

Meeting of:	Cabinet
Date of Meeting:	Monday, 22 March 2021
Relevant Scrutiny Committee:	Environment and Regeneration
Report Title:	IMPROVING STRATEGIC TRANSPORT ENCOMPASSING CORRIDORS FROM M4 JUNCTION 34 TO THE A48 WelTAG Stage Two Plus Outline Business Case
Purpose of Report:	To update Cabinet on progress with the Highway Link Study WelTAG Stage Two Plus Outline Business Case 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
Elected Member and Officer Consultation:	Cabinet Member for Neighbourhood Services and Transport Cabinet Member for Regeneration and Planning Head of Neighbourhood Services and Transport Group Manager Transport Services Passenger Transport Manager Operational Manager Engineering Accountant Environment and Housing Services Operational Manager Finance Head of Regeneration and Planning Legal Services (Committee Reports)
Policy Framework:	This report is a matter for Executive decision by Cabinet

Executive Summary:

- This Report provides Cabinet with an update on progress of the IMPROVING STRATEGIC TRANSPORT ENCOMPASSING CORRIDORS FROM M4 JUNCTION 34 TO THE A48 WelTAG Stage Two Plus Outline Business study.
- The WelTAG Stage Two Plus Outline Business Case has been completed by Consultants Arcadis Consulting Limited and has assessed the Do-Minimum scenario plus four options for a new or enhanced highway link between the M4 Junction 34 and A48 at Sycamore Cross:
 - Option A – Highway Route East of Pendoylan**
 - Option B – Highway Route West of Pendoylan**
 - Option C1 – Existing Infrastructure (Online) Enhancement**
 - Option C2 – Existing Infrastructure (Online) Enhancement**
- The study has recently been subject to the completion of a 12-week public consultation between 30th September 2020 and 23rd December 2020. The output of the consultation has been captured as part of a standalone Consultation Report.
https://www.valeofglamorgan.gov.uk/en/our_council/consultation/M4-Junction-34-to-A48-Transport-Improvements.aspx
- On the basis of the WelTAG Stage Two Plus study and in response to the key issues and themes raised as part of the public consultation exercise, it is recommended that subject to funding being received from Welsh Government's Local Transport Fund for 2021/22 all options are taken forward for further analysis at WelTAG Stage Two to assess climate resilience and carbon impacts of the proposed options, update the SEWTM traffic modelling and economic appraisal encompassing a value for money assessment and consideration of changes to TAG Databook v1.14 and the July 2020 Office for Budget Responsibility forecasts (which considers COVID-19 impacts), and review the case for change taking into further consideration the Welsh Government and Vale of Glamorgan Council climate emergency declarations and emerging impacts of COVID-19 (as a minimum).
- Full details of the submitted 2021/22 bid to Welsh Government can be found at the following location: <https://www.valeofglamorgan.gov.uk/en/living/Roads/Transport-Studies/M4-Junction-34-to-A48-Transport-Improvements.aspx>
- Should funding not be received by Welsh Government then the project will not progress further beyond this Stage at this time.

Recommendations

1. That progress made on the Highway Link Study WelTAG Stage Two Plus Outline Business Case relating to proposals for enhanced highway connectivity between the M4 Junction 34 and A48 at Sycamore Cross is noted.
2. That should Welsh Government continue to fund the project, it is taken forward for further analysis at WelTAG Stage Two. The further analysis would involve assessment of climate resilience and carbon impacts of the proposed options, updating of the South East Wales Transport traffic modelling and economic appraisal encompassing a value for money assessment and consideration of changes to TAG Databook v1.14 and the July 2020 Office for Budget Responsibility forecasts (which considers COVID-19 impacts), and a review of the case for change taking into further consideration the Welsh Government and Vale of Glamorgan Council climate emergency declarations and emerging impacts of COVID-19.

Reasons for Recommendations

1. To update members on progress made on the scheme.
2. To allow for more detailed analysis of the emerging issues and themes raised as part of the recent WelTAG Stage Two public consultation, enabling the WelTAG Stage Two Plus report to be updated thereafter for consideration by the project's assigned Review Group and Vale of Glamorgan Council to determine whether to go forward to WelTAG Stage Three with the recommended option. Should Welsh Government Funding not be received the Project would stop at this juncture.

1. Background

- 1.1 Arcadis Consulting (UK) Limited has been commissioned by the Council to develop and appraise potential options for improving the strategic transport network encompassing corridors from M4 Junction 34 to the A48 at Sycamore Cross, 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) including advice on the appraisal in relation to the Future Generations of Wales (2015) Act well-being goals. Full details of all of the available reports can be found here:
<https://www.valeofglamorgan.gov.uk/en/living/Roads/Transport-Studies/M4-Junction-34-to-A48-Transport-Improvements.aspx>
- 1.2 The WelTAG Stage One report was previously prepared by Arcadis and considered the problems, opportunities and constraints, established objectives and appraised a long list of options and as a result three options were recommended to be taken forward for WelTAG Stage Two Plus appraisal against the Do-Minimum, namely:
 - Option B M4 Junction 34 to A48 Highway Route East of Pendoylan

- Option C M4 Junction 34 to A48 Highway Route West of Pendoylan
 - Option G Vale of Glamorgan Gateway Station (formerly Parkway Station) with Park and Ride facility and bus integration near to the M4 Junction 34
- 1.3** The WelTAG Stage One recommendations were considered at by the Vale of Glamorgan Council Environment and Regeneration Scrutiny Committee and Vale of Glamorgan Council Cabinet and endorsed with accompanying recommendations as detailed within the WelTAG documentation.
- 1.4** A first WelTAG Stage Two report was prepared by Arcadis and presented to the project's Review Group on 2nd October 2018. Following consideration of the report's output, several recommendations were agreed for completion at Stage Two including a programme of early stage environmental surveys and investigations, more detailed development of the highway link concept designs and completion of Vale of Glamorgan Gateway Station GRIP Stage 1 and GRIP Stage 2 studies. The proposals for additional Stage Two assessment (referred to as Stage Two Plus) were considered and agreed by the Vale of Glamorgan Council Environment and Regeneration Scrutiny Committee and Vale of Glamorgan Council Cabinet over several meetings.
- 1.5** Following further consideration of the selected options at WelTAG Stage Two Plus, it was recognised that proposals for enhanced highway connectivity between the M4 Junction 34 and A48 at Sycamore Cross present regional and strategic transport opportunities that could be better recognised and scrutinised in isolation from the Gateway railway station proposals. In addition, the rail and highway options retain separate management and control processes, which inherently influence next steps and programming for ongoing WelTAG assessment. In agreement with Welsh Government, a decision was made by the Council to separate assessment of the Vale of Glamorgan Gateway Station option from the M4 Junction 34 to A48 highway link options.
- 1.6** This Cabinet report therefore specifically relates to the WelTAG Stage Two Plus report for the development, proportionate appraisal and evaluation of options for enhanced highway connectivity between the M4 Junction 34 and the A48 at Sycamore Cross. It has been undertaken with the involvement of key stakeholders.
- 1.7** For the WelTAG Stage Two Plus study, the Do-Minimum ('business as usual' with no new or enhanced highway link) and four highway options were considered namely:
- M4 Junction 34 to the A48 at Sycamore Cross Option A – Highway Route East of Pendoylan (offline)
 - M4 Junction 34 to the A48 at Sycamore Cross Option B – Highway Route West of Pendoylan (offline)

- M4 Junction 34 to the A48 at Sycamore Cross Option C1 – Existing Infrastructure (Online) Enhancement
- M4 Junction 34 to the A48 at Sycamore Cross Option C2 – Existing Infrastructure (Online) Enhancement

1.8 In undertaking the Stage Two Plus study, an iterative design process has been followed whereby further information on environmental considerations, together with comments received during the initial Stage Two consultation (2018), has led to refinements to the concept design of options for appraisal.

2. Key Issues for Consideration

2.1 The WelTAG Stage Two Plus Outline Business Case is available via the hyperlink ([Appendix A](#)) study has taken forward and appraised each of the highway options in relation to the Five Case Business Model: the strategic, transport, management, financial and commercial cases.

2.2 The WelTAG process for this study is accompanied by an Impact Assessment Report (IAR) is available via the hyperlink ([Appendix B](#)). 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. The IAR remains a live document for updating throughout the process.

2.3 The problems have been identified as follows:

Ref	PROBLEMS
1	Poor highway infrastructure between M4 Junction 34 and the A48 leading to poor access for local communities and businesses.
2	Poor sustainable access to Cardiff Airport and strategic destinations.
3	High use of the private car for local and regional trips (e.g. journeys to work).
4	Existing congestion issues at M4 Junction 34 and on the A48 which are likely to worsen with the committed developments in the area.
5	Poor infrastructure and local connectivity by walking and cycling.
6	Environmental issues associated with high use of the car, including adverse greenhouse emissions and noise pollution.
7	Accessibility for HGVs.
8	Adverse road safety conditions along existing routes non-compliant to current DMRB highway standards.

2.4 The objectives were set for the study 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	OBJECTIVES
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 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, the Wales Transport Strategy outcomes and the Welsh Government’s Strategic Priorities, as set out in the Wales Transport Strategy.

Strategic Case

- 2.6** For the Strategic Case (Outline Business Case; Chapter 2), the 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 Well-Being goals have been assessed using the framework provided, as guidance to supplement WelTAG. The impacts of the Do-Minimum scenario are also set out compared to the Base Year situation.
- 2.7** A summary of how the proposed options align with the Well-being of Future Generations (Wales) Act 2015 is provided in the main Stage Two report (Page 47; Table 19). The appraisal suggests that whilst Online Alignment Option C1 broadly demonstrates a positive relationship to the well-being goals, the offline Eastern and Western alignments illustrate an enhanced correlation, specifically with regard to a prosperous and more equal Wales, as well as a Wales of vibrant culture and Welsh language and cohesive communities.
- 2.8** In addition, the report (Page 48; Table 20) summaries the correlation between the project’s WelTAG objectives and the proposed options, whereby the two offline options demonstrate enhanced compatibility in comparison to the online options.
- 2.9** The outcomes of this strategic analysis are broadly related to how the identified problems have been addressed by each of the proposals. A significant benefit of the offline options is that they retain a fully compliant highway design to DMRB standards encompassing a national speed limit carriageway with integral walking and cycling infrastructure. This compares to the online options, both of which retain a 30mph speed limit and non-compliance to DMRB standards – the latter

of which adversely impacts Online Alignment Option C1 through Clawdd-Coch and Pendoylan village, whilst non-compliances apply to both the new sections of road and the Pendoylan section for Online Alignment Option C2.

- 2.10** The extent to which the online options can support the strategic objectives and goals appraised is therefore considered to be constrained, limiting the potential to which problems can be addressed and opportunities realised.
- 2.11** In all instances, the Do-Minimum scenario outlines a neutral to adverse connection with the well-being goals and project objectives in the absence of a step-change in funding to support enhancement of the network and continued traffic growth exacerbating existing problems.

Transport Case

- 2.12** Regarding the Transport Case (Outline Business Case; Chapter 3), the four highway options have been tested alongside the Do-Minimum option. 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.
- 2.13** The summary table of impacts across social, cultural, environmental, and economic criteria demonstrates that the two offline highway options perform the same across all aspects of the appraisal. The additional work undertaken as part of the WelTAG Stage Two Plus study has updated the assessment and identified that the prior differences regarding water environment and residential amenity impact scoring are now assessed to be the same. However, the commentary on the assessment should be referred to in order to understand minor differences between options. When referring to the details contained in the Transport Case appraisal tables, landscape, ecology and cultural heritage anticipate less environmental impacts from the Option B Highway Route West of Pendoylan.
- 2.14** Online options C1 and C2 perform less favourably than the offline options in respect of the economic, social and cultural criteria. With regards to the environment, the options perform better than the offline options for biodiversity. Option C2 is the least beneficial in terms of social and economic criteria.
- 2.15** On the basis of greatest economic advantage, Option B (offline Western alignment route) is the best performing option with a BCR of 3.49 against a BCR of 3.00 for the eastern alignment, although it is recognised that economic performance is only one of the elements which must be considered in decision making. With regards to the online options, the overall economic benefits are considered to be not as high given the lower design speed for both options

(30mph) adversely impacting on journey times and the retention of non-compliant DMRB sections throughout both options.

- 2.16** The Transport Case in summary shows Option B, the offline Western alignment route, as being the highest performing option in terms of Value for Money and is anticipated to have the same benefits and impacts as Option A (which are more beneficial than Option C1 or C2), with less environmental impacts anticipated to arise when considering the detail in the appraisal tables.
- 2.17** In addition, the WelTAG Stage Two report has set out the anticipated Financial (Chapter 4), Commercial (Chapter 5) and Management (Chapter 6) cases, all of which will require further consultation with key stakeholders as the WelTAG assessment evolves into the next stages of appraisal.

Public Consultation

- 2.18** Due to the ongoing COVID-19 pandemic, a comprehensive virtual public consultation exercise on the four highway options was completed between 30th September 2020 and 23rd December 2020. In the absence of face-to-face consultation events, significant efforts were made to engage with local communities, including provision of:

- A dedicated public consultation webpage retained on the Vale of Glamorgan Council Transport Studies website inclusive of background information, supporting WelTAG documentation, drone footage of the proposed route alignments and access to an online questionnaire.

https://www.valeofglamorgan.gov.uk/en/our_council/consultation/M4-Junction-34-to-A48-Transport-Improvements.aspx

- An interactive consultation room allowing users to virtually engage with a series of bi-lingual consultation banners and access an online questionnaire.



- A bi-lingual consultation document and questionnaire issued to allow those directly affected by the proposed route alignments to consider the proposals and make representations.

- A letter advising of the proposed consultation issued to all those living within the scheme's study area.
- A series of presentations to local Community Councils, the Vale of Glamorgan Council Youth Cabinet and the Old Peoples Forum, for example.
- Direct engagement with concerned residents including the provision of additional information where requested, together with face-to-face 'Teams' calls.

2.19 All feedback stemming from the consultation has been captured as part of a Consultation Report is available via hyperlink ([Appendix C](#)).

2.20 In addition to the key output presented in the report, the consultation raised concerns and comments. These key themes have been defined and a response is provided below to each of these items. The themes have been presented by title in alphabetical order and not in any priority order.

Active Travel

2.21 Both offline highway options (east and west of Pendoylan) have an integral shared walking and cycleway route where new highway infrastructure is proposed. The active travel route retains a width of 3.5m and is segregated from the carriageway in accordance with the DMRB standards and Active Travel Guidance and whilst online Option C1 also allows for a segregated route where new highway infrastructure is proposed, this does exclude sections through Pendoylan and Clawdd-Coch where existing sections of road would be retained.

2.22 No active travel route is proposed for Option C2 and as noted within the Outline Business Case, the proposal remains predominantly non-compliant although has been presented in line with a recommendation for WelTAG Stage Two Plus to consider options for online highway improvements – presentation of the two online options allows for representation of the design evolution completed, allowing for an understanding of the constraints and opportunities associated with achieving online enhancements.

2.23 The options remain concept designs to support a WelTAG Stage Two process with no topographical survey completed at this stage of the appraisal. As noted in the Highway Design Risks of the Outline Business Case report (Section 2.8.30), the designs are based on OS contours at 5m intervals and is accurate to +/- 2m, which could affect earthworks and accuracy of design. Active travel crossing points have however been allowed for at all junctions which would be designed in greater detail at WelTAG Stage Three (if progressed) in accordance with the Active Travel Guidance and DMRB standards.

2.24 Elements of the consultation feedback have noted the absence of a dedicated active travel section within the Peter Brett Associates (PBA) Case for Change report (included within the Impacts Assessment Report). However, it should be

noted that this report forms one of several evidence based sources that has informed the WelTAG project and as noted above, the overarching WelTAG study does consider active travel as part of the proposed solutions recognising that there is currently poor infrastructure and local connectivity by walking and cycling through the study area, that there is potential to implement new cycle connections, and has subsequently included an active travel route as an integral component of the concept options, including comprehensive consultation and engagement with stakeholders and the public throughout the process.

- 2.25** Enhanced highway connectivity through the M4 Junction 34 to A48 corridor offers a unique opportunity to establish an effective active travel link as an integral component of the scheme (subject to which option could be taken forward) providing enhanced local/ regional connectivity and additional benefits to walkers and cyclists through enhanced infrastructure provision. As noted, the project remains at WelTAG Stage Two and whilst inclusive of active travel proposals as integral components of the concept design options, progression to WelTAG Stage Three would facilitate completion of a detailed design for a preferred option and the opportunity to fully consider strategic and integrated active travel connectivity through and adjacent to the Pendoylan corridor.

Affect Safe Cycling Routes

- 2.26** Options A and B encompass proposals to close the lanes approaching Clawdd-Coch from the east and from Gwern-y-Steeple towards Welsh St. Donats to vehicle traffic. With specific regard to accessibility and Public Rights of Way (PRoW), the Outline Business Case report outlines at section 2.8.28 that *'There are several PRoW affected by the options. It is anticipated that crossings will be rationalised by PRoW re-alignment and provision of crossing points under/ over the proposed carriageway to maintain existing PRoW. Where PRoWs cross the proposed road where it is on embankment, culverts have been proposed and where it crosses in cut, 3m wide bridges have been used.'*
- 2.27** This approach is concurrent with regards to any proposals to close lanes to vehicle traffic. Should a preferred option progress to the next stage of assessment and a need to block the lanes noted confirmed [note response to Oppose Blocking of Connecting Lanes section], access for Non-Motorised Users (NMUs) to safely cross under/ over the bypass would be accommodated as part of the design and further consulted with stakeholders and the public.

Alternative Investment including spend on Education/ NHS/ consideration of other routes (Junction 33/ Culverhouse Cross) and Cost Concerns/ Waste of Taxpayers' Money

- 2.28** A key consideration of the WelTAG Stage Two Plus study was completion of a value for money exercise in support of the economic appraisal. This analysis is presented within the Transport Case and sets out the impact on Public Accounts and the results of the Analysis of Monetised Costs and Benefits for the highway

options, based on the costs calculated by Arcadis and the benefits derived from the outputs of the SEWTM modelling.

- 2.29** At this stage of the WelTAG analysis and on the basis of greatest economic advantage, the assessment currently forecasts that the Western alignment is the best performing option with a higher Benefit Cost Ratio (BCR) of 3.49 in comparison to the Eastern alignment with a BCR of 3.00. In both instances, this represents high value for money with benefits projected to exceed costs.
- 2.30** As noted within the Outline Business Case report, the online Options C1 and C2 have not been tested using SEWTM and thus the comparable benefits are not available. However, the overall economic benefits including accident and journey time benefits are anticipated to be substantially lower than for Options A and B given the lower standard of route (non-compliance to DMRB standards) and the 30mph design speed adversely impacting on journey times throughout the corridor. The costs of Option C1 is 91% and Option C2 is 62.5% of the cost of Option B (the cheapest and highest performing offline option) - the value of benefits would therefore need to be corresponding proportionate for Option C1 and C2 in order to achieve the same BCR as the Western alignment.
- 2.31** It is recognised that economic performance is only one of the elements which must be considered in the decision-making process. In line with the guidance, the WelTAG report therefore considers socio-economic, environmental and cultural impacts whilst acknowledging that further SEWTM modelling would also be required to update the cost benefit results, including consideration of changes to TAG Databook v1.14 and the July 2020 Office for Budget Responsibility forecasts, which considers COVID-19 impacts.

Climate Change Emergency

- 2.32** An important development since completion of the first WelTAG Stage Two report in October 2018 has been Welsh Government's climate emergency declaration in 2019 stating its commitment towards *'achieving a carbon neutral public sector by 2030 and to coordinating action to help other areas of the economy to make a decisive shift away from fossil fuels, involving academia, industry and the third sector.'*
- 2.33** Shortly before this declaration was announced, the Welsh Government released Prosperity for All: A Low Carbon Wales, which sets out 100 policies and proposals to meet the 2020 carbon emissions targets.
- 2.34** In addition, the Welsh Government Minister for Environment, Energy and Rural Affairs made a Ministerial Statement in February 2021 that formally commits Wales to a net zero carbon emissions by 2050 but also sets an aspiration to achieve the target earlier than 2050. Expert viability advice from the independent Climate Change Committee to Welsh Government suggests that

reaching the net zero carbon target in Wales is more affordable and achievable than previously thought.

- 2.35** As part of a collection of policies and proposals, the Transport Sector Emission Pathway targets that carbon dioxide emissions from transport will be 43% lower than the baseline (2016) by 2030, and 79% lower by 2050. It was found that in the baseline, transport was the third largest carbon emitting sector in Wales.
- 2.36** Moreover, the Council also announced a climate emergency in 2019 outlining a commitment to deliver its well-being goals as set out in the Corporate Plan *‘Strong Communities with a Bright Future’* and the well-being of Future Generations Act, and the progress of initiatives in support of the existing Carbon Management Plan. The Council further recognises that a reduction in carbon emissions can also deliver benefits in terms of new jobs, economic savings and market opportunities. The Council therefore resolves to:
- Join with Welsh Government and other councils across the UK in declaring a global climate emergency in response to the findings of the IPCC report.
 - Reduce its own carbon emissions to net zero before the Welsh Government target of 2030 and support the implementation of the Welsh Government’s new Low Carbon Delivery Plan, to help achieve the Welsh Government’s ambition for the public sector in Wales to be carbon neutral.
 - Make representations to the Welsh and UK Governments, as appropriate, to provide the necessary powers, resources and technical support to local authorities in Wales to help them successfully meet the 2030 target.
 - Continue to work with partners across the region to develop and implement best practice methods that can deliver carbon reductions and help limit global warming.
- 2.37** For the purposes of the WelTAG Stage Two Plus study, the assessment of climate change impacts has focused on the calculation of greenhouse gas emissions extracted from the Transport Users Benefit Analysis (TUBA) and calculated in comparison to a Do-Minimum (or Business as Usual) operational scenario – the impact from Construction has not been considered at this stage of the analysis.
- 2.38** The Do-Minimum is therefore recognised as the baseline level of greenhouse gas emissions which is calculated using the traffic levels forecast in the transport model, with forecast benefits being the difference in emissions between the Do-Minimum and Do-Something (with scheme) scenarios. In summary, the following steps outline how the TUBA application calculates the monetary impact on greenhouse gas emissions:

- Fuel/ energy consumption is calculated in TUBA using average vehicle speeds (a combination of time and distance values provided from the transport model) and number of trips (Formula is provided in TAG databook Table 1.3.8/1.3.9).
- Fuel/ energy consumption is split by Petrol, Diesel and Electric by mode in the TAG databook (Table 1.3.9).
- Carbon dioxide emissions are then calculated from the fuel/energy consumption by fuel type and mode using parameters provided in the TAG databook (Table 3.3).
- Valuations of the carbon emissions are then provided to monetise the impact, (TAG databook Table 3.4) this is given in £/tonne of CO₂.

2.39 Using TUBA at this WelTAG stage should be regarded as a proportionate method for undertaking greenhouse gas appraisal for the study. As the benefits have only been annualised for certain hours of the day, the assessment is considered to be underestimating the impact of the operational scheme on emissions which, as an operational benefit is currently forecast, will result in a conservative estimation of benefits.

2.40 Whilst a decision on whether to progress the study to WelTAG Stage Three is subject to approval, a transport funding application has been made to the Welsh Government to support further interim analysis at Stage Two in response to the key issues received as part of the public consultation exercise, as well as in recognition of the continued and increasing momentum towards the decarbonisation of transport in Wales. A key element of the work would encompass a Carbon Assessment and Climate Resilience report, together with completion of a Designing out Carbon workshop allowing for greater understanding of such impacts. A summary of what these tasks would encompass is provided below:

2.41 *Designing out Carbon Workshop* - A designing out carbon workshop provides an opportunity for the scheme to explore the potential to reduce the carbon impact of the project in a meaningful way. The workshop would follow carbon minimisation principles set out in PAS2080: 2016 for discussion; including ideas generation/ brainstorming (where all potential carbon reduction ideas are captured) and reasoning (where all ideas generated are classified and prioritised based on impact and ease of implementation). The purpose is to clearly identify and focus on opportunities that would be easy to implement and that would have a high impact on the project's carbon emissions and cost. The outputs from the workshop would feed into the Carbon Assessment and Climate Resilience Report facilitating carbon considerations for the route options.

2.42 *Carbon Assessment and Climate Resilience Report* - The Carbon Assessment and Climate Resilience report would be prepared for the project to reflect the potential route options and a high-level assessment of the carbon emissions that

are anticipated to be generated during construction and the operational life cycle of the design solution and identify the potential adaptation that would be required as a result of climate change. The assessment will follow DMRB LA 114 Climate Guidance, which will describe the likely significant effects of the options on the environment, the impact of the project on the climate and the vulnerability of the project to climate change (resilience). DMRB LA 114 Climate is the most up to date guidance available for infrastructure projects and it is the methodology guidance that would be expected to be followed at the EIA stage (WelTAG Stage Three).

Contrary to the Well-being of Future Generations (Wales) Act 2015

- 2.43** The WelTAG 2017 guidance outlines that it has been developed *'...to ensure that public funds are invested in a way that ensures they maximise contribution to the well-being of Wales, as set out in the Well-being of Future Generations (Wales) Act 2015 and to deliver the Act's vision of the Wales we want: a more prosperous Wales, a resilient Wales, which supports healthy, functioning ecosystems and recognises the limits of the global environment, a healthier Wales, a more equal Wales, a Wales of more cohesive communities, a Wales of vibrant culture and a globally responsible Wales.'*
- 2.44** To demonstrate alignment with the Well-being of Future Generations (Wales) Act 2015, the Outline Business Case has provided an overview of how the approach and proposals set out in the report evidence the Five Ways of Working (long-term, prevention, integration, collaboration, involvement) and support the seven well-being goals. In addition, the Strategic Case has appraised each of the options against their contribution to the well-being goals, whilst also recognising that the study remains at WelTAG Stage Two and would be further informed should more detailed assessment of the options be taken forward.

Concerns over Cardiff Airport

- 2.45** It is noted that concerns have been raised as part of the public consultation regarding the future of Cardiff Airport, exacerbated by the impact of COVID-19 on its existing operations.
- 2.46** Regarding the impacts of COVID-19, the Outline Business Case is currently based on pre-pandemic conditions, stating *'At the time of this report, the future medium to longer-term implications of COVID-19 at a local, regional and national level remain extensively unknown and this study has not therefore made any assumptions as to the impacts on these scenarios. However, it is anticipated that future work completed with regard to this appraisal and associated studies will increasingly need to consider the implications of the pandemic as information, trends and impacts become more widely known and accepted. This WelTAG Stage Two Plus assessment therefore remains an assessment based on pre-COVID-19 conditions and forecasts and for the purposes of the WelTAG appraisal should be viewed with this in mind.'*

2.47 Whilst recognising that the basis of future studies would increasingly need to consider the emerging trends and patterns resulting from COVID-19, it is understood that the long-term vision of the airport remains (at this present time) as that captured within the *'Setting Intentions for Wales' National Airport; Cardiff Airport 2040 Masterplan*' report. A summary of the report is included within the accompanying Impacts Assessment Report (10028657-ARC-XX-XX-RP-TP-0002) where several expansion and improvement plans are outlined to help facilitate its wider vision, including:

- A new passenger and cargo terminal with replacement aircraft parking stands.
- New dedicated road access to be provided for the terminal from the A4226, separating airport traffic from other users, including surface connectivity to the Enterprise Zone.
- Improvements to pedestrian and cycle access to and through the airport site, including links to Rhoose and Barry.
- Future integration with the Metro with a safeguarding bus link as well as an improved, dedicated connection between the terminal and Rhoose Cardiff International Airport railway station to improve the transfer experience.
- Open space, public realm and landscaping improvements, safeguarded land for expansion and improved rail links.

2.48 The Masterplan's commentary on surface access to and from the airport includes existing and future consideration of transport link enhancements/ provision to support its vision, including reference to a potential M4 Junction 34 to A48 link road, Five Mile Lane improvements (since completed), Great Western mainline improvements, South Wales Main Line improvements, South Wales Metro development, rail frequency enhancements and express bus connectivity.

2.49 Future Wales: the National Plan 2040 makes specific reference to the importance of the airport in terms of international connectivity in Policy 10. Reference to strategic transport enhancements for improved accessibility to Cardiff Airport and development of the St Athan – Cardiff Airport Enterprise Zone also remains embedded in strategic policy in support of longer-term aspirations, including:

- Vale of Glamorgan Local Development Plan | 2011 – 2026 (2017)
 - 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 also 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. 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 MG10 | St Athan – Cardiff Airport Enterprise Zone – *including provision of sustainable transport infrastructure.*

- Policy MG16 – Transport Proposals – *including walking and cycling, bus and highway improvements.*
- Vale of Glamorgan Council (SPG) – Cardiff Airport and Gateway Development Zone (2019).
- National Transport Finance Plan Schemes (2018 Update) – (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.

2.50 Whilst it is recognised that the airport retains a longer-term vision for progressive development supported by existing strategic policy to enhance connectivity, the case for change will continue to be reviewed at each stage of the project, including the potential for further interim Stage Two appraisal during the 2021/22 financial year (subject to funding approval).

Impact on Ancient Woodland

2.51 In addition to the work initially carried out at Stage Two and for the purpose of the Stage Two Plus study, the Natural Resources Wales (NRW) Ancient Woodland Inventory Map was reviewed in order to identify areas of ancient woodland, including Ancient Semi-Natural Woodland, Restored Ancient Woodland Sites and Plantation on Ancient Woodland Sites, within the 2km study area.

2.52 The desk study and extended Phase 1 habitat survey has subsequently confirmed the presence within the study area of sites designated for nature conservation value and Priority Habitats as listed within Section 7 of the Environment Act (Wales) 2016, including the presence of ancient woodland.

2.53 Given the presence of existing ancient woodland, the design process has sought to minimise impacts through the Pendoylan corridor, although both offline options would still affect four areas of ancient woodland whilst three areas would be affected by the online options.

2.54 For the purposes of the TAG Biodiversity Impacts Worksheet included within the Impacts Assessment Report, the qualitative summary identifies up to 'very large adverse impacts' anticipated at this stage with reference to ancient woodland recorded as follows:

Impacts on ancient woodland are considered very large adverse as this habitat cannot be recreated and therefore impacts will be permanent. More detailed design of the proposed road should aim to avoid ancient woodland and reduce impacts where possible. The compensation strategy for loss of ancient woodland could include salvaging soils and planting an area of woodland at sufficient ratio to habitat lost, which would need to be agreed with consultees. Further data including protected species surveys are required to confirm valuations and mitigation activities should be recommended in an Ecological Impact Assessment.

2.55 The CIEEM Guidelines for Ecological Impact Assessment state that *'Where there are significant residual negative ecological effects despite the mitigation proposed, these should be offset by appropriate compensatory measures.'* The mitigation hierarchy will therefore be used during the optioneering, design and environmental assessment process to try to avoid and reduce impacts on ancient woodland where possible and any residual impacts would require compensation measures. This may take the form of land purchase, large-scale planting (to include translocation of stools and soils) and long-term management commitments, for example.

2.56 The environmental assessment would examine the loss of woodland in terms of its use in flood retention, water quality, social value, carbon capture, landscape value and cultural heritage value as well as its value to biodiversity. It is anticipated that this information would be captured in an Ecosystems Services Assessment at WelTAG Stage Three (subject to consideration of scope deliverables), which would compare the baseline conditions to the proposed scheme along with any compensation measures proposed.

2.57 The cultural and social impacts would also be assessed by specialists in these fields and these impacts would be considered as part of the environmental assessment for the proposed scheme, building on the cultural and social impacts considered in the Transport Case at WelTAG Stage Two. An Ecosystem Services Assessment would also include the social value of trees and woodlands, which would need to be compensated for.

2.58 With regard to the interpretation of compensation in relation to the Environment (Wales) Act 2016, if impacts could not be avoided and compensation measures are proposed, the design of these would need to take account of, and demonstrate compliance with, the Section 6 duty under the Environment (Wales) Act 2016 and the five key ecosystem resilience attributes that are outlined, as follows.

A public authority must seek to maintain and enhance biodiversity in the exercise of functions in relation to Wales, and in so doing promote the resilience of ecosystems, so far as consistent with the proper exercise of those functions. ...a public authority must take account of the resilience of ecosystems, in particular the following aspects:

- (a) diversity between and within ecosystems.*
- (b) the connections between and within ecosystems.*
- (c) the scale of ecosystems.*
- (d) the condition of ecosystems (including their structure and functioning).*
- (e) the adaptability of ecosystems.*

- 2.59** It should be noted that compensation is referenced at this stage of the analysis to explain what would happen if impacts on ancient woodland could not be avoided or reduced, which would be the preference.

Impact on the Environment

- 2.60** The consideration of environmental impacts has been a key consideration of the study throughout the WelTAG process, including engagement with key stakeholders and the public, as well as respond to items raised by the project's Review Group encompassing recommendations to complete a programme of early stage environmental surveys and investigations at Stage Two Plus now captured as part of the Preliminary Ecological Appraisal report, the River Ely Hydraulic Modelling report, the Cultural Heritage Desk-Based Assessment report and Geo-technical report, all of which are included as appendices to the Impacts Assessment Report (10028657-ARC-XX-XX-RP-TP-0002).
- 2.61** The appraisal of environmental impacts for the Stage Two Plus report continues to be based on WelTAG Unit A3 and considers several environmental factors including noise, air quality, greenhouse gases, landscape, townscape, historic environment, biodiversity, water environment and residential amenity. The resulting environmental impacts of the proposed options at this stage of the analysis are captured as part of the Transport Case (Chapter 3 of the Outline Business Case), together with the supporting Transport Case appraisal tables.
- 2.62** It is evident from the analysis that the proposals could establish, in many instances, adverse impacts on the environment especially with regards to landscape and biodiversity, for example. It is important that such impacts are captured as part of the evolving analysis alongside those impacts identified for socio-economic and cultural factors, whilst noting that the proposals remain concept designs at WelTAG Stage Two.
- 2.63** If progressed to WelTAG Stage Three completion of a detailed design for a preferred option, together with the anticipated completion of a comprehensive Environmental Impact Assessment to fully understand the complete

environmental impacts, as well as an opportunity to recommend mitigation activities to support development of the design and reduce impacts accordingly should the scheme progress to implementation. This process would be subject to further consideration and scrutiny by key stakeholders and the public, acknowledging that the receipt of feedback regarding all aspects of the design proposals and associated environmental impacts remains a key component of the WelTAG process.

Issues with the WelTAG Process and/ or the Public Consultation

- 2.64** Whilst concerns have been raised regarding the WelTAG process and/ or public consultation exercises completed to date, it is considered that the associated commissions have been completed in line with the supporting WelTAG guidance. This includes advise on the appraisal in relation to the Well-being goals set out in the Well-being of the Future Generations (Wales) Act 2015, and have presented thorough, comprehensive and transparent studies allowing for full interrogation of the proposals at each stage of the assessment through extensive engagement with the public, key stakeholders and the project's assigned Review Group, together with consideration by Vale of Glamorgan Council's Cabinet and Environment and Regeneration Scrutiny Committee.
- 2.65** It is noted that concerns and complaints have previously been raised by members of the public for Stage One, Stage Two and more recently for Stage Two Plus. These issues were subject to interrogation by the Public Services Ombudsman for Wales who concluded on all occasions not to investigate the complaints further.

Oppose Blocking of Connecting Lanes

- 2.66** As noted within the WelTAG documentation, Option A and Option B encompass proposals to close the lane approaching Clawdd-Coch from the east and the lane from Gwern-y-Steeple towards Welsh St. Donats to vehicle traffic.
- 2.67** These proposals follow on from feedback received during the original WelTAG Stage Two consultation in 2018, where concerns were raised regarding the height of the proposed offline designs and the visual landscape impact this would retain. Closing the lanes allows the vertical alignment (height) of the new road at these two locations to be reduced as the need to implement suitable height clearance over the existing lanes is removed.
- 2.68** However, there would be further opportunity to consider the practicality and necessity for the blocking of connecting lanes to vehicular traffic should either of the offline options be taken forward to WelTAG Stage Three. As previously noted, the existing designs are based on OS contours at 5m intervals and is accurate to +/- 2m, which could affect earthworks and accuracy of the concept designs – completion of a full topographical survey would support detailed

analysis of the scheme impacts at the two locations noted, especially with regard to the vertical alignment of the highway options.

- 2.69** Should the blocking of connecting lanes still be considered a viable and effective mitigation measure at Stage Three, the consideration of impacts on local residents, communities and businesses would be explored through development of the design proposals and further detailed consultation with stakeholders and the public, including property owners and landowners.

Result in Increased Traffic

- 2.70** The anticipated impact of the East and West options on traffic has been quantified through the use of SEWTM, a multi-modal model focused on South East Wales, covering the eleven 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.

- 2.71** The model represents an average weekday for four time periods: an AM average hour between 0700 and 0930, an inter-peak (IP) average hour between 0930 and 1530, an average PM hour between 1530 and 1800 and an off-peak (OP) average hour between 1800 and 0700. 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 0745 and 0845, and between 1630 and 1730. The SEWTM base year is 2015, with forecast years of 2026 and 2036 currently available.

- 2.72** The SEWTM has been designed to:

- Understand the current travel patterns in South East Wales and the performance of the transport system.
- Monitor changes in travel patterns over time.
- Predict future travel patterns and conditions on the transport network.
- Assess the impacts of possible interventions in the transport system in a consistent manner.
- Assess the impacts of land use changes such as new housing developments and employment locations in a consistent manner.
- Provide inputs required for transport appraisals and business cases.

- 2.73** A model run was commissioned by the Vale of Glamorgan Council at WelTAG Stage Two to incorporate a 60mph single carriageway road from just south of

Hensol to the Sycamore Cross junction on the A48. It was assumed that there would be three junctions with local roads on the route and the Sycamore Cross junction would be an improved staggered signalised junction, in line with the work completed as part of the Five Mile Lane upgrade.

- 2.74** All SEWTM traffic flow forecasts are included as part of the Impacts Assessment Report and outline the changes in network traffic flows that could result following implementation of an offline option. Whilst there would be a significant increase in traffic flow through the Pendoylan corridor as a result of vehicles redistributing on to the new link road, a reduction in traffic flows is forecast on roads interconnecting with the proposals including the A48.
- 2.75** It is recognised that the modelling was undertaken in early 2018 and the Base Year and Without Scheme flows have been updated by Transport for Wales since that time. There will be a need to update the business case at any next stage of work using SEWTM and incorporating the refinements to the options.

The Case for Change, COVID-19 and Changing Travel Patterns (Work from Home/ Less Traffic)

- 2.76** It is recognised that much has changed since the commencement of the study in 2017, including for example the declaration of climate emergencies by the Vale of Glamorgan Council and Welsh Government and the emerging Wales Transport Strategy, whilst also recognising the changes in travel patterns associated with COVID-19, the impacts and trends of which remain in a state of flux. Given the timing of the pandemic, the Stage Two Plus study is an assessment based on pre-COVID-19 conditions.
- 2.77** However, the case for change will continue to be reviewed at each stage of the project, including the potential for further interim Stage Two appraisal during the 2021/22 financial year (subject to funding approval).
- 2.78** Should the study be taken forward for further analysis, this would facilitate an opportunity to fully review the case for change, taking into consideration the climate emergency declarations, the emerging impacts of COVID-19 (as a minimum), including the capture of emerging policies in reaction to the pandemic.
- 2.79** Further analysis would also allow an update to the economic appraisal to be completed, encompassing a value for money assessment and consideration of changes to TAG Databook v1.14 and the July 2020 Office for Budget Responsibility forecasts, which considers COVID-19 impacts.

Recommendations

- 2.80** At this stage and on the basis of the Stage Two Plus study appraisal, it is considered that Option B (Highway Route West of Pendoylan) has merit in being

taken forward for further consideration in a Stage Three WelTAG, based on the potential social, cultural and economic benefits and value for money identified in this Outline Business Case, whilst recognising that the alignment is anticipated to give rise to significant effects on the environment.

- 2.81** However, in response to the concerns and issues raised as part of the public consultation exercise, **it is recommended that all options are taken forward for further analysis at WelTAG Stage Two to assess climate resilience and carbon impacts of the proposed options, update the SEWTM traffic modelling and economic appraisal encompassing a value for money assessment and consideration of changes to TAG Databook v1.14 and the July 2020 Office for Budget Responsibility forecasts (which considers COVID-19 impacts), and review the case for change taking into further consideration the Welsh Government and Vale of Glamorgan Council climate emergency declarations and emerging impacts of COVID-19 (as a minimum).** However, this would only happen if funding is received from Welsh Government via its Local Transport Fund (LTF). If no funding is received the Scheme would stop at this stage and not be progressed further.
- 2.82** Full details of the submitted 2021/22 Local Transport Fund bid can be found at the following location:
<https://www.valeofglamorgan.gov.uk/en/living/Roads/Transport-Studies/M4-Junction-34-to-A48-Transport-Improvements.aspx>.

It is anticipated that a decision on the outcome of this Local Transport Fund Welsh Government Grant bid will be reported to Cabinet (as long as it has been received).

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

- 3.1** The introduction of the WelTAG report sets out an overview of how the approach and proposals of the appraisal evidence the Five Ways of Working and support the seven Well-being goals set out in the Future Generations of Wales Act 2015. The WelTAG guidance states it is required *'to ensure the needs of future generations are considered and understand how well they help public bodies to meet the well-being objectives and maximise their contribution to each of the seven goals.'* Consideration should be given to long-term challenges, trends, opportunities, as well as integration, collaboration, involvement and preventing problems from occurring or getting worse.

Long Term

- 3.2** The Impacts Assessment Report provides the evidence of both current and future problems, trends, and opportunities to inform consideration of the long-term

perspective and the development of options. Improvements are needed to address the congestion and connectivity issues associated with the M4 Junction 34 to A48 corridor and key connections, and the subsequent impacts on the economy, access to education, jobs and services, health and the environment (notably air quality and noise impacts).

- 3.3** Current traffic congestion and connectivity issues are anticipated to be exacerbated in the future with traffic growth as well as new developments. The options considered in the Outline Business Case offer long-term solutions to address the existing issues through implementation of a new highway link between the M4 Junction 34 and the A48. In addition, an option encompassing online improvements to the existing highway infrastructure has also been considered

Prevention

- 3.4** The options under consideration offer the opportunity to prevent as far as possible the future problems and trends from occurring, through the enhancement of the local and strategic highway network. Moreover, the commercial, financial and management cases seek to identify costs and deliverability risks to aid decision making and prevent long-term liabilities for public money by considering all issues at the outset.

Integration

- 3.5** The options under consideration involve the integration of active travel as part of the local and strategic highway network, as well as supporting the potential for enhanced integration with public transport services and facilities as the highway network is enhanced. The WelTAG study has been undertaken in an integrated manner to consider and take account of other schemes and proposals through discussion with stakeholders, as well as integration with adjacent studies such as the M4 Junction 32 to Junction 35 WelTAG Stage Two Study and emerging proposals from the North West Cardiff Corridor Study (WelTAG Stage One).

Collaboration

- 3.6** In undertaking the WelTAG Stage Two Plus study, there has been collaboration between departments within the local authority and Welsh Government, as well as between stakeholders, Arcadis and other consultants working on adjacent projects influencing the study area issues and solutions.

Involvement

- 3.7** A 12-week public consultation as well as stakeholder workshops was undertaken as part of the original M4 Junction 34 to A48 WelTAG Stage Two study (Improving Strategic Transport Encompassing Corridors from M4 Junction 34 to

the A48 | WelTAG Stage Two | Consultation Report 10013270ARC-XX-XX-RP-TP-0003).

- 3.8** In light of the ongoing COVID-19 pandemic, a comprehensive virtual public consultation exercise on the four highway options has now been completed to support the WelTAG Stage Two Plus study (September 2020 to December 2020).

Well-being Goals

- 3.9** The objectives have been developed through consideration of the well-being goals and this is presented in the Strategic Case section. The Strategic Case also considers how each of the options meets the well-being goals. Together this seeks to ensure that achieving the well-being goals are at the centre of the setting of objectives for the study and the emerging interventions.

4. Resources and Legal Considerations

Financial

- 4.1** The study has been financed by Welsh Government Capital Trust Grant funding.
- 4.2** The total WelTAG spend to date (including consideration of the Vale of Glamorgan Gateway Station and highway link options between the M4 Junction 34 and the A48 at Sycamore Cross) is £413,000 (excluding VAT)

Employment

- 4.3** Consultants Arcadis Consulting (UK) Ltd have been commissioned to undertake the technical work on this Project as the technical skills required to do so are not available within the Council.

Legal (Including Equalities)

- 4.4** The appraisal of options has been undertaken in accordance with Welsh Government's latest version of WelTAG (December 2017) including advice on the appraisal in relation to the Well-being goals set out in the Well-being of the Future Generations (Wales) Act 2015.
- 4.5** Future Wales: the National Plan 2040 makes specific reference to the importance of the airport in terms of international connectivity in Policy 10. Policies 11 and 12 of that document also refer to the importance of national connectivity and regional connectivity respectively.
- 4.6** 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.

- 4.7** 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.
- 4.8** The provision of a well organised transport network helps to increase mobility and accessibility.

5. Background Papers

None.