have also been taken through the political process, involving presentation to Cabinet and Scrutiny Committee of the Vale of Glamorgan Council. The consultation process is outlined in detail in the accompanying report.

#### Review Group

Key stakeholder representatives were invited to join the Review Group, who met on the 27th November 2017 to receive a presentation on the findings of the Stage One draft report and to discuss the recommendations. This led to confirmation of the problems, opportunities and objectives for the study and agreement on the shortlisted options. The Review Group met on 16th January 2018 at the outset of Stage Two, to discuss the methodology and approach to the consideration of options. A further meeting of the Review Group took place on 27th March 2018 to present the options and appraisal from the Stage Two work, prior to public consultation.

#### Collaboration with Neighbouring Authorities

During the WelTAG Stage One and Two studies, collaboration has taken place with the neighbouring authorities on their development and transport plans and with Welsh Government and their consultants with respect to an emerging Masterplan for Cardiff Airport and St Athan and the strategic case for improved connections.

## 2.4 Objectives

### 2.4.1 Identification of Objectives

The objectives for the intervention have been derived from general and transport-specific objectives as set by the Welsh Government and through considering the national well-being goals as set out in the Future Generations of Wales (2015) Act. Section 4 of the Impacts Assessment Report sets out how stakeholders have informed the development of the objectives and how the proposed objectives positively contribute to Welsh Government policy and well-being. The final objectives for the intervention are as outlined in Table 4. This includes an overview of what success would look like and how this can be measured in the Stage Two assessment.

*Table 4 Final Proposed Objectives*

| Ref | Objective | What will success look like? | How will success be measured? |
|---|---|---|---|
| 1 | Enhance connectivity to Cardiff Airport and strategic employment sites in the region. | Reduced and more reliable journey times between strategic network and Cardiff Airport and St Athan. | Forecast journey times. |
| 2 | Increase transport options for strategic access and access to and from local communities. | Increased use of sustainable travel modes by residents of local communities. | Length of walking and cycling links provided or improved.<br>Bus journey times. |
| 3 | Improve network resilience and road safety on the M4, A48 and A4232 corridors and other connecting roads. | Reduced accidents and delay on adjacent strategic routes. | Journey times, accident rates per vehicle kilometre. |
| 4 | Protect and enhance the historic, built and natural environment including the landscape and settlement character of the study area. | Transport network is improved with at least neutral impact on historic, built and natural assets. | Number of historic assets, area of ecological features, area of flood zone affected. |
| 5 | Minimise impacts on communities and support social inclusion and health and well-being. | Transport network is improved with at least neutral impact on social and cultural facilities, businesses and residential properties. | Number of properties affected, length of walking and cycling links provided. |

### 2.4.2 Verification of Objectives

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

- Resolving problems of the study area;
- The Well-being of Future Generations Act Well-being Goals;
- Wales Transport Strategy outcomes; and
- The Welsh Government's Strategic Priorities as set out in the Wales Transport Strategy.

Table 5 illustrates the extent to which the objectives address the identified transport problems.

The appraisal demonstrates that each of the identified problems are directly addressed by at least one objective.

*Table 5 Relationship of Objectives to Problems*

| Objectives | Potential Problems | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | P01 | P02 | P03 | P04 | P05 | P06 | P07 | P08 |
| 1 | +++ | +++ | ++ | ++ | ++ | ++ | ++ | ++ |
| 2 | 0 | +++ | +++ | ++ | ++ | ++ | 0 | + |
| 3 | +++ | ++ | ++ | ++ | ++ | ++ | ++ | +++ |

| Objectives | Potential Problems | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | P01 | P02 | P03 | P04 | P05 | P06 | P07 | P08 |
| 4 | 0 | ++ | ++ | 0 | + | +++ | 0 | 0 |
| 5 | + | ++ | + | + | ++ | ++ | + | + |

The WelTAG guidance states that *'when using WelTAG it is essential to comply with the duties set out in the Well-being of Future Generations (Wales) Act 2015. They are to follow the sustainable development principle through following the five ways of working and set well-being objectives that maximise contribution to the seven well-being goals'.* Table 6 shows a positive relationship between the objectives and the seven well-being goals.

*Table 6 Relationship of Objectives to Well-being Goals*

| Well-being of Future Generations (Wales) Act Outcomes | | Objectives | | | | |
|---|---|---|---|---|---|---|
| | | 1 | 2 | 3 | 4 | 5 |
| Seven Well-being Goals | A prosperous Wales | +++ | +++ | ++ | ++ | ++ |
| | A resilient Wales | + | + | +++ | ++ | + |
| | A healthier Wales | ++ | ++ | + | + | +++ |
| | A more equal Wales | + | ++ | + | + | + |
| | A Wales of cohesive communities | ++ | ++ | + | + | + |
| | A Wales of vibrant culture and Welsh language | 0 | 0 | 0 | ++ | + |
| | A globally responsible Wales | + | + | + | +++ | + |

In addition, the objectives have been assessed against the Wales Transport Strategy outcomes as outlined in Table 7. A positive relationship has been identified.

*Table 7 Objectives Relating to the WTS Outcomes*

| Wales Transport Strategy Outcomes | | Objectives | | | | |
|---|---|---|---|---|---|---|
| | | 1 | 2 | 3 | 4 | 5 |
| Social | Improve access to healthcare | + | ++ | + | 0 | ++ |
| | Improves access to education, training and lifelong learning | + | ++ | + | 0 | ++ |
| | Improving access to shopping and leisure facilities | + | ++ | + | 0 | ++ |
| | Encourage healthy lifestyles | + | ++ | 0 | + | ++ |
| | Improve the actual and perceived safety of travel | + | ++ | +++ | 0 | ++ |
| Economic | Improve access to employment opportunities | +++ | ++ | + | 0 | ++ |
| | Improve connectivity within Wales and internationally | +++ | ++ | ++ | 0 | + |

| Wales Transport Strategy Outcomes | | Objectives | | | | |
|---|---|---|---|---|---|---|
| | | 1 | 2 | 3 | 4 | 5 |
| | Improve the efficient, reliable and sustainable movement of people | ++ | +++ | + | + | ++ |
| | Improve access to visitor attractions | + | + | + | 0 | ++ |
| Environmental | Increase the use of more sustainable materials | 0 | 0 | 0 | 0 | + |
| | Reduce the contribution of transport to greenhouse gas emissions | + | +++ | + | ++ | ++ |
| | Adapt to the impacts of climate change | + | +++ | + | ++ | ++ |
| | Reduce the contribution of transport to air pollution and other harmful emissions | + | +++ | + | ++ | ++ |
| | Improve the impact of transport on the local environment | + | +++ | + | ++ | + |
| | Improve the impact of transport on our heritage | + | ++ | 0 | ++ | + |
| | Improve the impact of transport on biodiversity | + | ++ | 0 | ++ | + |

In addition, Table 8 shows a positive relationship between the objectives and the Strategic Priorities as set out in the Wales Transport Strategy.

*Table 8 Objectives Relating to the Strategic Priorities*

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

## 2.5 Stage One Short List of Options

Following the appraisal of the seven options in the Stage One study, including the stakeholder engagement, the report recommended that the following options should be taken forward for further investigation in Stage Two (now renamed for simplicity in Stage Two):

- Highway Option 1 – Eastern Alignment;
- Highway Option 2 – Western Alignment; and
- Parkway Station.

The do-minimum option was also to be included as it is required as the 'Without Scheme' reference case for consideration of transport options.

## 2.6 Stage Two Option Development

This section identifies the process undertaken to develop the shortlisted options to enable the appraisal and provides an overview of the options.

### 2.6.1 Highway Options

For the WelTAG Stage Two study, two alignments have been considered as shown in Table 9.

*Table 9 Highway Options*

| Highway Option | Route Description |
|---|---|
| Eastern Alignment | This alignment passes the village of Pendoylan to the east although utilises a section of existing road at the northern end in order to minimise the impacts on Ancient Woodland (refer to drawing numbers UA009844-ARC-XX-XX-DR-HE-0001, 0002, 0003 and 0004 which are included in Appendix B) |
| Western Alignment | This alignment passes the village of Pendoylan to the west although shares the same route at the northern and southern end as the Eastern alignment (refer to drawings number UA009844-ARC-XX-XX-DR-HE-0005, 0006, 0007 and 0008 in Appendix C). |

The alignments as shown on the attached drawings are subsequently based on the following assumptions:

- Alignments comply with DMRB and contain no departures for a 60mph speed limit (100kph design speed) single carriageway. This comprises a carriageway width of 3.65m per lane + 1m hard strips (total carriageway width of 9.3m) plus verge width of 2.5m either side of the carriageway;
- A 3.5m wide cycleway has been included to one side of the bypass, separated by a verge;
- Total cross section width of 17.8m + earthworks slopes where required;
- The vertical alignment is based on 5m OS Contours which have an accuracy to +/- 2m;
- Earthworks are assumed to be 1 in 3 embankments and cutting slopes – to be confirmed at a later stage subject to ground investigation and the materials present; and
- Outfall points for drainage are not known at this stage - costs have been estimated.

It has been assumed that access is required from the existing alignment through Pendoylan onto the new alignment, with junctions needing to be considered at the northern and southern ends. Due to residents' concerns in Gwern-y-Steeple and Peterston-Super-Ely with the issues of rat-running being exacerbated, it is possible that the existing access onto the Pendoylan route in the south could be closed off, with traffic gaining access from the existing Pendoylan route further north. This is shown on drawing numbers UA009844-ARC-XX-XX-DR-HE-0001 & 0005. A full compliant design has not been undertaken on the proposed junctions, but it is considered costs for the construction of the possible accesses are allowed for within the Optimism Bias and Risk Allowance.

In order to keep the existing alignment in operation, bridges have been used to span side roads where required, therefore in many areas the road will be elevated. However, embankment slopes of 1 in 3 allow for environmental mitigation and landscaping for noise and visual impact improvements for local resident's views.

The alignments have been developed in an iterative process involving workshop sessions of the design team as well as with technical specialists of the local authority/ Glamorgan and Gwent Archaeological Trust. The aim through the design process has been to develop alignments that minimise impacts and maximise benefits for the community, businesses and the environment.

It should be noted that this is a feasibility option study and in order to confirm its accuracy further surveys, investigations and design will be required. This will include such activities as a topographical survey, environmental surveys and ground investigations.

## Standards Used

All current alignments considered are compliant with DMRB and in accordance with TD 9, TD 27 and TA 90.

## Structures

The structures that have been used on this route have been positioned so that they provide a minimum height above the existing side road of 5.3m which is in accordance with the DMRB. In addition to the 5.3m a value of 0.7m has been allowed for on top for the construction thickness of the structure.

## Junctions

The proposed options include for junctions at locations highlighted on drawing numbers UA009844-ARC-XX-XX-DR-HE-0009 & 0010). However, the junctions shown have not been designed in the current proposals and have only been shown for illustrative purposes. Traffic data and survey work would be required in order to inform the design of each junction.

## Sycamore Cross Junction (A48)

A Signalised Cross Roads and a Signalised Roundabout are the two options that have been considered for a revised Sycamore Cross Junction (A48) to remove the constraint of the stagger in alignment.

Neither option has been individually priced within the construction cost estimate due to available data to make an informed assessment, however, it is considered that given the amount of Optimism Bias allowed for within the estimate, there is sufficient allowance to include for the proposed junction improvements (please refer to drawing numbers UA009844-ARC-XX-XX-DR-HE-0009 & 0010).

It should be noted that the inclusion of either junction is likely to impact on the land on the south west side of the A48 and potentially the golf course and possibly the ancient woodland which lies adjacent to the A48. However exact impacts are unable to be determined at this stage and would require further investigation and survey work during the next phase of the project.

## Public Rights of Way (PRoW)

There are a number of PRoW affected by both of the considered options. It is anticipated that crossings will be rationalised by PRoW re-alignment and provision of crossing point under/over the proposed bypass to maintain existing PRoW, as well as provide access to the walking and cycling route alongside the proposed route. Where PRoW cross the proposed bypass in fill, culverts have been proposed and where it crosses in cut, 3m wide bridges have been used.

## Constraints

The key constraints and how the design of alignments seeks to address them are summarised in Table 10.

*Table 10 Route Alignment Constraints*

| Constraint | Description |
|---|---|
| River Ely Floodplain | Where the east option passes through the River Ely floodplain to the east of Pendoylan, it will be necessary to raise the alignment to ensure the new bypass does not flood. A Flood Consequence Assessment (FCA) will need to be produced and agreed with Natural Resources Wales (NRW) and it is likely some form of flood compensation mitigation will be required. In order to put some cost against the impacts, 1.8m culverts for the width of the bypass over the length affected by flooding area at 50m intervals have been allowed for within the cost makeup for the option.<br><br>However, it should be noted that there is a significant risk that some form of viaduct may be required for the east option. This would increase the estimated cost by around £20m and also mean that additional material would need to be disposed of offsite. This has been added to the risk item on top of the 14% allowed. To determine the correct method of construction for the bypass, through the flood area, ground data would be required in the form of an onsite Ground Investigation survey. |

| Constraint | Description |
|---|---|
| Ancient Woodland | The study area contains areas of ancient woodland. The highway alignments have been designed to minimise impact, but in some locations small impacts are probable, although would be limited to the outer areas of the designated sites. |
| Pendoylan Village | All considered options bypass the village of Pendoylan either to the east or the west and seek to place a distance between the road alignment and properties in the village. |
| Cottrell Golf Course | The Cottrell golf course to the south of the project lies adjacent with the A48 and either side of both proposed options. There is a possibility that some of the earthworks may encroach onto land occupied by the golf course, however it is unlikely any significant impacts will be realised to the golf course itself, however the subway that proceeds underneath the existing road will need further investigation due to the additional traffic loading and width of new bypass.<br>There is a possibility that this may have to be relocated. In addition, if realignment of the A48 junction was to be undertaken as part of the improvements, whether a roundabout or cross road are considered, impacts are likely to be significant to the golf course in the area of the proposed junctions (see drawings numbers UA009844-ARC-XX-XX-DR-HE-0009 & 0010), especially the sheds contained within the land adjacent to the Sycamore Cross Junction. |
| The Vale Resort | Towards to the northwest of the project lies the Vale Resort, direct impacts to the resort have sought to be avoided in all options considered. |
| Keeping existing road open | Due to the need to keep the existing road through Pendoylan open, the road needs to be elevated in some areas to form bridges to bypass over side roads etc. This enables access to be maintained to existing homes, businesses and facilities such as the primary school in Pendoylan. |
| Archaeology | Similar to the ancient woodland, the area currently under consideration has known archaeological features. It is also expected (due to known issues at the Five Mile Lane road scheme to the south) that there will be other archaeology within the area, which is currently not known and thus cannot be shown on the constraints plans.<br>There will be a need for further work to determine the likely archaeological risks of each option, but the alignments have been designed to avoid known features wherever possible. |

## Risks

The key route alignment risks are summarised in Table 11 below.

*Table 11 Route Alignment Risks*

| Risk | Description |
|---|---|
| Engineering Solutions | Earthwork fill with culverts are currently proposed to lift alignment through the flooding area (1200m on eastern alignment). Flooding levels and ground conditions are currently unknown so there is risk that the alignment would need to be raised further, increasing costs. The outcome of a Flood Consequences Assessment and liaison with NRW could result in this section requiring a viaduct which could increase costs by circa £20m. |
| Topographic Survey Data | Topographic survey data is OS contours at 5m intervals and is accurate to +/- 2m which could affect earthworks and accuracy of design. |
| Unknown Archaeology | Unknown archaeology could be encountered during detailed design phases and construction. |
| River Ely Bridge | Existing bridge over River Ely at the north end of both options may require strengthening and further works to be suitable for possible future traffic loadings. This will need a condition survey |

| Risk | Description |
|---|---|
| | and assessment at future stages. |
| Railway Bridge | In both options the railway bridge may require strengthening and further works to be suitable for possible future traffic loadings. This will need a condition survey and assessment at future stages. |
| Excavated Material | Excavated material might be used as suitable fill material, therefore requiring import or additional import of suitable fill material and export of unsuitable material. |
| Cottrell Golf Course Subway | Subway crossing at Cottrell golf course could impact on design due to increase in traffic loadings resulting in structural issues with the subway. The subway might need to be re-located. |

### 2.6.2 Parkway Station

The provision of a Parkway Station was recognised in the Stage One study to bring potentially substantial sustainable travel benefits at a regional scale. It would however require the provision of a road link in order to facilitate access to the station from the Vale of Glamorgan, as in the highway options. Moreover, consideration of a Parkway Station requires technical feasibility work and economic forecasting as part of the Network Rail Guide to Rail Investment Process (GRIP) and to be in alignment with the rail franchise process by Welsh Government and Transport for Wales. Thus, it was recommended that Stage Two considers the Parkway Station as a potential add on to the proposals that would add to the benefits of the highway options.

The option to provide a new Parkway Station on the Cardiff to Bridgend rail line in the vicinity of the M4 Junction 34 has not been further designed as part of this Stage Two study as this is dependent on technical progression and assessment using the Network Rail GRIP process, which has not been available within the timescales to inform this Stage Two study. However, to demonstrate the relationship of the potential station and it's benefits to the options under consideration in this report, the Stage One qualitative assessment has been retained in the subsequent sections. This assumes the following:

- A Parkway Station in the vicinity of Junction 34 served by local rail services between Cardiff and Maesteg and potentially mainline services on the South Wales Mainline, between Cardiff and Bridgend;
- Interchange with regional and local bus services, including services between the A4119 corridor and Cardiff Airport and St Athan; and
- Car parking facilities to reflect the strategic location on the M4 west of Cardiff.

The actual location of a station has not been fixed at this stage, as this will depend on technical feasibility work and environmental constraints. It is anticipated to be at a location in a broad corridor defined by Miskin to the north west and east of Pendoylan village to the south.

## 2.7 Appraisal of Options

At this stage in the WelTAG process, the shortlisted options have been assessed in terms of how each would tackle the identified problems, to what extent it meets the objectives, including contributing to local, regional, and national well-being objectives, as well as key risks, adverse impacts, constraints and dependencies. The appraisal of the extent the option meets the objectives is described using the WelTAG seven-point assessment scale as set out in Table 1. For the Strategic Case, the impacts of the do-minimum are also set out compared to the Base Year situation. This enables an understanding of what will happen if only limited investment is made in the transport connections and provides a basis for comparing the performance of the do-something options.

| Do-Minimum | | | |
|---|---|---|---|
| **Description** | | Assume continued delivery of transport enhancements via the Local Transport Plan and utilising existing sources of funding but assumes no step change in the level of funding or delivery of any major transport enhancements within the study area (assumes current levels of investment).<br><br>Assumes the continuation of local bus services and community transport at a similar level as present utilising funding at similar levels to existing.<br><br>Assumes continued work by local authorities and stakeholders to deliver improvements to the transport network, with the overall aim of addressing the identified problems and the outcomes of the relevant transport policies.<br><br>The do-minimum is represented by the Reference Case scenario of the South East Wales Transport Model (SEWTM) in 2036. The Base Year 2015 and Reference Case 2036 flows are included in the Impacts Assessment Report. The derivation of the Reference Case is described in the technical note in Appendix D. In particular, the Reference Case includes the implementation of the Five Mile Lane improvement and includes the construction of the first part of the Eastern Bay Link in Cardiff. However, the model retains tolls on the Severn Bridge at present (albeit at a reduced level) pending further model development. | |
| **How it tackles the problems** | | Limited available funding (both capital and revenue) and resources are unlikely to make a step difference in overcoming the identified problems. The Reference Case shows a further deterioration in the performance of the road network with increased traffic flows by 2036 on the key routes of the M4 between Junction 33 and Junction 34 of 28% on the 2015 base year in the AM peak and 26% in the PM peak, 33% between Junction 34 and Junction 35 in the AM peak and 32% in the PM peak and 27% in the AM peak and 25% in the PM peak on the A4232 between Junction 33 and Culverhouse Cross. The A48 west of Sycamore Cross is also anticipated to see a 25% increase in the AM peak and 18% in the PM peak. Traffic routeing through Pendoylan area is forecast to increase by 25% in the AM peak and 18% in the PM peak. The existing problems would be significantly exacerbated. | |
| **Objectives** | **Overall** | Overall, the do-minimum option is considered to have an adverse effect at meeting the objectives, due to the modest levels of funding currently able to be invested in transport infrastructure and public transport services. It subsequently assumes that background increases in population and traffic growth exceed investment provision to mitigate increasing impacts and pressure on the existing transport network.<br><br>It should be noted that policies and programmes are in place to facilitate improved transport services, but limited funding means that beneficial enhancements are currently difficult to achieve.<br><br>A negative impact on the environment is forecast as the traffic levels between Junction 34 and the A48 would continue to increase, as well as those on the strategic network, whilst the limited funding means that the connectivity issues associated with strategic employment sites and the Airport will pose a constraint on the economy. The well-being of local communities in the local appraisal area would be anticipated to deteriorate, with limited investment in schemes to promote health and well-being and increased traffic impacts. | |
| | **O1** | Enhance connectivity to Cardiff Airport and strategic employment sites in the region. | - |
| | **O2** | Increase transport options for strategic access and access to and from local communities. | - |
| | **O3** | Improve network resilience and road safety on the M4, A48 and A4232 corridors and other connecting roads. | - |

| Do-Minimum | | | |
|---|---|---|---|
| | **O4** | Protect and enhance the historic, built and natural environment including the landscape and settlement character of the study area. | - |
| | **O5** | Minimise impacts on communities and support social inclusion and health and well-being. | -- |
| **Key Risks** | | Potential reductions in available funding and resources leading to poor investment in public transport and local highway infrastructure.<br>Do-minimum option will mean that connectivity to residential areas, strategic economic centres and key services/ facilities (including Cardiff Airport) remains a key issue, and not being seen to tackle existing issues or support local and regional development aspirations. | |
| **Adverse Impacts** | | The anticipated increase in annual traffic volumes (general background traffic growth plus local LDP development) is anticipated to have a significant adverse impact on the environment compared to the existing situation.<br>A poor transport connection remains from the M4 corridor would affect potential users' choices for accessing employment centres and key services, including accessibility to and from Cardiff Airport.<br>Potential for a deterioration in highway safety on routes between M4 Junction 34 and A48, most notably through Pendoylan with potential for local increases in traffic flow.<br>Potential for increased congestion on the alternative routes to strategic employment sites including the A4232 and A48.<br>Potential for adverse development of socio-economic opportunities with restrained accessibility to sustainable travel opportunities.<br>Deterioration of the quality of environment and journey times on the Pendoylan corridor as well as the strategic road network (M4, A4232 and A48) encompassing increase journey time delay, environmental issues, and anticipated worsening of highway junction capacity. | |
| **Constraints** | | The do-minimum is considered to be relatively unconstrained although any restriction with regard to the availability of funding and resources could jeopardise standard maintenance/ enhancement proposals. | |
| **Dependencies** | | The implementation of the Five Mile Lane improvement will impact on transport in the study area. The growth of the Airport and strategic employment sites in the sub-region is related to the level of impacts, as well as the transport issues in the do-minimum potentially constraining growth. | |

| Highway Option 1 – Eastern Alignment | | |
|---|---|---|
| **Description** | | Highway Option 1 is an Eastern alignment that would connect from just south of Junction 34 of the M4 to the A48 at Sycamore Cross. The northern and southern sections would involve online improvements. The remainder of the route between these two junctions would be offline and bypass Pendoylan to the east of the village.<br><br>The route would be a single carriageway of national speed limit standard, with the potential to provide integral public transport and include segregated walking/ cycle route infrastructure alongside the carriageway, as well as provision of connectivity for existing public rights of way.<br><br>The option has been assessed using the SEWTM, with the assumption of three junctions along the route connecting to the existing network. The modelling assumes only minor changes to the Sycamore Cross junction, as proposed for the Five Mile Lane scheme. However, there are options to remove the staggered junction which would increase the scheme benefits. Similarly, the modelling work has not included improvements to Junction 34 to increase capacity, but the brining forward of improvements for the junction would enhance the benefits of the option. |
| **How it tackles the problems** | | Option 1 has the potential to tackle the following problems – P01 / P02 / P04 / P05 / P07 / P08<br><br>• The option would represent a significant highway infrastructure improvement between M4 Junction 34 and A48 with improved vehicle journey time and reliability.<br><br>• The option would provide robust infrastructure to support the promotion and development of sustainable transport options.<br><br>• Congestion issues at M4 Junction 34 could be mitigated via the implementation of localised junction improvements.<br><br>• There is the opportunity to provide integral bus infrastructure, as well as walking and cycling infrastructure encompassing connectivity to existing routes.<br><br>• The option would provide a new route compliant with current DMRB highway standards in comparison to the broadly non-compliant existing routes through the study area. Improved accessibility for HGV's would also be realised. |
| **Objectives** | **Overall** | **O1:** The option should significantly improve strategic connectivity in the region including accessibility to and from local/ regional employment centres and communities, as well as access to services and facilities including Cardiff Airport. The option provides direct interconnectivity with Five Mile Lane via the Sycamore Cross junction (A48) allowing for improved journey time potential to and from the EZ and Cardiff Airport.<br><br>**O2:** The option provides additional route choices for access between the M4 and strategic employment locations and the airport. Whilst the implementation of a new highway route has the potential to significantly promote the development of other transport modes options by establishing infrastructure anticipated to support the improvement of vehicle journey times and reliability, this is a highways-based option. The highway benefits noted are therefore likely to establish an increase in car trips as opposed to deliver increased trips by sustainable modes of transport. However, cycling and bus infrastructure would be integrated with the scheme, bringing some benefits for sustainable travel options.<br><br>**O3:** A new route implemented to current highway design standards in combination with the associated junction improvements is anticipated to significantly improve network resilience and road safety. Reduced traffic flow through the settlements of Pendoylan and Clawdd Coch is also anticipated to enhance local highway conditions along the predominantly sub-standard route, both day-to-day and following periods of disruption (diverted traffic) associated with the M4 corridor. The results of the traffic modelling show there would be changes in traffic routeing on the strategic network with the do-something compared to the do-minimum, with a reduction in traffic on the M4 west of Junction 34, on the A48 east of Sycamore Cross and the A4232/ A48 Culverhouse Cross. There is anticipated to be increased traffic flow resulting from the new route around Junction 34, |

| Highway Option 1 – Eastern Alignment | | | |
|---|---|---|---|
| | | which would lead to the need to separately consider improvements at the junction to facilitate the additional traffic on the link and mitigate any delays on the A4119 corridor as a result.<br><br>**O4:** The option has the potential for a moderate adverse impact with regard to the natural and built environment both through the construction of a new by-pass (predominantly upon an existing green field site), the transposition of existing hedgerow adjacent to existing online sections of highway, adverse visual impact affecting the extant rural landscape characteristics of the area, and the potential increase in road traffic impacting on noise and air quality impacts for dwellings situated close the route.<br><br>**O5:** This option would minimise transport impacts on the existing community of Pendoylan and of Clawdd Coch by leading to a reduction in traffic through the communities. There is potential to proactively enhance social inclusion throughout the region by affording improved access to local services and facilities. There would be increased traffic impacts on properties in the immediate vicinity of the route, but overall this number is low in comparison to those benefitting from reduced traffic. | |
| | **O1** | Enhance connectivity to Cardiff Airport and strategic employment sites in the region | +++ |
| | **O2** | Increase transport options for strategic access and access to and from local communities | + |
| | **O3** | Improve network resilience and road safety on the M4, A48 and A4232 corridors and other connecting roads | ++ |
| | **O4** | Protect and enhance the historic, built and natural environment including the landscape and settlement character of the study area | – |
| | **O5** | Minimise impacts on communities and support social inclusion and health and well-being | + |
| **Key Risks** | | Requires a high level of capital investment.<br><br>Delivery would be in the medium to long term, given the planning requirements, likely funding constraints in current programmes and development work required to take the option forward.<br><br>There are already a number of large scale transport schemes currently in the Welsh Government's infrastructure delivery programmes (such as the M4 motorway and Five Mile Lane, for example) which require significant capital funding and resources. There may be the opportunity for funding under the City Deal. Any proposal would need to demonstrate robust regional/ national value against other large-scale transport schemes and City Deal proposals.<br><br>Land acquisitions (time and cost).<br><br>Environmental considerations, including the potential for protected species to be located along the route and the risks associated with potential impacts on the floodplain, which may lead to the requirement for a design incorporating stilts.<br><br>Buried archaeological features have the potential to add time and cost to any scheme and may impact on route alignments.<br><br>Route uncertainties (including topography and ground conditions) make it difficult to fully understand the engineering constraints and potential costs, and associated impacts. Discussions indicate there may be significant ground condition constraints with this route option.<br><br>There is a need to also bring forward capacity improvements to Junction 34 to minimise | |

| Highway Option 1 – Eastern Alignment | |
|---|---|
| | knock on impacts and maximise journey time benefits. |
| **Adverse Impacts** | Potential significant adverse impact on the environment including landscape, biodiversity, cultural heritage, noise and air quality.<br>Impact on residents situated adjacent or near to the proposed route (predominantly affecting the settlements of Pendoylan and Clawdd Coch).<br>Impact on local communities during construction.<br>Delay to road users (car, HGVs and public and community transport) during construction.<br>Would require a high level of capital investment, which may have implications on the delivery of other capital schemes in the region for a number of years. |
| **Constraints** | Availability of funding and resources.<br>Environmental considerations including the potential for protected species along the proposed route, archaeology and flooding issues.<br>Land ownership constraints and the need to accommodate access to existing properties. |
| **Dependencies** | Masterplan proposals for Cardiff Airport and St Athan EZ, as well as other major developments in the region.<br>Impacts on available revenue/ maintenance budgets.<br>Ability to acquire all land required to facilitate the option.<br>Emerging proposals to improve capacity on the M4 corridor including Junction 34, as well as the A4119/ A473. |

| Highway Option 2 – Western Alignment | | |
|---|---|---|
| **Description** | | Highway Option 2 is a Western alignment that would connect from just south of Junction 34 of the M4 to the A48 at Sycamore Cross. The northern and southern sections would involve online improvements. The remainder of the route between these two junctions would be offline and bypass Pendoylan to the west of the village.<br><br>The route would be a single carriageway of national speed limit standard, with the potential to provide integral public transport and include segregated walking/ cycle route infrastructure alongside the carriageway, as well as provision of connectivity for existing public rights of way.<br><br>The option has been assessed using the SEWTM, with the assumption of three junctions along the route connecting to the existing network. The modelling assumes only minor changes to the Sycamore Cross junction, as proposed for the Five Mile Lane scheme. However, there are options to remove the staggered junction which would increase the scheme benefits. Similarly, the modelling work has not included improvements to Junction 34 to increase capacity, but the bringing forward of improvements for the junction would enhance the benefits of the option. |
| **How it tackles the problems** | | The option has the potential to tackle the following problems – P01 / P02 / P04 / P05 / P07 / P08<br><br>• The option would represent a significant highway infrastructure improvement between M4 Junction 34 and A48 with significant potential for improved vehicle journey time and reliability.<br><br>• The option would provide robust infrastructure to support the promotion and development of sustainable transport options.<br><br>• Congestion issues at M4 Junction 34 could be mitigated via the implementation of localised junction improvements.<br><br>• There is opportunity to provide integral bus infrastructure, as well as walking and cycling infrastructure encompassing connectivity to existing routes.<br><br>• The option would provide a new route compliant with current DMRB highway standards in comparison to the broadly non-compliant existing routes through the study area. Improved accessibility for HGV's would also be realised. |
| **Objectives** | **Overall** | **O1:** The option should significantly improve strategic connectivity in the region including accessibility to and from local/ regional employment centres and communities, as well as access to services and facilities including Cardiff Airport. The option provides direct interconnectivity with Five Mile Lane via the Sycamore Cross junction (A48) allowing for improved journey time potential to and from the EZ and Cardiff Airport.<br><br>**O2:** The option provides additional route choices for access between the M4 and strategic employment locations and the airport. Whilst the implementation of a new highway route has the potential to significantly promote the development of other transport modes options by establishing infrastructure anticipated to support the improvement of vehicle journey times and reliability, this is a highways-based option. The highway benefits noted are therefore likely to establish an increase in car trips as opposed to deliver increased trips by sustainable modes of transport. However, cycling and bus infrastructure would be integrated with the scheme, bringing some benefits for sustainable travel options.<br><br>**O3:** A new route implemented to current highway design standards in combination with the associated junction improvements is anticipated to establish improved network resilience and road safety. Reduced traffic flows through the settlements of Pendoylan and Clawdd Coch are also anticipated to enhance local highway conditions along the predominantly sub-standard route, both day-to-day and following periods of disruption (diverted traffic) associated with the M4 corridor. The results of the traffic modelling show there would be changes in traffic routeing on the strategic network that would lead to reduced traffic through the M4 Junction 33, and A4232/ A48 Culverhouse Cross, with significant traffic reductions anticipated on the A48 both east and west of Sycamore |

| Highway Option 2 – Western Alignment | | | |
|---|---|---|---|
| | | Cross. There is anticipated to be increased traffic flow resulting from the new route on the M4 Junction 34, which would lead to the need to separately consider improvements at the junction to facilitate the additional traffic on the link and mitigate any delays on the A4119 corridor as a result.<br><br>**O4:** The option has the potential for a moderate adverse impact with regard to the natural and built environment both through the construction of a new road alignment, (predominantly upon an existing green field site), the transposition of existing hedgerow adjacent to existing extensive online sections of highway, adverse visual impact affecting the extant rural landscape characteristics of the area, and the potential increase in road traffic leading to air quality and noise pollution for dwellings situated close the route.<br><br>**O5:** This option would reduce transport impacts on the existing community of Pendoylan and Clawdd Coch. There is potential to proactively enhance social inclusion throughout the region by affording improved access to local services and facilities. There would be increased traffic impacts on properties in the immediate vicinity of the route, but overall this number is low in comparison to those benefitting from reduced traffic | |
| | **O1** | Enhance connectivity to Cardiff Airport and strategic employment sites in the region | +++ |
| | **O2** | Increase transport options for strategic access and access to and from local communities | + |
| | **O3** | Improve network resilience and road safety on the M4, A48 and A4232 corridors and other connecting roads | ++ |
| | **O4** | Protect and enhance the historic, built and natural environment including the landscape and settlement character of the study area | – |
| | **O5** | Minimise impacts on communities and support social inclusion and health and well-being | + |
| **Key Risks** | | Requires a high level of capital investment.<br><br>Delivery would be in the medium to long term, given the planning requirements, likely funding constraints in current programmes and development work required to take the option forward.<br><br>There are already a number of large scale transport schemes currently in the Welsh Government's infrastructure delivery programmes (such as the M4 motorway and Five Mile Lane, for example) which require significant capital funding and resources. There may be the opportunity for funding under the City Deal. Any proposal would need to demonstrate robust regional/ national value against other large-scale transport schemes and City Deal proposals.<br><br>Land acquisitions (time and cost).<br><br>Environmental considerations, including the potential for protected species to be located along the route.<br><br>Buried archaeological features have the potential to add time and cost to any scheme and may impact on route alignments.<br><br>Route uncertainties (including topography and ground conditions) make it difficult to fully understand the engineering constraints and potential costs, and associated impacts.<br><br>There is a need to also bring forward capacity improvements to Junction 34 to minimise knock on impacts and maximise journey time benefits. | |
| **Adverse Impacts** | | Potential significant adverse impact on the environment including landscape, biodiversity, | |

| Highway Option 2 – Western Alignment | |
|---|---|
| | cultural heritage as well as impacts on air quality and noise.<br><br>Impact on residents situated adjacent or near to the proposed route (predominantly affecting the settlements of Pendoylan and Clawdd Coch).<br><br>Impact on local communities during construction.<br><br>Delay to road users (car, HGVs and public and community transport) during construction.<br><br>Would require a high level of capital investment, which may have implications on the delivery of other capital schemes in the region for a number of years, including the delivery of more sustainable measures. |
| **Constraints** | Availability of funding and resources.<br><br>Environmental considerations including the potential for protected species along the proposed route and archaeology.<br><br>Land ownership constraints and the need to accommodate access to existing properties. |
| **Dependencies** | Masterplan proposals for Cardiff Airport and St Athan EZ, as well as other major developments in the region.<br><br>Impacts on available revenue/ maintenance budgets.<br><br>Ability to acquire all land required to facilitate the option.<br><br>Emerging proposals to improve capacity on the M4 corridor including Junction 34, as well as the A4119/ A473. |

| Parkway Station | | |
|---|---|---|
| **Description** | | The option encompasses the implementation of a new Parkway Station near to M4 Junction 34 including a Park and Ride facility and bus integration. It would be assumed that a new railway station at this location would provide frequent rail service east towards Cardiff and west towards Swansea, with a large Park and Ride facility allowing for robust integration for passengers. It is anticipated that any such facility would provide an integrated bus service between the railway station and strategic employment sites and Cardiff Airport, as well as other regional employment centres.<br><br>Specific deliverables would be subject to feasibility assessment but would be anticipated to encompass free and secure car parking, ticket office, waiting areas including café and toilet facilities, covered cycle parking facilities, as well as support staff situated on-site.<br><br>**This option has been considered in isolation in terms of the impact assessment to differentiate the impacts from the highway options. However, it is recognised that it would only be a viable option if there are highway improvements between M4 Junction 34 and the A48. A new Parkway Station would therefore be reliant upon existing highway network infrastructure for connectivity from the south.** |
| **How it tackles the problems** | | This option has the potential to tackle the following problems – P02 / P03 / P04 / P06<br><br>• A new Parkway Station with bus integration has the potential to make travel by non-car means an attractive option, reducing dependency on the private car. This may have regional benefits, notably for rail service access to and from the A4119/ Rhondda Valley area, as well as from the A48 corridor in the Vale of Glamorgan.<br><br>• The option has the potential to positively support improved sustainable accessibility to and from Cardiff Airport as well as other strategic destinations that are regional and outside of Wales.<br><br>• The option has the potential to help mitigate existing congestion issues on the strategic road network by encouraging trips to be made by more sustainable means.<br><br>• The potential to remove car trips from the local and regional highway network is anticipated to help mitigate adverse environmental issues associated with high use of the car, including adverse greenhouse emissions and noise pollution. |
| **Objectives** | **Overall** | Where noted below, the extent to which car-based trips could be reduced as a result of this sustainable option is related to the provision of a new highway route that could facilitate the additional traffic movements including buses to and from a Parkway Station from the Vale of Glamorgan.<br><br>O1: A Parkway Station provides a significant opportunity to contribute towards enhanced sustainable connectivity within and to and from the region. If developed in combination with bus services to and from the strategic employment sites and the airport, there is potential for significant modal shift to public transport.<br><br>O2: The option would help promote sustainable access with the potential to reduce both local and strategic car-based trip distances. There may be changes in traffic patterns to access the station which would need to be investigated.<br><br>O3: Enhancing options for travel by sustainable modes of transport is anticipated to reduce the number/ distance of car-based trips throughout the region. Reduced traffic flows on the strategic highway network subsequently has the potential to improve highway network resilience and road safety particularly on the M4, A48 and A4232 routes, but also on the A4119 north of M4 Junction 34, although traffic would be generated on routes to and from the Parkway Station.<br><br>O4: It is anticipated that a new rail parkway facility would be constructed on a greenfield site resulting in an adverse impact on the natural environment, as well as an adverse visual impact affecting the extant rural characteristics of the area. There are flood risk and biodiversity constraints along the rail corridor which might mean adverse impacts from a station facility. The potential for the option to reduce the number of car-based trips could |

| Parkway Station | | | |
|---|---|---|---|
| | | however retain a long-term positive impact on the effects of climate change, with a reduction in associated vehicle emissions as well as reductions in noise pollution.<br><br>O5: A Parkway Station has the potential to proactively enhance social inclusion throughout the region by expanding transport options and affording improved sustainable accessibility. | |
| | **O1** | Enhance connectivity to Cardiff Airport and strategic employment sites in the region | ++ |
| | **O2** | Increase transport options for strategic access and access to and from local communities | +++ |
| | **O3** | Improve network resilience and road safety on the M4, A48 and A4232 corridors and other connecting roads | + |
| | **O4** | Protect and enhance the historic, built and natural environment including the landscape and settlement character of the study area | - |
| | **O5** | Minimise impacts on communities and support social inclusion and health and well-being | ++ |
| **Key Risks** | | The provision of a Parkway Station in itself is anticipated to involve a moderate level of cost in comparison to the highway options. However, there is a need for the highway improvements in order for the Parkway Station to be a viable option, otherwise access to the station from the Vale would be via the existing substandard route.<br><br>Delivery would be in the medium to long term, given the planning requirements, likely funding constraints in current programmes and development work required to take the option forward. Moreover, it is dependent on the rail franchise and programme for the Metro by Transport for Wales. It is noted that the franchise proposals as announced in June 2018 include for a new station at Miskin on the Metro plan[5].<br><br>There are considerable pressures on funding for the Metro network. There would be a need to demonstrate robust regional/ national value against other large-scale transport schemes and City Deal proposals.<br><br>Constructability and operational impacts of a new railway station on the South Wales Main Line. There would be a need for feasibility work to be undertaken. There is a risk that a new station brings disbenefits to other communities through changes in timetabling and journey times.<br><br>Suitable land availability and land acquisitions (time and cost).<br><br>Environmental considerations (time and cost).<br><br>Is there sufficient demand to justify the investment when availability of funding is diminishing? This would require further analysis. | |
| **Adverse Impacts** | | Environmental considerations on the natural environment and construction impact.<br><br>Localised traffic congestion associated with Parkway Station access and parking. | |
| **Constraints** | | The availability of suitable capacity on the South Wales Main Line to accommodate additional rail services, and impact on existing stations and services (e.g. Pontyclun).<br><br>Bus service journey times and reliability between M4 Junction 34 and the A48 would be dependent on the improvements to the existing road network. | |

[5] https://www.bbc.co.uk/news/uk-wales-44355934

| Parkway Station | |
|---|---|
| | Availability of funding and resources.<br><br>Bus integration provision would benefit from promotion and marketing of services, such as utilising the full potential of social media to maximise patronage and attract new passengers.<br><br>Subject to further analysis and as part of a viable financial business case, the ability to deliver a competitive fare price structure could be essential in achieving suitable patronage, in competition from other forms of transport and the availability of Cardiff Airport car parking, for example. |
| **Dependencies** | Improvement of highway links between M4 Junction 34 and the A48, and upgrade of M4 Junction 34.<br><br>Masterplans for Cardiff Airport and strategic employment sites.<br><br>Welsh Government/ Transport for Wales priorities and committed expenditure.<br><br>Local authority delivery programmes.<br><br>Development of new highway infrastructure to realise the full potential for any proposed bus Park and Ride scheme integrating with a new Parkway Station by establishing robust journey times and reliability.<br><br>Investment and 'buy-in' from rail industry/ train operator.<br><br>Ability to acquire all land required to facilitate the option. |

# 3 Transport Case

## 3.1 Overview

The aim of the Transport Case is to explain the expected impacts of the project, how the project will contribute to the well-being goals and whether a project will provide value for public money. The social, cultural, environmental and economic costs and benefits of each option are considered.

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

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

The three options as described in Section Two have been tested, namely the two highway alignment options and a Parkway Station near to Junction 34 of the M4.

## 3.2 Approach to Impact Assessment

The anticipated impact of the highway route options on traffic and the subsequent economic, social and environmental impacts has been quantified through use of the SEWTM. A model run was commissioned by the Vale of Glamorgan Council to incorporate a single carriageway way, 60mph link from just south of Hensol to the Sycamore Cross junction on the A48. The longest of the two highway route alignments was used as a worst case for journey times. It has been assumed that there would be three junctions with local roads on the route and the Sycamore Cross junction will be an improved staggered signalised junction, in line with the current proposals as part of the Five Mile Lane upgrade.

Model flows, journey times and user benefits have been obtained for the Base Year 2015 and for the With and Without Scheme in 2036. This has enabled Arcadis to undertake a Cost Benefit Analysis, including accident benefits and prepare a Transport Economic Efficiency (TEE) table for each option.

Where possible, other impacts have been quantified. At this stage social, cultural and environmental impacts have been assessed through measurement of receptors likely to be affected, but this is prior to environmental and technical surveys being undertaken, and a full Environmental Impact Assessment (EIA), which will be needed to progress an option in Stage Three.

The impacts considered and the means of assessment for each is summarised below.

### 3.2.1 Social Impacts

The social impacts have been assessed with reference to the guidance in WebTAG Unit A4.[6.] The assessment is qualitative with the exception of accidents, for which a quantified analysis has been undertaken using COBALT from the traffic modelling results (and is reported under the economic impacts appraisal). The topics covered are physical activity, security, severance, journey quality, option and non-use values, accessibility and personal affordability.

### 3.2.2 Cultural Impacts

The Future Generations of Wales (2015) Act has a well-being goal of *'A Wales of vibrant culture and thriving Welsh language'*. It is noted that this well-being goal will be achieved through 'a society that promotes and protects culture, heritage and the Welsh language, and which encourages people to participate in the arts, and sports and recreation'. For this assessment, the cultural assessment is a qualitative commentary on any impacts on cultural assets and the Welsh language. Cultural assets considered include arts and cultural centres, visitor attractions, sports facilities and cultural heritage.

[6] https://www.gov.uk/government/publications/webtag-tag-unit-a4-1-social-impact-appraisal-december-2017

### 3.2.3 Environmental Impacts

The environmental impacts appraisal for this Stage Two report is based on WebTAG Unit A3.7. The topics covered are noise, air quality, greenhouse gases, landscape, townscape, historic environment, biodiversity and water environment. At this stage, surveys have not been undertaken and the appraisal has been undertaken using desk top analysis. For landscape and visual impacts and biodiversity, site visits by professionals to identify key issues and constraints. The Impacts Assessment Report sets out the environmental data utilised to inform the appraisal.

### 3.2.4 Economic Impacts

The economic impacts appraisal considers the changes in journey time, reliability and accidents as derived from the traffic modelling using the outputs from the SEWTM. The methodology for undertaking the modelling by the consultants for Transport for Wales are contained in a technical note in Appendix D. Arcadis has used the outputs to subsequently undertake the economic assessment.

The WebTAG guidance highlights that wider economic impacts can also be appraised. The wider economic appraisal is a short qualitative statement at present, pending further analysis in a Stage Three assessment. The Department for Transport (DfT) has recently revised the WebTAG guidance on the induced investment, employment effects and productivity impacts, with new guidance made available in December 2017. New software is expected to be available to support the quantification of these benefits from March 2018.

## 3.3 Option Assessment

### 3.3.1 Impact Assessment

The detailed assessment of impacts for each of the options is provided within Appendix E with a summary of results outlined within Table 12. Each assessment is in comparison to the do-minimum in 2036. The WelTAG seven-point assessment scale, as set out in Table 1, has been used to present the scale of the impact. Appendix F contains the Worksheets for the Eastern alignment option and Appendix G for the western alignment option, that provide the analysis behind the impacts as undertaken for Stage Two.

*Table 12 Impact Assessment Summary*

| Impact | Highway Option 1 Eastern Alignment | Highway Option 2 Western Alignment | Parkway Station |
|---|---|---|---|
| **Social** | | | |
| Physical Activity | + | + | + |
| Journey Quality | +++ | +++ | ++ |
| Accidents | ++ | ++ | + |
| Security | + | + | ++ |
| Access to Employment | ++ | ++ | ++ |
| Access to Services | ++ | ++ | + |
| Affordability | 0 | 0 | + |

[7] https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/638648/TAG_unit_a3_envir_imp_app_dec_15.pdf

| Impact | Highway Option 1 Eastern Alignment | Highway Option 2 Western Alignment | Parkway Station |
|---|---|---|---|
| Severance | + | + | NYA |
| Option and Non-Use Values | + | + | +++ |
| **Cultural** | | | |
| Cultural Facilities | + | + | NYA |
| Welsh Language | 0 | 0 | 0 |
| **Environmental** | | | |
| Noise | - | - | NYA |
| Air Quality | - | - | NYA |
| Greenhouse Gases | + | + | + |
| Landscape | -- | -- | NYA |
| Townscape | 0 | 0 | NYA |
| Historic Environment | - | - | NYA |
| Bio-Diversity | -- | -- | NYA |
| Water Environment | -- | - | NYA |
| Residential Amenity | - | -- | NYA |
| **Economic** | | | |
| Journey Time Changes | +++ | +++ | + |
| Journey Time Reliability Changes | ++ | ++ | + |
| Transport Costs | + | + | + |
| Accidents | ++ | ++ | + |
| Wider Economic Impacts | ++ | ++ | ++ |
| Land and Property | -- | -- | NYA |
| Capital Costs | --- | --- | --- |
| Revenue Costs | -- | - | - |

The summary table shows that the two highway options perform similarly in terms of the social, environmental, cultural and economic assessment. The differences are related to the water environment, whereby the Eastern alignment presents more potential impacts on the floodplain, and on residential amenity, for which the Western alignment impacts on more properties (albeit there is a small number for each option).

### 3.3.2 Value for Money Assessment

This section sets out the impact on Public Accounts (PA) and the results of the Analysis of Monetarised Costs and Benefits (AMCB) for the highway options, based on the costs calculated by Arcadis and the benefits derived from the outputs of the SEWTM. Full discussion of the methodology and results is included in Appendix H. Table 13 shows the effects of the options on public finances, considering the impact on the broad transport budget after allowing for changes in revenues. It also includes changes in the broader indirect tax revenues which accrue to the government.

*Table 13 Public Accounts (PVC £000's 2010 prices discounted to 2010)*

| Scheme Costs | Eastern Alignment | Western Alignment |
|---|---|---|
| Investment Costs | 56,810 | 41,132 |
| Operator Costs | - | - |
| Revenue | - | - |
| Indirect Tax Revenue | -2,460 | -2,460 |

The indirect tax revenue values shown are increase in revenue to the wider public finances and, in accordance with WebTAG guidance, are included in the calculation of the Present Value of Benefits (PVB). The sign of the value in the PA table is therefore reversed in the AMCB table because the PA table presents costs to the public accounts as positive values. The AMCB tables combine results from the TEE tables and the PA tables supplemented by information on accidents. A sensitivity test was undertaken to provide further information regarding the impact of the straight-line interpolation/ extrapolation methodology undertaken due to a lack of transport model data. This sensitivity used a National Trip End Model (NTEM) derived trip reduction factor to estimate the impact a reduced level of traffic in 2023 would have on the scheme benefits. The resultant Table 14 gives the AMCB including the impact of a reduced 2023 trip matrix on the PVBs and Benefit Cost Ratios (BCR).

*Table 14 AMCB Summary Table for Sensitivity Test (prices in £000's, discounted to 2010)*

| | Scheme costs | Eastern Alignment | Western Alignment |
|---|---|---|---|
| A | Accidents | 16,591 | 16,591 |
| B | Economic efficiency: Commuting | 35,745 | 35,745 |
| C | Economic efficiency: Other | 49,471 | 49,471 |
| D | Economic efficiency: Business | 52,020 | 52,020 |
| E | Wider Public Finances (ITR) | -2,532 | -2,532 |
| F | PVB (A+B+C+D+E) | 151,295 | 151,295 |
| G | PVC | 56,810 | 41,132 |
| **H** | **NPV (F-G)** | **94,485** | **110,163** |
| **I** | **BCR (F/G)** | **2.66** | **3.68** |

In summary, the benefits for the Eastern and Western alignment have been assumed to be the same with the only difference being introduced with the costs.

The methodology used to undertake the transport user benefits using TUBA will likely lead to an overestimation of benefits, whereas in case of accident benefits using COBALT, there might be an underestimation of the benefits. However, given the context specific data provided, it has been deemed as the most robust approach.

The Western alignment has a higher BCR of 3.7 and NPV of £111.0m than the Eastern alignment which has a BCR of 2.7 and NPV of £96m. This is due to providing the lowest cost estimate of around £41 million for the Western alignment (at 2010 prices). The model runs in SEWTM did not include for a substantial improvement to the Sycamore Cross junction of the A48 nor any improvements to the M4 Junction 34. It would be anticipated that the benefits of the link would increase with these improvements. Further modelling in Stage Three would be able to refine the cost benefit results.

On the basis of greatest economic advantage, the Western alignment route is the best performing option, although it is recognised that economic performance is only one of the elements which must be considered in decision making.

# 4 Financial Case

## 4.1 Overview

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

## 4.2 Option Costs

This section sets out the costs of delivering the Eastern and Western alignment highway options. The costs of developing a Parkway Station are not known at this stage and will be subject to further development, as set out in the Commercial and Management Case. However, a new station cost with interchange facilities is typically **£25m**.

At this stage, the lifetime costs of the options have not been estimated. Costs presented are the implementation costs, including the further development and assessment work required in later WelTAG stages to take the option forward. The costs would fall from the start of Stage Three WelTAG up to and including delivery of the scheme. Costs beyond the scheme delivery would relate to ongoing maintenance and monitoring. The maintenance costs are dependent on the number and characteristics of structures. A commentary is provided.

### 4.2.1 Assumptions

The costing of the options has been developed with the following assumptions:

- The following items have been taken from the average cost of three live projects (based on construction cost value), currently within the realm of Arcadis:
    - Preliminaries at 25%;
    - Detailed Design at 4.5%;
    - Supervision at 2%;
    - Contractors Fee at 9%;
    - Without NRSWA C2 enquiries to identify the statutory undertakers' costs involved we have assumed Statutory Undertakers diversion costs of £1.5m. This is based on our experience of other similar schemes, however, C2 enquiries at a later stage will be required to confirm the actual budget;
    - Based on other projects, Employers Agent fess have been assumed at £1.5m, with an estimated Employers Risk of £2.5m (such risks would include significant requirements for addressing environmental issues such as archaeology or biodiversity); and
    - An allowance of £2m has been placed against the Sycamore Cross Junction Improvements.
- A risk item of 14% has been used to build up the cost for the all alignment options, with an additional amount of £20m added for the potential risk of stilts being required through the flood zone area for the Eastern alignment option.
- An Optimism Bias (OB) of 30%, which is averaged between the Stage One and Stage Two from recommendations in TAG Unit 1.28, has also been used. OB is used to allow for additional junctions/accommodation works that may come about as further investigative and survey works are carried out. It is considered that the 30% is still valid due to the unknowns within the projects such as ground data, additional junctions and possible improvements required to existing junctions.

### 4.2.2 Bill of Quantities Items

[8] https://www.gov.uk/government/publications/webtag-tag-unit-a1-2-scheme-costs-july-2017

The following section describes the assumptions used in the bill of quantities for the scheme cost estimates.

## Preliminaries

A percentage of the estimated construction cost of has been used to establish the amount for preliminaries, using the live project rates (as above).

## Site Clearance

The site clearance has been determined by the extent of the project with boundaries taken to the extent of earthworks. A hedge has been assumed within each parcel of land that the proposed option intersects with, this has been estimated at 30m in length multiplied by the number of parcels.

The cost of removing properties has been included at a sum of £20k each, this includes for possible asbestos. Further site clearance items have been allowed for and are indicated as items as quantities are unable to be estimated at this stage. For these items, values have been taken from a live project.

## Fencing

To determine fencing requirements, it has been assumed that the entire length of both sides of the road will require fencing to separate land. Fencing has been assumed to be a Timber Post and Four Rail Fence in accordance with Highways Construction Detail (HCD) HCD/13.

Steel gates for Accommodation Works have been allowed for where existing parcels of land have been segregated, this has been determined from analysis of the OS data available. Gates would be in accordance with HCD/H19. Where the new highway passes a number of houses and element of 4m high Acoustic Fencing has been allowed for (based on length).

## Road Restraint Systems

Safety barrier has been allowed for on both sides of the new carriageway in order to protect cyclists from live running traffic and also protect traffic from embankment areas. It is considered that through further design and the completion of a RRRAP Assessment the length of Road Restraint can be reduced.

## Drainage

Carriageway drainage has been assumed as a concrete channel placed in the verge areas, which will drain to gullies then into a carrier drain below. Cut-off drainage via concrete channels has also been allowed for at back of cycleway in cuttings.

Formal drainage outfall points cannot be determined at this stage however, six outfalls have been allowed for with drainage pipes/headwalls etc in the cost estimate.

## Earthworks

Earthworks have been determined using the provided data from the Vale of Glamorgan Council which has been input into Civils 3D. From this, using 1 in 3 embankments, the cut and fill has been determined;

## Pavements

Pavement calculations have been performed from information obtained within the Five Mile Lane tender which indicates poor ground conditions. Taking this into account the greatest depth of sub-base has been allowed within the construction make up of 450mm with a geotextile membrane. Other elements of the pavement make up are as below:

- Surface Course – 40mm thick;
- Binder Course – 60m thick;
- Base Course – 200mm thick;
- Sub-Base – 450mm thick; and
- Geotextile membrane.

## Footway/ Cycleway

The footway/cycleway has been positioned on the same side of the village of Pendoylan on both options, so for the Eastern option, the footway/cycleway will be positioned on the west for direct access form the village, and for the Western option the footway/cycle way will be positioned on the east side. The shared footway/cycleway has been designed at 3.5m wide and allows for no segregation of pedestrians and cyclists. The vertical and horizontal alignment will follow that of the proposed carriageway option, however where junctions need to be negotiated, there will be localised amendments to the alignment. This would be identified during the next stage of the project where junctions have been designed and greater knowledge of the surrounding area is understood. The makeup of the footway/cycleway is assumed to be:

- Surface Course (40mm thick)
- Binder Course (60mm thick)
- Sub-base (100mm thick)

## Signage and Road Markings

An estimate has been allowed for the cost of signs and road markings as £130k for both options, which has been based on similar projects. Carriageway centre line and edge of carriageway ribbed lines have been determined based on the length of road considered.

## Lighting and Electricity

Lighting has been considered at roundabouts and new junctions only, due to the rural nature of the route.

## Lighting of Footway/ Cycleway

LTN 2/04 states *'Pedestrians and cyclists dislike using unlit facilities after dark for personal security reasons, particularly when they are located away from well used routes. On facilities alongside existing carriageways, street lighting may be adequate, but old or sub-standard street lighting may need to be replaced to improve conditions to encourage greater use. New lighting may need to be considered on new facilities away from the carriageway. If lighting cannot be provided or is deemed undesirable, a lit on-road alternative should be signed where available. Issues of light pollution should be considered, particularly in rural areas.*

- *Adequate lighting and sightlines, and the absence of any hiding places close to the route can help to provide a sense of security for pedestrians and cyclists. This is particularly important for isolated facilities'.*
- Taking this statement into account and in accordance with Sustrans Guidance 5m high columns have been chosen for the length of the cycleway at 35m centre and included within the cost makeup for each option. It is recommended that due to the close proximity to the proposed carriageway that a risk assessment be carried out during the next stage to ensure that the lighting doesn't confuse traffic using the bypass.

## Ducting

Communication ducting has been allowed for the entire length of new road, with road crossings included where required.

## Structures

In order to determine the cost of the structures, the square area costs have been calculated from a live project of a similar type bridge that will be required. This square area cost has then been multiplied by the estimated square area for each bridge. Structures have an assumed headroom clearance of 5.3m above exiting ground level with an estimate of 0.7m on top to allow for the structure construction depth;

## Accommodation Works and Statutory Undertakers

A percentage cost for Accommodation Works has been determined from the average of three live projects, due to the current stage of the project we are unable to determine the extent of Statutory Undertakers works required and any accommodation works due to unknown land owner and extents of land owned by others. Therefore, an amount of £1.5m has been allowed for Statutory Undertakers Works with a 3% value of the construction cost allowed for Accommodation Works.

### Landscaping and Environmental Works

A percentage cost for Landscaping and Environmental Works has been determined from the average of three live projects, due to the current stage of the project it is difficult to calculate actual costs, therefore it was considered that a percentage allowance of 1.84% would be the best way to inform the cost.

### Land Costs

The cost of land has been determined using the estimate included within the Five Mile Lane tender and prorating this estimate in accordance with the length of the alignment options.

### 4.2.3 Option Cost Summary

Table 15 summarises the key features and costs of each of the two highway options. It can be seen that the Eastern alignment is higher in cost which is largely due to the incorporation of the risk of the road requiring stilts for construction on the flood zone areas.

*Table 15 Option Cost Summary*

| Element | East Alignment | West Alignment |
|---|---|---|
| **Bypass Pendoylan** | To the east | To the west |
| **Length of New Bypass** | 5560m | 5691m |
| **Cut and Fill Balance** | Disposal of 73,000m3 | Import of 97,000m3 |
| **Public Right of Way Impacts** | 3 Bridges<br>1 Culvert | 1 Bridge<br>3 Culverts |
| **No of Structures** | 2 | 4 |
| **Length of Floodplain affected** | 1200m | 100m |
| **Construction Cost** | £27.954 | £27.618m |
| **Total Cost including Stage Three** | £81.028m | £58.666m |
| **Maintenance Costs** | Potentially higher than Western alignment if stilts are required. | Potentially less than the Eastern alignment, although if embankment can be used on the Eastern alignment, there are more structures to maintain on the Western alignment. |

## 4.3 Funding and Accounting Implications

### 4.3.1 Highway Options

There are no certainties with respect to funding sources for taking the highway options forward at present. Funding would be required for scheme design and development from Welsh Government and this has not specifically been confirmed to be available at the current time. However, whilst no funding is specifically identified for scheme delivery, a connection from the M4 Junction 34 to the A48 is named in the National Transport Finance Plan as updated in December 2017, for expenditure over the next two financial years.

It is assumed that the scheme would be delivered by the Vale of Glamorgan Council with funding support from Welsh Government and potentially from the City Deal. If any public-sector borrowing is undertaken for

the project, it is assumed that this would be paid back over time by the local authority. There may be potential for some private contributions from strategic developments via Section 106 agreements, and this would need to be explored.

On-going revenue costs of maintaining the scheme are assumed to be met by the Vale of Glamorgan Council through highways maintenance budgets. The costs of the scheme and ongoing costs are assumed to be captured on the Council's budget accounting procedures, although the source of grant funding would also fall on the grant body (e.g. Welsh Government).

### 4.3.2 Parkway Station

It is assumed that funding for a Parkway Station is likely to be required as part of the Metro development, using funding via City Deal/ Transport for Wales/ Welsh Government. There are also anticipated to be contributions from the Train Operating Company through the franchise arrangements, given that the potential new station has been included in the franchise tender process, as well as other private contributions from developers through Section 106 agreements. Ongoing revenue costs (as well as any income from car parking revenue, for example) would typically fall on the Train Operating Company.

## 4.4 Financial Case Assessment

The financial case is summarised in Table 16, giving an evaluation of each element for each of the options.

*Table 16 Financial Case Assessment*

| Option | Lifetime Costs of the Project | | Source of Funding | Accounting Implications | |
|---|---|---|---|---|---|
| **Eastern Alignment** | --- | High initial capital costs to deliver a new highway route.<br>Revenue implications are likely to exist throughout the lifetime of the project in terms of maintaining the asset, with the potential to adversely impact on the increasingly stretched local authority revenue budgets. | Local transport fund (capital)<br>Welsh Government (capital and revenue)<br>Local authority funding (capital and revenue)<br>Road safety grant (capital)<br>Cardiff Capital Region City Deal | **Capital** | Welsh Government<br>Local Authority<br>Cardiff Capital Region City Deal |
| | | | | **Revenue** | Local Authority |
| **Western Alignment** | --- | High initial capital costs to deliver a new highway route.<br>Revenue implications are likely to exist throughout the lifetime of the project in terms of maintaining the asset, with the potential to adversely impact on | Local transport fund (capital)<br>Welsh Government (capital and revenue)<br>Local authority | **Capital** | Welsh Government<br>Local Authority<br>Cardiff Capital Region City Deal |

| Option | Lifetime Costs of the Project | | Source of Funding | Accounting Implications | |
|---|---|---|---|---|---|
| | | the increasingly stretched local authority revenue budgets. | funding (capital and revenue)<br>Road safety grant (capital)<br>Cardiff Capital Region City Deal | **Revenue** | Local Authority |
| **Parkway Station** | --- | The investment costs would be lower than a highway option but developing a Parkway Station is dependent on the improved highway link, thus the total costs are high.<br>It is anticipated that high costs associated with delivering new rail services could be accommodated by wider regional investment. Revenue implications are likely to exist throughout the lifetime of the project with any increases in services.<br>Capital costs to purchase buses would be at the commencement of the project, but there would be continued revenue costs to maintain the vehicles and purchase replacement vehicles over time.<br>Public and/ or private revenue implications are likely to exist throughout the lifetime of the project. | Network Rail (capital)<br>Welsh Government / Metro (capital and revenue)<br>Local transport fund (capital)<br>Train Operating Company<br>Cardiff Capital Region City Deal<br>Private investment (other than Train Operating Company) | **Capital** | Welsh Government<br>Cardiff Capital Region City Deal<br>Train Operating Company (dependent on franchise arrangements)<br>Private investment (other than Train Operating Company) |
| | | | | **Revenue** | Welsh Government |
| | | | | **Revenue** | Local Authorities via the Regional Transport Services Grant and Bus Services Support Grant from Welsh Government<br>Welsh Government |

# 5 Commercial Case

## 5.1 Overview

The commercial case covers *'whether it is going to prove possible to procure the scheme and then to continue with it in the future'*. The case considers the level and type of involvement from the private sector, as well as potential effects on the on-going viability of the option/ scheme.

## 5.2 Procurement Strategy

### 5.2.1 Full Business Case

A WelTAG Stage Three study would need to be commissioned to progress development of the full business case for the preferred option. The study would need to undertake the relevant environmental and topographical surveys, together with a ground investigation assessment to support progression of the preferred route option. In addition, the business case would need to be refined with further transport modelling to test the final scheme and junction arrangements and provide an update to the cost benefit analysis. A wider economic impact assessment should also be undertaken.

With regard to development of a Parkway Station, this would require technical feasibility work and economic forecasting as part of the Network Rail GRIP process, in conjunction with Welsh Government and Transport for Wales as well as the franchise operator KeolisAmey.

At this stage it is anticipated that the Vale of Glamorgan would procure the WelTAG Stage Three study via competitive tender or framework, however the proposed procurement strategy is subject to confirmation.

### 5.2.2 Scheme Implementation

A consultant, contractor or a combination of both would be required to take the project forward through the statutory process, detailed design, construction and post-implementation. The different procurement options available for this stage are as outlined below:

- Early Contractor Involvement (ECI) – Under ECI, the Contractor is appointed under a two-stage Engineering and Construction Contract before the final scheme design has been fully developed and priced. This procurement method has its advantages where the construction of the project is complex.
- Design and Build (D&B) – Under a Design and Build Contract, the Employer employs a consultant under a Professional Services Contract who takes the project through the design and statutory process. A Contractor with Consultant is then procured to carry out the detailed design and construction of the works. This procurement method is more suited to the simpler projects where an ECI contractor wouldn't have much to bring the early stages of the design process.
- Employers Design (ED) – With an ED Contract the Employer employs a consultant under a Professional Services Contract who takes the project through the design, statutory process and into the detailed design process. Once the detailed design is complete a contractor is procured to complete the construction and maintenance works.

It is assumed that funding for a Parkway Station is likely to be required as part of the Metro development, using funding via City Deal/ Transport for Wales/ Welsh Government. There may also be contributions from the Train Operating Company through the new franchise arrangement (planned to commence from October 2018), as well as other private contributions from developers through Section 106 agreements. Ongoing revenue costs (as well as any income from car parking revenue for example) would typically fall on the Train Operating Company.

The process of implementation and post-implementation would also need to be captured through formal completion of WelTAG stages four and five respectively. The principal aims of Stage Four and Five is to subsequently record what happens so that lessons can be learnt. They may lead to alterations to the current scheme and will form valuable evidence for use in future WelTAG appraisals. The procurement strategy of these two stages would be subject to confirmation.

### 5.2.3 Contract Type

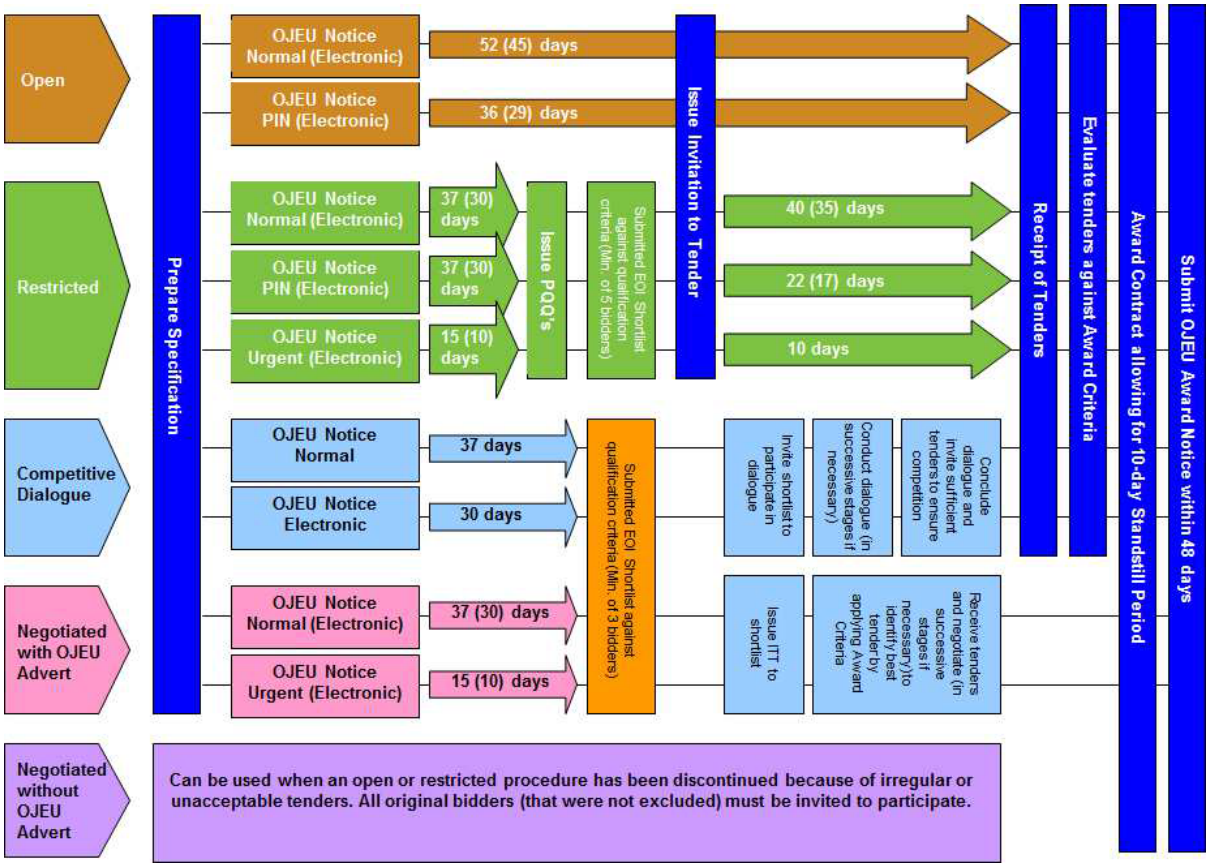
The type of contract is dependent upon which procurement option is chosen. With regard to the above procurement options it would be recommended that one of the options from the NEC is used, ideally a Target Cost option for the construction stage which provides the client and chosen consultant/ contractor with a fair allocation of risk and also allows for a fair pain/ gain result. Due to the nature of the project, it would not be advised to use a bill of quantities option as this has the potential to place the client at risk due to the many unknown quantities.

## 5.3 Procurement Process

The procurement process should comply with the corresponding UK Public Contract Regulations 2015 and the Welsh Government Key Stage Approval process.

Given the estimated contract value, an OJEU Prior Information Notice (PIN) would need to be published, giving potential bidders notification of the proposed contract. The PIN will detail the scope of works along with the cost estimate of the scheme. The procurement strategy adopted would follow the OJEU Restricted process as set out in Figure 4. This would mean that potential bidders for the work would need to complete and submit a Pre-Qualification Questionnaire (PQQ).

*Figure 4 OJEU Process*[9]




Bidders who successfully complete the PQQ process would then be invited to tender for the works in accordance with the procurement method, whether an ECI or ED contract. Subject to the outcome of the statutory procedures and the performance of the Contractor, the contract also provides a procedure for the Contractor to undertake the detailed design and construction of the works.

[9] Source: http://www.hacw.nhs.uk/our-services/procurement/ojeu-tenders/

## 5.4 Suppliers

Within the OJEU Notice, the Employer can stipulate where the consultant/ contractor should operate. In addition to this the Employer can insert additional clauses into the contract which stipulates that the employed contractor/ consultant should use make use of local resources/ materials/ suppliers where possible. A percentage of overall costs may also be inserted into the contract which ensures the employed contractor/ consultant complies with the relevant clauses and uses all local resources/ materials/ suppliers.

## 5.5 Contract Length

Within the Contract Notice, the duration of the chosen contract is estimated, it is estimated by providing a given an estimated start and end date. In addition, the contract would be structured around key stages, relating to Welsh Government's Transport Division's linear Key Stage Approval process which is used to obtain approval for projects through all stages of design, construction and aftercare. Therefore, it is likely within each key stage within the project, week numbers will be identified which in turn show the overall duration. Depending on the procurement method chosen, the following Key Stages apply:

- Key Stage 3 (KS3) – Preliminary design and preparation of Environmental Statement and draft Orders;
- Key Stage 4 (KS4) – Public Inquiry (if required);
- Key Stage 5 (KS5) – Procure Contractor (this key stage is only used where an ED or Design and Build Contract is utilised, and does not apply to ECI Contracts); and
- Key Stage 6 (KS6) – Detailed Design, Construction and Maintenance (ECI and D&B Stages only, for ED KS6 relates to Construction and Maintenance as Detailed Design is completed during KS4).

## 5.6 Allocation of Risk

The allocation of risk would need to be covered in a project risk register following risk workshops conducted throughout the project design stage and further in the construction stage. Allocation of risk would also be specified in the chosen contracts, utilising contract conditions and any additional clauses required by the Employer.

## 5.7 Payment Mechanisms

The chosen contract will stipulate what the payment mechanisms/ arrangements are for each stage. However, the employer may make amendments to these payment process to suit their requirements, any amendments will be detailed in the relevant contract documents. If a Target Cost contract is utilised a pain/ gain mechanism would need to be developed identifying the necessary, share. Therefore, any over-spend or under-spend is shared between the Employer and Consultant/ Contractor in accordance with these share ranges.

## 5.8 Whole Life Costs

There would be on-going revenue support required for each of the options, although these are expected to be greatest for the public transport options (but the extent of each is currently unknown). It is however also anticipated that the delivery of a new highway route between the M4 Junction 34 and the A48 would have the potential to adversely impact on existing maintenance budgets which are already under considerable pressure.

# 6 Management Case

## 6.1 Overview

The Management Case considers the delivery arrangements for the project and how the project is going to be managed through its lifetime. The Management Case shows the project is achievable and identifies the different arrangements put in place to deliver the project.

## 6.2 Highway Options

### 6.2.1 Project Plan

How the project is to be delivered is to be determined at the next stage, however the two options available are to Procure an ECI Contractor or to Procure via a Design and Build Contract.

ECI - design and build contract using the NEC Professional Services and Engineering Construction target cost Contracts. These types of contract have been successfully used on a number of schemes including the A40 Penblewin to Slebech Park, A477 St Clears to Red Roses and A465 Heads of the Valley Dualling, Sections 2 and 3.

As mentioned above, which ever procurement method is chosen, the project will need to align with the Welsh Government Approvals Process. The KSA process provides a staged financial approval system to manage the process of projects from inception, through to construction and initial maintenance and complies with the principles of PRINCE2 project management:

- Milestones
- Approvals

### 6.2.2 Legal Requirements

The Highway scheme would be required to conform to all legal requirements and will be delivered under the Highways Act 1980. Land required for the Scheme will be acquired via the Acquisition of Land Act 1981 via a Compulsory Purchase Order.

Design and construction of the project should g will be undertaken with due consideration of the following key items:

- Construction (Design and Management) Regulations 2015;
- Equality Act 2010;
- Active Travel (Wales) Act 2013;
- The Wellbeing and Future Generations (Wales) Act 2015;
- Wales Act 2017 and Welsh Language Standards (Welsh Ministers, County and County Borough Councils, and National Park Authorities) Regulations 2015; and
- The project should also conform to all EU and UK Environmental Legislation.

### 6.2.3 Governance

#### Organisational Structure

Depending on the type of procurement method used for further design and construction, the anticipated core parties involved in the delivery of the project would be:

- The Employer – representing the Vale of Glamorgan.
- The Employer's Agent – acting as the Vale of Glamorgan's representative, providing financial, project management, contract and technical advice throughout the project.

#### Design and Build Contract

Contractor – commissioned to undertake detailed design, construction and aftercare of the project.

Designers – commissioned to carry out the preliminary environmental and engineering design for the preferred route, as well as undertake all activities necessary for the publication of orders, and procure the Contractor

### ECI Contract

ECI Contractor – commissioned to develop the outline design, prepare the necessary statutory orders and EIA documentation, publish draft Orders, progress the project through the statutory process, including Public Inquiry if required and, if successful, then to undertake the detailed design, construction and aftercare of the project.

ECI Contractor's Designers – employed by the ECI Contractor to carry out the preliminary environmental and engineering design for the preferred route, as well as undertake all activities necessary for the publication of orders, and to complete detailed design.

### Employers Design

Contractor – commissioned to undertake construction and aftercare of the project.

Designers – commissioned to carry out the preliminary environmental and engineering design for the preferred route, as well as undertake all activities necessary for the publication of orders, Detailed Design and procure the Contractor

## 6.2.4 Project Reporting

The project would be managed following the principles of the PRINCE2 project management process combined with a compatible web-based project management system. The key stages of the project will form the Stage Boundaries within PRINCE2 and will require Project Board approval.

The project will be led by the Vale of Glamorgan Council as the Employer. The Employer will also include other individuals and departments within the local authority identified by the Project Engineer and Project Director for the delivery of the project.

Interaction with the Employer, unless otherwise agreed, will be made through the Project Director or the Project Engineer as identified within the contract documents (once the procurement route has been determined).

Progress meetings should be held at monthly intervals with the Designer/ Contractor/ Employers Agent and Employer

Quarterly Financial Review meetings should also be utilised to discuss financial matters and to ensure the project stays on track within budget and to agreed timescales.

## 6.2.5 Communication and Stakeholder Management

To ensure the management of stakeholders and communication on the project is managed correctly, a Communications Plan should be drafted which identifies how all communications between project team members and external parties will be managed. All parties adhering to the communications plan should ensure that the needs of the Employer are met, and the project is delivered successfully.

## 6.2.6 Monitoring and Evaluation

Some of the Monitoring that would be required to be undertaken during the life of the project are outlined below:

- Environmental aftercare;
- Annual Environmental Performance and Monitoring Report (AEPMR);
- Health and Safety File; and
- Safety audits following completion of design and then construction works.

WelTAG 2017 includes the requirement for a detailed monitoring and evaluation plan to be drawn up in Stage Three. This plan would describe what evidence would be used in the project's evaluation report and

how it will be collected. Evidence is required on the actual inputs used when implementing the scheme and during its on-going operation, what was actually delivered, the impacts experienced, to what extent the intervention met its objectives and how they were achieved.

### 6.2.7 Risk Management

Risk will be managed on the project in accordance with the procedures set out in the latest version of the Value for Money Manual – Risk Analysis and Management.

A risk workshop should be conducted early in the next stage of the project (WelTAG Stage Three). A Risk Register should then be developed and reviewed and updated (where required) as a minimum every three months throughout the projects life.

## 6.3 Parkway Station

At this stage of the appraisal it would be assumed that Transport for Wales working with Network Rail would be responsible for the delivery of a Parkway Station scheme, however this would be subject to confirmation by Welsh Government/ Transport for Wales and needs to align with the programme for the Wales & Borders franchise (due to start in October 2018) for the south east Wales Metro proposals. The management and delivery of the scheme would likely follow the key stages Network Rail GRIP process encompassing scheme initiation & feasibility, option selection, design development, construction and project close out. The development of a Parkway Station scheme would subsequently be anticipated to be progressed in close consultation with integral stakeholders as well as through public consultation.

# 7 Conclusions and Recommendations

## 7.1 Introduction

The WelTAG Stage Two report has developed and appraised options to address the study objectives and thereby counter the problems identified and contribute to the goals of the Well-being of Future Generations (Wales) Act 2015, together with Welsh Government strategies and outcomes.

This represents an outline business case, for which a quantitative assessment of the value for money of the scheme, and appraisal of the social, environmental, cultural and economic impacts has been undertaken.

At the end of Stage Two, the guidance sets out that the report should:

- Determine whether there are any transport options that can address the issues identified, contributes positively to the well-being goals and objectives, and can be delivered within technical and financial constraints;
- Select a preferred option to be taken forward to Stage Three;
- Agree the methods to be used to provide additional evidence where required for Stage Three;
- Identify any legislative requirements that need to be met during Stage Three; and
- Document the decisions of the Stage Two Review Group, and the basis for these decisions.

## 7.2 Preferred Transport Options

Following the appraisal of the three options, it is considered on the basis of the available information that all of the options identified are able to address the issues identified, can contribute positively to well-being goals and objectives and pending further investigations, are likely to be deliverable within technical and financial constraints.

With respect to the highways options, a strategic link between the M4 Junction 34 and the A48 offers potentially substantial benefits in terms of connectivity and appears to represent high value for money. The two highway options vary in terms of cost, with the Eastern alignment potentially being costlier as it includes for the risk item of constructing the road on stilts to avoid the floodplain.

The appraisal table (see Table 12) shows that the two highway options perform similarly in terms of the social, environmental, cultural and economic assessment. The differences are related to the water environment, whereby the Eastern alignment presents more potential impacts on the floodplain, and on residential amenity, for which the Western alignment impacts on more properties (albeit there is a small number for each option). On the basis of greatest economic advantage, the Western alignment route is the best performing option, although it is recognised that economic performance is only one of the elements which must be accounted for in decision making.

The provision of a Parkway Station could bring substantial sustainable travel benefits at a regional scale. It would however require the provision of a road link in order to facilitate access to the station from the Vale of Glamorgan, as in the two highways options. If a highway link is not achieved at the same time, the Parkway Station may offer benefits, but these would be focussed on the M4 corridor and communities to the north rather than offer improved connectivity for the Vale of Glamorgan. The Parkway Station requires technical feasibility work and economic forecasting as part of the Network Rail GRIP process, but it is positive that the principle of a new station in the Miskin area is incorporated into the new rail franchise. There were some comments made by stakeholders that it would be appropriate to retain the option of a bus Park and Ride at Junction 34. This might be best considered as part of discussions on a Parkway Station.

On the basis of the appraisal of options, it is considered that the Western alignment for the highway link and the Parkway Station proposal are preferred options for further consideration, given in particular that the Western alignment avoids the potential floodplain issues and associated costs.

The outline business case has considered the do-minimum situation and identified the relative changes from the do-something options in comparison. Without an intervention, traffic conditions on the corridor are anticipated to worsen, with significant forecast increases in traffic on the strategic and local road network

with deterioration in the transport network performance and more accidents. The transport problems are likely to impact on development aspirations for the area and the attractiveness of the Vale of Glamorgan as a place to work, live and invest.

## 7.3 Consultation on Options

The Consultation Report identifies that there was significant engagement in the consultation process by stakeholders and the public, with 444 people attending events and a high number of responses received within the consultation period. In summary:

- There were significant objections to either highway option or the principle of a new road, with concerns centred on the lack of justification for the intervention; whether there are other options that would be more beneficial; and the impact on the communities and the environment.
- Support for the highways proposals was registered by a proportion of respondents, including some business responses.
- A range of specific issues were raised relating to the highway alignments, notably with concerns over the impact on access to Peterston-Super-Ely of suggested changes to the routeing of traffic.
- The Western alignment was slightly preferred when compared to the Eastern alignment, mainly due to the concern over flooding issues for the Eastern alignment and visual impact on the existing communities (although the majority of respondents did not support either highway option).
- There was overall support for a Parkway Station in the vicinity of Junction 34, and this being seen as beneficial as a standalone proposal (whether or not there is a highway link improvement to support it).

In addition, there were concerns relating to the WelTAG process and the consultation that has taken place in Stage One and Stage Two. Where these have given rise to formal complaints, these have been responded to by the Vale of Glamorgan Council. It should be emphasised that WelTAG is a step by step process to aid decision making and the guidance asks that engagement takes place at each stage, as has occurred. Whilst decisions have been made to proceed with further work on options, no commitment has been made on proceeding with any scheme at any stage.

## 7.4 Stage Three Recommendations

On the basis of the Stage Two study appraisal, it is considered that a highway alignment option and the Parkway Station have merit in being taken forward for further consideration in a Stage Three WelTAG, based on the potential social and economic benefits and value for money identified in this outline business case. However, both road alignments are anticipated to give rise to significant effects on the environment and there is considerable public opposition to either highway alignment.

The Stage Two consultation has provided an opportunity for the public to feedback on possible options. A decision on whether to go forward with further investigations of options is a matter for the Review Group and Vale of Glamorgan Council to make based on the appraisal set out in this report and the consultation responses. As set out in the guidance, the Stage Three WelTAG study purpose 'is to make a full and detailed assessment of the preferred option to inform a decision as to whether or not to proceed to implementation'. It should therefore be noted that until such time as a Review Group and the local authority has considered the outcomes of a Stage Three study, and the statutory planning processes have taken place, no decision would be made to deliver a scheme.

The guidance on Stage Three notes that the detailed design and appraisal work should be used to refine the design and to inform any complementary measures that are needed in order to more fully realise the benefits of the proposal and seek to maximise contribution to the well-being goals whilst helping to mitigate any adverse impacts and resolving potential conflicts. The completion of Stage Three will provide much of the information needed for applications to funding organisations and any mode-specific appraisal procedures.

### 7.4.1 Highway Link: Western Alignment

Subject to a decision on moving forward for further work on the recommended option, a Stage Three study will need to include the aspects set out below. This can be undertaken in a stepped way, with surveys undertaken to clarify risks and impacts as a first stage, which would make prudent use of public resources.

### Surveys and Investigations

A full programme of environmental surveys and investigations would need to be undertaken, agreed through the EIA scoping process. Early surveys which would help to de-risk the scheme include:

- Phase 1 habitat surveys of the corridor including woodland habitats to identify potential for protected species;
- Devise and undertake a programme of ecological surveys including European protected species and Ancient Woodland surveys, agreeing scope with County ecologist and NRW; and
- Undertake a desk top study of archaeological remains and identify requirements and undertake further investigations including geophysical surveys and potentially trial trenching.

### Design Considerations

The Stage Two design is in concept based on known information. For a Stage Three, topographical survey information would be required together with information on land ownership boundaries and constraints. The design up to the planning stage should consider the following, as a result of responses to the consultation:

- Provision of a full access junction for Peterston-Super-Ely from the new link;
- The need for keeping all minor lanes open or if some can be closed off to reduce the extent of elevated sections;
- Minimising visual and noise intrusion through landscaping and other mitigation measures;
- Ecological mitigation;
- Drainage mitigation; and
- Minimising impacts on ecology and archaeology, following the initial surveys.

In addition, there are concerns regarding the congestion issues at Weycock Cross. There would be advantages in considering the feasibility of linking from Five Mile Lane to a location on the A4226 west of the Weycock Cross roundabout. This could assist in maximising the strategic benefits of a link from Junction 34.

### Business Case

Preparation of an updated business case with a revised economic appraisal. The SEWTM should be used to test a refined scheme, including:

- A do-minimum model run incorporating updated transport network changes (such as removal of Severn Bridge Tolls) and any changes in development proposals in the area;
- A do-something option with the stagger removed from the Sycamore Cross junction and junction provision on the route following design revisions; and
- Incorporation of improvements at Junction 34 as being investigated in a separate WelTAG study for Junction 33 to Junction 35;
- Inclusion of a link from Five Mile Lane to the west of Weycock Cross; and
- Updated costs based on the revised option.

It is possible that as a result of early survey and investigations, there are issues that affect the balance of appraisal at Stage Two between the Western and Eastern alignments. It is recommended that there is an opportunity for review by the Review Group and Vale of Glamorgan Council to consider whether this remains the best way forward.

## 7.4.2 Parkway Station

In order to take forward a Parkway Station proposal, it is necessary to undertake the early GRIP stage studies in alignment with the Transport for Wales project process. There would also be advantage in considering this as part of a wider Masterplan to take account of proposed developments and connectivity along the M4 corridor.

The key considerations will be:

- Best location for station and impact on rail operations and timetabling;
- Requirements for station facilities and parking, sustainable travel connections and highway access;
- Identification of the most appropriate site taking into account environmental constraints; and
- Forecast patronage and business case.

# Glossary of Terms and Acronyms

| | |
|---|---|
| AADT | Annual Average Daily Traffic |
| AEPMR | Annual Environmental Performance and Monitoring Report |
| AMCB | Analysis of Monetarised Costs and Benefits |
| BCR | Benefit Cost Ratio |
| CAA | Civil Aviation Authority |
| CCTV | Closed Circuit Television |
| COBALT | COst and Benefit to Accidents – Light Touch |
| DfT | Department for Transport |
| DMRB | Design Manual for Roads and Bridges |
| D&B | Design & Build |
| EAP | Economic Action Plan |
| ECI | Early Contractor Involvement |
| ED | Employers Design |
| EIA | Environmental Impact Assessment |
| EU | European Union |
| EZ | Enterprise Zone |
| FCA | Flood Consequence Assessment |
| GRIP | Guide to Rail Investment Process |
| GVA | Gross Value Added |
| HCD | Highways Construction Detail |
| HGV | Heavy Goods Vehicle |
| KPH | Kilometres per Hour |
| KS | Key Stage |
| LDP | Local Development Plan |
| LTN | Local Transport Note |
| MPH | Miles per Hour |
| NO2 | Nitrogen Dioxide |
| NRW | Natural Resources Wales |
| NPV | Net Present Value |
| NRSWA | New Roads and Street Works Act 1991 (and amendments) |
| NTEM | National Trip End Model |
| OB | Optimism Bias |
| OJEU | Official Journal of the European Union |
| OS | Ordinance Survey |
| PA | Public Accounts |
| PBA | Peter Brett Associates |

| | |
|---|---|
| PIN | Prior Information Notice |
| PQQ | Pre-Qualification Questionnaire |
| PRINCE2 | PRojects IN Controlled Environments |
| PRoW | Public Right of Way |
| PVB | Present Value of Benefits |
| RCT | Rhondda Cynon Taf |
| RRRAP | Road Restraints Risk Assessment Process |
| SEWTM | South East Wales Transport Model |
| SINC | Site of Nature Conservation |
| SOA | Strategic Opportunity Areas |
| SSSI | Site of Special Scientific Interest |
| TEE | Transport Economic Efficiency |
| UK | United Kingdom |
| VOG | Vale of Glamorgan |
| WebTAG | Web-based Transport Analysis Guidance |
| WelTAG | Welsh Transport Appraisal Guidance |
| WFD | Water Framework Directive |
| WTS | Wales Transport Strategy |

# Appendix A

The Case for Change: Peter Brett Associates (February 2018)

# Appendix B

## Highway Option 1 – Eastern Alignment Drawings

# Appendix C

## Highway Option 2 – Western Alignment Drawings

# Appendix D

South East Wales Transport Model Technical Note

# Appendix E

## Transport Case Impact Assessment Tables

# Appendix F

Impact Assessment Worksheets – Highway Option 1 (Eastern Alignment)

# Appendix G

Impact Assessment Worksheets – Highway Option 2 (Western Alignment)

# Appendix H

Value for Money Assessment

Arcadis Consulting (UK) Limited

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

T: +44 (0)29 2079 9275

**arcadis.com**

ARCADIS Design & Consultancy for natural and built assets

# IMPROVING STRATEGIC TRANSPORT ENCOMPASSING CORRIDORS FROM M4 JUNCTION 34 TO THE A48

## WelTAG Stage Two: Impacts Assessment Report

FINAL DRAFT FOR REVIEW

AUGUST 2018



Incorporating

EC HARRIS BUILT ASSET CONSULTANCY

Hyder

# Improving Strategic Transport Encompassing Corridors from M4 Junction 34 to the A48

## WelTAG Stage Two: Impacts Assessment Report

| | |
|---|---|
| Author | MF / EM |
| Checker | MF |
| Approver | JH |
| Report No | 10013270-ARC-XX-XX-RP-TP-0002 |
| Date | AUGUST 2018 |

## VERSION CONTROL

| Version | Date | Author | Changes |
|---|---|---|---|
| D01 | 06.09.2017 | MF / EM | WelTAG Stage One First Issue |
| D02 | 09.09.2017 | MF / EM | Reviewed by JH |
| D03 | 12.04.2018 | MF / EM | WelTAG Stage Two updates |
| D04 | 31.08.2018 | MF / EM | Minor Update to include statement on Rail Franchise |

# CONTENTS

# FIGURES



# TABLES

# 1 Introduction

## 1.1 Background

Arcadis Consulting (UK) Limited has been commissioned by Vale of Glamorgan Council to develop and appraise potential options for improving the strategic transport network encompassing corridors from M4 Junction 34 to the A48 (Five Mile Lane) including the Pendoylan Corridor (or alternative). The appraisal of options has been undertaken in accordance with the Welsh Government's latest version of WelTAG (December 2017[1]) including advice on the appraisal in relation to the Future Generations of Wales (2015) Act Well-being Goals[2].

## 1.2 Stage Two Impacts Assessment Report

This report is the Stage Two: Outline Business Case Impacts Assessment Report. The WelTAG guidance states that each stage of WelTAG should be supported by an Impacts Assessment Report. The Impacts Assessment Report *'is a live document which is maintained and grows throughout the five WelTAG stages. It becomes a permanent record of the appraisal work on the proposed transport intervention. It contains the detailed evidence behind the summary information provided to decision makers in the Stage reports'.* As such, this report has been updated from the Stage One document to include new or revised information available since the previous report was prepared.

## 1.3 Report Structure

The structure of this report is as follows:

- Chapter 2 presents a summary of the policy framework at the local, regional and national level;
- Chapter 3 presents the context of the study; and
- Chapter 4 summarises the data sources used within the study, in accordance with the WelTAG guidance.

[1] https://beta.gov.wales/sites/default/files/publications/2017-12/welsh-transport-appraisal-guidance.pdf

[2] https://beta.gov.wales/sites/default/files/publications/2017-12/weltag-2017-supplementary-guidance-the-well-being-of-future-generations-wales-act-2015.pdf

# 2 Policy, Legislation and Background Documents

## 2.1 Overview

This section provides a summary of the policy and legislative framework and background studies and documents which provide the context for this study.

## 2.2 National Policy

### One Wales: Connecting the Nation - Wales Transport Strategy (2008)

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

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

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

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

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

The WTS noted at the time that Cardiff International Airport has experienced steady growth over the last ten years, however, Bristol and Liverpool experienced significantly stronger growth than Cardiff International Airport and serve passengers originating in Wales. It is the first preference for Cardiff International Airport to improve rail and bus connections; developing a more sustainable approach to air travel. A surface access strategy is also noted as a key action for Cardiff International Airport.

### Active Travel (Wales) Act (2013)

The Active Travel (Wales) Act makes provision for the mapping of active travel routes and related facilities. The Act was passed by the National Assembly of Wales and also seeks to secure new and enhanced active travel routes and facilities, improving provision for walkers and cyclists. The purpose of the Act is for local authorities to continuously improve their facilities and routes for pedestrians and cyclists, through provision of shelter, resting and/ or storage facilities for example. The Act further requires Welsh Ministers to publish public annual reports regarding the extent to which walkers and cyclists make active travel journeys in Wales.

## Well-being of Future Generations (Wales) Act (2015)

The Act strives to improve the social, economic, environmental and cultural well-being of Wales. The vision is *'in 2050, Wales will be the best place to live, learn, work and do business'*. The Act makes the public bodies listed in the Act consider the longer-term perspective; engage with people and communities and each other; prevent problems; and to deliver a joined-up approach. The draft goals to represent what the long-term economic, social and environmental well-being of Wales would look like are:


## National Transport Finance Plan (2017 Update)

The National Transport Finance Plan was first published in July 2015. The purpose of the plan being to provide the timescale for financing schemes, the timescale for delivering schemes, detail the estimated expenditure, and identify the likely source of financing to enable delivery. The National Transport Finance Plan 2017 Update provides information on progress since publication and sets out a revised programme for the next three years and beyond.

The plan includes both revenue and capital initiatives, ranging from specific schemes to others where further investigatory and development work is required. The schemes which are stated as currently under construction include (R6) M4 Junction 33 west / A4232 and (R14) Improvements to Five Mile Lane, Vale of Glamorgan. Other relevant schemes are as shown in Table 1. Notably reference NEW 3 refers to the options being considered in this Stage Two WelTAG study.

*Table 1 National Transport Finance Plan Schemes (December 2017)*

| NTS Reference | Description |
|---|---|
| R32 | Explore, and where practicable, apply measures to improve air quality in Air Quality Management Areas (AQMA) which relate to the WG network. |
| NEW 3 | Five Mile Lane – Explore options from Sycamore Cross to [M4] Junction 34. |
| R27g | M4 J32 to J35 Corridor. |
| R27h | M4 J35 to J49 Corridor. |
| AT1b | Ensure the Active Travel (Wales) Act 2013 is delivered (Integrated Network Maps). |
| AT1c | Ensure the Active Travel (Wales) Act 2013 is delivered (Active Travel Schemes). |
| AT2 | Delivering the actions set out in the Active Travel Action Plan. |
| AT3 | Work with partners to deliver a programme of improvements to the National Cycle Network and that contribute to the objectives of the Active Travel Act. |

| NTS Reference | Description |
|---|---|
| BCT12 | Work with local authorities and bus operators to identify congestion and pinch points on the network that impact on bus reliability and punctuality and ensure that solutions are integrated into wider highway improvements programme. |
| A1 | Manage funding for the delivery of two return services a day between Anglesey Airport and Cardiff Airport. |
| A2 | We will continue to work with Cardiff Airport and airlines to improve international connectivity to promote Wales as a destination for business and leisure, including taking forward measures to improve surface access to the airport. |
| IT1 | Make grant funding available to local authorities for transport, including schemes that will help to improve access to employment sites, road safety schemes and schemes that will deliver the Welsh Government's wider priorities. |
| IT3 | Review opportunities already identified by others to improve access between and to/ from Enterprise Zones and Local Growth Zones, and working with others, identify further opportunities. Develop and deliver an improvement programme or support others to do this. |

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

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

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

## 2.3 Local Policy

### Vale of Glamorgan Adopted LDP (2013)

The Vale of Glamorgan LDP 2011-2026 was adopted on the 28th June 2017, superseding the previous adopted Unitary Development Plan (UDP). The LDP will be the basis for decisions on land use planning in the Vale of Glamorgan and will be used by the Council to guide and manage new development proposals. The plan has been written mindful of the need to regenerate and support communities and in doing so seeks to achieve a balance between economic growth, social cohesion and environmental impact.

Pendoylan, Bonvilston, St Nicholas and Peterston-super-Ely are identified as minor rural settlements with the LDP Settlement Hierarchy. The LDP refers to the minor rural settlements as functionally linked, emphasising the importance of safeguarding facilities as well as facilitating new development opportunities. The LDP Strategy comprises four key elements *'to promote development opportunities in Barry and the South East*

*Zone. The St Athan area to be a key development opportunity and Cardiff Airport a focus for transport and employment investment. Other sustainable settlements to accommodate further housing and associated development.'*

A summary the key strategic policies relevant to the study have been included within Table 2, with an applicable section of the Vale of Glamorgan LDP proposals map (2017) relevant to the study area shown in Appendix A.

*Table 2 Key Strategic Policies Relevant to the Study Area*

| Policy | Description |
|---|---|
| Policy SP1 | Delivering the Strategy (including 4. Promoting Sustainable Transport). |
| Policy SP2 | Strategic Sites – Land is allocated for development at strategic sites including mixed use at St Athan and employment uses at land adjacent to the airport and Port Road, Rhoose, as part of the St Athan – Cardiff Airport Enterprise Zone. |
| Policy SP5 | Employment Requirements – To ensure the continued prosperity of the Vale of Glamorgan and promote growth in the capital region. |
| Policy SP7 | Transportation – Sustainable transport improvements that serve the economic, social and environmental needs of the Vale of Glamorgan and promote the objectives of the South East Wales Regional Transport Plan (RTP) and the Local Transport Plan (LTP) will be favoured. Priority will be given to schemes that improve highway safety and accessibility, public transport, walking and cycling. Surface and public transport access to Cardiff Airport is highlighted as in need of significant improvements if the potential of the airport is to be realised.<br><br>This will include bus priority measures to the airport, a new Northern Access Road, with the latter incorporating walking and cycling infrastructure. The provision of a strategic highway network is further described as vital to the efficient movement of people and goods throughout the Vale of Glamorgan, with particular emphasis on providing improvements in access to Barry, Cardiff Airport and St Athan from the M4. |
| Policy SP10 | Built and Natural Environment – Development proposals must preserve and where appropriate enhance the rich and diverse built and natural environment and heritage of the Vale of Glamorgan including:<br>• The architectural and/ or historic qualities of buildings or conservation areas, including locally listed buildings;<br>• Historic landscapes, parks and gardens;<br>• Special Landscape Areas (SLA);<br>• The Glamorgan Heritage coast;<br>• Sites designated for their local, national and European nature conservation importance; and<br>• Important archaeological and geological features. |
| Policy MD7 | Environmental Protection – Development proposals will be required to demonstrate they will not result in an unacceptable impact on people, residential amenity, property and/ or the natural environment. |
| Policy MD8 | Historic Environment – Development proposals must protect the qualities of the built and historic environment of the Vale of Glamorgan. |
| Policy MD9 | Promoting Biodiversity – New development proposals will be required to conserve and where appropriate enhance biodiversity interests unless certain conditions can be demonstrated. |
| Policy MG9 | Employment Allocations – including at Land to the South of Junction 34 M4 Hensol; Land adjacent |

| Policy | Description |
|---|---|
| | to Cardiff Airport and Port Road, Rhoose; and Aerospace Business Park, St Athan Rhoose. |
| Policy MG10 | St Athan – Cardiff Airport Enterprise Zone – including provision of sustainable transport infrastructure. |
| Policy MG11 | Land to the south of Junction 34 M4, Hensol – Land is allocated to the south of Junction 34 M4 (Hensol) for employment purposes to meet local need. |
| Policy MG16 | Transport Proposals – Land for the following transportation schemes (relevant to the study) is allocated:<br>• Walking and cycling: A4050 Port Road to Cardiff Airport;<br>• Rail: Modernisation of the Valley Lines; and<br>• Highways: Northern Access Road (St Athan Enterprise Zone); Improvements to the A4226 between Waycock Cross, Barry and Sycamore Cross, A48 (Five Mile Lane); North of A48, Bonvilston Road Improvements. |
| Policy MG17 | Special Landscape Areas – have been designated to protect areas of the Vale of Glamorgan that are considered to be important for their geological, natural, visual, historic or cultural significance. The designation of SLAs is not intended to prevent development but to ensure that where development is acceptable, careful consideration is given to the design elements off the proposal such as siting, orientation, layout and landscaping, to ensure that the special qualities and characteristics for which the SLAs have been designated are protected. |
| Policy MG19 | Sites and Species of European Importance – Development proposals likely to have a significant effect on a European site will only be permitted under certain conditions. |
| Policy MG20 | Nationally Protected Sites and Species – Development likely to have an adverse effect either directly or indirectly on the conservation value of a Site of Special Scientific Interest (SSSI) will only be permitted under certain conditions. |
| Policy MG21 | Sites of Importance for Nature Conservation, Regionally Important Geological and Geomorphological Sites and Priority Habitats – Development proposals likely to have an adverse impact on sites of importance for nature conservation or priority habitats and species will only be permitted under certain conditions. |
| Policy MG22 | Development in Minerals Safeguarding Areas – Known mineral resources of sandstone, sand and gravel and limestone are safeguarded. New development will only be permitted in any area of known mineral resource under certain conditions. |

## Vale of Glamorgan LTP (2015)

The Vale of Glamorgan LTP has been established to recognise the diverse economic and social geography, and overlapping labour and housing markets that exist throughout the Capital Region (encompassing Cardiff, Blaenau Gwent, Bridgend, Caerphilly, Merthyr Tydfil, Monmouthshire, Newport, Rhondda Cynon Taf, Torfaen and the Vale of Glamorgan).

Whilst acknowledging the requirement for a collaborative approach for the future development of the Capital Region, the LTP seeks to identify the sustainable transport measures required to ensure Vale of Glamorgan Council adheres to current requirements and good practice, to allow for a sustainable transport environment for the period 2015 to 2020, as well as looking forward to 2030.

The plan therefore seeks to secure better conditions for pedestrians, cyclists and public transport users and to encourage a modal shift away from the single occupancy car. The LTP also *'seeks to tackle traffic congestion by securing improvements to the strategic highway corridors for commuters who may need to travel by car'.* The plan highlights actions required including:

- In partnership with bus operators, negotiate expansion of current bus services, linking to key settlements and interchanges.
- Encourage use of community transport provision to sustain and entice bus operators/ community transport providers to take over once grown to acceptable sustainable level of patronage.
- To deliver existing safe routes in communities' schemes identified by schools and the public and encourage more schemes to come forward for consideration and implementation.
- In partnership with bus operators, negotiate expansion of current services, linking routes where there needs to be interchange and ensuring timings of connections are acceptable. Encourage use of integrated ticketing for services. Increase Community Transport to cater for demand.
- Deliver highway/ junction improvement schemes at key locations.
- Deliver bus infrastructure improvement schemes/ corridors.
- Provide Park & Ride/ Park & Share.

### Bridgend LDP 2006-2021 (2013)

The adopted Bridgend LDP sets out its objectives for the development and use of land in Bridgend County Borough. The LDP sets out a plan to deliver sustainable development and guide growth and change, while protecting local diversity, character and sensitive environments. Objective 1 is to produce high quality sustainable places including supporting integrated transport solutions and measures that will encourage modal shift to more sustainable forms of transport for people and freight.

### Rhondda Cynon Taf LDP 2006-2021 (2011)

The adopted LDP provides a policy framework that integrates and balances the social, economic and environmental issues in order to meet the needs of those people living, working and visiting Rhondda Cynon Taf. Key policies relevant to this study include the following.

| Policy CS 2 | Policy CS 8 | Policy SSA 2 |
|---|---|---|
| •Development in the South: 8) Promoting and enhancing transport infrastructure services to support growth and investment. | •Transportation: b1) The implementation of a strategic transport corridor management system in the following strategic corridor areas including the A4119/ A473 Corridor. | •Park and Ride/ Park and Share Provision: 5) Pontyclun Railway Station. |

Key developments relevant to this study include the following:

- A major business park is proposed for B1 office development fronting the A4119 at Mwyndy Cross with a grade-separated junction.
- A residential development of 400 dwellings adjoining the existing residential area, served from the existing spine road roundabouts, new primary school and local centre at Cefn-yr-Hendy.

### City of Cardiff Council

The following documents have also been noted:

- Cardiff LTP (2015)
- Cardiff LDP 2006 – 2026 (adopted 2016)

## 2.4 Background Documents

### Highway Impact Assessment, Deposit LDP Background Paper (2013)

Capita Symonds was commissioned by Vale of Glamorgan Council to undertake a capacity assessment of the impact of possible future LDP residential development sites on the strategic highway network. This forms part of the evidence base for the deposit LDP.

Table 3 presents the link and junction capacity assessment results within the appraisal area (based on Ratio of Flow to Capacity (RFC) / degree of saturation) for the base year and the future year with the LDP proposals having been implemented.

The table shows that one junction within the appraisal area (Sycamore Cross) is forecast to be over capacity in the future 2026 year with or without pedestrians. In 2012, the table shows that the junction is over capacity with pedestrians, but within capacity without pedestrians. Junction improvements have been made to the Sycamore Cross junction since the report was published. Sycamore Cross was previously a priority junction, however it is now a signalised junction with turning lanes and formal pedestrian crossing facilities.

*Table 3 Junction Capacity Assessment Results*

| Link / Junction Name | 2012 AM | 2012 PM | 2026 AM | 2026 PM |
|---|---|---|---|---|
| A48/Five Mile Lane/Road to Pendoylan (Sycamore Cross) | Over Capacity with Pedestrians | Over Capacity with Pedestrians | Over Capacity with or without Pedestrians | Over Capacity with or without Pedestrians |
| A48 (nr the Old Post Public House) EB | Within Capacity | Within Capacity | Within Capacity | Within Capacity |
| A48 (nr the Old Post Public House) WB | Within Capacity | Within Capacity | Within Capacity | Within Capacity |
| A48 (nr St Nicholas) EB | Within Capacity | Within Capacity | Within Capacity | Within Capacity |
| A48 (nr St Nicholas) WB | Within Capacity | Within Capacity | Within Capacity | Within Capacity |

## Sustainable Transport Assessment, Deposit LDP Background Paper (2013)

The Sustainable Transport Assessment forms part of a series of topic papers prepared by Vale of Glamorgan Council as part of the evidence base used to inform the production of policies and site allocations for the Deposit LDP. This assessment seeks to identify the sustainable transport measures required to create and ensure a sustainable transport environment in the Vale of Glamorgan.

Vale of Glamorgan Council is committed to reducing the environment impact of its activities and as such seeks to provide transport infrastructure and transport services to assist the public to choose sustainable travel modes for all journeys where possible. This includes for all new developments to include off-road shared use walking/ cycling routes where possible and cycle signs on main roads where off-road facilities are not practical.

### Walking and Cycling

A number of walking and cycling schemes have been funded/ proposed in the appraisal area since the RTP Capital programme implementation began in April 2010. This includes NCN88 (£311,000) – Match funding European Creative Rural Communities Grant over a 3-year programme to deliver walking and cycling routes throughout the rural Vale, including around Cardiff Airport.

### Bus

The report notes that at the time of writing within the last five years, funding for bus services had declined. There had been a reduction of £8m of Grant throughout Wales despite the agreed objectives of increased patronage and improved services still standing. The objectives for bus services are as follows:


The LDP supports Bus-Based Park & Ride initiatives as a transport planning tool that can be used to encourage car users to switch to public transport. Locations identified as suitable for developing Park and Ride sites include M4 Corridor Junction 34/ Hensol (of which it is noted that no land has so far been identified). It is noted that bus based Park and Ride sites need to be large enough to significantly reduce car traffic on the target corridors and that for regional sites, parking for a minimum of 500 cars will be required along with bus priority measures along the line of route. Essential factors to address in the design and implementation of Park and Ride sites include:

- Clear and conspicuous signposting;
- Ease of access to the site;
- Comparative Bus-Based Park & Ride and central area parking tariffs;
- The quality, frequency and reliability of the transit service;
- Journey time advantages over the car; and
- Site facilities, such as shelter, passenger information and security measures.

## Cardiff City Region Transport Implementation Plan (2010)

The City Region Transport Implementation Plan prioritised measures for funding and delivery, as part of Cardiff Council's sustainable travel centre initiative.

The plan notes how an informal Park and Share site is already located at M4 Junction 34, illustrating a latent demand for such a facility. The creation of a formal Park and Share site could accommodate existing demand and encourage other Park & Share user trips. The site may be an opportunity to make use of the nearby mainline railway to develop the site as a multi-modal transport hub. The plan suggests an initial 250 spaces to be constructed with potential for future extension.

## International Connectivity through Welsh Ports and Airports (July 2012) – National Assembly Enterprise and Business Committee

The International Connectivity through Welsh Ports and Airports report provides recommendations for the Welsh Government, whilst acknowledging the need to engage with other stakeholders including the UK Government where appropriate. The aim of this inquiry by the National Assembly's Enterprise and Business Committee was to explore:

- How important major Welsh ports and airports are to the economy of their own regions and to Wales as a whole;
- What factors limit realisation of the potential offered by major Welsh ports and airports; what opportunities are available to develop this potential, and how these can be realised; and
- How effectively Welsh Government policies support the development of major Welsh ports and airports.

The report notes that around 73% of passengers travel to Cardiff Airport via car whilst the remainder use public transport, in particular buses[3]. Recommendations included in the report are as follows:

- Recommendation 5: The Welsh Government should introduce an improved, dedicated express bus service between Cardiff Airport and the city centre, and explore options for funding that service with partners and other key stakeholders.
- Recommendation 8: The Welsh Government should integrate connectivity to Welsh Airports with transport and infrastructure policy for Wales as a whole, and seek to negotiate the provision of better cross-border transport links and prospective electrification of rail services such as for Swansea and the Valleys.

## Sewta Rail Strategy 2013 (Jacobs)

The Sewta Rail Strategy is a report prepared by Jacobs which set out the investment which the combined local authorities in South East Wales believed are needed to ensure a robust and efficient rail network over the next 20 years. The strategy is planned to accommodate passengers in comfort and encourage growth of both rail passengers and freight in an environmentally sustainable form.

The Sewta vision for improving the rail network seeks to provide a more attractive transport option with a minimum frequency of half hourly services made up of higher capacity electric trains. The Cardiff Area Signalling Renewal project offers the scope to secure additional capacity at the core of the Valley Lines network, through an enhancement option which will require continued Welsh Government funding support.

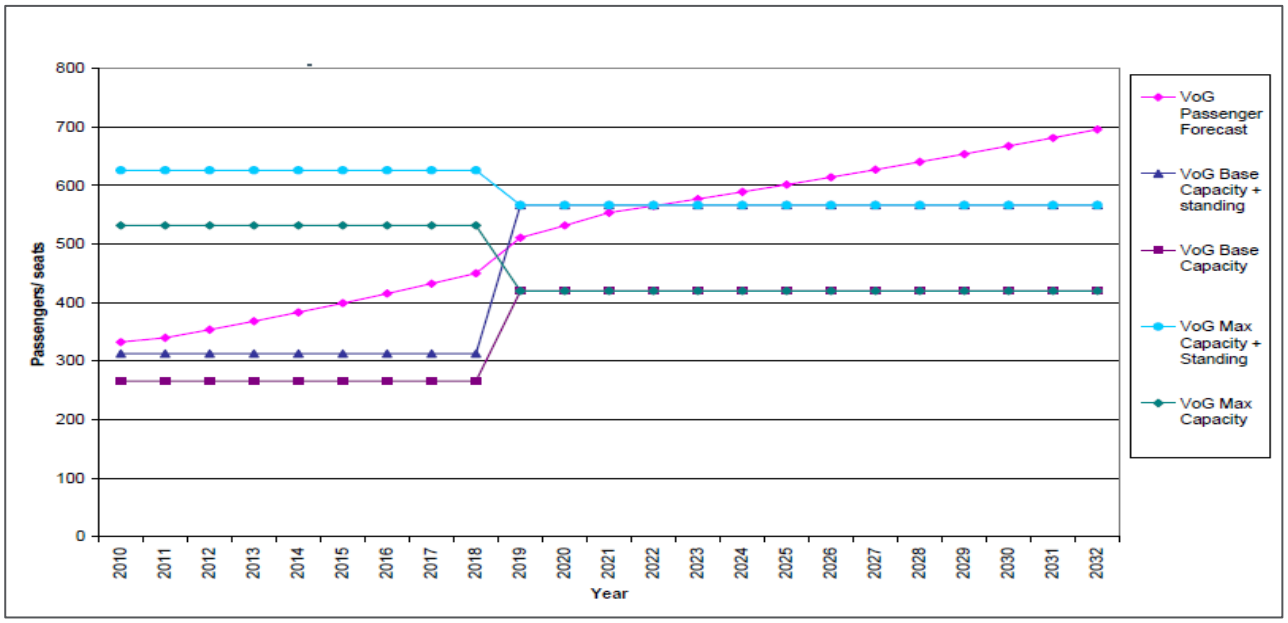
Rail demand on the Vale of Glamorgan Line (as indicated in Figure 1), interconnecting Valley Lines and elsewhere in South East Wales has been growing at a rate significantly above GDP. In order to avoid overcrowding at this high growth rate, significant short-term investment in additional rolling stock is needed as well as medium term rolling stock renewal through Valley Lines electrification. The rail strategy is based on provisions such as providing longer trains to accommodate passenger growth and improving the frequency of existing passenger services.

Investment opportunities identified for the Vale of Glamorgan Line:

- Additional rolling stock required to strengthen peak train to address passenger growth and to avoid overcrowding; and
- Station enhancements including improved station facilities, information, security and access.

*Figure 1 Demand/ Capacity during the AM Peak (Vale of Glamorgan Line)*

[3] Department for Transport, Record of Proceedings paragraph 138, 8 March 2012 (am)




## Cardiff Capital Region Metro Study (2013)

The Metro Study sets out a strategic regional plan for developing the Metro, which *is:*

*'A turn up and go integrated transport network that will connect over 70% of the population of the Cardiff City Region, developed in a way that enables and/ or enhances developments at strategic sites, maximises economic benefits & facilitates regeneration'.*

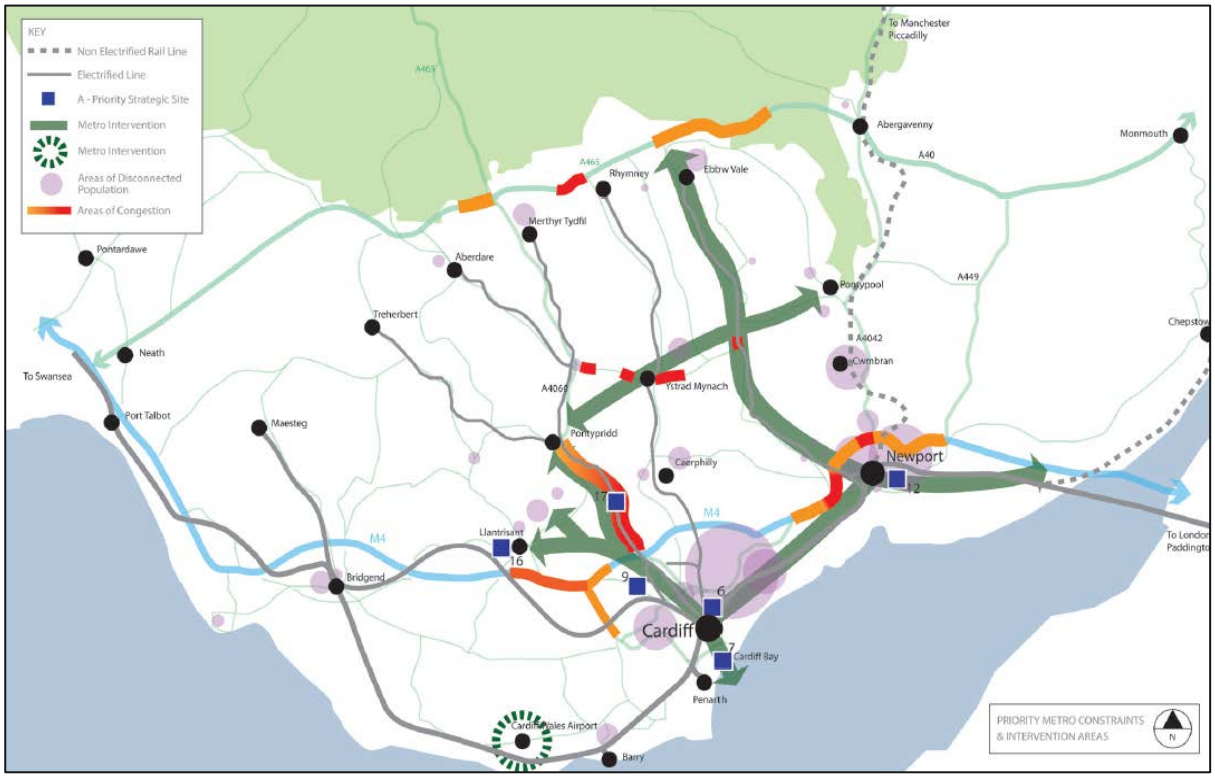
The study identifies a number of relevant existing transport problems and key trends:

- Limited integration between rail and bus services;
- Problems many people in the region encounter in accessing work, education and healthcare because of lack of available, affordable transport;
- Limited public transport access to some of the region's major hospitals, schools and other public services; and
- The Vale of Glamorgan rail line generally has poor frequencies (with one train an hour).

The Metro's extent includes routes east of Cardiff including to Cardiff Airport and Pontyclun, towards Maesteg. The study notes the need for invested improved connectivity for Cardiff Airport, stating *'There is much evidence that demonstrates a link between the economic performance of a region and its level of international connectivity. Whilst better access to Heathrow and its extensive range of long haul flights is essential to the economy of South East Wales, so is the need to provide access to international markets from Cardiff Airport. Such connectivity will support the case for inward investment to the region. Whilst Cardiff Airport has a limited natural catchment area, it can be extended with the appropriate investment in transport infrastructure. This may help the airport secure untapped demand for services to destinations in the Middle East, some European cities and locations in the US & Canada (predominantly served via Heathrow and Bristol'.*

Cardiff Airport is noted to be a pivotal regional asset whose performance can be enhanced by increasing its catchment area by public transport. From a Metro perspective this is said to require a new or upgraded airport station - either on the current Vale of Glamorgan line or at the current airport site via a new spur. New services from across the region and from out of the region will be able to access the airport either directly or via a change at Cardiff central. In line with the National Transport Plan 2010, half hourly services would then be introduced on the Vale of Glamorgan line to facilitate access to airport. M4 Junction 34 (M4 Junction 32-34) is referred to as an area experiencing congestion and as an existing transport problem that is in need of addressing. An overview of the Metro priorities is shown in Figure 2.

*Figure 2 Metro Priorities*[4]




## Cardiff Metro and Wales and Borders Franchise 2018

The new rail Wales and Border Franchise begins in October 2018. The franchise agreement includes for the enhancement of services and rolling stock on the south east Wales Metro. In addition, a new station at Miskin is included on published plans of the Metro network.

# 2.5 Committed Developments

## Land South of M4 Junction 34, Hensol

In 2011, Renishaw plc purchased the former Bosch site and surrounding land to the south of M4 Junction 34. In June 2016, Vale of Glamorgan Council approved plans for 'development comprising class B1, B2, B8 uses; a hotel/residential training centre (class C1/ C2); and ancillary uses within class A1, A2, A3; associated engineering and ground modelling works and infrastructure, car parking, drainage and access for all uses; provision of infrastructure (including energy centre(s)); landscaping and all ancillary enabling works'. The provision of a work bus service through the day and night is noted within the Travel Plan submitted as part of the planning application package.

## Land at Sycamore Cross, Pendoylan Lane and North of A48, Bonvilston

Planning permission was granted on 2nd February 2017 for a *'development of 120 homes including affordable homes, new vehicle, pedestrian and cycle access, improvement works to Pendoylan Lane, regrading of site, drainage, landscape works, provision of public open space, demolition of existing modern timber stables and all associated works'*. It is proposed that the existing road on Pendoylan Lane will be remodelled to provide a suitable vehicle access to the site, along with pedestrian and cyclist connection on a 2.5m wide shared surface, connecting to A48. Cycle improvements will be created along the A48 between Culverhouse Cross and Bridgend. It is noted that all new transport infrastructure should be well lit and have real time information.

## Land Adjacent to A4226, Five Mile Lane

[4] Cardiff Capital Region Metro Study (2013)

A 'proposal for on-line improvements to the existing A4226 between Waycock Cross Roundabout in Barry and the lay-by to the north of the Welsh Hawking Centre and an off line new road provision to the east of the existing A4226 which will reconnect with the existing A4226 just to the south of Blackland Farm' was approved on 16 December 2016 and are now under construction. Works consist of constructing a new and upgraded single lane carriageway (7.3m wide with a 1m wide hard strip) making the total carriageway 9.3m wide, except for the carriageway section approaching Waycock Cross junction which will be 7.3m wide due to the absence of hard strips. A proposed cycleway/ footpath will be located on the west side of on-line road comprising a 2.5m wide verge. Three new junctions will be constructed along the route including two priority T-junctions and one staggered junction all of which will have ghost islands.

At the Sycamore Cross junction, the westbound carriageway of the A48 will be widened to provide a dedicated lane for turning left onto Five Mile Lane. Road markings will be amended to enable two lanes of traffic to therefore travel westbound through the existing junction. For eastbound traffic, there will be two lanes of traffic provided through the junction on the A48 from Bonvilston, heading east towards Culverhouse Cross. The existing bus lane will be re-aligned further towards the north side of the junction in order to provide sufficient lane width for traffic on the A48.

## Land to the East of Mink Hollow (St Nicholas)

Planning was approved for a proposed residential development for 17 dwellings and associated highway and ancillary works, in November 2016. A new ghost island junction access arrangement will be constructed to serve the proposed 20 dwellings, as well as an additional 100 dwellings situated to the west of the site. A right-turn lane with a width of 3m and through lanes with a width of 3.55m will be created.

## Land to the East of St Nicholas

A development of 100 houses and associated open space vehicular and pedestrian access, landscaping and infrastructure, including the demolition of 'Emmaville' was approved by the Vale of Glamorgan in December 2016. The development will be accessed via a new priority T-junction with the A48, to be located through the land currently occupied by 'Emmaville'. The house will be removed to allow for the construction of the new access road. The access road will be 5.5m wide and will also provide 2m wide footways on both sides of the highway.

Improvements will be made to the existing speed limit change gateway feature will include extending the red surface treatment across the whole highway as well as providing white lined channels on both edges to introduce a visual narrowing effect, thus slowing westbound traffic. This will be reinforced with 'dragon's teeth' road markings on the eastern side of the feature to ensure drivers are aware they are entering a village and the speed limit changes to 30mph. Eastbound traffic will have to negotiate a change in road alignment that will be introduced by the ghost island site access junction.

## Land to the North of Junction 33 (Creigiau)

A planning application for a comprehensive development of 'Land to the North of Junction 33 of the M4' was approved in September 2017. The proposal is to create a new community containing: a range of new homes, including houses, apartments and some sheltered accommodation for the elderly (Use Classes C2 and C3), a Park and Ride facility and transport interchange or hub community facilities including a new primary school and community centre (Use Class D1), a local centre including shops (Use Class A1), financial and professional (Use Class A2), food and drink (Use Class A3) and a clinic or surgery (Use Class D1), new offices, workshops and research and development facilities (Use Classes B1 with Ancillary B2 and B8), a network of open spaces including parkland, footpaths, sports pitches and areas for informal recreation new activities and requiring, site preparation, the installation or improvement of services and infrastructure, the creation of drainage channels, improvements/works to the highway network and other ancillary works and activities.

The proposed development includes 1,500 new homes and a Park and Ride facility with a maximum of 1,000 spaces. The development is designed to accommodate the aspirational Mass Rapid Transport proposal currently being investigated and included in the Cardiff Council LDP.

# 3 Baseline Information

## 3.1 Introduction

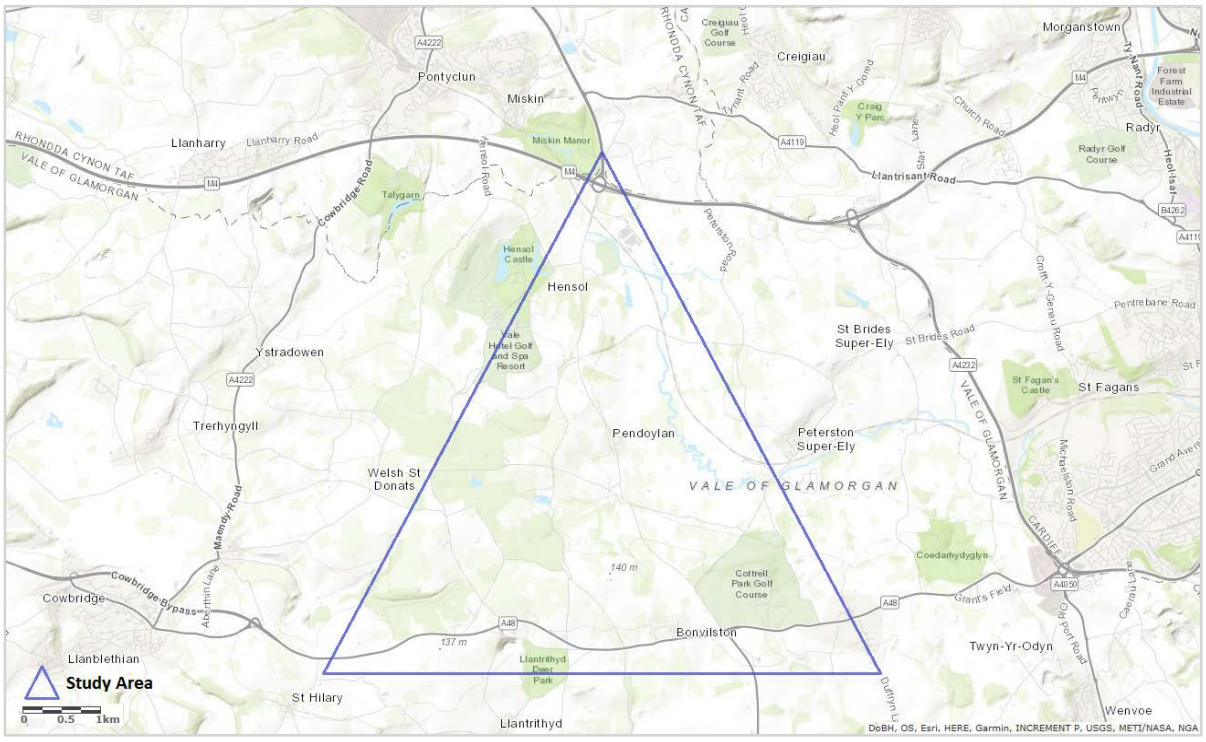
This section presents a summary of the baseline context of the appraisal area encompassing:

- Local Appraisal Area
- Environmental and Land-use Characteristics
- Access to Employment
- Access to Services and Recreation
- Access to Culrural Facilities
- Walking and Cycling
- Rail and Bus
- Highway Network

## 3.2 Local Appraisal Area and Vale of Glamorgan Context

The study area is as shown in Figure 3.

*Figure 3 Study Area*



The Vale of Glamorgan administrative area is situated to the west of Cardiff predominantly south of the M4 corridor and is extensively rural with a pattern of small settlements. The Vale of Glamorgan has a population of approximately 128,500 (2016 Census) which has increased by circa 5% since 2001, with population statistics presented in Table 4. The neighbouring local authorities are Bridgend County Borough Council to the west, Cardiff Council to the east and Rhondda Cynon Taff County Borough Council to the north, with the local authority boundary including the M4 Junction 34.

*Table 4 Usual Resident Population Statistics*[5]

| Location | 2011 Population | Population Change (since 2001) |
|---|---|---|
| Appraisal Area | 2,289 | +2% |
| Vale of Glamorgan | 126,336 | +5% |
| RCT | 234,410 | +1% |
| Bridgend | 139,178 | +8% |
| Cardiff | 346,090 | +13% |

The deposit LDP (2013) recognises the M4 and A48 as key strategic road links within the county, connecting with to the wider south-east region and beyond. The Pendoylan corridor connects to the strategic network via M4 Junction 34 to the north and to the A48, east of Bonvilston, to the south. Redway Road/ unnamed road runs parallel to and also connects to the Pendoylan corridor, to the west. The carriageway connects to the Pendoylan corridor through Pendoylan at Clawdd-côch, to the north, and the A48 west of Bonvilston to the south.

The appraisal area is not connected to the region via rail directly, however Pontyclun station (South Wales Mainline) is located within proximity of the appraisal area, providing services to Maesteg, Bridgend and Cardiff Central (approximately 5.5km north-west of Pendoylan). In addition, Cardiff Airport is located in proximity to Rhoose (approximately 11km south of Pendoylan).

Bonvilston, Pendoylan and Peterston-super-Ely have been identified as minor rural settlements in the LDP Settlement Hierarchy[6]. These settlements are noted to contribute towards the special character of the rural Vale and also play an important role in underpinning sustainable rural communities.

The age profile of the population in the appraisal area comprises a population aged 0-15 of 19%, working age 61% and 20% of retirement age which is higher for children and retired people, and lower for working age adults than that for the Vale of Glamorgan overall. This is shown in Figure 4.

The Vale of Glamorgan exhibits considerable socio-economic diversity containing some of the most affluent and the most deprived communities in Wales in respect of employment, income, education, health and community safety. The Welsh Index of Multiple Deprivation (WIMD) 2014[7], shows that of the 79 lower super output areas (LSOA) in the Vale of Glamorgan, 5% of which are contained with the most deprived 10% LSOA in Wales[8].

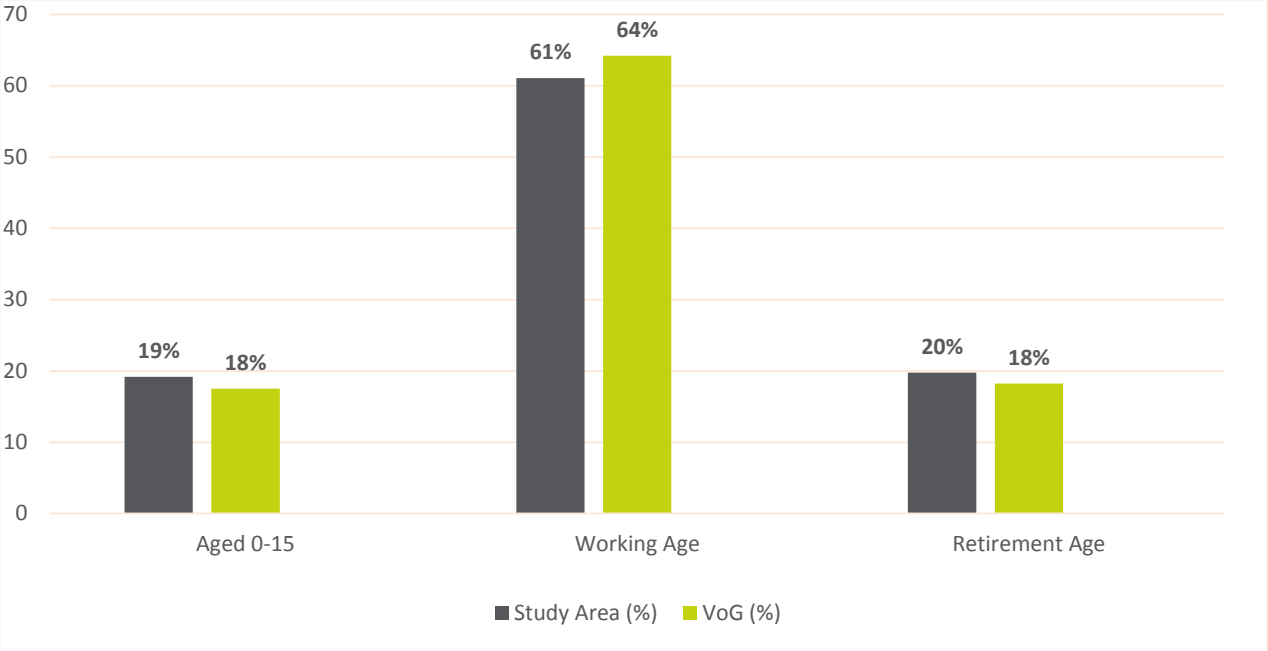
[5] Census (2011, 2001)

[6] Vale of Glamorgan LDP 2011-2026 – Written Statement – June 2017

[7] Welsh Government – Welsh Index of Multiple Deprivation 2014 http://gov.wales/docs/statistics/2015/150812-wimd-2014-summary-revised-en.pdf

[8] Welsh Government – Welsh Index of Multiple Deprivation 2014 Local Authority Analysis - https://statswales.gov.wales/Catalogue/Community-Safety-and-Social-Inclusion/Welsh-Index-of-Multiple-Deprivation/WIMD-2014/wimd2014localauthorityanalysis

*Figure 4 Age Profiles 2011 Census*




The appraisal area contains some of the least deprived areas. The average gross weekly full time pay in the Vale of Glamorgan was £534.60 in 2014, which was almost £50 a week more than the figure for Wales[9]. Whilst at local authority level, the Vale of Glamorgan points to a higher income than other parts of Wales, at lower geographies it is evident that there is a great deal of variation. Four LSOAs within the local authority have incomes 60% below the GB median income.[10]

A summary of employment statistics for the appraisal area has been included as Table 5 against regional and national statistics. Census data (2011) shows that there was a higher percentage of those employed within the appraisal area and also the Vale of Glamorgan as a whole (figures at 63 and 62%) compared with 58% for SE Wales and Wales as a whole. There is a significantly higher population of retired people within the appraisal area compared to the Vale of Glamorgan, South East Wales and Wales as a whole.

*Table 5 Employment Statistics Census 2011*

| Economic Activity | Appraisal Area | The Vale of Glamorgan | South East Wales | Wales |
|---|---|---|---|---|
| Employed | 63% | 62% | 58% | 58% |
| Unemployed | 2% | 4% | 5% | 4% |
| Retired | 21% | 16% | 15% | 16% |
| Student | 7% | 7% | 10% | 9% |
| Other | 8% | 10% | 13% | 12% |

**Figures rounded*

[9] Annual Survey of Hours and Earnings 2014

[10] Vale of Glamorgan LSB Tackling Poverty Report - https://statswales.gov.wales/Catalogue/Community-Safety-and-Social-Inclusion/Welsh-Index-of-Multiple-Deprivation/WIMD-2014/wimd2014localauthorityanalysis

## 3.3 Environmental and Land-use Characteristics

There are a wide range of environmental resources within the Appraisal Area. A desk-top study has been undertaken to identify environmental features and constraints using mapping associated with the LDP (2017).

### 3.3.1 Cultural Heritage

This desk study has included a search for known heritage assets within a 1km radius study area from the appraisal area. Known heritage assets listed below have been identified using LLe Wales/MAGIC and an archaeological desk-based assessment using the Archwillio and Historic Wales HER data portals.

#### Scheduled Monuments

There are ten Scheduled Monuments located within the appraisal area as shown in Table 6 and nine Scheduled Monuments within proximity to the appraisal area, listed in Table 7.

*Table 6 Scheduled Monuments within the Appraisal Area*[11]

| Scheduled Monument | National Grid Reference | Location Description |
|---|---|---|
| Felin Isaf Castle Mound | ST 06071 79267 | Felin Isaf Castle Mound is located 500m south of the M4 and lie to the north of the appraisal area. |
| The Two Cooking Mounds E of Ty'n-y-Pwll | ST 07177 75660 | The Two Cooking Mounds E of Ty'n-y-Pwll are separated as two Scheduled Monuments, the midpoint between the two mounds is located 1.35km south east from Pendoylan and 1.2km south west of Peterston-super-Ely. |
| Y Gaer | ST 06337 74738 | Y Gaer is located within a small woodland, 430m north of Bonvilston; 660m north of the A48. |
| Maes-y-Hwyaid Round Barrow | ST 03620 75007 | Maes-y-Hwyaid Round Barrow is located 1.25km south/south east of Welsh St Donats. |
| Two Round Barrows 300m North of Tair Onnen | ST 04182 74914 | Two Round Barrows 300m North of Tair Onnen are separated in two closely located points.<br>The midpoint between the two Scheduled Monuments can be found, 1.7km south east of Welsh St Donats and 2km north of Llantrithyd. |
| Coed-y-Cwm Chambered Cairn | ST 08104 73794 | Coed-y-Cwm Chambered Cairn is located 280m south of the A48 and 550m south west of St Nicholas. |
| Coed y Cwm Ringwork | ST 08277 73675 | Coed y Cwm Ringwork is located 460m south of the A48 and is located on the southern boundary of the appraisal area.<br>The site is located 520m south west of St Nicholas. |
| Cottrell Castle Mound | ST 08089 74506 | Cottrell Castle Mound is located 340m north of A48 and is located 480m north west of St Nicholas. |
| Cottrell Ringwork | ST 08472 74726 | Cottrell Ringwork is located within close proximity to the south-eastern boundary of the appraisal |

11 Lle Geo-Portal

| Scheduled Monument | National Grid Reference | Location Description |
|---|---|---|
| | | area. Cottrell Ringwork is located 460m north of the A48 and 320m north/north west of St Nicholas. |
| Castell Moel | ST 05428 73442 | Castell Moel is located adjacent to the midpoint along the southern boundary of the appraisal area.<br>Castell Moel is located 420m south of the A48 and 730m south west of Bonvilston. |

*Table 7 Scheduled Monuments outside the Appraisal Area*[12]

| Scheduled Monument | National Grid Reference | Location Description |
|---|---|---|
| Miskin Roman fort | ST 04395 80788 | Miskin Roman fort is located 200m north of the M4. The Scheduled Monument lies adjacent to the west of the appraisal area (south of Miskin). |
| Caer Gwanaf | ST 04768 80027 | Caer Gwanaf is located 250m south of the M4 and lies directly adjacent to the west of the north end of the appraisal area, 700m north of Hensol. |
| Llanquian Wood Camp | ST 02155 74472 | Llanquian Wood Camp is located immediately outside of the appraisal area. The site is located to the south west of the appraisal area, 1.8km east from Cowbridge and 1km north of St Hilary. |
| Llanquian Castle | ST 01888 74408 | Llanquian Castle is located immediately outside of the appraisal area to the south west. Llanquian Castle is 1.6km east from Cowbridge and 1km north from St Hilary. |
| Castle Ringwork 850m ENE of Ty'n-y-Coed | ST 07053 73351 | Castle Ringwork 850m ENE of Ty'n-y-Coed is located outside of the appraisal area; 700m south of Bonvilston. |
| Llantrithyd Camp | ST 03860 73182 | Llantrithyd Camp is located outside the appraisal area, 900m south of the A48 and 520m north west of Llantrithyd. |
| Stalling Down Round Barrow | ST 01165 74901 | Stalling Down Round Barrow is located outside of the appraisal area and is 250m directly south of Aberthin. |
| Castell Tal-y-Fan | ST 02098 77188 | Castell Tal-y-Fan is located outside of the appraisal area and is found 700m south east from Ystradowen and 1.2km north west of Welsh St Donats. |
| Tinkinswood Burial Chamber | ST 09268 73292 | Tinkinswood Burial Chamber is located along Duffryn Lane. 900m south of the A48 and St Nicholas. |

## Listed Buildings

[12] Lle Geo-Portal

There are approximately 45 Listed Buildings within the appraisal area, these are presented in Table 8 (those Listed Buildings that are within close proximity to one another have been grouped together). In terms of the grade of listing, there are two Grade I listed buildings, three Grade II* and the remainder are Grade II.

*Table 8 Listed Buildings within and immediately surrounding the Appraisal Area*[13]

| Scheduled Monument | Grade | National Grid Reference | Location Description |
|---|---|---|---|
| Hensol Castle (including attached Courtyard Ranges to north) | I | ST 04726 78995 | Located approximately 70m east of Hensol Lake. |
| Church of St Donat | I | ST 02773 76211 | Located within the centre of Welsh St Donats village. |
| Church of St Cadog (St Cattwg) | II* | ST 05988 76685 | Located within central Pendoylan. |
| Parish Church of St Nicholas | II” | ST 09018 74367 | Located within the village centre of St Nicholas, adjacent to the Well Lane. |
| Church of St Peter | II* | ST 08263 76406 | Church of St Peter is located north of the River Ely and approximately centre of Peterston-super-Ely along Fford-yr-Eglwys. |
| Lower terrace wall on west side of Miskin Manor; Upper terrace wall and pavilion on west side of Miskin Manor; Pair of King's Beasts at west entrance to Miskin Manor; Miskin Manor, including one-storey range to north and Pair of King's Beasts at east entrance of Miskin Manor (5) | II | ST 05698 80292 | Miskin Manor is located 200m north of the M4. |
| Kitchen garden walls | II | ST 05720 80372 | Miskin Manor kitchen is located 300m north of the M4. |
| Bridge on man drive to Hensol Castle; Hafod Lodge to Hensol Castle (Also known as Bottom Lodge) (2) | II | ST 05034 79233 | The building is located east of Hensol, 1km directly south of the M4 road. |
| Dyffyrn Mawr Farmhouse | II | ST 06321 78031 | The farmhouse is located 1.7km directly south of the M4 and 700m north east from Clawdd-côch. |
| Pendoylan Cottages; Telephone Call-box (2) | II | ST 05988 76685 | Located within the village centre of Pendoylan. |
| Ty Fry Lodge | II | ST 04883 76359 | Located 1km west of Pendoylan. |
| Great House; Churchyard Wall of Church of St Donat | II | ST 02773 76211 | These two listed buildings are located within the centre of Welsh St Donats village. |
| Pigsty at Ty-draw | II | ST 04360 75343 | The listed building is located south of Hensol Forest and south west of Pendoylan. |

[13] Historic Wales

| Scheduled Monument | Grade | National Grid Reference | Location Description |
|---|---|---|---|
| Cae'rwigau Isaf | II | ST 06006 75788 | The listed building is located approximately 700m south of Pendoylan. |
| Cae'rwigau Uchaf | II | ST 06038 74577 | The listed building is located approximately 900m south of Pendoylan. |
| Croes-y-Parc Baptist Chapel; Monument to Dafydd William at Croes-y-Parc chapel | II | ST 07939 75826 | The two listed buildings are located 2km south east from Pendoylan. |
| 1-10 Pwll-y-Min Crescent Wyndham Park, CF5 6LR (Ten properties along Pwll-y-Min) | II | ST 08457 76063 | Ten properties located along Pwll-y-Min Crescent, located south of River Ely (Peterston-super-Ely) and adjacent to Wyndham Park). |
| Nos 4 and 6 Cory Crescent; Nos 8 and 10 Cory Crescent; Nos 16 and 18 Cory Crescent | II | ST 08521 75970 | The six properties are located along Cory Crescent located south of River Ely (Peterston-super-Ely) and adjacent to Wyndham Park. |
| Telephone Call-box outside Fircot | II | ST 08309 76393 | The Telephone Call-box is located north of the River Ely and approximately centre of Peterston-super-Ely along Ffordd-yr-Eglwys. |
| Rectory House (aka The Old Rectory) | II | ST 08015 76559 | Rectory House is located at the end of unnamed path to the north west of Peterston-super-Ely. |
| Bonvilston Cottage; Parish Church of St Mary the Virgin; Churchyard Cross at Parish Church of St Mary; Ty Mawr (Great House) | II | ST 06454 74019 | The four listed buildings are located within Bonvilston, adjacent to the A48. |
| Village Farmhouse | II | ST 06736 74065 | The listed building is located to the east of Bonvilston, adjacent to the A48. |
| Cottrell Lodge | II | ST 07934 74185 | Cottrell Lodge is located along the A48 at the midpoint between Bonvilston and St Nicholas. |
| The Three Tuns | II | ST 09182 74338 | Located towards the eastern edge of the St Nicholas village. |
| Cory Family Chest-Tomb at Parish Church of St Nicholas | II | ST 08993 74371 | Located within the village centre of St Nicholas, adjacent to Well Lane. |
| Telephone Call-box on corner with road to St Nicholas' Church; GPO Pillar on corner with Road to St Nicholas' Church; St Nicholas Church Hall; Church Hall House (next to St Nicholas Church Hall); Smiths Row (also known as Blacksmiths Cottages); Blacksmith's Cottages | II | ST 09027 74259 | The listed buildings are located within close proximity to one another along the A48 within St Nicholas. |

## Conservation Areas

There are four Conservation Areas located within the appraisal area[14] encompassing the:

- Pendoylan Village Conservation Area;
- Peterston-super-Ely Conservation Area is located in the east of the appraisal area and covers approximately half of the village area;
- Bonvilston Conservation Area covers the majority of the village, extending laterally encompassing the A48 to an unnamed road to the east and ending 300m west of Redway Road (the Conservation Area boundary falls south of the A48); and
- St Nicholas Conservation Area covers the majority of the village. St Nicholas is located towards the south-east edge of the appraisal area.

There are four Conservation Areas located outside of the appraisal area, including the:

- Llantrithyd Conservation Area is located 1.1km south of the A48 and 1.5km south west of Bonvilston;
- St Hilary Conservation Area lies south west, outside of the appraisal area approximately 500m south of the A48 and 1.8km south east of Cowbridge;
- Miskin Conservation Area is located to the north west, outside of the northern end of the appraisal area and to the north of the M4; and
- Talygarn Conservation Area lies outside the appraisal area, south of the M4 and approximately 1.1km north west from Hensol.

## Registered Parks and Gardens

There are three Registered Parks and Gardens located within the appraisal area[15]:

- Hensol Castle Historic Park and Garden is located to the north west of the appraisal area at Hensol. NGR: ST 04498 78764;
- Llantrithyd Place Historic Park and Garden is located 120m south of the A48 and 300m north east of Llantrithyd. NGR: ST 04999 73695; and
- Miskin Manor Historic Park and Garden lies to the north of the M4 and lies within the northern end of the appraisal area. NGR: ST 05316 80462.

There are three Registered Parks and Gardens located outside the appraisal area:

- Talygarn Historic Park and Garden is located immediately south of the M4 and Pontyclun, Talygarn is located west of the northern end of the appraisal area. NGR: ST 03070 79833;
- Coerdarhydyglyn Historic Park and Garden is located outside the appraisal area to the south east, within close proximity to the A4232 and 1.4km south east of Peterston-super-Ely. NGR: ST 10385 75128; and
- Dyffryn Historic Park and Garden is located 1.1km south of the A48 and St Nicholas. NGR: ST 09491 72493.

## Registered Landscapes of Outstanding Historic Interests

Llancarfan, a Vale of Glamorgan Historic Landscape is located immediately south of the A48 and falls within the south of Bonvilston. The Llancarfan Historic Landscape falls within the southern boundary of the appraisal area. The Llancarfan Historic Landscape extends from Bonvilston in the east and 1.2km west of Bonvilston and southwards to Penmark in the south east and Llancadle to the south west[16].

[14] Archwilio

[15] Archwilio

[16] Lle Geo-Portal

## Archaeology

A review of Archaeological records using Archwillio and the Historic Wales portals has revealed there are approximately 110 archaeological records within and immediately surrounding the appraisal area, with approximately 14 being north of the M4[17].

There are a total 98 non-designated heritage assets recorded by the HER within the study area, the majority of which are Post Medieval in date although most periods are represented. There are 16 non-designated assets of Prehistoric date, 13 of which are recorded as extant and the remaining three are non-extant. Many of these assets are burial monuments with the remainder of the assets dating to the prehistoric period include standing stones, an urn and a field system. The HER does not record any non-designated assets which date to the Roman period, however the National Museum Archaeology Collection does record Roman pottery in the Welsh St Donats Area.

The Portable Antiquities Scheme also records several Roman coins and 'findspots' throughout the study area, the most prominent of which is a hoard of 91 coins found near to Bonvilston (Portable Antiquities Scheme 2017). The HER records nine Medieval non-designated assets which include churchyards, a hillfort, motte, landscape park, deserted settlement and pottery kiln. The majority of the non-designated assets that are located within the study area date to the Post Medieval period, 30 of these assets are extant and the remaining 18 are non-extant.

There are two Modern non-designated assets within the study area, one of which is the site of a Spitfire collision. Two Spitfires collided in mid-air, both pilots were killed however it is not known whether or not the site is a Military War Grave, neither is it known if the wreckage was recovered (Aviation Safety 2017). There are 23 non-designated assets of unknown date, 14 of which are extant and the remainder are non-extant. The majority of the heritage assets of unknown date are earthworks of varying extents and character.

A key area of archaeological concern is at Welsh St Donats. This area has the Welsh St Donats cemetery (03827s) which contains at least 12 burial mounds dating to the prehistoric period. There is also the potential for previously unrecorded archaeology, particularly below ground archaeological remains associated with this ceremonial landscape.

Welsh St Donats is the site of the Spitfire collision (04010s). If this area were to be affected by proposals it would be important to establish the exact location of the wreckage, if it has not been recovered and to establish whether the site is a Military War Grave.

Another key area of built heritage is the settlement of Pendoylan. This settlement has a high concentration of both designated and non-designated assets which will have settings that extend beyond their physical location. These settings will partially be informed by the views from and to them.

### 3.3.2 Landscape and Land Use

The Historic Wales HER data portals, Lle Geo-Portal, MAGIC and Google Maps have been used to detail the Landscape and Land Use within the appraisal area. There are no National Parks, Areas of Outstanding National Beauty (AONB) or Heritage Coasts located within 5km of the appraisal area[18].

Land use within the appraisal area is predominantly rural with the main residential developments located south of the M4 at Hensol, Pendoylan, Peterston-super-Ely, Welsh St Donats, St Nicholas and Bonvilston. Throughout the remaining appraisal area, land use is limited to individual residential properties and agricultural land and rural businesses such as equestrian uses and golf facilities. Additionally, there is the railway line that enters from the north west from the M4, the line moves south, south east, before then leaving the appraisal area eastwards through Peterston-super-Ely.

There is no registered common land within the appraisal area. There is approximately 60ha of registered common land located 1.5km to the southwest of Welsh St Donats and to the east of Cowbridge (this falls outside of the appraisal area)[19].

[17] Archwilio

[18] Magic Application (2017)

An analysis from the Agricultural Land Classification of England and Wales 1985 (ALC009)[20] details that within the appraisal area, the Agricultural Land Classifications (ALC) that form the majority of the area are Grade 3 and Grade 4. Along the south of appraisal area lies a small area of Grade 2 ALC;

- Grade 2 - very good quality agricultural land (land with minor limitations which affect crop yield, cultivations or harvesting. A wide range of agricultural and horticultural crops can usually be grown but on some land in the grade there may be reduced flexibility due to difficulties with the production of the more demanding crops such as winter harvested vegetables and arable root crops. The level of yield is generally high but may be lower or more variable than Grade 1).
- Grade 3 - good to moderate quality agricultural land (land with moderate limitations which affect the choice of crops, timing and type of cultivation, harvesting or the level of yield. Where more demanding crops are grown yields are generally lower or more variable than on land in Grades 1 and 2).
- Grade 4 - poor quality agricultural land (land with severe limitations which significantly restrict the range of crops and/or level of yields. It is mainly suited to grass with occasional arable crops (e.g. cereals and forage crops) the yields of which are variable. In moist climates, yields of grass may be moderate to high but there may be difficulties in utilisation. The grade also includes very droughty arable land).

In terms of impacts, the main concern would be the loss of any Best and Most Versatile (BMV) agricultural land which includes Grades 1, 2 and 3a. The extent of BVM land affected by a scheme would need to be quantified using more recent draft mapping from Welsh Government at a more detailed stage.

#### Special Landscape Area (SLA)

An SLA is a non-statutory conservation designation used by local government to categorise sensitive landscapes which are, either legally or as a matter of policy, protected from development or other man-made influences. The majority of the appraisal area falls under the SLA designation with only Bonvilston and the area north of Llantrithyd not coming under this designation[21].

### 3.3.3 Noise and Vibration

Noise maps and associated plans are managed by the Welsh Government and local authorities to find where noise levels are high and help create noise action plans to address the issue[22].

Within the appraisal area there are Noise Action Priority Areas (NAPPAs) for roads located to the north west and south east of the appraisal area.

To the north west, outside of the appraisal area, there are two NAPPA – Roads. The closest of which is located along the M4, approximately 1km west, north west of the M4 junction. Additionally, the furthest NAPPA is located approximately 2km to the west/north west outside of the appraisal area.

There are two NAPPA located in the south east of the appraisal area. The NAPPA are located at the south end of the appraisal area at Bonvilston and to the south east of the appraisal area at St Nicholas. Both of these NAPPA are located along the A48. Additionally, there is a Noise Action Planning Priority Area – Railway located within the centre of Peterston-super-Ely.

There are six settlements located within the appraisal area, three of which are currently located along the existing route and the remaining three are located to the North, West and South East of the appraisal area. The potential noise and vibration receptors of the scheme are highlighted in Table 9.

*Table 9 Potential Noise and Vibration Receptors within the Appraisal Area*[23]

---

[19] Lle Geo-Portal

[20] Natural England – Agricultural Land Classification of England and Wales 1985 (ALC009) (2013)

[21] Vale of Glamorgan Council Designation of Special Landscape Areas (2008)

[22] Noise Priority Areas (2017)

[23] Google Maps (2017)

| Location | Residential Area | British National Grid Reference |
|---|---|---|
| The Pendoylan corridor passes through or is within close proximity to: | Clawdd-côch | ST 05552 77697 |
| | Pendoylan | ST 06001 76651 |
| | Bonvilston | ST 06593 74156 |
| St Nicholas is located south east of the appraisal area and directly 2km east from Bonvilston | St Nicholas | ST 08938 74313 |
| Welsh St Donats is located 3km directly west of Pendoylan | Welsh St Donats | ST 02840 76174 |
| Hensol is located 1km north west of Clawdd-côch | Hensol | ST 04720 78752 |

### 3.3.4 Water Resources

The appraisal area and the surrounding area falls within three separate flood risk zones. The majority of the appraisal area falls within Planning Policy Wales TAN 15 Flood Risk Zone A (i.e. area considered to be at little or no risk of fluvial or coastal/tidal flooding). Flood Risk Zone A ranges across the centre and western extent of the appraisal area, the A48 to the south falls within Flood Risk Zone A[24].

Planning Policy Wales TAN 15 Flood Risk Zone B (i.e. areas known to have flooded in the past) is located in pockets surrounding the area of Flood Risk Zone C2. The majority of the pocketed areas are located in close proximity to the south of the M4. Planning Policy Wales TAN 15 Flood Risk Zone C2 (i.e. areas without significant flood defence infrastructure) extends from the north of the M4 at Miskin and follows the River Ely downstream in a south easterly direction. The Flood Risk Zone C2 designation expands in its area of extent to the east of Pendoylan. Flood Risk Zone C2 then extends eastwards, narrowing in surface area, south of Peterston-super-Ely and eastwards towards the A4232.

The River Ely flows south east from Miskin outside of the appraisal area through the appraisal area. The River Ely is classified as a 'main river'. Available data from the 2016 second cycle regarding water quality, indicates that the waterbody is currently achieving an overall status of Bad. The waterbody currently achieves an overall ecological status of 'Bad' and chemical status of 'Fail'.

To the east of Clawdd-côch and Pendoylan and west of the railway line, there are numerous tributaries that are also classified as 'main rivers', these include the Pendoylan Moors, Nant Tynyplancau and the Peterson Moors. Within the remainder of the appraisal area, to the west of the on-line route there are a number of ponds and minor unnamed watercourses[25].

### 3.3.5 Nature Conservation

#### Statutory Designated Sites

The MAGIC website has been used to identify all statutory designated sites of importance for nature conservation within and immediately outside of the appraisal area. The search was extended to 10km for identification of statutory sites designated for their bat interest.

There are no Special Areas of Conservation (SAC), Special Protection Areas (SPA) or Ramsar sites (a wetland of international importance) within the appraisal area or potential strategic area boundary[26].

Within the surrounding area there are a number of statutory designated sites:

[24] Natural Resources Wales' Flood Risk Map Viewer – Long-term flood risk (2017)

[25] Natural Resources Wales' Flood Risk Map Viewer – Long-term flood risk (2017)

[26] Magic Application (2017)

## International

The Cardiff Beech Woods SAC - National Grid Reference (NGR): ST 11700 82500. The SAC is located 4.8km northeast of the appraisal area. This site is of high (international) importance:

- Cardiff Beech Woods SAC: Designated for its Annex I habitats (containing one of the largest concentrations of Asperulo-Fagetum beech forests in Wales, and the SAC represents the habitat close to the western limit of its past native range in both the UK and Europe).
- The Severn Estuary SAC, Special Protection Area (SPA) and Ramsar site, a wetland of international importance, is located 6km south east of St Nicholas (NGR: ST 18345 69850). These sites are all of high (international) importance:
- Severn Estuary SAC: Designated for its Annex I habitats (including estuaries, Atlantic salt meadows and mudflats and sandflats not covered by seawater at low tide) and Annex II species (including sea lamprey, river lamprey and twaite shad) which form primary reasons for the selection of this site;
- Severn Estuary SPA: Designated for its internationally important bird populations (including the Annex I species Bewick's swan over winter as well as ringed plover, dunlin, pintail, redshank and curlew) and for regularly supporting at least 20,000 waterfowl; and,
- Severn Estuary Ramsar site: Designated for its Annex I habitats (including estuaries, Atlantic salt meadows and mudflats and sandflats not covered by seawater at low tide), its migratory fish populations (including salmon, sea trout and sea lamprey) and for its internationally important assemblage of waterfowl (including gadwall, dunlin and redshank).

## National

There are two SSSIs located within the boundary of the appraisal area. These are of high (national) importance:

- Pysgodlyn Mawr SSSI - Located National Grid Reference: ST 04200 76000. The site is located 1.6km west of Pendoylan. Pysgodlyn Mawr SSSI is designated for its small area of wetland which supports a wide range of habitats ranging from open water, through reed swamp, to heath and bog, which are very unusual in the lowland Vale area. There is an excellent dragonfly fauna which includes the nationally scarce downy emerald dragonfly (Cordulia aenea).
- Ely Valley SSSI - Located National Grid Reference: ST 05100 80500: ST 08172 76200. The Ely Valley is located in the north east of the appraisal area and runs south, south east, flowing south of Peterston-super-Ely as it leaves the appraisal area. The Ely Valley site comprises a 9.5km section of the River Ely which runs through the north-eastern part of the Vale near Cardiff. The Ely Valley supports the largest known population of the nationally scarce plant monk's-hood (Aconitum napellus).

There are two SSSIs located within 2km of the appraisal area, these are of high (national) importance:

- Brofiscin Quarry, Groes Faen SSSI: Located National Grid Reference: ST 06900 81200. Brofiscin Quarry, Groes Faen is located 800m north east of the appraisal area. The Brofiscin Quarry, Groes Faen site is a disused limestone quarry near Llantrisant in South Wales. It has been designated a SSSI due to the exposed early carboniferous geological formations on the site;
- Nant Whitton Woodlands SSSI: Located National Grid Reference: ST 06500 72000. The Nant Whitton Woodlands is located approximately 1.5km south of Bonvilston. Nant Whitton Woodlands site is a narrow strip of limestone woodland near Llancarfan supporting a diverse canopy of oak, ash, hazel (Corylus avellanus), field maple (Acer campestre) and spindle (Euonymus europaeus) etc, and a species rich ground flora which includes the uncommon herb Paris (Paris quadrifolia) and adder's-tongue fern.

There are no SACs designated for their bat interest within 10km of the appraisal area[27].

There are no National Nature Reserves (NNR) within the appraisal area and no NNR within 2km of the appraisal area.

[27] Magic Application (2017)

There are no Marine Conservation Zones (MCZ) and no Marine Nature Reserves (MNR) within the appraisal area and no MCZ/MNR within 2km of the appraisal area[28].

### Non-Statutory Designated Sites

The MAGIC website and the Vale of Glamorgan LDP (2011-2026) has been used to identify all non-statutory designated sites of importance for nature conservation within the appraisal area and the area immediately outside surrounding the appraisal area of the M4 Junction 34 to A48.

Local nature reserve or LNR is a designation for nature reserves in Great Britain.

- There are no Local Nature Reserves (LNR) within the appraisal area or within 1km of the study area.

Sites of Nature Conservation Importance (SINC)

- There are a number of SINCs (approximately twenty-six) located within the appraisal area. Eleven of the SINCs are located in the south east (between Peterston-super-Ely, St Nicholas and Bonvilston). The remaining SINCs are scattered throughout the centre and to the west of Pendoylan within the appraisal area.

Within the appraisal area there are numerous pockets and rows of trees with Tree Preservation Orders (TPO):

- There are seven pockets of trees with TPOs located in the north of the appraisal area (surrounding M4 Junction 34). These are located approximately 800m to the north east of Hensol, located eastwards of the railway line (within the appraisal area).
- The area surrounding Hensol Lake and Hensol Castle has multiple rows, pockets and individual trees with TPOs.
- Within the centre of Pendoylan, there are multiple rows, pockets and individual trees located along the Pendoylan corridor road that run through the village.
- To the east of Welsh St Donats, a small pocket of TPOs are located within a network of roads at Heol Mynydd.

In the south east of the appraisal area, there are three areas of high concentrations of TPOs. These include:

- The area of Peterston-super-Ely south of the railway line.
- Bonvilston has TPOs located along and adjacent to the north and south of the A48.
- St Nicholas has TPOs on both the north and south sides of the A48. Additionally, further TPOs are located southwards along Duffryn Lane (a minor B-road off the A48), which falls just outside of the appraisal area.
- Located within close proximity to the appraisal area, there are a collection of TPOs located south westerly within St Hilary village (outside of the appraisal area)29.

## 3.3.6 Air Quality

Concentrations of pollutants Nitrogen Dioxide (NO2), Particulate Matter (PM10), Particulate Matter (PM2.5) and Sulphur Dioxide (SO2) in the Vale of Glamorgan do not exceed the nationally set levels and the Vale of Glamorgan has not designated any AQMAs. The nearest AQMA is Mwyndy AQMA which falls within the Rhondda Cynon Taff County Borough Council boundary[30].

Mwyndy AQMA is located to the east of Miskin along the A4119, the AQMA is approximately 1.4km north of the M4 and 900m north west of Groes-faen. Mwyndy AQMA falls just outside of the northern point of the

[28] Lle Geo-Portal

[29] Vale of Glamorgan Council Deposit LDP 2011-2026 (2013)

[30] Air Quality Management Areas: https://uk-air.defra.gov.uk/aqma/maps

appraisal area. NO2 is the only pollutant currently monitored. There are no other AQMAs within the potential strategic area.

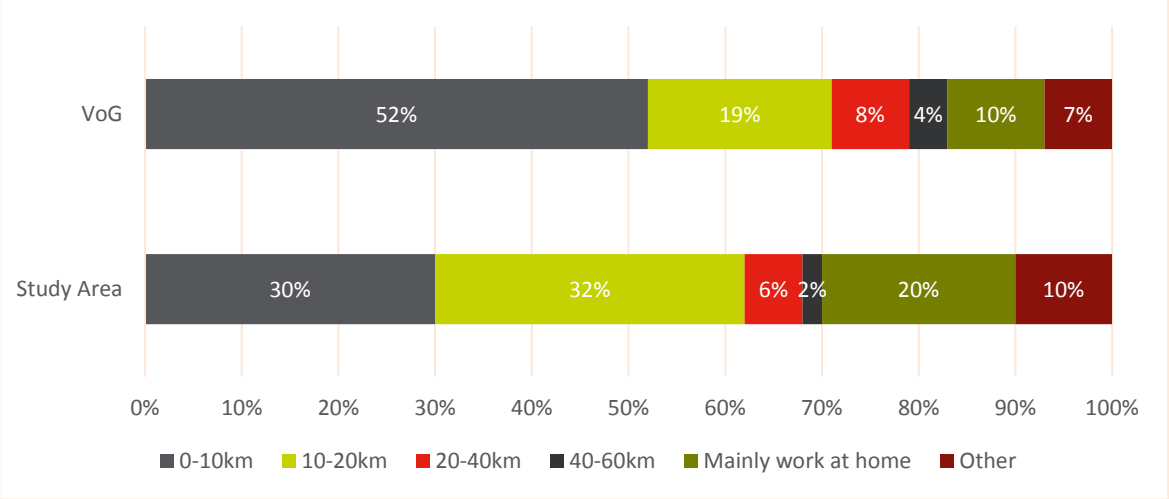
Based upon the 2016 Air Quality Progress Report for Vale of Glamorgan, the overall air quality across the county complies with regulations to protect human health[31]. Data from the 2012 Air Quality Progress Report highlighted that at some locations road traffic emissions of Nitrogen Dioxide (NO2) were at, or close to, the relevant annual average concentration of 40 ug/m3. These were recorded at Windsor Road, Penarth; Cogan Roundabout; Railway Terrace, Cardiff Road, Dinas Powys; Tynewydd Road, Barry; and Culverhouse Cross (Vale of Glamorgan, 2013). The closest, Culverhouse Cross, is located on the strategic road network and thus within the influence of transport proposals for the study area[32].

## 3.4 Access to Employment

The appraisal area provides limited opportunities for sustainable access to employment within the appraisal area; thus, travel by car is the dominant mode. The following subsequently provides a summary of key characteristics for access to employment affecting the appraisal area.

- 30% of workers travel less than 10km to work from the appraisal area compared to 52% within the Vale of Glamorgan as a whole (2011 Census Distance Travelled to Work) (Figure 5). The dominant distance to work from the appraisal area is between 10 and 20km, with 32% of the area travelling this distance to work, in comparison to just 19% of the Vale of Glamorgan.

*Figure 5 Distance Travelled to Work (%)*[33]




- The car (or van) is the dominant mode of travel to work across the appraisal area, as with the Vale of Glamorgan and South East Wales as a whole. 92% of those from the appraisal area drive to work (including passengers) compared with 76% of South East Wales as a whole.
- Only 4% of workers in the appraisal area travel to work on foot, nearly a third of the percentage of the Vale of Glamorgan as a whole (11%) (2011 Census Method of Journey to Work).
- 2% of workers use bus services to travel to work, slightly lower than for the Vale of Glamorgan (3%).
- Only 1% of the appraisal area's workers travel by train to work compared with the average of 6% for the Vale of Glamorgan as a whole (2011 Census Method of Journey to Work).

[31] Vale of Glamorgan Council Air Quality Progress Report 2016

[32] Vale of Glamorgan Council Air Quality Progress Report (2013)

[33] 2011 Census

- 38% of workers within the Vale of Glamorgan also live in the Vale of Glamorgan (2011 Census Journey to Work Commuter Flows by Local Authority).
- More people commute out of the Vale of Glamorgan compared to those commuting into the Vale of Glamorgan. 26,715 people out-commute from the Vale of Glamorgan compared to 13,305 people who in-commute establishing a net flow of -13,410 (2011 Census Journey to Work Commuter flows by Local Authority).
- 12% of workers from the appraisal area work in Cardiff and 2% of workers in the appraisal area live in Cardiff.

*Table 10 Method of Journey to Work (2011 Census)*[34]

| Mode | Appraisal Area | The Vale of Glamorgan | South East Wales |
|---|---|---|---|
| Car or Van Driver | 89% | 72% | 69% |
| Car or Van Passenger | 3% | 6% | 7% |
| Taxi | 0% | 0% | 1% |
| Motorcycle, Scooter or Moped | 0% | 1% | 1% |
| Bus, Minibus or Coach | 2% | 3% | 6% |
| Train | 1% | 6% | 3% |
| Bicycle | 1% | 2% | 2% |
| On Foot | 4% | 9% | 11% |
| Other | 0% | 1% | 1% |

*Table 11 2011 Comparison of Census Journey to Work Commuter Flows by Local Authority*[35]

| Authority | Out Commuting | In Commuting | Net Flow | % Working in Own Area |
|---|---|---|---|---|
| Bridgend | 18,040 | 17,256 | -784 | 56% |
| Cardiff | 32,845 | 73,126 | 40,281 | 65% |
| RCT | 36,609 | 19,365 | -17,244 | 48% |
| Vale of Glamorgan | 26, 715 | 13,305 | -13,410 | 38% |

*Table 12 2011 Census Location of Usual Residence and Place of Work*

| Currenly Residing | Place of Work | Number of People |
|---|---|---|
| Vale of Glamorgan | Cardiff | 17,773 (Total) |

[34] 2011 Census

[35] AECOM Mid and North Wales – 2011 Journey to Work Analysis (2014)

| | | |
|---|---|---|
| Appraisal Area | | 367 (2%) |
| Cardiff | Vale of Glamorgan | 5,576 (Total) |
| | Appraisal Area | 670 (12%) |

*Note: The places have been represented by SOA – Mid Layers*

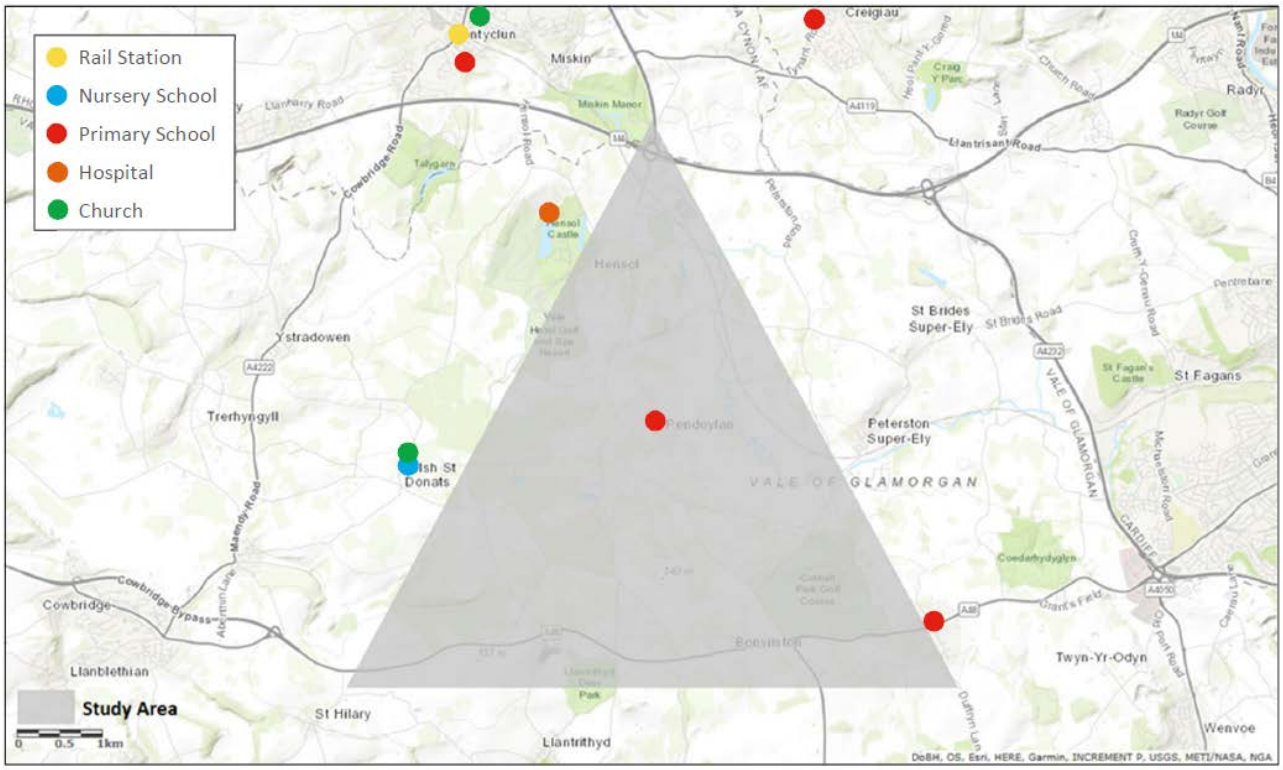
## 3.5 Access to Services and Recreation

Access to services within the appraisal area are generally poor as demonstrated within Figure 6. There are a limited number of facilities and services within 5km of Pendoylan (central point), including education, healthcare, employment, retail, public transport and recreation.

- St Athan is located within approximately 14km via a combination of rural roads and the B4265 to the south-west of Pendoylan. There are no direct bus routes from the appraisal area.
- Barry is located approximately 12km south-east of Pendoylan via Pendoylan Corridor and Five Mile Lane. There are no direct bus routes from the appraisal area.
- Cardiff is located approximately 15km to the east of Pendoylan via either the M4 of the A48. There are direct routes into Cardiff from the Red Lion Inn, Pendoylan.
- The Miskin, Pontyclun (including Pontyclun railway station) and Talbot Green area is approximately 5km to 7km to the north of Pendoylan. There are direct bus routes between this area and Pendoylan.
- Cardiff Airport is located south of the appraisal area, approximately 9.3km from Pendoylan. There is currently no direct access by rail or bus services.
- Nuffield Health (The Vale Hospital) is located west off Hensol Road approximately 3km north-west of Pendoylan. The hospital benefits from a number of bus stops close by and is also within 2.5km of Pontyclun Railway Station.
- The Vale Resort, a golf, spa and leisure hotel is located approximately 2.2km north-west of Pendoylan. There are bus stops located within approximately 1km of the resort.
- Hensol Castle is located within 2.6km to the north-west of Pendoylan. There are bus stops located within 500m of the resort.
- Hensol Golf Academy is located approximately 1km north of Pendoylan and is within approximately 900m of the nearest bus stop.
- Llanerch Vineyard, a vineyard, restaurant, bistro, hotel and cookery classes location is located approximately 3km north-west of Pendoylan. Bus stops are situated adjacent to the site.
- Cottrell Park Gold Resort and Club is situated approximately 2.2km south-east of Pendoylan. The resort benefits from bus stops located to the south of the site, along the A48.
- There are several schools within the vicinity of the appraisal area encompassing:
    - Abracadabra Playgroup is situated along Heol Mynydd. The playgroup is located in Welsh St Donats. There are poor pedestrian facilities near to the playgroup owing to the area's rural character.
    - Pendoylan Church in Wales Primary School is situated along the Pendoylan corridor road passing through Pendoylan. A zebra crossing comprising tactile paving is located at the entrance of the school's car park. A bus stop is located within approximately 150m to the south of the school, with footways interlinking.
    - St Nicholas Church in Wales Primary School is situated along School Lane, off the A48. There are limited pedestrian facilities near to the primary school owing to the area's rural character. A bus stop is located within approximately 250m to the south-east of the school; footway provision is limited with the exception of along the A48.

- There are limited evening and weekend bus services leading to potential difficulties in accessing essential services and leisure opportunities thus encouraging greater reliance on the private car.

*Figure 6 Access to Key Local Services within the Appraisal Area*




## 3.6 Access to Cultural Facilities

A cultural facility has been defined in this study as a place for activity associated with the arts; sport and other attractions. Cultural facilities entail a broad spectrum of facilities comprising, although not exclusive to, the following: arts and craft centres; beaches and marinas; country parks; golf courses and ranges; heritage attractions and museums; leisure centres and stadia; outdoor activities; trekking and riding centres; visitor attractions.

The Future Generations of Wales Act (2015) has a well-being goal of: *'A Wales of vibrant culture and thriving Welsh language'*. It is noted that this well-being goal will be achieved through *'a society that promotes and protects culture, heritage and the Welsh language, and which encourages people to participate in the arts, and sports and recreation.'*

Appendix B illustrates the locations of various cultural facilities throughout the Vale of Glamorgan as well as within the vicinity of the north of the study area. Appendix C provides a list the cultural facilities identified. Cultural facilities have largely been identified as presented in the Vale of Glamorgan Tourism Strategy.

Clusters of cultural facilities concentrate around the areas of Pontyclun to the north-west and Barry to the south. Cultural facilities are sparsely spread throughout the study area and consist largely of golf facilities and tourist attractions.

- Vale of Glamorgan Golf and Country Club;
- Golf Driving Range, Hensol;
- Hensol Forest;
- Hendrewennol Fruit Garden;
- Warren Mill Farm, Pendoylan; and

- Cottrell Park Golf Club, Bonvilston.

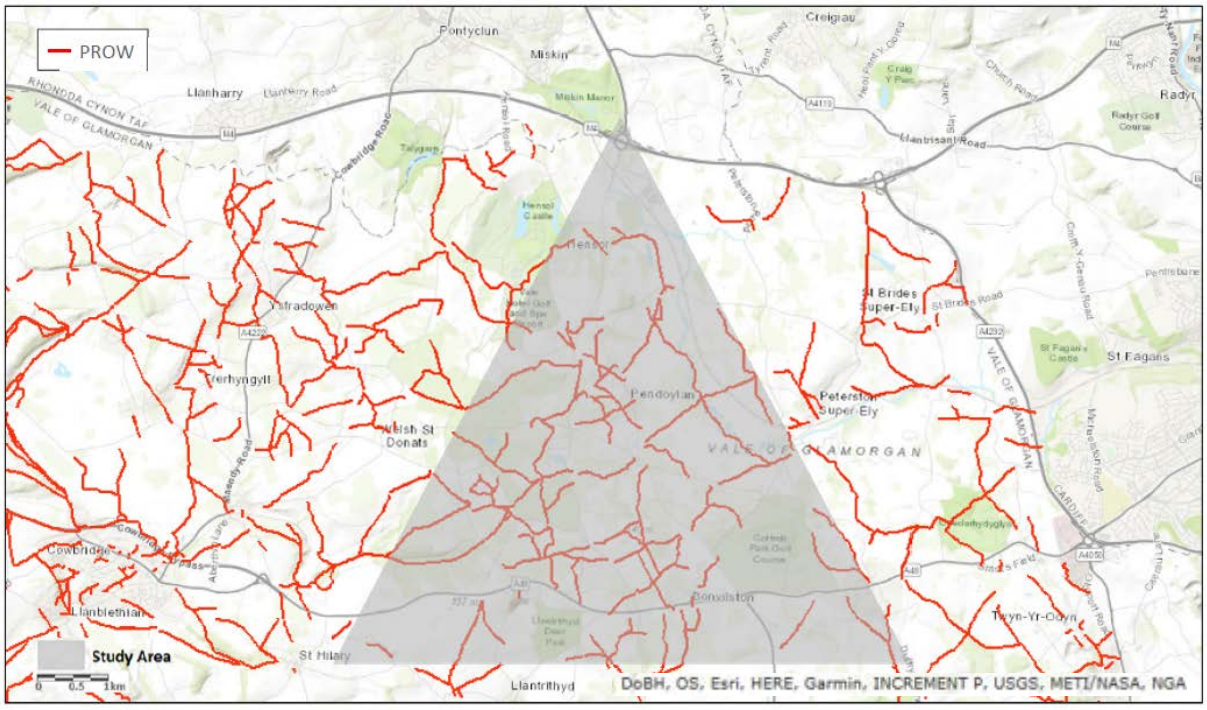
## 3.7 Walking and Cycling

### Walking

The provision of segregated footways throughout the appraisal area is limited given the rural nature of the area with provision in certain built up locations. There is reasonable footway provision through Pendoylan Village on at least one side of the carriageway, and to the south of the appraisal area footways are provided on at least one side of the A48. In addition, there is limited footway provision along the A4226 with the exception of footways on both sides of the carriageway on the approach of its junction with the A48, and limited provision is also evident along Redway Road.

A signalised pedestrian crossing comprising tactile paving and refuge island with barriers is located at the A4226/ A48 junction. A signalised crossing comprising tactile paving is also located adjacent to the Red Lion Public House along the A48 and at the Pendoylan corridor/ A48 junction. There are numerous Public Rights of Way (PRoW) within the area including a network of footpaths linking Pendoylan to Bonvilston. There are also PRoW linking Bonvilston through to Cardiff Airport. An outline of the existing local PRoW affecting the study area is as shown on Figure 7.

*Figure 7 Public Rights of Way*




### Cycling

There are no National Cycle Network (NCN) routes within the appraisal area. The nearest route is NCN route 88 which is situated approximately 6km south of Pendoylan Village and which interconnects from Newport to Margam Country Park along a mostly coastal route. Cycling provision between the M4 Junction 34 and A48 is very limited with no cycle markings or signs throughout the Pendoylan corridor. There are minor on-line cycle markings provided along a small section of the A48, adjacent to the Shepherds Lodge.

#### Proposals

As set out in the policy section, there are some proposed improvements since the RTP Capital programme for which implementation began in April 2010. These include: £311,000 match funding European Creative Rural Communities Grant over a 3-year programme to deliver walking and cycling routes throughout the rural Vale, including around the airport; £17,000 for Hensol Forest Bridleway Improvements; and The Five Mile

Lane Improvement scheme also includes provision for enhanced walking and cycling facilities interconnecting with the A48 Sycamore Cross junction.

## 3.8 Rail

### Local Rail Provision

There are no railway stations located within the study appraisal area with rail use for travelling to work subsequently very low at just 1%. The nearest railway stations within the vicinity of the appraisal area are located north of the M4 corridor within Pontyclun (South Wales Main Line) and at Barry and Rhoose (Vale of Glamorgan Line). Pontyclun Railway Station provides one service per hour running west towards Maesteg and Bridgend, and east towards Cardiff Central and Newport stations (Table 13). Over the last five years (2012/13 – 2016/17), significant railway station patronage increases have been observed at Pontyclun railway station from 256,302 to 302,896 passengers (16.7% increase).

The Vale of Glamorgan Line was reopened between Barry and Bridgend in 2005 including new stations at Rhoose and Llantwit Major with Park and Ride facilities[36]. A dedicated shuttle bus also operates between Cardiff Airport and Rhoose Station. The stations provide one service per hour running to Bridgend and Cardiff Central, and one service every one to two hours to Aberdare. Between 2011 and 2016, a slight railway station patronage decrease has been observed at Rhoose Railway Station (Cardiff International Airport) from 184,468 to 181,272 passengers representing a 1.7% decrease).

*Table 13 Rail Frequency (Direct Services Monday - Saturday)*[37]

| Railway Station | To/ Destination | Journey Time | Frequency |
|---|---|---|---|
| Pontyclun | Maesteg | 43 minutes | 1 per hour |
| | Bridgend | 16 minutes | 1-2 per hour |
| | Cardiff Central | 14 minutes | 1 per hour |
| Rhoose | Aberdare | 1 hour 40 minutes | 1 per hour |
| | Bridgend | 27 minutes | 1 per hour |
| | Cardiff Central | 33 minutes | 1 per hour |

*Table 14 Railway Station Patronage*[38]

| Railway Station | Patronage (2012/13) | Patronage (2016/17) | Percentage Change |
|---|---|---|---|
| Pontyclun | 256,302 | 302,896 | +16.7% |
| Rhoose | 184,468 | 181,272 | -1.7% |

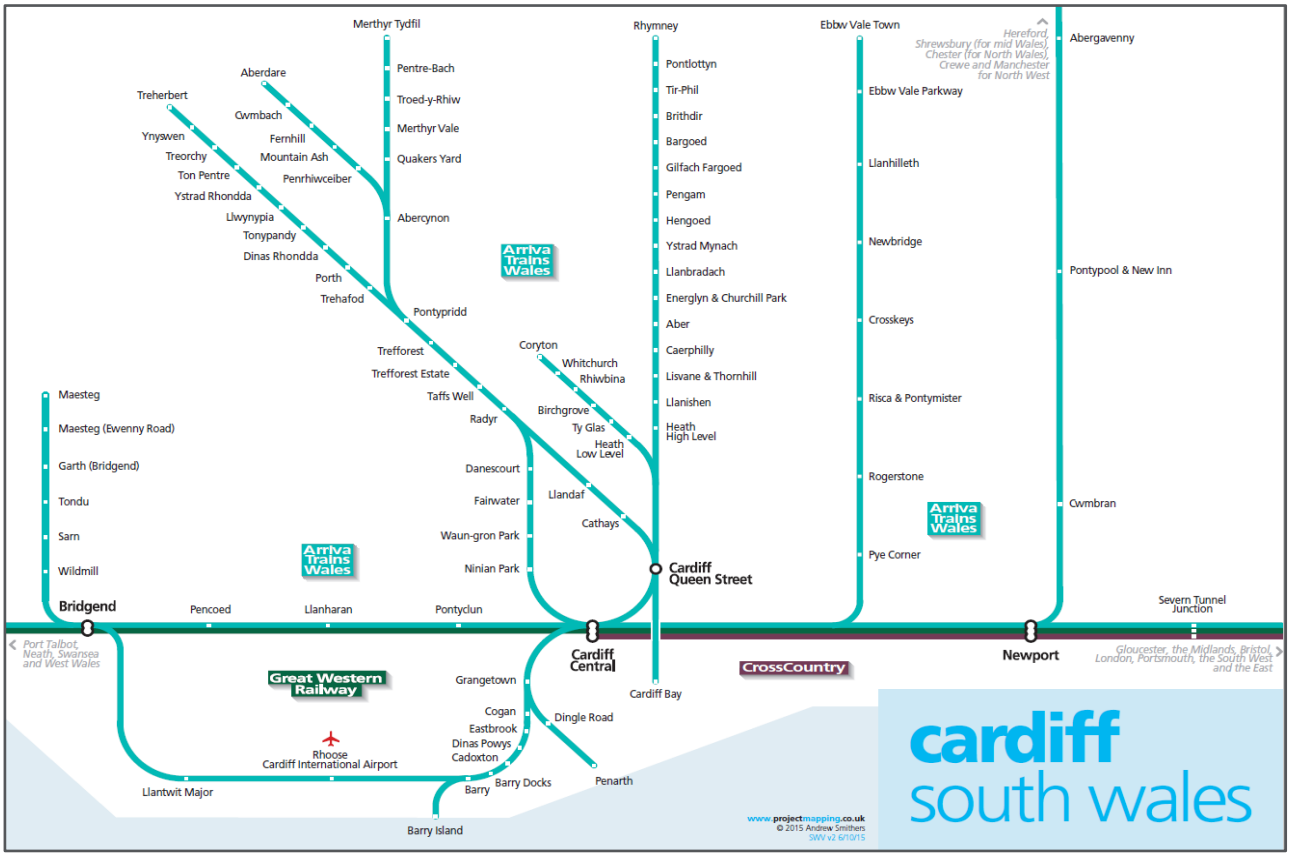
*Figure 8 Map of South Wales Railway Stations*[39]

36 Vale of Glamorgan Deposit LDP 2011-2026 (2013)

37 National Rail

38 Office of Road and Rail – Station Usage Data

39 National Rail Enquiries




## 3.9 Bus

### Bus Connectivity within the Appraisal Area

Bus transport modal share for journeys to work within the area is 2% compared to 3% in the Vale of Glamorgan and 6% in South East Wales as a whole.[40] However, it is noted that the appraisal area is extensively rural with no large urban settlements. There are various bus services serving the area with the frequency of service varies with Sunday services being very sparse. There are no direct services from the appraisal area to Cardiff Airport or the St Athan area. Bus routes are as described in Table 15 with regards to the appraisal area.

*Table 15 Bus Routes retained within the Appraisal Area*

| Bus Service | Description |
|---|---|
| 32B | Westgate Street Cardiff to Talbot Green, including stops in Pontcanna, Canton, Fairwater, St Fagans, Llanillterne. |
| 122 | Greyfriars Road to Tonypandy, including stops in Llandaff, Creigiau, Pontyclun, Tonyrefail and Penygraig. |
| 124 | Greyfriars Road to Maerdy, including stops in Pontcanna, Creigiau, Coedely, Trebanog and Ferndale. |
| 320 | Westgate Street Cardiff to Talbot Green including stops in Llandaff, Pendoylan, Hensol and |

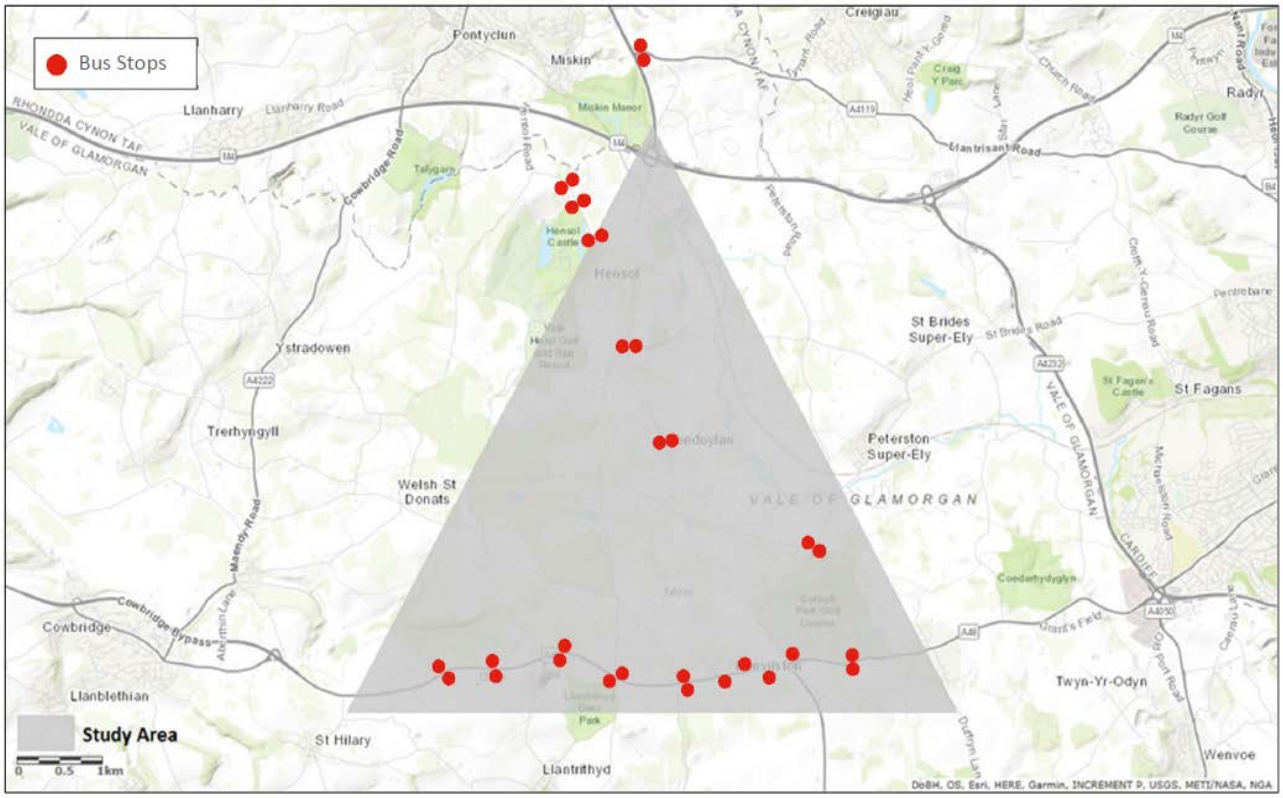
[40] 2011 Census

| Bus Service | Description |
|---|---|
| | Pontyclun. |
| X2 | Wood Street Cardiff to Porthcawl including stops in Bonvilston, Tair Onen and Corntown, along the A48. |

Figure 9 subsequently shows the location of bus stops within and near to the appraisal area. Bus stops are generally equipped with timetables however there is no real-time passenger information. Within the appraisal area, there are 30 bus stops, 10 of which comprise shelters with seating, flag poles and timetable, 15 have poles with timetables and five of which have no facilities. Footway provision to bus stops is inconsistent, with many bus stops without any footway provision or very limited provision.

It is a regional and local aspiration to standardise bus stops to ensure well maintained infrastructure in order to deliver a fully accessible bus service[41].The existing bus network varies in provision in the region and increased pressure on budgets mean that supported services are increasingly under pressure. There are currently no direct services from the appraisal area to Cardiff Airport or the strategic employment sites in the St Athan area. There are a number of community transport operations within the Vale of Glamorgan including Greenlinks, Voluntary Emergency Services Transport (VEST), East Vale Community Transport (EVCT), The Intersensory Club, and Non-Emergency Patient Transport.

*Figure 9 Local Bus Stops*




## 3.10 Highway Network

### 3.10.1 Background

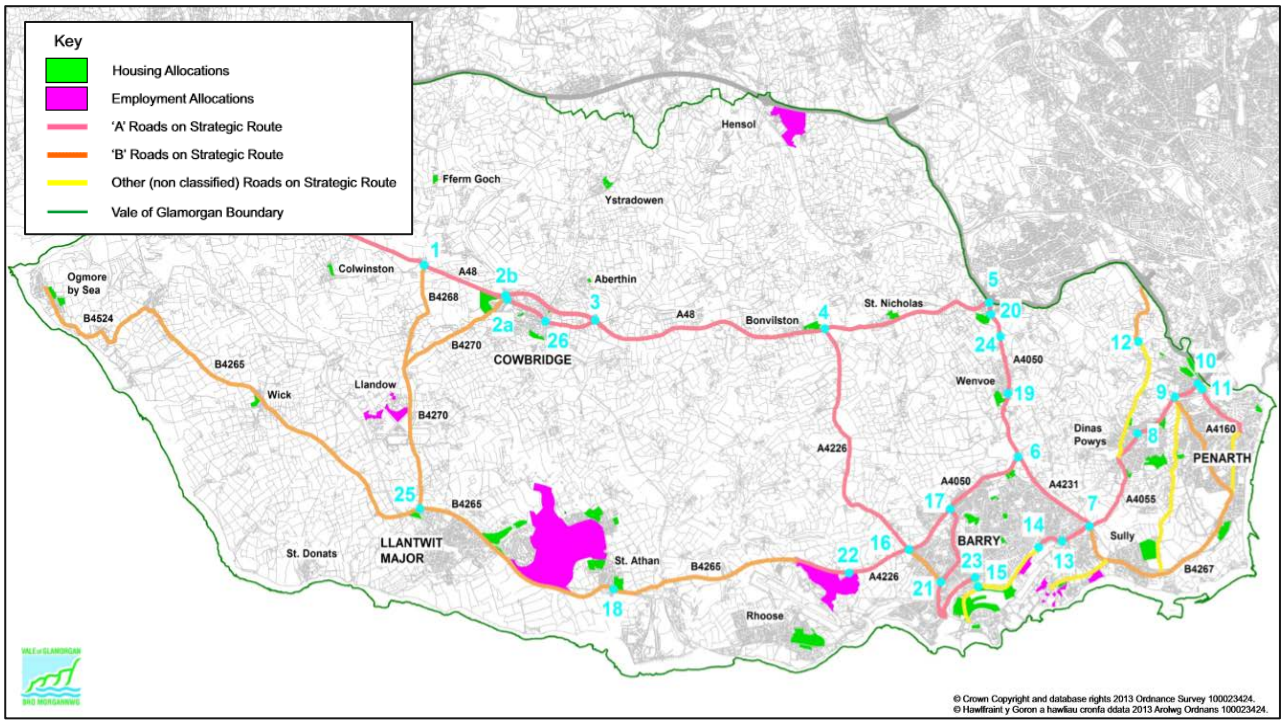
[41] Vale of Glamorgan LDP 2011-2026 Sustainable Transport Assessment

The highway network forms the principal transport network within the appraisal area predominantly encompassing the Pendoylan corridor from M4 Junction 34 through Pendoylan/ Clawdd Coch to the A48 at the Sycamore Cross junction, Redway Road/ unnamed road (linking Clawdd-côch and the A48) as well as a section of the A48 through St Nicholas and Bonvilston.

### 3.10.2 Local Highway Network

The following section assesses the key elements of the local highway network. The Highway Impact Assessment (2013) identifies the strategic highway network, key junction and allocated employment and residential development allocations over the local LDP period. These are shown in Figure 10 for local context.

*Figure 10 Strategic Routes and Junctions in the Vale of Glamorgan*[42]




## Pendoylan Corridor

The Pendoylan corridor is predominantly a narrow single carriageway connecting to M4 Junction 34 to the north and to the A48 to the south, as illustrated in a selection of photographs shown in Appendix D. In its northern section, the Pendoylan corridor is a single carriageway with standard width until the priority junction towards Hensol. The road then narrows and becomes a rural road predominantly bounded by hedgerows and woodland areas and is subject to the national speed limit (photograph 1).

The speed limit reduces to 30mph through the village of Pendoylan which is located approximately half way along the route. There is some footway provision throughout the village (photograph 2 and photograph 3). The speed limit rises again to the national speed limit to the south of Pendoylan and reduces to 40mph within approximately 50m of its junction with the A48. The route is narrow in places with difficulties for two vehicles to pass and various passing bays are provided along the route (photograph 4). There are issues along the route of poor visibility at junctions and for vehicles emerging from property drives.

A geometric assessment of the route has been completed in accordance with DMRB. In order to complete the assessment Ordnance Survey (OS) data was used (it should be noted that OS data has a +/- 2m tolerance). The results of the geometric assessment have been contained as Appendix E to this report and demonstrates that almost the entire Pendoylan corridor makes up one departure with only some compliant

[42] Highway Impact Assessment (2013)

sections throughout its length, mainly being the first 50m in the south and the last 600m in the north of route section.

### Redway Road

Redway Road is a rural route connecting to Clawdd-côch to the north-east and the A48 to the south. The road is a narrow single carriageway bounded by hedgerows and is subject to the national speed limit before reducing to 40mph within approximately 20m of its junction with the A48. Throughout the route there are difficulties in passing and provision of passing bays.

### A48 through Bonvilston

The A48 is a single carriageway trunk road. Within the appraisal area, the A48 has good footway provision (shared cycle and pedestrian path) with a few pedestrian crossings and bus stops.

## 3.10.3 Appraisal Area Junctions

The key junctions in the appraisal area are:

- M4 Junction 34;
- Sycamore Cross Junction - Pendoylan corridor/ A48/ Five Mile Lane; and
- Redway Road/ A48.

### M4 Junction 34

Junction 34 is a grade separated junction with slip roads from the mainline carriageway connecting to the A4119 dual carriageway to the north and the single carriageway link to Hensol/ Pendoylan to the south. The junction has two circulatory lanes across the motorway, widening to three lanes to and from the west. The junction is partially signalised, with signals on the westbound off-slip and southbound on the circulatory section. The junction is subject to congestion, notably on the A4119 and on and off of the motorway.

### Sycamore Cross Junction

The Capita Symonds Highway Impact Assessment LDP Background Paper (2013) identified that the A48/ Five Mile/ Pendoylan Road junction was forecast to be over capacity by 2026 during the AM and PM peak periods.Since this report junction improvements have been made to introduce traffic signals with right turning lanes, pedestrian crossing facilities and a bus lane on the north side east of the junction. During consultations, issues were highlighted with the junction that the signals may be causing a platooning effect which leads to additional issues of vehicles passing in the Pendoylan corridor to the north. Other consultees however noted that the junction was safer to use since the signals were introduced. The base year 2017 traffic flows at the junction have been extracted from the Transport Assessment for the Five Mile Lane improvement (Parsons Brinckerhoff 2016) as shown in Figure 11.

### Redway Road/ A48

The junction of Redway Road with the A48 is a priority cross-roads, with a minor road on the south side leading to Llancarfan.  There is a footway on the northern side of the junction.

## 3.10.4 Personal Injury Accidents

Figure 12 shows available personal injury accident data by severity within the appraisal area and its vicinity, between 2011 and 2015. The map shows a cluster of accidents at M4 Junction 34 with seven accidents, all of which were slight in severity. Ten accidents have been recorded along the A48 between its junction with Redway Road and Pendoylan corridor, seven of which were slight in severity and three of which were serious. A total of five accidents have been recorded along or within close proximity to Pendoylan corridor, four of these accidents were slight in severity and one of which was serious.

*Figure 11 Sycamore Cross Junction - Base Year 2017 Turning Flows*

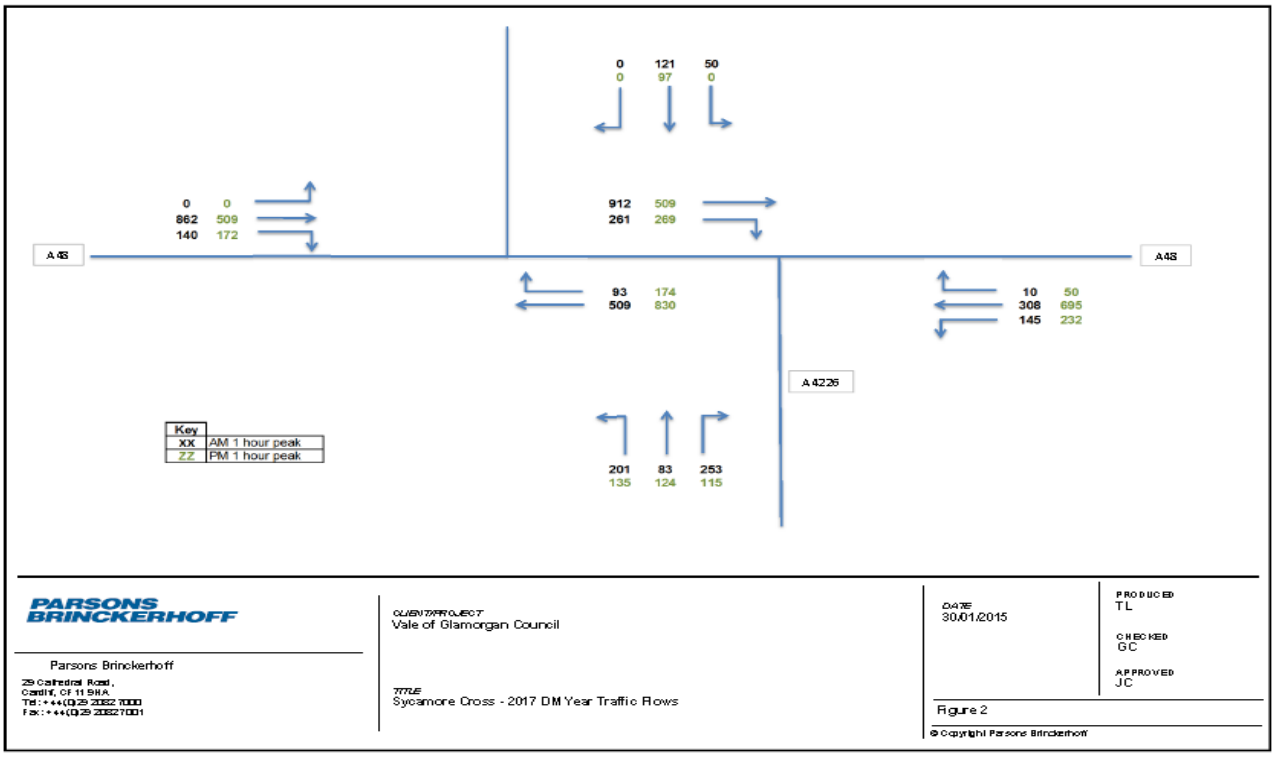
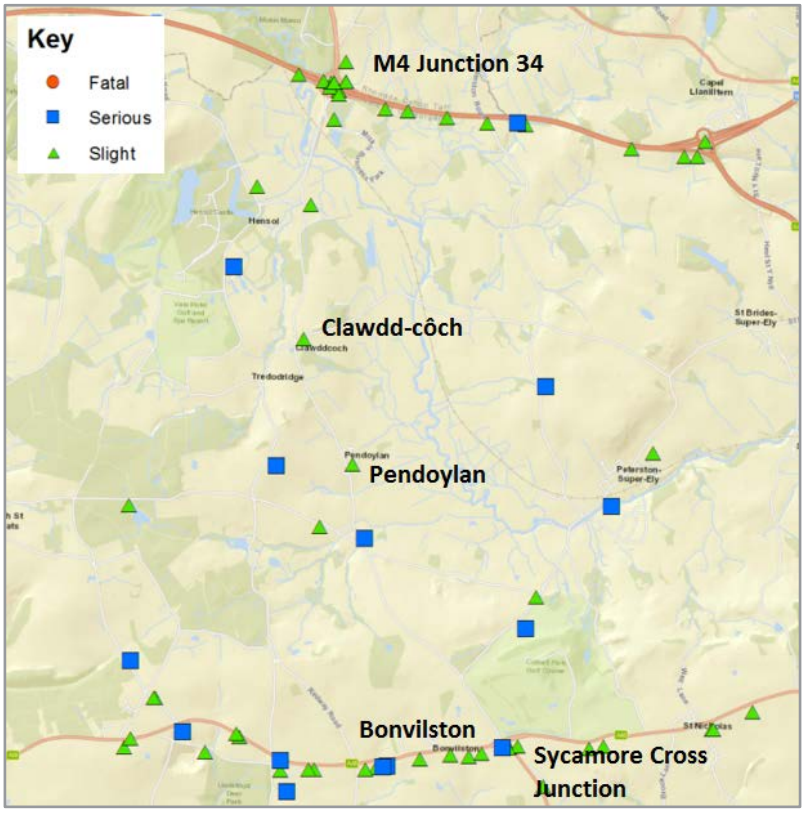



*Figure 12 Accidents by Severity within the Appraisal Area (2011-15)*[43]




## 3.10.5 South East Wales Transport Model

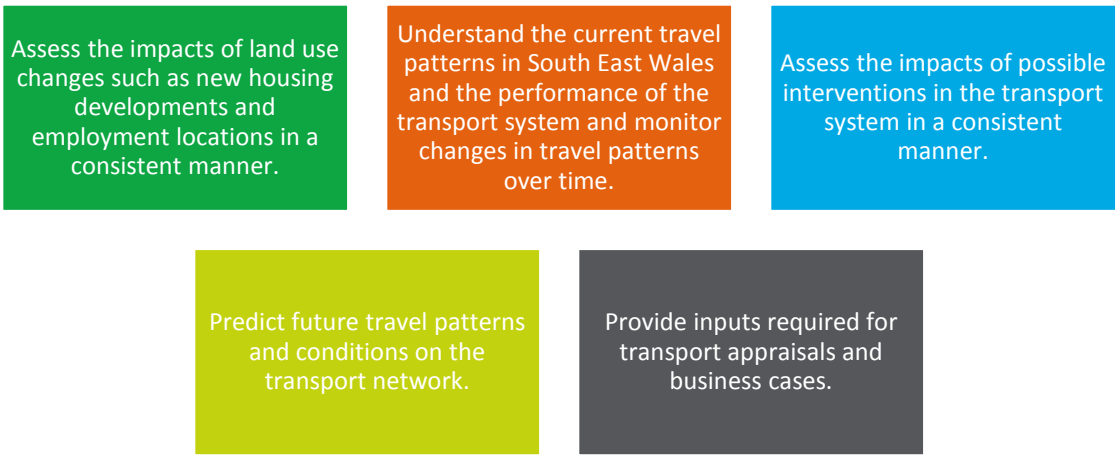
[43] Vale of Glamorgan Council Accident Data

## Background

To facilitate assessment of the highway route options and quantify the anticipated economic, social and environmental impacts, Mott MacDonald (working with Arup) was commissioned by Transport for Wales to undertake strategic transport modelling for the M4 J34 to A48 link using the South East Wales Transport Model (SEWTM) following a request from Arcadis and working on behalf of Vale of Glamorgan Council. A full technical summary of the commission and output traffic flow plans has been included as Appendix F.

The SEWTM is a multi-modal disaggregate demand model focused on South East Wales, covering the 11 unitary authority areas of Blaenau Gwent, Bridgend, Caerphilly, Cardiff, Merthyr Tydfil, Monmouthshire, Neath Port Talbot, Newport, Rhondda Cynon Taf, Torfaen, and Vale of Glamorgan.

The model comprises separate highway and public transport assignment models linked together with a demand model. The model was commissioned by Welsh Government in 2015 and has been developed by a team led by Mott MacDonald, and including Arup, RAND Europe and David Simmonds Consultancy. The SEWTM has been designed to achieve the following key objectives.




The model represents an average weekday for four time periods: an AM average hour between 07:00 and 09:30; an inter-peak (IP) average hour between 09:30 and 15:30; an average PM hour between 15:30 and 18:00 and an off-peak (OP) average hour between 18:00 and 07:00. The assignment models can also represent peak hours within the AM and PM peak periods. Peak hours are the single hours during which the highest volume of trips are undertaken; between 07:45 and 08:45, and between 16:30 and 17:30. The SEWTM base year is 2015, with forecast years of 2026 and 2036 currently available.

## Approach Overview

An overall approach to the strategic modelling, which is proportionate to the scale of the scheme and current development stage, was agreed in advance. The commissioned model subsequently incorporated a single carriageway way, 60mph link from just south of Hensol to the Sycamore Cross junction on the A48. The longest of the two highway alignments was used as a worst case for journey times.

It was assumed that there would be three junctions with local roads on the route and the Sycamore Cross junction will be an improved staggered signalised junction, in line with the current proposals as part of the Five Mile Lane upgrade. The model would specifically encompass running the highway component of SEWTM only and for the 2036 forecast year only, with model outputs used to complete a single year TUBA assessment.

## Output

Mott MacDonald/ Arup has issued the following model run outputs:

- GIS shapefiles containing modelled link vehicle flows (actual and demand for AM/ Inter-Peak/ PM) for the 2015 Base, 2036 Do-Minimum and 2036 Do-Something;
- Flow difference plots for AM, Inter-Peak, and PM time periods, comparing the 2036 Do-Minimum and 2036 Do-Something scenarios;

- Full set of TUBA 1.9.9 input and output files for a single year (2036); and
- Highway hour to period factors to assist in forecasting Annual Average Daily Traffic (AADT) flows – AM (2.1977), Inter-Peak (6), PM (2.3768), and Off-Peak (13).

A summary of the output traffic flows for the various scenarios has been included in Table 16.

*Table 16 South East Wales Traffic Model – Output Traffic Flows*

| Link ID | Reference | Direction of Flow | 2015 Base | | | 2036 Do-Minimum (DM) | | | 2036 Do-Something (DS) | | | 2015 Base to 2036 DM (% Change) | | | 2036 DM to DS (% Change) | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | AM | IP | PM | AM | IP | PM | AM | IP | PM | AM | IP | PM | AM | IP | PM |
| 1 | Pendoylan | Southbound | 295 | 209 | 283 | 353 | 281 | 342 | 792 | 573 | 772 | 20% | 34% | 21% | 124% | 104% | 126% |
| | | Northbound | 409 | 203 | 303 | 476 | 268 | 389 | 1234 | 832 | 1200 | 16% | 32% | 28% | 159% | 210% | 208% |
| | | **Two-way** | **704** | **412** | **586** | **829** | **549** | **731** | **2026** | **1405** | **1972** | **18%** | **33%** | **25%** | **144%** | **156%** | **170%** |
| 2 | M4 west of Junction 34 | Eastbound | 4045 | 2196 | 3184 | 5215 | 3099 | 4433 | 5037 | 3049 | 4360 | 29% | 41% | 39% | -3% | -2% | -2% |
| | | Westbound | 3268 | 2309 | 4131 | 4507 | 3306 | 5255 | 4522 | 3349 | 5270 | 38% | 43% | 27% | 0% | 1% | 0% |
| | | **Two-way** | **7313** | **4505** | **7315** | **9722** | **6405** | **9688** | **9559** | **6398** | **9630** | **33%** | **42%** | **32%** | **-2%** | **0%** | **-1%** |
| 3 | M4 east of Junction 34 | Eastbound | 4777 | 2771 | 3774 | 5813 | 3818 | 4989 | 5940 | 4000 | 5145 | 22% | 38% | 32% | 2% | 5% | 3% |
| | | Westbound | 3686 | 2676 | 5105 | 5020 | 3783 | 6169 | 5292 | 3867 | 6295 | 36% | 41% | 21% | 5% | 2% | 2% |
| | | **Two-way** | **8463** | **5447** | **8879** | **10833** | **7601** | **11158** | **11232** | **7867** | **11440** | **28%** | **40%** | **26%** | **4%** | **3%** | **3%** |
| 4 | A4119 | Southbound | 2076 | 1277 | 1854 | 2219 | 1810 | 2083 | 2021 | 1768 | 1894 | 7% | 42% | 12% | -9% | -2% | -9% |
| | | Northbound | 1814 | 1064 | 2252 | 2256 | 1557 | 2488 | 2330 | 1593 | 2562 | 24% | 46% | 10% | 3% | 2% | 3% |
| | | **Two-way** | **3890** | **2341** | **4106** | **4475** | **3367** | **4571** | **4351** | **3361** | **4456** | **15%** | **44%** | **11%** | **-3%** | **0%** | **-3%** |
| 5 | M4 east of Junction 33 | Eastbound | 4419 | 2808 | 3801 | 5506 | 3794 | 5166 | 5544 | 3854 | 5155 | 25% | 35% | 36% | 1% | 2% | 0% |
| | | Westbound | 4025 | 2707 | 4751 | 5350 | 3848 | 6156 | 5419 | 3856 | 6132 | 33% | 42% | 30% | 1% | 0% | 0% |
| | | **Two-way** | **8444** | **5515** | **8552** | **10856** | **7642** | **11322** | **10963** | **7710** | **11287** | **29%** | **39%** | **32%** | **1%** | **1%** | **0%** |
| 6 | A4232 Link Road | Southbound | 2972 | 1813 | 2541 | 3729 | 2614 | 3468 | 3651 | 2513 | 3472 | 25% | 44% | 36% | -2% | -4% | 0% |
| | | Northbound | 2384 | 1818 | 3163 | 3092 | 2527 | 3659 | 3127 | 2377 | 3645 | 30% | 39% | 16% | 1% | -6% | 0% |
| | | **Two-way** | **5356** | **3631** | **5704** | **6821** | **5141** | **7127** | **6778** | **4890** | **7117** | **27%** | **42%** | **25%** | **-1%** | **-5%** | **0%** |
| 7 | A48 east of Sycamore Cross | Eastbound | 999 | 325 | 623 | 715 | 584 | 1282 | 701 | 205 | 239 | -28% | 80% | 106% | -2% | -65% | -81% |
| | | Westbound | 384 | 310 | 505 | 1137 | 615 | 840 | 389 | 407 | 992 | 196% | 98% | 66% | -66% | -34% | 18% |
| | | **Two-way** | **1383** | **635** | **1128** | **1852** | **1199** | **2122** | **1090** | **612** | **1231** | **34%** | **89%** | **88%** | **-41%** | **-49%** | **-42%** |

| Link ID | Reference | Direction of Flow | 2015 Base | | | 2036 Do-Minimum (DM) | | | 2036 Do-Something (DS) | | | 2015 Base to 2036 DM (% Change) | | | 2036 DM to DS (% Change) | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | AM | IP | PM | AM | IP | PM | AM | IP | PM | AM | IP | PM | AM | IP | PM |
| 8 | A48 west of Sycamore Cross | Eastbound | 872 | 458 | 601 | 1047 | 564 | 673 | 1362 | 679 | 787 | 20% | 23% | 12% | 30% | 20% | 17% |
| | | Westbound | 553 | 459 | 816 | 737 | 639 | 998 | 552 | 588 | 732 | 33% | 39% | 22% | -25% | -8% | -27% |
| | | **Two-way** | **1425** | **917** | **1417** | **1784** | **1203** | **1671** | **1914** | **1267** | **1519** | **25%** | **31%** | **18%** | **7%** | **5%** | **-9%** |
| 9 | Five-mile Lane | Eastbound | 397 | 215 | 398 | 797 | 521 | 1008 | 823 | 516 | 952 | 101% | 142% | 153% | 3% | -1% | -6% |
| | | Westbound | 804 | 252 | 666 | 954 | 652 | 911 | 713 | 520 | 544 | 19% | 159% | 37% | -25% | -20% | -40% |
| | | **Two-way** | **1201** | **467** | **1064** | **1751** | **1173** | **1919** | **1536** | **1036** | **1496** | **46%** | **151%** | **80%** | **-12%** | **-12%** | **-22%** |

# 4 Data Source

## 4.1 Overview

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

## 4.2 Data Sources

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

- AECOM Mid and North Wales – 2011 Journey to Work Analysis (2014)
- Archwilio – Historic Environment Records of Wales (2017) - https://www.archwilio.org.uk/her/chi1/arch.html?county=Gwynedd&lang=eng
- Bridgend County Borough Council - LDP 2006-2021 (2011)
- Capita Symonds - Highway Impact Assessment LDP Background Paper (2013)
- Cardiff Capital Region Metro Study (2013)
- Cardiff Council - Cardiff City Region Transport Implementation Plan (2010)
- Cardiff Council - LDP 2006-2026 (adopted 2016)
- Cardiff Council - LTP (2015)
- DEFRA - Air Quality Management Areas - https://uk-air.defra.gov.uk/aqma/maps
- DEFRA - Multi-Agency Geographic Information for the Country website (MAGIC) – Magic Application (2017) - http://magic.defra.gov.uk/MagicMap.aspx
- Department for Transport – Record of Proceedings (2012)
- Google Maps (2017)
- Historic Wales – Portal for Historic Environmental Information in Wales (2017) - http://historicwales.gov.uk/
- Lle Geo-Portal – Catalogue (2017) - http://lle.gov.wales/catalogue?t=1&lang=en
- National Assembly Enterprise and Business Committee – International Connectivity through Welsh Ports and Airports, July 2012
- Natural England – Agricultural Land Classification of England and Wales 1985 (ALC009) (2013) - http://publications.naturalengland.org.uk/publication/6172638548328448
- Natural Resources Wales' Flood Risk Map Viewer – Long-term flood risk (2017) - https://naturalresources.wales/evidence-and-data/maps/long-term-flood-risk/?lang=en
- Network Rail - http://www.networkrail.co.uk/wp-content/uploads/2016/11/South-Wales-investment-map.pdf
- National Rail Enquiries - http://www.nationalrail.co.uk/
- National Transport Finance Plan (2015) and Evidence Base
- Office for National Statistics - Annual Survey of Hours and Earnings 2014
- Office for National Statistics (2011) (2001) Census
- Office of Road and Rail (2016) - Estimates of Station usage 2015-16
- One Wales: Connecting the Nation – Wales Transport Strategy (2008)
- Rhondda Cynon Taf Council - LDP up to 2021 (2011)
- RowMaps – Maps showing rights of way (2017) - http://www.rowmaps.com/

- South East Wales Transport Alliance (Sewta) Rail Strategy (2013) (Jacobs)
- South East Wales Transport Alliance (Sewta) Regional Bus and Community Transport Network Strategy (2014)
- Sustrans - http://www.sustrans.org.uk/ncn/map
- Traveline Cymru - https://www.traveline.cymru/
- Vale of Glamorgan Council - Accident Data
- Vale of Glamorgan Council - Air Quality Progress Report (2013)
- Vale of Glamorgan Council - Air Quality Progress Report (2016)
- Vale of Glamorgan Council – Adopted LDP 2011-2026 (2017)
- Vale of Glamorgan Council - Designation of Special Landscape Areas (2008)
- Vale of Glamorgan LDP Background Paper - High Impact Assessment, (2013)Welsh Government - Well-being of Future Generations (Wales) Act (2015)
- Vale of Glamorgan Council - Listed Buildings Inventory - https://www.valeofglamorgan.gov.uk/Documents/Living/Planning/Listed%20Buildings/Listed_Buildings_Inventory_October_2011.pdf
- Vale of Glamorgan Council - LDP 2011-2026 Sustainable Transport Assessment
- Vale of Glamorgan Council - LDP Proposals Map - https://www.valeofglamorgan.gov.uk/Documents/Living/Planning/Policy/LDP-2013/02-LDP-Proposals-Map-2013.pdf
- Vale of Glamorgan Council – LSV Tackling Poverty Report - https://statswales.gov.wales/Catalogue/Community-Safety-and-Social-Inclusion/Welsh-Index-of-Multiple-Deprivation/WIMD-2014/wimd2014localauthorityanalysis
- Vale of Glamorgan Council - LTP 2015-30
- Vale of Glamorgan Council - Public Rights of Way Map - http://myvale.valeofglamorgan.gov.uk/myGlamorgan.aspx?MapSource=ValeOfGlamorgan/AllMaps&StartEasting=309333.460273&StartNorthing=173932.149174&StartZoom=120000&o=1&Layers=rowFOOTPATH,rowBRIDLEWAY,rowRESTRICTEDBYWAY,Walescoastalpath
- Welsh Assembly Government (2016) Welsh Transport Planning and Appraisal Guidance (WelTAG) (draft version, June 2016)
- Welsh Government (2013) - Active Travel (Wales) Act 2013
- Welsh Government (2015) - Active Travel (Wales) Act 2013 Annual Report 2015
- Welsh Government - Noise Priority Areas (2017) http://gov.wales/topics/environmentcountryside/epq/noiseandnuisance/environmentalnoise/noisemonitoringmapping/priority-areas/?lang=en
- Welsh Government - Welsh Index of Multiple Deprivation (2014) - http://gov.wales/docs/statistics/2015/150812-wimd-2014-summary-revised-en.pdf

# APPENDIX A

Vale of Glamorgan Local Development Plan Map

# APPENDIX B

## Cultural Facilities Map

# APPENDIX C

## Cultural Facilities List

# APPENDIX D

Pendoylan Corridor Photographs

# APPENDIX E

Geometric Assessment of the Pendoylan Corridor (M4 Junction 34 to the A48 at Sycamore Cross)

# APPENDIX F

South East Wales Traffic Model (SEWTM) – M4 J34 to A48 Link WelTAG Stage 2 Technical Note & Traffic Flow Output Plans

Arcadis Consulting (UK) Limited

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

T: +44 (0)29 2079 9275

**arcadis.com**

ARCADIS Design & Consultancy for natural and built assets

# IMPROVING STRATEGIC TRANSPORT ENCOMPASSING CORRIDORS FROM M4 JUNCTION 34 TO THE A48

## WelTAG Stage Two: Consultation Report

DRAFT FOR REVIEW

SEPTEMBER 2018

# Improving Strategic Transport Encompassing Corridors from M4 Junction 34 to the A48

## WelTAG Stage Two: Consultation Report

| | |
|---|---|
| Author | MF / EM |
| Checker | MF |
| Approver | JH |
| Report No | 10013270-ARC-XX-XX-RP-TP-0003 |
| Date | SEPTEMBER 2018 |

## VERSION CONTROL

| Version | Date | Author | Changes |
|---|---|---|---|
| D01 | 07.09.2018 | MF / EM | Draft for review |

# CONTENTS

# TABLES



# APPENDICES

## APPENDIX A

**Feedback Form Template**

## APPENDIX B

**Stage Two Public Consultation Material**

## APPENDIX C

**Respondents Home Locations**

# 1 Introduction

## 1.1 Background

Arcadis Consulting (UK) Limited has been commissioned by Vale of Glamorgan Council to develop and appraise potential options for improving the strategic transport network encompassing corridors from M4 Junction 34 to the A48 (Five Mile Lane) including the Pendoylan Corridor (or alternative). The appraisal of options has been undertaken in accordance with Welsh Transport Appraisal Guidance (WelTAG).

A WelTAG Stage One study was completed in 2017 and undertaken in accordance with the Welsh Government's June 2016 draft WelTAG guidance. The appraisal of options for the Stage Two assessment has been undertaken in accordance with the Welsh Government's latest version of WelTAG (December 2017) including advice on the appraisal in relation to the Future Generations of Wales (2015) Act Well-being Goals.

The guidance in 2017 on the relationship between WelTAG and the Future Generations of Wales (2015) Act identifies that "*engaging and involving stakeholders is important throughout a WelTAG appraisal. Users are required to involve people with an interest in achieving the well-being goals and ensure those people reflect the diversity of the population."*

At both Stages One and Two, a programme of stakeholder and public consultation has been completed to inform option development and appraisal, in accordance with the WelTAG guidance. The latest version of WelTAG subsequently recognises the importance of collaboration during the early WelTAG stages to *"assist in understanding the current situation, setting objectives, producing a long list of possible solutions and outlining the range of likely impacts from those different solutions".* As the WelTAG assessment progresses to more detailed analysis the guidance further outlines the importance of engagement with the public and stakeholders to *"assist in gathering evidence on the impacts of each of the proposed options and the consequences of doing nothing".*

## 1.2 Consultation Report

This Consultation Report has been prepared by Arcadis and provides an overview of the consultation process and detailed analysis of responses from the public consultation events. The response from Stage One is included alongside that for Stage Two to provide a comprehensive overview of consultation.

The consultation analysis is based on responses received at the public events or made to Vale of Glamorgan Council via the project specific email address, online survey or by post.

It should be noted that the Consultation Report does not provide a commentary on the responses; it provides a factual analysis to help inform decision making on the way forward.

The structure of this report is as follows:

- Chapter 2 presents an overview of the consultation process at both Stage One and Stage Two;
- Chapter 3 presents the analysis and key findings of the Stage One Public Consultation; and
- Chapter 4 sets out the analysis and key findings of the Stage Two Public Consultation.

# 2 Consultation Process

## 2.1 WelTAG Stage One

### 2.1.1 Stakeholder Workshop

A stakeholder workshop was held on Thursday 7th September 2017 between 16:00 and 18:00 at Vale of Glamorgan Council Barry Docks Offices. A further community councillor and stakeholder workshop was held on Tuesday 19th September 2017 at Pendoylan Memorial Hall between 10:00 and 12:00. Approximately 40 people in total attended the two workshops representing the community councils, transport operators, Vale of Glamorgan Council officers, Welsh Government representatives and key businesses.

Arcadis conducted a presentation which comprised of identifying problems, opportunities, constraints and a list of potential options. Stakeholders discussed feedback within groups before feeding back to the wider group. Arcadis took notes of the feedback raised to inform the study, whilst stakeholders also made use of the materials for written feedback. The feedback was reviewed by the study team in preparing the Stage One report.

### 2.1.2 Public Consultation

A Stage One public consultation event was held on Thursday 21st September 2017 between 14:00 and 19:00 at the Pendoylan War Memorial Hall. The event afforded members of the public the opportunity to provide feedback on the identified options, opportunities, and constraints, as well as consideration and suggestions for the objectives and potential transport options. Information on the event was provided to the community councils for dissemination and advertised via the Council website and social media. The event was hosted by members of the Arcadis project team and the Vale of Glamorgan Council officers to facilitate discussion, with specific workstations and feedback forms provided to capture key information from attendees. The attendance list recorded 140 people during the five-hour period. A copy of the feedback form is included as Appendix A.

Following the workshop, the opportunity to respond was provided via a Vale of Glamorgan Council email address or through the paper forms provided at the consultation event. The public consultation period following the Stage One workshop was extended to 31st October 2017 as a result of technical issues associated with the consultation email address that was provided on the Council's website, and subsequent concern that was raised by a number of people. The additional consultation feedback received was subsequently interrogated and included as part of the Stage One process and contained herewith. The paper forms received totalled 30 plus nine email responses received, eight of which were received within the extended consultation period.

## 2.2 WelTAG Stage Two

### 2.2.1 Stakeholder Involvement

The Stage Two study has involved a series of meetings with Vale of Glamorgan Council officers, Welsh Government staff, representatives of neighbouring local authorities and consultants undertaking other studies for the M4 Junction 33 to Junction 35 and the Airport Masterplan. The purpose of these meetings was to share technical information and assist in the options development.

Key stakeholder representatives were invited to join the Review Group, who met on the 27th November 2017 to receive a presentation on the findings of the Stage One draft report and to discuss the recommendations. This led to confirmation of the problems, opportunities and objectives for the study and agreement on the shortlisted options. The Review Group subsequently met on 16th January 2018 at the outset of Stage Two, to discuss the methodology and approach to the consideration of options. A further meeting of the Review Group took place on 27th March 2018 to present the options and appraisal from the Stage Two work, prior to public consultation.

A launch to invited stakeholders of the public exhibition took place on the 17th April 2018 at the Vale Resort, Hensol. Arcadis gave a presentation on the material, which was followed by a question and answer session to the Vale of Glamorgan Council and Arcadis. The stakeholder launch was attended by 42 people representing the various stakeholders.

*Invited Stakeholders at the launch of the public consultation event on 17th April 2018 (Vale Resort, Hensol)*

### 2.2.2 Public Consultation

Public consultation events on the Stage Two draft report were held as follows:

- 17th April 2018 at the Vale Resort Hotel between 10:00 and 19:00;
- 18th April 2018 at the Cottrell Park Golf Club between 10:00 and 19:00 and
- 21st May 2018 at Cottrell Park Golf Club between 12:00 and 19:00 (this represented an additional public consultation event in response to the level of interest in the first two events).

The events were advertised through local press, the Vale of Glamorgan Council website and social media, and via the community councils.

The event afforded members of the public the opportunity to provide feedback on the study options developed from Stage One. The material presented at the public consultation is included as Appendix B. Members of the Arcadis project team and the Vale of Glamorgan Council officers were in attendance to facilitate discussion, with specific workstations and feedback forms provided to capture key information from attendees. A total of 444 people was recorded as attending the events.

Following the events, the material was displayed in the foyer of the Civic Centre in Barry for the public to view and comments forms were provided.

Feedback on the consultation material was sought through paper forms at the venues, an online survey and a dedicated Council email address for sending responses.

The public consultation period was originally set to end on the 18th May but was initially extended to 5th June to enable feedback after the third consultation day. It was subsequently extended to 17th July as a result of the level of interest in the consultation. The feedback received up to and including the 17th July has subsequently been included as part of the analysis in this report.

# 3 Stage One Consultation Analysis

## 3.1 Overview

Feedback received as part of the public consultation was analysed in relation to a number of options put forward. The responses have been analysed by themes around the options. The opportunity to make open comments on each option was provided on the form. The long list of options was as follows:

- Do-minimum (if things remained the same);
- Bus Park and Ride;
- Parkway Station;
- Highway link improvements;
- Junction improvements;
- Cycle connectivity;
- Combination of modal options;
- Are there any additional options to consider?

## 3.2 Consultation Responses

A total of 39 feedback forms, emails and letters responses were received from the Stage One Public Consultation (it was reported to Scrutiny Committee that 41 responses were received but these included two duplicate responses). The responses provide qualitative commentary on the issues and options, although we have highlighted the numbers of people making the same comment where appropriate.

## 3.3 Methodology

The analysis of consultation responses has been undertaken to identify the key themes arising. The feedback forms received have been analysed with all quantitative elements extracted for assessment. With regard to emails and letter responses received, these have been interrogated to extract key themes/ issues and are subsequently presented within a separate section of the analysis. The analysis of the qualitative data has subsequently not been quantified to avoid the potential for subjective misinterpretation of results.

## 3.4 Analysis of Feedback Forms

### 3.4.1 Do-minimum

The option of the do-minimum was seen as not an option by most people responding to that area (25) with two stating it would be their favoured option and one suggesting that a sensible do-minimum option would involve improving the existing road and discouraging travel via unsuitable rural lanes.

### 3.4.2 Bus Park and Ride

Sixteen respondents considered the bus Park and Ride to be a good option with the following comments made in relation to the option as noted in Table 1.

*Table 1 Bus Park and Ride Comment Responses*

| Heading | Commentary |
|---|---|
| Positive Comments | • Useful for journeys to Cardiff.<br>• More Park and Ride sites are needed. |
| Negative Comments | • A potential limited demand for the service.<br>• Unnecessary option. |

| Heading | Commentary |
|---|---|
| | • Concern that option will not solve existing problems.<br>• Concern for congestion. |
| Other Comments | • Proposal would assist the M4 but not the local area.<br>• There are already proposals at M4 Junction 33.<br>• Improved road links would be required.<br>• Journey time would need to be beneficial.<br>• Additional need for car parking hubs along the A48 with associated bus services into Cardiff.<br>• Would mainly benefit those from the Valleys. |

### 3.4.3 Parkway Station

Seventeen respondents considered the Parkway Station as a favourable option, with the following comments made in relation to the option as noted in Table 2.

*Table 2 Parkway Station Comment Responses*

| Heading | Commentary |
|---|---|
| Positive Comments | • Good idea however wider issues in Pendoylan will not be resolved.<br>• Would help to reduce congestion. |
| Negative Comments | • Unnecessary.<br>• Unlikely to happen. |
| Other Comments | • Would mainly benefit those from the Valleys. |

### 3.4.4 Highway Link Improvements

Fifteen respondents considered that highway improvements were needed and could assist in making improved connections to reduce the impact of adverse capacity issues and pinch points. A range of concerns and comments were expressed by respondents relating to the following:

- Increases in traffic and vehicle dependency as a result;
- Negative impact on the environment, health and wellbeing and rural character;
- Negative community and property impacts;
- Lack of justification;
- Public transport should be prioritised; and
- Other options should be considered.

### 3.4.5 Junction Improvements

A small number of respondents commented on junction highway improvements. Responses that were provided included there being no need for specific junction improvements, the need to upgrade M4 Junction 34, operational issues with the traffic lights at the Sycamore Cross junction, and difficulties with entering and crossing the existing route from adjoining lanes.

### 3.4.6 Cycle Connectivity

Twelve respondents identified a need for improved cycle connectivity and the introduction of new routes. Concerns surrounding extant safety issues were highlighted and a need for cycle routes to be family friendly. It was noted that it might be less necessary to address if traffic is removed from the lanes.

### 3.4.7 Other Options

In addition to responses received for the options presented at the public consultation event, the following suggestions were also provided by attendees.

- Implement enhancements to the wider highway network including:
  - The A4232 and A48 highway corridors;
  - Improvements to Culverhouse Cross including potential bypass and improved slip road;
  - Implementation of a bypass at Llysworney;
  - Enhancements to the Sycamore Cross junction including the removal signals, replacing the junction with a roundabout/ grade separation with 2+1 carriageway;
  - Implementation of links to Cardiff airport from M4 Junction 35;
  - Widen M4 Junction 33 with roads/ flyover interlinking to Cardiff airport;
  - Implementation of a bypass at Cowbridge;
  - Implementation of a new Junction – M4 Junction 34A;
  - Enhancements to Port Road and Weycock Cross; and
  - High occupancy vehicle lane on A4232.
- Improve the existing highway through the Pendoylan corridor.
- Improve bus and rail services to facilitate improved connectivity to Cardiff airport.
- Enforce improved routeing of traffic, and in particular HGVs onto more appropriate highways.

### 3.4.8 Other Considerations

A number of respondents made comments relating to Cardiff Airport, with five commenting that there is no growth expected, with others noting airline and industry issues which constrain the potential for growth at the airport. There was subsequently concern that the number of passengers does not justify the potential for investment in a new road between M4 Junction 34 and the A48.

Other general items raised were in consideration of the impact a new road would have on Public rights of way; accessibility to agricultural fields; consideration of equestrians, walkers and cyclists; air quality; road safety and environmental quality especially around schools; the need for ecological surveys [on the assumption of highway development]; and avoidance needed of disruption to existing routes [highway resilience].

# 4 Stage Two Consultation Analysis

## 4.1 Overview

This chapter presents the key findings of the Stage Two Public Consultation feedback.

## 4.2 Consultation Responses

A large number of responses were received during the Stage Two consultation process, inclusive of the public consultation events. A total of 166 feedback forms were subsequently received during the three public consultation event days whilst 633 online surveys/ or feedback forms were submitted to the Vale of Glamorgan Council via the website, email address or by hard copy. This gives a total of 799 responses. In addition, a total of 119 written responses were received from members of the public by email and letter.

## 4.3 Methodology

The analysis of consultation responses has been undertaken to identify the key themes arising. The feedback forms have been analysed with all quantitative elements extracted for assessment. With regard to emails, letters and other qualitative responses received, these have been interrogated to extract key themes/ issues and are subsequently presented within a separate section of the analysis. The analysis of the qualitative data has not been quantified to avoid the potential for subjective misinterpretation of results.

## 4.4 Analysis of Feedback Forms and Surveys

### 4.4.1 Question 1: Please can you give us your opinion on each option.

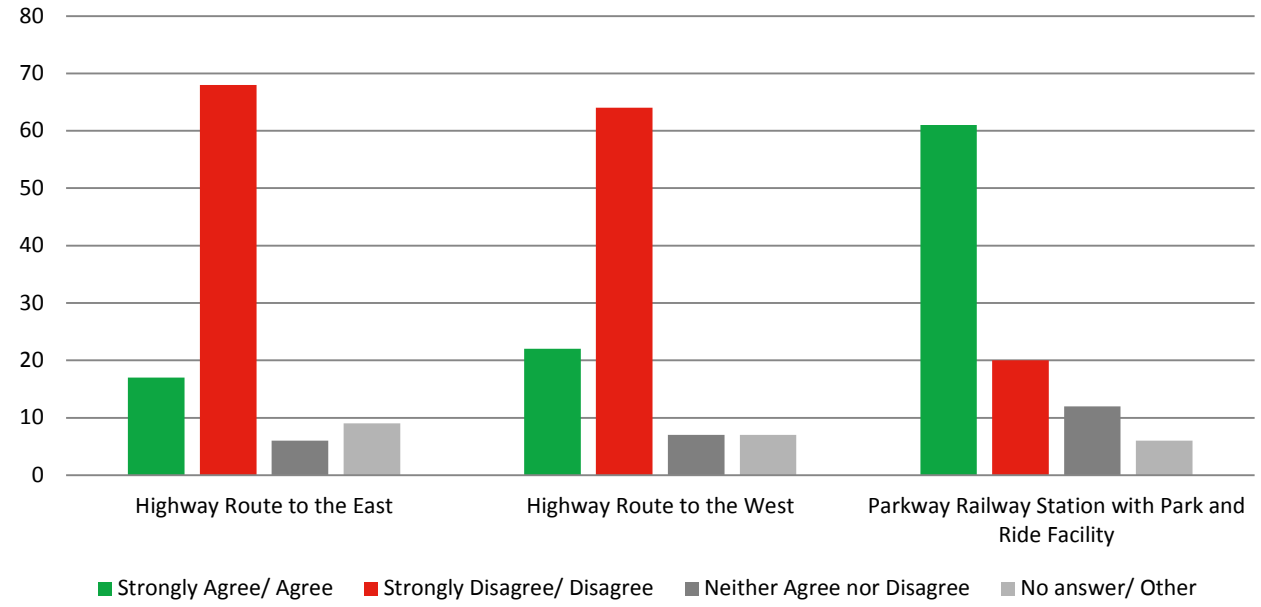
Question 1 sought to investigate the opinion of each of the three options presented with respondents asked to respond to one rating for each option. The results are shown in Table 3 and a chart is also illustrated as Figure 1 to demonstrate the positive, negative, neither positive or negative, and no answer/ other responses.

The results indicate that the majority of respondents disagreed or strongly disagreed with each of the highway options. The level of support was higher for the Western alignment than for the Eastern alignment. There was overall support for a Parkway Station which, given the low support for the highway options, indicates that it is seen as offering benefits as a standalone proposal.

*Table 3 Question 1 Consultation Responses*

| | Option | Strongly Agree | Agree | Neither Agree or Disagree | Disagree | Strongly Disagree | No Answer | Other | Total |
|---|---|---|---|---|---|---|---|---|---|
| I would like to see a… | Highway route to the east of Pendoylan | 97 (12%) | 36 (5%) | 50 (6%) | 43 (5%) | 501 (63%) | 72 (9%) | 0 (0%) | 799 (100%) |
| | Highway route to the west of Pendoylan | 123 (15%) | 56 (7%) | 52 (7%) | 39 (5%) | 473 (60%) | 56 (6%) | 0 (0%) | 799 (100%) |
| | Parkway railway station with Park and Ride facility and bus integration near to M4 Junction 34 | 325 (41%) | 166 (21%) | 99 (12%) | 21 (3%) | 136 (17%) | 50 (6%) | 2 (0%) | 799 (100%) |

*Figure 1 Question 1 Respondents Opinion on Each Option*




### 4.4.2 Question 2: Please can you provide the reason(s) for your choices to Question 1.

Question 2 investigates reasons for responses provides to Question 1 with respondents invited to identify all reasons that are considered applicable. For the purposes of this assessment the reasons assigned to each of the options have been extracted and presented separately. Other responses have also been summarised. It should be noted that some of the responses to Question 2 were provided for different options to that selected in Question 1.

#### Highway Route to the East of Pendoylan

'Environmental Impacts' (370 respondents) and 'Impact on Property' (197 respondents) have been identified as key reasons behind respondents' strongly disagreeing with a highway route to the east of Pendoylan. In contrast, those who strongly agreed with the option have stated 'Improved Transport Journey' as a key reason behind their choice to Question 1 (88 respondents). The results for this option have been summarised in Table 4. A number of respondents included an 'Other' response with the key reasons identified within Table 5.

*Table 4 Question 2 Responses – Highway Route to the East of Pendoylan*

| Response | Improved Transport Journey | Reduced Impact on Community | Impacts on Property | Environmental Impacts | No Response |
|---|---|---|---|---|---|
| Strongly Agree | 88 | 33 | 9 | 10 | 4 |
| Agree | 27 | 7 | 1 | 3 | 2 |
| Neither Agree or Disagree | 15 | 7 | 4 | 10 | 17 |
| Disagree | 2 | 3 | 9 | 23 | 8 |
| Strongly Disagree | 9 | 40 | 197 | 370 | 41 |

| Response | Improved Transport Journey | Reduced Impact on Community | Impacts on Property | Environmental Impacts | No Response |
|---|---|---|---|---|---|
| No Response | 3 | 2 | 1 | 1 | 12 |

*Table 5 Question 2 Other Responses – Highway Route to the East of Pendoylan*

| Opinion | Other Response |
|---|---|
| Strongly Agree | • A need for improved access to the M4/ Cardiff Airport.<br>• For economic growth and prosperity.<br>• Off-lining is likely to be quicker, cheaper and less disruption.<br>• Prevailing wind from west will help noise pollution.<br>• Reduce impact of new developments on local networks.<br>• No preference between routes.<br>• To improve safety.<br>• To reduce traffic problems.<br>• To improve HGV access.<br>• Less environmental impact compared to western route. |
| Agree | • Less impact on village.<br>• Reduce traffic on local network.<br>• Reduce rat running. |
| Neither agree nor disagree | • Little impact on respondent.<br>• Concern for proposed closure to Logwood access (Peterston-super-Ely access).<br>• No preference between routes. |
| Disagree | • Negative environmental impacts including on biodiversity, landscape and noise pollution<br>• Will not reduce traffic volume on local networks. |
| Strongly disagree | • Negative visual impact<br>• Increase in number of cars and traffic using the lanes and increase of problems from collisions.<br>• Negative impact on communities and rural life.<br>• Not a sustainable solution.<br>• Concern for proposed closure to Logwood access (Peterston-super-Ely access).<br>• Negative environmental impacts including on noise pollution, flooding and light pollution.<br>• A lack of justification for the route including the location through villages and also for the limited number of existing airport users.<br>• Cost of proposals including against use of public funds and potential reduction of budget for existing road maintenance. |

## Highway Route to the West of Pendoylan

'Environmental Impacts' (375 respondents) and 'Impact on Property' (191 respondents) have been identified as key reasons for those strongly disagreeing with the highway route to the west of Pendoylan. In contrast, those who strongly agreed with the option have stated 'Improved Transport Journey' (94 respondents) as a key reason behind their choice to Question 1. The full results for this option have been summarised in Table 6. A number of respondents included an 'Other' response with the key reasons identified within Table 7.

*Table 6 Question 2 Responses – Highway Route to the West of Pendoylan*

| Response | Improved Transport Journey | Reduced Impact on Community | Impacts on property | Environmental impacts | No Response |
|---|---|---|---|---|---|
| Strongly Agree | 94 | 52 | 19 | 41 | 8 |
| Agree | 29 | 26 | 7 | 16 | 7 |
| Neither Agree or Disagree | 20 | 13 | 3 | 8 | 21 |
| Disagree | 1 | 3 | 13 | 22 | 9 |
| Strongly Disagree | 5 | 39 | 191 | 375 | 47 |
| No Response | 2 | 4 | 2 | 4 | 46 |

*Table 7 Question 2 Other Responses - Highway Route to the West of Pendoylan*

| Option | Other Response |
|---|---|
| Strongly Agree | • Cost is favourable in comparison to the highway route to the east of Pendoylan.<br>• Potential for a reduction in traffic across the wider area including at Culverhouse Cross.<br>• The option is needed including to improve safety.<br>• Avoidance of flood plain.<br>• Minimised impact on local communities.<br>• Where ancient woodland would be lost, woodland could be increased as part of the proposals.<br>• Reduced environmental impact including avoidance of Schedule 1 bird nesting area.<br>• Less visual impact compared with eastern option.<br>• Improvements to infrastructure leading to investment and more jobs especially for young people. |
| Agree | • Improves access to the M4. |
| Neither Agree nor Disagree | • Concern over property impact.<br>• Little impact on respondent.<br>• Concern for proposed closure to Logwood access (Peterston-super-Ely access). |
| Disagree | • Concern for proposed closure to Logwood access (Peterston-super-Ely access). |

| Option | Other Response |
|---|---|
| | • Preference for a route further west as outlined in original consultation.<br>• Environmental impact including impact on flood plain and woodlands.<br>• Will not reduce traffic volumes. |
| Strongly Disagree | • A lack of justification for the option.<br>• Concern for proposed closure to Logwood access (Peterston-super-Ely access).<br>• Negative impact on communities including impact on village life, property value and disruption during construction.<br>• Increase in traffic issues and collisions.<br>• Negative environmental impact including noise pollution, light pollution, visual impact, impact on flood plain, biodiversity.<br>• Lack of sustainability.<br>• A lack of justification for the route including the limited number of existing airport users.<br>• Cost of proposals including against use of public funds and potential reduction in budget for existing road maintenance. |
| No Response | • Concern for proposed closure to Logwood access (Peterston-super-Ely access).<br>• New route will gain development opportunities. |

## Parkway Railway Station with Park and Ride Facility and Bus Integration near to M4 Junction 34

'Improved Transport Journey' (234 respondents), 'Reduced Impact on Community' (159 respondents) and 'Environmental Impacts' (96 respondents) have been identified as key reasons behind respondents strongly agreeing with a Parkway Station near to the M4 Junction 34. In contrast, those who strongly disagreed with the option stated Environmental Impacts (83 respondents) as a key reason behind their choice for Question 1. The full results for this option have been summarised in Table 8. A number of respondents included an 'Other' response with the key reasons identified within Table 9.

*Table 8 Question 2 Responses – Parkway Railway Station with Park and Ride Facility and Bus Integration near to M4 Junction 34*

| Response | Improved Transport Journey | Reduced Impact on Community | Impacts on Property | Environmental Impacts | No Response |
|---|---|---|---|---|---|
| Strongly Agree | 234 | 159 | 35 | 96 | 28 |
| Agree | 92 | 60 | 8 | 39 | 32 |
| Neither Agree or Disagree | 14 | 16 | 6 | 18 | 44 |
| Disagree | 1 | 2 | 2 | 7 | 6 |
| Strongly Disagree | 3 | 8 | 46 | 83 | 25 |
| No Response | 1 | 0 | 1 | 3 | 45 |

*Table 9 Question 2 Other Responses - Parkway Railway Station with Park and Ride Facility and Bus Integration near to M4 Junction 34*

| Option | Other Response |
|---|---|
| Strongly Agree | • A reduction in the number of cars and associated traffic.<br>• A positive impact on the local community including improved public transport for locals.<br>• To reduce the impact of new developments on local network.<br>• To reduce air pollution.<br>• Sustainable option should be prioritised.<br>• To open up new opportunities for development. |
| Agree | • A need to do something considering recent housing developments.<br>• 'Transport for the future'.<br>• Little impact on respondent.<br>• Quick journey time. |
| Neither Agree nor Disagree | • A lack of justification for the option.<br>• A lack of consideration for alternative options. |
| Disagree | • Requires free parking. |
| Strongly Disagree | • Negative impact on community.<br>• More traffic and collision problems including use of lanes for rat-runs.<br>• A lack of justification for the option.<br>• Worse transport journey. |
| No Response | • Ease congestion on wider highway network. |

## Additional Question 2 'Other' Response Analysis

This section provides an overview of responses where it was not always possible to distinguish either the exact option being considered, and the exact opinion relating to the route.

With regard to the highway route options, it should be noted that it could not be determined for all responses whether the comment was made relating to one or both of the highway route options.

With regard to those supporting the provision of a new highway route the additional responses focussed on improving connectivity including access to industrial areas to support economic growth and prosperity. An opportunity to reduce rat running through the wider highway network was also identified and whilst responses were sympathetic to the impacts on local residents it was considered that a new highway route was needed/ overdue as it would appear to be impossible to upgrade the existing Pendoylan route.

For 'Other' comments received which were in relation to the highway option/s, there was a diverse range of additional issues noted. Many of these were based on the anticipated environmental consequences that a new highway route would establish including an adverse impact on landscape, floodplain (east highway option), noise pollution, light pollution, ancient woodland and wildlife habitat. Adverse social-economic impacts were also recorded with a perceived lack of benefit for local communities together with a negative impact on housing, local community and rural life including a loss of passing trade, health (including impact on school children), as well as a perception that a new road would be contrary to the policies specified within the Future Generations of Wales (2015) Act. Commentary noted a view that new roads would encourage more drivers and associated congestion with an increase in traffic and rat-running. In addition, objections

were noted to the closure of Logwood access (Peterston-super-Ely access) and concerns regarding the potential inaccuracy of costing with regard to the highway route options.

A selection of mixed responses was identified for a Parkway Station proposal. A proportion referenced provided responses against a rail Park and Ride questioning the need at the proposed location as well as concern for increased traffic to and from the interchange. Concern was also noted over the number of potential users considering limited numbers of people use existing bus connections from Cardiff Central to the airport. In contrast, this was also considered a viable sustainable option by others and anticipated to have a positive environmental impact or reduced environmental impact with the potential to reduce car dependency. An identifiable need for improved public transport was noted against currently limited opportunities.

It should also be noted that there were a number of 'Other' responses that were non-specific or were general comments were made regarding the study as a whole. These comments have been included in Table 10 for information.

*Table 10 Question 2 Other General Comments*

| Question 2 Other General Comments | | | |
|---|---|---|---|
| A lack of information presented for respondents to make a decision | A lack of justification for an option(s) | Increased crime | A lack of options put forward including 'no highway route' or 'do-minimum' |
| A question over whether the Park and Ride facility option was a genuine option | Airport traffic is of little significance overall | Existing infrastructure considered adequate | A concern over the movement of materials during potential construction |
| A lack of transparency to date | Cost of option(s) | Incorrect information | Necessary to improve success of Cardiff Airport |
| Encourages rural areas to be developed unnecessarily | Little or no benefit to local residents | Form considered biased to lead preference for a route | Negative impact on property value |

### 4.4.3 Question 3: How could each of the options be improved?

Question 3 sought to establish how respondents considered the three options presented could be improved. As this is an open question, responses have been analysed and are represented below in terms of the key themes and specific points raised.

#### (Question 3a) Highway Route to the East of Pendoylan.

Many respondents stated their objection to the proposal altogether whilst some respondents stated that they were happy with the existing proposals. Various suggestions were put forward as providing an improvement or alternative to this option, including the following:

- Improvements should be prioritised to the existing local and strategic network including widening of road and traffic calming.
- A large number of respondents also communicated their concerns and objections to the suggested access to Peterston-super-Ely.
- Improve public transport.
- Avoid and/ or minimise impact on environment.
- Minimise visual, noise and property impact.
- The proposed carriageway as dual carriageway.

- Improve cycle infrastructure.
- Bypass Culverhouse Cross.
- A wider strategic view to be considered.

## (Question 3b) Highway Route to the West of Pendoylan

Many respondents also stated their objection to the proposal altogether whilst some respondents stated they were happy with the existing proposals. Many of the same or similar points have been made for Question 3b as have been made for Question 3a. The suggestions made for providing an improvement or alternative to the option included the following:

- A large number of respondents also communicated their concerns and objections to the suggested access to Peterston-super-Ely.
- Improvements should be prioritised to the existing local and strategic network including widening of road and traffic calming.
- Improve public transport.
- Dual carriageway.
- Consider alternative routes from the M4 to the airport.
- Improve active travel connections.
- Extend link to provide a direct connection to the airport.
- Minimise visual, noise and property impact.
- Avoid and/ or minimise impact on environment.
- A wider strategic view to be considered.

## (Question 3c) Parkway Station with Park and Ride Facility and Bus Integration

Many respondents stated their support for the proposal although a large number of these respondents were not supportive of the road proposals in conjunction with the Parkway Station with Park and Ride facility and bus integration. However, it is clear that the level of information provided at Stage Two was considered not detailed enough for many respondents to provide an informed view at this stage. Nonetheless, in principle, a majority of respondents supported this option largely on the grounds of sustainability and an evident need for public transport within, to and from the area. The suggestions made for improvements or alternatives to the option are outlined in Figure 2.

## Question 3 – Other Responses

There were again a number of responses whereby it was difficult to establish which of the proposals comments were referring to. These comments have been included in Table 11 for information.

*Table 11 Question 3 Other General Comments*

| Question 3 Other General Comments | | | |
|---|---|---|---|
| Improve integrated public transport including between study area and Cardiff | Include improvements to existing route as option and surrounding highway network | Improve traffic flow on wider network | Money better spent elsewhere |
| Direct link to airport | Dual carriageway | Maintain access to Logwood (Peterston-super-Ely access) | Improve cycle infrastructure |

| Question 3 Other General Comments | | | |
|---|---|---|---|
| Improve wider highway network including Culverhouse Cross | Traffic calming | Alternative link route including from Junction 33, and between Junction 34 and 35 | Reduce environmental impact |
| Reduce reliance on cars | Include no highway route option | Llysworney bypass | Include improvements to surrounding highway network |

Figure 2 Question 3c Suggested Improvements for the Parkway Station Option


### 4.4.4 Question 4: Where do you live?

Question 4 asked for the home location of the respondent. A table listing the locations provided are presented within Appendix C. The first three or four digits (where applicable) of the postcode information have been used where available. Where a place name has been provided and a postcode has not, the name of the place has been listed.

A total of 48 respondents (6%) did not include this information in the survey however as a majority of respondents did provide their home location, the list subsequently presents a good outline of respondents' home locations. The results indicate that over half of the respondents live within three postcode locations provided including CF5 (199 respondents) CF71 (182 respondents) and CF62 (78 respondents). Other notable response locations include CF72 (38 respondents) and CF64 (27 respondents).

### 4.4.5 Question 5: Where do you work or study?

***Note:*** *It should be noted that the specific question asked at this stage of the survey differs between the feedback form and the online survey. This has been clearly outlined within this section for information.*

## Feedback Forms: Where do you work or study?

Question 5 on the feedback form also asks where the respondents work or study, or whether the respondent is not working or studying. The work locations shared by more than one respondent are presented in Table 12 with those locations noted by one person as included within 'Other'.

*Table 12 Question 5 – Where do you work or study?*

| Work Location | Number of Respondents |
|---|---|
| Not working or studying | 69 |
| No response | 22 |
| Cardiff | 17 |
| At home | 6 |
| Pendoylan | 6 |
| Vale Resort | 6 |
| CF71 | 3 |
| Treforest | 3 |
| Wenvoe | 3 |
| Agriculture | 2 |
| Cowbridge | 2 |
| Culverhouse Cross | 2 |
| Penarth | 2 |
| Other | 23 |
| **Total** | **166** |

## Online Survey: Do you frequently travel between the M4 Junction 34 and the A48 for travelling to work/ travelling to study/ shopping/ leisure/ travelling to the airport/ other?

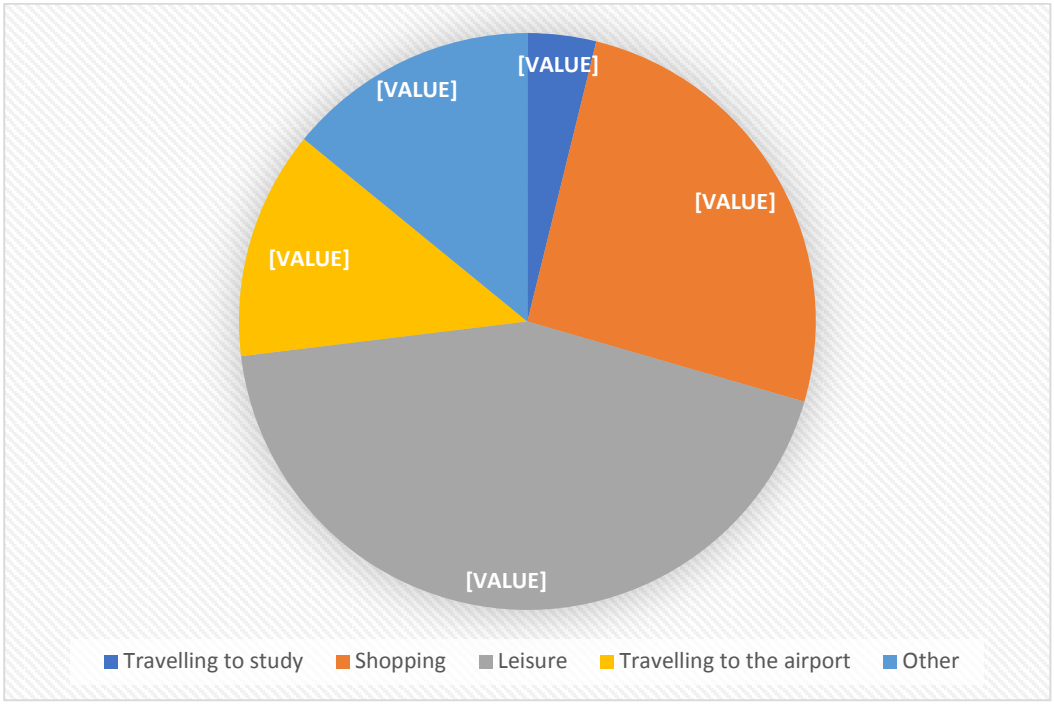
Table 13 and Figure 3 represents the number and percentage of online survey respondents travelling frequently between M4 Junction 34 and the A48 for each purpose.

*Table 13 Purpose of Frequent Travel between M4 Junction 34 and the A48*

| Purpose | Number | Percentage |
|---|---|---|
| Travelling to work | 226 | 22% |
| Travelling to study | 31 | 3% |
| Shopping | 205 | 20% |

| Purpose | Number | Percentage |
|---|---|---|
| Leisure | 357 | 34% |
| Travelling to the airport | 106 | 10% |
| Other | 112 | 11% |

*Figure 3 Purpose of Frequent Travel between M4 Junction 34 and the A48*




### 4.4.6 Question 6: Do you own a business in the local area?

Question 6 asks whether the respondent owns a business in the local area. The responses are presented within Table 14.

*Table 14 Local Business Ownership*

| Ownership of business in the local area | Number | % |
|---|---|---|
| Yes | 114 | 14% |
| No | 648 | 81% |
| No Response | 37 | 5% |
| **Total** | **799** | **100%** |

### 4.4.7 Question 7: Which is your Local Authority?

Question 7 asks for the respondents Local Authority. The responses are presented within Table 15. It can be seen that the majority of respondents are residents of the Vale of Glamorgan, with a significant proportion also being from Cardiff and Rhondda Cynon Taff.

*Table 15 Respondents Local Authority*

| Local Authority | Number | % |
|---|---|---|
| Vale of Glamorgan | 580 | 73% |
| Rhondda Cynon Taff | 46 | 6% |
| Cardiff | 101 | 13% |
| Bridgend | 10 | 1% |
| Other | 17 | 2% |
| No Response | 45 | 6% |
| **Total** | **799** | **100%** |

## 4.5 Analysis of Emails and Letters

### 4.5.1 Overview

This section of the analysis summarises responses from the 119 written responses received from members of the public by email and letter. As noted earlier within this Consultation Report the analysis has not attempted to establish a quantitative assessment of the key themes and issues/ opportunities arising given the level of detail and individuality of each of the responses. The analysis has therefore sought to avoid the potential for over-simplification of the results as far as possible, and subsequently present an outline of the key themes arising. The analysis within this section has been provided in no particular order.

### 4.5.2 Highway Options – Support

Support for a new road west or east of Pendoylan was in the minority however a few respondents did state their support or general support for the highway options. This was caveated in some instances with strong objections raised regarding the potential Logwood closure adversely affecting accessibility to Peterston-super-Ely.

The primary reasons in support of a new road link between the M4 Junction 34 and A48 included the potential to encourage/ attract investment in the area, alleviate traffic capacity/ pressure at Junction 33, establish a transformative impact on local economy, and to improve accessibility for freight and commuters from Rhondda Cynon Taff. Commentary was also provided regarding the new road from Avonmouth to Bristol Airport (assumed to be the South Bristol Link road opened in January 2017), and that if Cardiff Airport is to compete then accessibility should be improved.

### 4.5.3 Highway Options – Objections/ Concerns Raised

The majority of respondents who replied during the consultation process by email or letter have outlined their objection to the proposed highway route proposals. The supporting justification for this has been noted within this section of the analysis.

#### Lack of Justification for the Road Options

There were a large number of statements referring to the lack of justification for the proposed highway options. In the majority of cases, this was related to the economic case used to inform the WelTAG Stage Two assessment and the sentiment that there is no justified case to support development of any new road.

## Non-sustainable/ Increased Traffic

It was frequently raised that a new road would eventually lead to more traffic and increase reliance on use of the private car. There was a specific concern for the potential adverse impact on particular roads including the A48 at Weycock Cross, Sycamore Cross, westbound through St Nicholas and eastbound through Bonvilston. It was stated that it would be of interest to understand what mitigation has or could be considered to address these potential increases in traffic and the subsequent capacity issues that would arise. It was regularly stated that the road proposals are not a sustainable solution. Sustainability was especially referred to in terms of the road proposals negative environmental impact and it not being a long-term solution.

## Impact on the Environment and Countryside

Many respondents highlighted the outstanding natural beauty and visual amenity of the local area throughout the Ely Valley, along with the tranquillity and unique rural character. Implementation of a new road interconnecting between the M4 Junction 34 and the A48 was considered by the majority of respondents to present a considerable threat, likely to establish a significant adverse impact. To this extent a large number of respondents identified the potential impact of the road proposals on the environment as a key reason behind their objection with the following risks identified:

- A significant risk regarding the loss of ancient woodland;
- A threat to the Ely Valley floodplain, particularly with reference to the Eastern alignment;
- An increase in carbon emissions and reduced air quality as a result of increase traffic through the Pendoylan corridor;
- A threat to an identified Special Landscape Area;
- A threat to a Conservation Area; and
- An increase in noise pollution.

The consultation responses identified a large range of wildlife that respondents considered could be adversely affected including the native grass snake, butterflies, otters, newts, mice, insects, amphibians, water voles, hedgehogs, rare orchids and primroses. The Pendoylan corridor was also identified at the providing a habitat for a large number of bird species including buzzards, kestrels, hawks, redwings and fieldfares as well as bats.

## Impact on Health

The health of local communities was of wide concern with particular mention of those most vulnerable including children, the elderly and those with respiratory issues. Air quality was mentioned as a concern and various respondents quoted from the Annual report from the Director of Public Health in Cardiff and the Vale (2017) that after cancer, air pollution is the number one priority. It was commented that health should be put before travelling to work quickly.

## Peterston-super-Ely Access (Logwood Closure)

A large number of respondents stated their objection to the suggestion option of closure of the Peterston-super-Ely Logwood access onto the proposed road. The following key reasons were raised:

- Creates problems for large vehicles including buses, refuse lorries, emergency vehicles, agricultural/ farm vehicles, delivery lorries and LGV/ HGV oil tankers;
- Reduced access for local residents and businesses;
- Inconvenience for those travelling to and from the school; and
- Likely to cause congestion and reduce [highway] safety.

There was also a strong perception that even with a junction that road congestion is likely to arise, and it was questioned what mitigation measures would be proposed to respond to the knock-on effects of the closure.

### Transport Modelling

Criticism over the methodology used for transport modelling provided to assess the impact of the new road alignments was made.

### 4.5.4 Other Key Issues

In addition to responses received specifically with reference to the proposed highway alignments, a number of additional themes have been captured as set out below in no particular order. It is noted that a number of these comments related to the process and level of information provided.

### Consultation

The length of consultation period was commented on by respondents as too short and also that there is a lack of awareness from many residents of the ongoing WelTAG study. It was stated that residents of houses potentially affected by the highway routes were not contacted prior to the consultation and that this should not have been the case especially given the sensitivity surrounding this particular issue.

### Survey/ Feedback Forms

There was concern that the content of the survey did not provided all the options and a number of respondents felt unable to express their full opinion on the options put forward. Many respondents felt that they were not provided with an opportunity to object to the highway options and some respondents expressed a preference for a Parkway railway station with Park and Ride facility and bus integration near to M4 Junction 34. Specific reference and concern was raised that the surveys did not include the do-minimum option that was originally included as part of the Stage One process. It was also felt that the study has failed to consider alternatives to those now presented to the public.

### Inaccuracy of Information

Some respondents stated that the report demonstrated a lack of knowledge of the local network and thought that the maps were poor. The costing of the options was also questioned with many respondents stating that the forecast costs calculated were too low for the highway route alignments. Concern over who would be funding proposals was also raised.

### Lack of information

Numerous respondents were concerned that there was not sufficient information provided during consultation to make informed decisions. In particular, assessments of the environmental impact of highway routes was stated as lacking.

### Vale of Glamorgan Connectivity Study – The Case for Change; Welsh Government; Final Report; February 2018; Peter Brett Associates

Some criticisms were made in relation to the Case for Change report contained as part of the WelTAG Stage Two Outline Business Case report. A few respondents stated that the report is not clear on the proportion of the 10,000 travellers using the proposed road that are estimated to travel onwards to the airport and/ or the Enterprise Zone. Respondents also raised the concern that the report makes the case for Stage One however the Case for Change Report was written after Stage One commenced. In addition, the economic evidence was also been stated by some respondents as flawed.

### No Problem with Existing Situation

Many respondents stated that there is no existing issue with accessing the airport and that existing infrastructure (not between M4 Junction 34 and A48) is adequate for this purpose.

### Policies and Studies

The following policies were referenced by respondents with the comment made that the Stage Two options are contrary to them:

- Well-being of Future Generations (Wales) Act 2015

- Vale of Glamorgan Local Development Plan
- Vale of Glamorgan Local Biodiversity Action Plan
- Wales Transport Strategy
- Vale of Glamorgan Well-being Plan
- Vale of Glamorgan Sustainability Appraisal Report
- Vale of Glamorgan Management Plan for Pendoylan Conservation Area
- Re-energising Wales: De-carbonising Transport in Wales (2018)
- Planning Policy Wales
- Clean Air Framework for Wales

It was also stated that the Airport Operators Association Surface Transport Report (2018) only refers to an increase in rail as having potential to increase passenger numbers. The St Athan Employment Zone Strategic Development Framework and the Vale of Glamorgan Local Development Plan further do not reference a need for a new highway link, instead, demonstrate aspirations for improved sustainable transport.

The Arup report (a study for Welsh Government of Airport links undertaken in 2007) was also mentioned by several respondents insofar that the recommendations from this report have not yet been implemented, namely, improving public transport links including a regular train link to the airport. Some respondents stated that there was also a promise that this study would not be revisited. It has also been stated that Cardiff Airport passenger numbers have since decreased since the writing of the report.

### Use of Public Finances

A number of respondents stated that the study and/ or the road proposals to be essentially a ‘waste of money’. The significantly reduced Council budget was also stated with regards to confusion on how routes would be delivered. Many respondents declared that there are other causes where investment would be more worthwhile.

### Existing Traffic Problems

Several respondents highlighted existing traffic issues on the local rural lanes as well as the wider network with various respondents commenting on congestion issues at Culverhouse Cross and the A4232. On several occasions it was highlighted that congestion has worsened on the lanes through the Pendoylan corridor since the introduction of the traffic lights at Sycamore Cross. Reference to the impact of school traffic on the rural lanes was also made.

### Study Objectives

It was argued by some respondents that options put forward are contrary to the study objectives.

### Recommendations for Next Steps

It was requested by a number of respondents for the WelTAG study to return to Stage One. A few other respondents called for the study and plans to be halted. A couple of respondents stated that all relevant parties should disclose any potential conflicts of interest and to check those standing to gain. Further environmental assessment was also raised as important to be undertaken before further action is progressed.

## 4.6 Vale Communities for Future Generations

A consultation response report was submitted on behalf of the Vale Communities for Future Generations (VCFG). The VCFG are said in the introduction to be a group of stakeholders with a keen interest in the future of the Ely Valley in the Vale of Glamorgan and to be made up of local people, businesses and organisations. The group stated that they are not against development but would like to see equitable and sustainable development.

The report considered and responded to the strategic case put forward within both the WelTAG Stage One and Two study reports and set out why the VCFG consider the WelTAG 2017 guidance to not have been properly followed. The VCFG also examined the options appraisal process and comments and responded to the scorings. In the final section, the VCFG put forward their argument for why they considered it was a flawed consultation process.

The consultation response report suggests that the view of most of those living in the local communities of Pendoylan and Peterston-super-Ely is that the road is unwanted and un-necessary.

## 4.7 Ancient Woodland Petition

An email concerning the objection to both the eastern and western routes largely on the basis of what was considered to be destruction of ancient woodland was sent to the Vale of Glamorgan Council by 1,306 people, via a Woodland Trust campaign. Key points put forward are summarised below:

- Ancient woodland has been given firm protection through Planning Policy Wales.
- Welsh Assembly has written the principle of maintaining the natural environment into law.
- Infrastructure projects should be exemplars of good environmental practice, not destructive schemes.
- Proposals may also lead to further developments in the future and could result in more ancient woodlands and trees being threatened, and the precious habitats that they provide.
- The Vale of Glamorgan Local Biodiversity Action Plan is clear that we should be seeking to conserve and enhance biodiversity.

An email with an attached letter from the Woodland Trust was also received and has been analysed as part of the letter and email analysis. The letter sets out: the reasons for the Woodland Trust's strong objections to both the eastern and western alignments; the woodlands which could be impacted and how they could be impacted; and the planning policies that support the protection of ancient woodlands and the environment.

# 5 Summary

This Consultation Report has been prepared to summarise the response to the consultation exercises completed as part of the Improving Strategic Transport Encompassing Corridors from M4 Junction 34 to the A48 WelTAG Stage One and Two studies. The consultation process has been undertaken to afford key stakeholder and members of the public the opportunity to provide feedback on the studies at each of the stages in accordance with the WelTAG guidance. As noted within the introduction to this report, the latest version of WelTAG recognises the importance of collaboration during the early WelTAG stages to *'assist in understanding the current situation, setting objectives, producing a long list of possible solutions and outlining the range of likely impacts from those different solutions'.*

The subsequent collation of all feedback as part of the Stage One and Two studies including the receipt if project survey forms, emails and letters has demonstrated a high level of interface with the study. The early Stage One public consultation received a total of 30 feedback forms plus nine email responses, eight of which were received within the extended consultation period up to 31st October 2017. In addition, a total of 140 people was recorded attending the first public consultation event on Thursday 21st September 2017.

A large number of responses were received as part of the Stage Two process. A total of 444 people was recorded attending the three public consultation events.

A total of 166 feedback forms were received during the three public consultation event days held on 17th and 18th April 2018 and 21st May 2018 or after the events, whilst 633 online surveys/ or feedback forms were submitted to the Vale of Glamorgan Council via the website, email address or by hard copy giving a total of 799 responses. In addition, a total of 119 written responses were received from members of the public by email and letter.

The Consultation Report provides both quantitative and qualitative analysis of the feedback received, identifying key themes and issues arising throughout the Stage One and Two consultation periods.

It is evident from the Stage Two analysis that the majority of those from the public who responded during the consultation period (by all means of correspondence) are not in favour of either the Western or Eastern highway alignment options, or indeed the construction of a new road through the Pendoylan corridor between the M4 Junction 34 and the A48. The reasons provided to support this opinion including lack of justification for a new road, adverse environmental impacts and no problem with the existing situation, for example. The feedback is inclusive of a consultation response provided by a local group, Vale Communities for Future Generations, and a petition relating to ancient woodland loss, both of which outline objections to the highway route proposals.

There was general support for a new Parkway Station near to Junction 34 with 'Improved Transport Journey', 'Reduced Impact on Community' and 'Environmental Impacts' identified as key reasons behind respondents' choices to have strongly agreed.

In addition, to the views and opinions provided for the options presented at Stage Two, the feedback identified concerns regarding the study process. These are identified in this report, but where these have given rise to complaints, they have been addressed through the formal processes of the local authority.

This report provides a record of the feedback but does not seek to respond to these comments or consider the implications for the scheme. The Strategic Outline Business Case report summarises the comments and considers the implications for decision making as part of the conclusions and recommendations chapter.

# APPENDIX A

## Feedback Form Template

# APPENDIX B

## Stage Two Public Consultation Material

# APPENDIX C

## Respondents Home Locations

Arcadis Consulting (UK) Limited

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

T: +44 (0)29 2079 9275

**arcadis.com**

# MINUTES

**MEETING TITLE**
M4 Junction 34 to A48
WelTAG Stage Two Review Group

**DATE**
02nd October 2018

**TIME**
09:00 – 11:00

**LOCATION**
Vale of Glamorgan Council, Alps Depot, Wenvoe

**CHAIR PERSON**
Emma Reed

**ORGANISER**
Emma Reed

**MEETING MINUTES**
Matthew Fry

**PARTICIPANTS**

Emma Reed (ER)
Head of Neighbourhood Services & Transport (Vale of Glamorgan Council)

Kyle Phillips
Group Manager Transport Services (Vale of Glamorgan Council)

Cllr. Geoffrey A. Cox (GC)
Cabinet Member for Neighbourhood Services & Transport (Vale of Glamorgan Council)

Cllr. Andrew Chiplen (AC)
Pendoylan Community Council

Cllr. Abigail Phillips (AP)
Peterston-Super-Ely Community Council

Cllr. Paul Fisher (PF)
St Nicholas with Bonvilston Community Council

Cllr. Nick Craddock (NC)
Welsh St. Donats Community Council

Cllr. Michael Morgan
Peterston-super-Ely (Vale of Glamorgan Council)

Marcus Goldsworthy (MG)
Planner (Vale of Glamorgan Council

Michael Clogg (MC)
Operational Manager for Highways and Engineering (Vale of Glamorgan Council)

Steve Pickering (SP)
Countryside Services (Vale of Glamorgan Council)

Clive Moon (CM)
Engineering Manager – Environment (Vale of Glamorgan Council)

Alison Thomas (AT)
Regional Transport Manager (Welsh Government)

Roger Waters (RW)
Service Director Highways and Streetcare Services (Rhondda Cynon Taf County Borough Council)

Clare Cameron (CC)
Project Development Officer Transport (Cardiff Capital Region)

Gwyn Smith (GS)
South East Wales Area Manager (Sustrans)

Janice Hughes (JH)
Technical Director Development Planning (Arcadis Consulting UK Ltd)

Matthew Fry (MF)
Project Manager (Arcadis Consulting UK Ltd)

**APOLOGIES**

Kevyn Jones (NAT)

Lois Park (Network Rail)

Michael Vaughan (ATW)

Richard Davies (Cardiff Bus)

Ian Gallagher (Freight Transport Association)

Tom Cotton (Road Haulage Association)

Mark Hopwood (GWR)

P Mulcahy (Bridgend CBC)

Paul Carter (Cardiff Council)

Anne Phillips (Public Health Wales)

| ACTION | WHO | WHEN |
|---|---|---|

**1. Apologies**

1.1 ER welcomed all to the meeting and made a note of the following apologies received: Kevyn Jones (NAT) / Lois Park (Network Rail) / Michael Vaughan (ATW) / Richard Davies (Cardiff Bus) / Ian Gallagher (Freight Transport Association) / Tom Cotton (Road Haulage Association) / Mark Hopwood (GWR) / P Mulcahy (Bridgend CBC) / Paul Carter (Cardiff Council) / Anne Phillips (Public Health Wales).

**2. Introductions (to include information about your role)**

2.1 All attendees provided a brief introduction including their roles and representation on the scheme.

2.2 ER reconfirmed that it is the responsibility of the Review Group to consider the technical WelTAG process that has been completed by Arcadis. The decision on the way forward remains the responsibility of the Vale of Glamorgan Cabinet.

2.3 ER noted that all interests have been covered as part of today's meeting except health who were unable to attend.

2.4 In addition to the Review Group process, ER confirmed that an independent consultant will be commissioned to technically review the WelTAG study.

2.5 It was requested that the output from today's meeting and associated documents issued remain strictly confidential at this stage of the process.

**3. Results of Consultation and WelTAG Stage Two Report – Arcadis Consulting (UK) Ltd**

3.1 JH provided a formal presentation to the Review Group entitled 'M4 Junction 34 to A48 File Mile Lane Strategic Connections; WelTAG Stage Two Study; Confidential; 02nd October 2018'.

3.2 The key elements of the presentation encompassed a summary of the Stage One recommended options, development of highway options (including the Eastern and Western route alignments) and Parkway Station, impact assessment results, economic benefits and value for money, consultation and consultation responses, the preferred option and suggested next steps for the highway link and Parkway Station. Discussion was encouraged during the presentation to cover key items arising.

3.3 The presentation was taken forward by JH as far as the Consultation Responses with the following initial dialogue ensuing.

3.4 It was agreed that the Consultation Report was comprehensive and accurate, but attendees would welcome formal responses to the questions and concerns raised. JH confirmed that Arcadis had purposely not included responses to questions and queries raised in the same document to ensure that an objective report was established. ER to coordinate a formal response as requested. — ER — To be confirmed

3.5 Concerns were raised concerns that the Stage Two report was limited in the options that had been assessed whilst accepting that work had been completed in line with the defined brief. ER commented that she was satisfied that Arcadis has fully

| ACTION | WHO | WHEN |
|---|---|---|
| completed the study in line with their scope of works, and that the work completed represents part of a wider strategic approach for potential connectivity with other strategic access studies throughout the region including those being considered as part of the City Region Deal. | | |
| 3.6 Clarification was requested by an attendee as to whether concerns that had been raised through the consultation process with regard to the transport modelling. In response JH advised that the concerns were not specific and that the transport modelling had been completed using the latest version [at the time of assessment] of the South East Wales Transport Model (SEWTM). The full WelTAG Business Case would need additional transport modelling completed using the latest version of SEWTM. | | |
| 3.7 A TUBA limitation referenced within the report was queried. In response JH noted that sensitivity analysis had been completed to support the assessment and that analysis would be refined at the next stage of any assessment. It was noted by an attendee that assumptions on the South East Wales Metro would be important factors to consider with regard to future mode shift away from use of the car. ER confirmed that SEWTM is an evolving model which does take into account multi-modal travel throughout the network. | | |
| 3.8 It was noted by an attendee that in their view the building of new roads will ultimately establish more vehicles on the highway network leading to increased CO2 emissions. | | |
| 3.9 The illustrative presentation of traffic modelling results within the report and which had formed part of the public consultation events was questioned. JH noted that the traffic flows are also shown within the WelTAG documentation and that the transport modelling had assumed no change to interconnecting junction arrangements (including at Sycamore Cross which could therefore be considered a constraint) that would inevitably be required as part of a final design proposal. The completion of traffic modelling associated with a full Business Case would need to consider new/ amended junction arrangements to fully capture impacts. | | |
| 3.10 It was queried whether the SEWTM and the impact assessment incorporates forecast changes in vehicle types especially with regard to how vehicles will be powered in the future. JH commented that the incorporation of advances in technology, especially with regard to the increasing emphasis on electric vehicles, is something we are aware is under review by DfT. | | |
| 3.11 With regard to a Parkway Station and following on from consultation completed with Welsh Government, MF noted that full Stage Two assessment was not possible owing to the status of the Wales & Borders franchise at the time the study was completed. Consultation had been completed with Welsh Government to confirm this position. | | |
| 3.12 With reference to the consultation process, it was noted by an attendee that some people had not received a response. ER now believed that all Stage Two responses had been dealt with however KP will make further checks. In addition, ER requested that clarification is also provided to the Vale of Glamorgan | KP<br>AC | 23/10/2018<br>23/10/2018 |

| ACTION | WHO | WHEN |
|---|---|---|

Council confirming the responses that have not been received.

3.13 The discussion regarding the Consultation Report confirmed that it is a detailed representation of issues. As such, some numerical changes would be unlikely to change the emphasis of the report.

3.14 It was noted that that no additional comment/ themes were received by Welsh Government in addition to that already contained within the Consultation Report. It was also confirmed for the benefit of the process that Welsh Government has and will not be making decisions on the next steps of the study.

3.15 There was some discussion around the the strategic case for change and it was subsequently queried why other more sustainable strategic solutions were not sought through the process. Further clarification was provided that this study does not represent a decision by Welsh Government and remains a feasibility assessment to inform future decisions.

3.16 The reason why the do-minimum option had not been developed as an option including enhancement of the existing route through the Pendoylan corridor was queried. JH clarified that that is not what the do-minimum/ reference case represents with the option to enhance the existing route considered separately at Stage One. The do-minimum option provides the benchmark from which other 'do-something' options are assessed against. It assumes no specific investment/ enhancement of the existing highway or public transport other than what would be programmed through standard maintenance regimes and reactive works, together with the assumed continued delivery of existing public transport services. The online improvements through the existing corridor were considered in Stage One and were not selected to be taken forward due to the difficulties in delivery and impacts of an option.

3.17 ER checked with the group that there were no further consultation comments to raise at this stage. All agreed.

3.18 Following a query, MG confirmed that there are no proposals at Culverhouse Cross. JH reconfirmed that this study incorporates strategic assessment to the A48 with the potential to inter-link with wider regional studies.

3.19 The presentation was completed by JH encompassing the preferred option and proposed Next Steps for a highway link and Parkway Station.

**4. Discussion, questions and comments from Review Group – All**

4.1 ER summarised the Review Group process to agree the way forward. It was noted that the group will need to make their decision based on the technical report only. The result will not establish a decision with regard to potential next stages of work with the Vale of Glamorgan Cabinet retaining the authority to approve the next steps. The resulting dialogue was based against the stated preferred option **(Western Alignment for the Highway Link and Parkway Station) and Next Steps (Highway Link and Parkway Station)** as outlined within the Stage Two report issued to the Review Group prior to the

| ACTION | WHO | WHEN |
|---|---|---|

meeting (Improving Strategic Transport Encompassing Corridors from M4 Junction 34 to the A48; WelTAG Stage Two Outline Business Case; Confidential Final Draft for Review; September 2018; D03).

4.2 The Next Steps (Highway Link and Parkway Station) were subsequently presented to the Review Group, as included in the attached presentation.

4.3 In addition, JH noted a recommendation to include further consideration of flood issues as part of any next stage surveys and investigations.

4.4 There was general acceptance that the next steps approach represents a pragmatic way forward for the scheme in order to obtain sufficient information to enable decision making. In addition, the following items were captured as part of this acceptance:

- Early initial investigation and survey assessment would be beneficial for any potential longer-term delivery of the scheme.
- Application of updated transport modelling was important to capture the changes to network flows since completion of the Stage Two assessment, including assessment of new/ amended junction arrangements interconnecting with the proposed highway route. As the transport modelling is taken forward, its presentation to stakeholder and the public should be provided in a more simple interpretation.
- For the highway link, the review of minor roads and whether it is necessary to retain all accessibility was noted as a logical idea.
- Flood modelling will be an important aspect of the next stages including consultation with Natural Resources Wales (NRW). Updated flood models are to be issued imminently by NRW that could amend floodplain boundaries. A +1000-year post-opening scenario could also require assessment including the impact of do-something options downstream.
- It will be important to understand the impact of new and redistributed traffic flows through lanes that could be affected by a new highway link. Resilience of the highway network should be considered to mitigate the potential for any adverse impacts.
- The maintenance of existing roads already represents a pressure on budgets; a new road with no additional funds will only increase financial pressure on the local highway authority. This will need full consideration at the next stage.
- The Parkway Station option needs to be seriously considered to support regional mode shift away from the car to more sustainable modes of transport. Some attendees recognised a Parkway Station as a priority for the region.
- It was agreed that the impact of a new highway link would have a large impact on the Ely Valley. Residents of local community councils need to be kept informed of progress on the study to reassure and provide opportunity for dialogue.

| | ACTION | WHO | WHEN |
|---|---|---|---|
| | • There was support for more detailed initial design work to be progressed with regard to the highway link and Parkway Station together with completion of detailed investigations and surveys. This would need to include a level of design that would identify land take requirements.<br>• The next steps should incorporate a consultation plan for review by Welsh Government and identification of project stage gates to clarify what is being agreed and taken forward. Interested stakeholders and the public need clarity that the WelTAG study remains a feasibility assessment until any decision to formally implement an option is confirmed.<br>• Whilst the Consultation Report was again recognised as an accurate assessment, a more detailed response to the themes and issues arising was reiterated [this action has already been captured within these meeting minutes].<br>• Some attendees confirmed a preference for the 'bigger picture' to be captured as part of the next steps, comparing the preferred option retained within the study to other strategic proposals.<br>• Implementation of early investigations and surveys was considered an important element in the development of the options leading to better informed decision making.<br>• The options should all consider integration with Active Travel measures to ensure fully inclusive travel is established. This should be considered at the design stage and not at a later date. | | |
| 4.5 | ER confirmed that monthly updates will be provided to community councils to inform local residents. | ER | To be confirmed |
| 4.6 | ER confirmed that the study will retain a dedicated internet page to provide information on the study. | | |
| 4.7 | ER confirmed that an independent review of the WelTAG study will be commissioned. | ER | To be confirmed |
| **5.** | **Next Steps** | | |
| 5.1 | ER will establish a formal list of recommendations based on the consensus of today's Review Group meeting. | ER | 23/10/2018 |
| 5.2 | The meeting minutes and formal recommendations will be issued to the Review Group for their consideration and response. Once agreed this will be taken forward to the Vale of Glamorgan Cabinet for deliberation, followed by presentation to Scrutiny Committee before final consideration by Cabinet. | | |
| 5.3 | The output from the independent review and Scrutiny Committee will also be presented to Cabinet prior to a decision being made. | | |
| 5.4 | With regard to timescales it is proposed that a final decision on the next steps will be completed by the end of December 2018. However, the programme is subject to confirmation. | | |
| **6.** | **Composition of the Review Group** | | |
| 6.1 | ER confirmed that the composition of the Review Group would be subject to review as part of a next stage assessment. The | | |

| ACTION | WHO | WHEN |
|---|---|---|

process is reliant on the attendance of individuals.

6.2 The possibility of NRW being represented on the Review Group was raised. It was noted by CM that there would likely be a charge for their involvement in such a process. ER clarified that NRW would be a statutory consultee regardless. Environment representation was already included as part of the Review Group.

6.3 It was also queried whether the Woodland Trust could be represented on the Review Group. This will be considered but it is noted that they are a lobbying group rather than a technical consultee. In addition, ER will be meeting with the Woodland Trust separately to further hear their concerns following the extensive responses received as part of the Stage Two consultation process.

6.4 GS noted that Sustrans would be opposed to road building but was keen to remain a key stakeholder on the process.

**7. AOB**

7.1 It was queried whether there would be any financial constraints with regard to taking the study forward. ER confirmed that funding would need to be identified and applications for funding would need to be completed.

**8. Next Review Group Meeting**

8.1 Date of next meeting to be confirmed

8.2 ER thanked all for their attendance.

**End**