Adran Seilwaith yr Economi
Department for Economic Infrastructure

Llywodraeth Cymru
Welsh Government

THE LONDON TO FISHGUARD TRUNK ROAD (A40) (LLANDDEWI VELFREY TO PENBLEWIN IMPROVEMENT AND DE-TRUNKING) ORDER 201-

THE LONDON TO FISHGUARD TRUNK ROAD (A40) (LLANDDEWI VELFREY TO PENBLEWIN IMPROVEMENT) (SIDE ROADS) ORDER 201-

THE WELSH MINISTERS (THE LONDON TO FISHGUARD TRUNK ROAD (A40) (LLANDDEWI VELFREY TO PENBLEWIN IMPROVEMENT)) COMPULSORY PURCHASE ORDER 201-

Rebuttal Statement

Objection Reference R0015

Response to Objector's Evidence: Mr Thomas Wheeler

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1. GROUNDS FOR OBJECTION

Details

1.1 Mr Thomas Wheeler (the "Objector") has submitted an email dated 8 September 2019 (R0015) and a Statement of Evidence in relation to the draft Orders associated with the Welsh Government's proposals for the A40 Llanddewi Velfrey to Penblewin Improvements, which has been received via the Programme Officer, on 25 February 2020.

1.2 Mr Wheeler has suggested a number of alternative measures within his Statement of Evidence. As confirmed by the Inspector, the alternatives suggested are not considered alternatives as defined within legislation. Therefore, this Rebuttal has been prepared to respond to the Objector's Statement of Evidence.

1.3 The Welsh Government understands the evidence submitted within the email and Statement of Evidence (R0015) from Mr Wheeler to raise the following issues, arguments and concerns:

a) Increase in emissions of Greenhouse Gases (GHG) due to induced traffic as a result of the Scheme;
b) Compatibility with the Well-being of Future Generations (Wales) Act 2015, the Welsh Government's recently declared climate emergency, and Planning Policy Wales (Edition 10);
c) Increased congestion further east (specifically on the A40, A48 and M4) as a result of the Scheme;
d) Impact on public transport patronage and journey time reliability;
e) The need for the Scheme in light of the existing safety record of the A40 through Llanddewi Velfrey;
f) Necessity of improvements west of Llanddewi Velfrey linking to Penblewin Roundabout;
g) Unacceptable damage to ancient woodland north of Llanddewi Velfrey;
h) Loss of passing trade for local businesses;

i) Concerns over works in ancient woodland at Ffynnon Wood; and

j) Alternatives proposed, defined as:

i. Provision of a pedestrian crossing near the war memorial in Llanddewi Velfrey;

ii. Further reduction in the speed limit through the village;

iii. Traffic calming measures;

iv. Pavement widening and provision of new pavements; and

v. Rail service enhancements.

2. REBUTTAL

2.1 Some of the above points have already been addressed in previous correspondence with Mr Wheeler as listed in Appendix A. Others are dealt with by topic by the relevant witness in the following sections. This is in addition in each case to the witnesses' Proofs of Evidence, to which readers should also refer in their entirety for a full understanding of the Welsh Government's case.

2.2 For ease of reference, the table below lists the sections where the above points are addressed in this Rebuttal:

Objector's point reference	Rebuttal paragraph reference	Objector's point reference	Rebuttal paragraph reference
a	2.15 to 2.19 2.65 to 2.71	f	2.6 to 2.10 2.44
b	2.72 to 2.79	g	2.86 to 2.90
c	2.20 to 2.29	h	2.115 to 2.117
d	2.30 to 2.38	i	2.91 to 2.95
e	2.39 to 2.43	j	2.11 to 2.14 2.45 to 2.64 2.80 to 2.85 2.96 to 2.102 2.103 to 2.114 2.118 to 2.138

2.3 The Objector's points that have already been covered in previous correspondence and Proofs of Evidence are:

Point a (Increase in emissions of greenhouse gases) - Mark Dixon's Proof of Evidence, WG 1.1.2 paragraphs 12.18 to 12.19, Philip Thiele's Proof of Evidence, WG 1.2.2 paragraphs 7.51 to 7.53, Tom Edwards' Proof of Evidence WG 1.3.2 paragraphs 5.274 to 5.286 and John Davies' Proof of Evidence, WG 1.7.2 paragraphs 3.21 to 3.30 and paragraphs 5.3, 5.7 and 6.2.

Point b (Compatibility with Policy) - John Davies' Proof of Evidence, WG 1.7.2 paragraphs 3.1 to 3.20, 3.21 to 3.30, 4.2 to 4.53, and 6.2 to 6.6.

Point c (Increase congestion further east) - Philip Thiele's Proof of Evidence, WG 1.2.2 paragraphs 4.7 to 4.12.

Point d (Impact on Public transport) - Philip Thiele's Proof of Evidence, WG 1.2.2 paragraph 8.7 and John Davies' Proof of Evidence, WG 1.7.2 paragraphs 4.11 and 4.13.

Point e (Existing safety record) - Philip Thiele's Proof of Evidence, WG 1.2.2 section 3.34 to 3.37.

Point g (Ancient woodland north of Llanddewi Velfrey) - Andrew 's Proof of Evidence, WG 1.4.2 paragraphs 8.2 to 8.12.

Point h (Passing trade) - Mark Dixon's Proof of Evidence, WG 1.1.2 paragraphs 7.30 and 7.31, Philip Thiele's Proof of Evidence, WG 1.2.2 paragraphs 8.25 and 8.29 and Tom Edwards' Proof of Evidence WG 1.3.2 paragraphs 5.248 to 5.249.

Point i (Ancient woodland north of at Ffynnon) - Andrew 's Proof of Evidence, WG 1.4.2 paragraphs 8.2 to 8.12.

Mark Dixon (Chief Witness)

2.4 I note from the conclusion (section 4) of Mr Wheeler's evidence that he recognises that "The Welsh Government's preferred Scheme would deliver significant benefits."

2.5 Mr Wheeler refers to the exhibition material displayed at the draft Orders Exhibitions held on 15 August 2019 and 5 September 2019. Section 8 of my evidence explains the potential improvements that could be made to the existing A40 that would be detrunked. Tom Edwards describes the improvements in his evidence (WG 1.3.2).

Point f – The necessity of improvements west of Llanddewi Velfrey linking to Penblewin Roundabout

2.6 A Welsh Transport Appraisal Guidance (WelTAG) Stage 1 and 2 Appraisal (Doc 4.03.03 and Doc 4.03.05) has been undertaken during the development of the preliminary design to review the problems and objectives and appraise the route options. WelTAG Stage 1 considered an option that provided a bypass of the Llanddewi Velfrey village between Capel Ffynnon and Bethel, with limited intervention between Ffynnon and Penblewin. This was noted as Option 4 (Highway Option B), within the WelTAG Stage 1 Report (Doc 4.03.03). The following paragraphs of this Rebuttal summarise the findings of the WelTAG Stage 1 appraisal and the reasons why this option was discounted.

2.7 While recognising that there would be some more adverse environmental impacts from the Scheme's inclusion of the section between Capel Ffynnon to Penblewin, it is considered that the proposed Scheme, performs best against the Scheme objectives and WelTAG criteria, and best addresses the problems identified.

2.8 It is considered that through the inclusion of the proposed section between Capel Ffynnon to Penblewin, additional benefits would be provided in comparison to the option considered without this proposed

section. These include benefits to journey quality, accidents, security, access to services, journey time reliability and the local economy.

2.9 The inclusion of the proposed section between Capel Ffynnon to Penblewin results in the Scheme providing a significantly greater extent of 2+1 carriageway: which provides additional safe overtaking opportunities; reducing driver stress, increases journey quality, improves journey time reliability, improves access to employment and services, reduces the number of risky manoeuvres on the road and generally contributes to the reduction of potential accidents.

2.10 In relation to the scoring of objective 3 – "to reduce community severance and provide health and amenity benefits", it is considered the proposed Scheme would contribute significantly to achieving this objective given the removal of strategic traffic through Llanddewi Velfrey. The proposed section between Capel Ffynnon and Penblewin would help to further achieve this objective by providing a safe and convenient route for Walkers, Cyclists and Horse Riders (WCHR) utilising the detrunked A40 and the proposed Public Rights of Way (PRoW) network, which would provide health and amenity benefits.

Point j – Alternative proposals

2.11 The A40 is a route of national and international strategic importance, forming part of the Trans-European Transport Network (TEN-T). At a regional and local level, it serves: the county town of Haverfordwest, the tourist economy of central and north Pembrokeshire, the port of Fishguard and the industrial town of Milford Haven to the south.

2.12 The existing section of the A40 through Llanddewi Velfrey is subject to a 40mph speed limit. The alternative proposals put forward by Mr Wheeler, would not contribute to the following Scheme specific objectives:

O1 - To enhance network resilience and improve accessibility along the east-west transport corridor to key employment, community and tourism destinations;

O2 - To improve the prosperity and provide better access to the county town of Haverfordwest, the Haven Enterprise Zoe and West Wales ports at Fishguard and Milford Haven.

2.13 Additionally, the suggested alternatives would likely exacerbate the existing issues related to platooning (when there are convoys of heavy goods vehicles from the ferry ports and slow-moving agricultural vehicles). They would not solve the problems associated with limited and inconsistent overtaking opportunities which lead to: journey time unreliability, driver frustration and associated dangerous manoeuvres with severe collision incidents.

2.14 I confirm that the statement of truth and professional obligations to the Inquiry from my main proof still applies.

Philip Thiele (Traffic and Economics)

Point a – Increase in emissions of greenhouse gases due to induced traffic as a result of the proposed Scheme

2.15 The Traffic Forecasting Report (Doc. 4.05.03) provides information about the projected traffic volumes. The figures included within Appendix A of the Traffic Forecasting Report illustrate that traffic volumes west and east of the Scheme would be unaffected by the Scheme indicating that there would be no ‘induced traffic’ along the A40 corridor. Further explanation behind the lack of ‘induced traffic’ resulting from the Scheme is included in my response to point c in paragraphs 2.20 to 2.29 of this Rebuttal.

2.16 Chapter 19 of the Environmental Statement (ES) (Doc. 3.19.01) outlines the climate change assessments undertaken for the Scheme. The conclusion of the assessment are that there will be an increase in GHG emissions as a result of the Scheme. In the first year of Scheme operation, user GHG emissions would be equivalent to approximately 0.1% of the current annual emissions from the transport sector in Wales.

2.17 User GHG (emissions from vehicles using the road) accounts for the vast majority (97.3%) of emissions over the lifetime of the Scheme. Annual user emissions have been assessed to be between 5% and 6% greater with the Scheme in place when compared to the Do Minimum scenario (without Scheme) in all years covered by the 60-year appraisal period. This rise is due to an increase in average speeds and a very slight increase in vehicle-kilometres travelled due to the alignment of the proposed road.

2.18 While it is accepted that there would be an increase in user GHG emissions if the Scheme was to proceed, this must be seen in the context of the actions the Welsh Government is taking across all of its wide-ranging areas of responsibility; to reduce GHG emissions and tackle climate change. In this context, reference should be made to John Davies' (Planning and Sustainable Development) response to point b relating to the Welsh Government's declaration of a climate change emergency in paragraph 2.72 to 2.79.

2.19 Tom Edwards' (Engineering) response to point a in paragraph 0 highlights the design steps that have been taken to reduce the GHG emissions resulting from the Scheme.

Point c – Increased congestion further east (specifically on the A40, A48 and M4) as a result of the Scheme

2.20 As referred to in paragraph 2.15, and as outlined in the Traffic Forecasting Report (Doc. 4.05.03), there would be no induced traffic as a result of the Scheme. Congestion levels elsewhere on the A40, A48 and M4 would therefore not be impacted by the Scheme.

2.21 The following paragraphs provide the rationale behind why there would be no 'induced traffic' from a traffic modelling perspective. At the core of

this is the assessment of the need for variable demand modelling set out in Transport Analysis Guidance (WebTAG)[1].

2.22 The traditional methodology for scheme assessment has been to derive forecasts from a traffic model using a 'fixed trip matrix' approach. Whilst this approach makes provision for the predicted growth in travel demand in future years in line with government forecasts, it assumes that this growth would occur whether or not the scheme is implemented.

2.23 Recent years have seen the development of techniques in modelling variable demand for travel, using as its starting point, the principle that any change in transport conditions can cause a change in travel demand. This is aimed at considering the extent of suppressed demand in the Do Minimum case (without Scheme), as well as the potential for induced traffic in the Do Something case (with Scheme). In congested conditions, therefore, an increase in highway capacity can result, in some circumstances, in additional traffic on the network that can add to the congestion, thereby reducing average speeds for all traffic and eroding some of the benefits of the scheme.

2.24 Section 2.2 of WebTAG unit M2 outlines circumstances under which it is appropriate to apply a 'fixed trip matrix' approach as opposed to a variable demand modelling approach. The guidance states that it may be acceptable to limit the assessment of a scheme to a fixed demand assessment if the following criteria are satisfied:

a) The Scheme is quite modest either spatially or financially, and is also quite modest in terms of its effects on travel costs; or
a) There is no congestion on the network in the forecast year, in the absence of the Scheme; and
b) The Scheme will have no appreciable effect on travel choices (e.g. mode choice or distribution) in the corridor containing the Scheme.

[1] TAG unit M2, Variable Demand Modelling, Department for Transport, Mar 2017

2.25 Spatially, the Scheme is modest, in that it represents a linear improvement to a section (of the A40 corridor of less than 5km in length) with little scope for attracting traffic from competing routes. The A477 corridor is the only alternative strategic east-west route in South Pembrokeshire. Trip patterns were observed through roadside interview surveys on both the A40 and A477 corridors in October 2016. Analysis of trip origins and destinations observed on the A477 corridor indicate that there would be no appreciable effect of trips currently travelling on the A477 switching their route to the A40 with the proposed Scheme in place.

2.26 Congestion along the A40 corridor is currently very limited in the Do Minimum scenario (without Scheme). The operational analysis in Table 5.4 of the Traffic Forecasting Report (Doc. 4.05.03) illustrates that, even in the Do Minimum scenario (without Scheme), the road would be likely to operate under free-flow conditions in future years as it has plenty of reserve capacity to accommodate forecast travel demand.

2.27 The Scheme would not add any additional capacity for long-distance journeys travelling along the A40 corridor. There is therefore no potential for suppressed demand to be released as a result of additional capacity provided by the Scheme.

2.28 Time savings associated with the Scheme would also be modest, with a forecast maximum journey time savings of 20 seconds, as shown in Table 5.3 of the Traffic Forecasting Report (4.05.03).

2.29 Because of the strategic nature of the route, most traffic using it travels considerable distances. This, together with the isolated rural nature of the study area and the low scale of time savings, means that the Scheme is not expected to have an appreciable effect on travel responses such as: modal shift, destination choice, trip frequency or trip retiming. As such, no induced traffic would result from the Scheme.

Point d – Impact on public transport patronage and journey time reliability

2.30 Currently, there are only four bus services in each direction per day that pass through Llanddewi Velfrey. The total number of bus passengers is therefore negligible compared to travel demand by car. Of those bus passengers, a high proportion are likely to be either concessionary pass holders[2] or passengers without access to a car.

2.31 The proposed Scheme would improve journey time reliability along the bus route through the village of Llanddewi Velfrey due to the significant reduction in traffic passing through the village. This improvement in journey time reliability would be offset by slight delays that vehicles would experience at the tie-in junctions (an overall journey time delay which the traffic model shows as being between 15 to 20 seconds duration). The overall journey time impact would, therefore, be negligible, and there would be an insignificant degree of relative change between car and bus as a result of the Scheme.

2.32 As a consequence, the Scheme would have no appreciable effect on modal shift from bus to car.

2.33 Similarly, car journey times would improve only marginally compared to rail. Rail services are relatively infrequent with eight rail services in each direction per day connecting Milford Haven or Haverfordwest with Whitland, Carmarthen or Swansea.

2.34 Journey times by rail are only competitive compared to the car where trip origins and destinations are both close to rail stations. Analysis of trip patterns (observed in a roadside interview survey undertaken in October 2016) highlighted that only 7% of all journeys have origin and destination trip ends located within 800m of a rail station. Only around 2% of all trips have both trip ends within 400m of a station.

[2] In 2018 47% of all bus journeys in Wales were made by concessionary bus pass holders.

2.35 As such, even though station to station travel times are generally competitive versus car between Milford Haven or Haverfordwest and Whitland, Carmarthen or Swansea, the additional travel time associated with travelling between the ultimate trip ends and the start and end stations makes rail journey times uncompetitive versus car for the vast majority of journeys.

2.36 Additionally, the low frequencies of rail services in Pembrokeshire mean that rail passengers can experience extended wait times and are not necessarily able to travel at the specific times they desire, for example to coordinate their arrival time with the start of their work shift.

2.37 I conclude from this that if journey time were the only factor, then the overall share of travellers by rail would be even smaller compared to car. This highlights that rail travellers generally take into consideration other factors, not only journey time, when electing to travel by rail. Examples of factors considered by travellers are car availability, parking constraints at the destination end or the ability to work or relax on the train.

2.38 This highlights that small journey time saving in the order of a maximum of 20 seconds for car travellers are unlikely to have any appreciable effect on modal shift from rail, because the extent of journey time savings for car travellers is minimal and several other factors influence travellers' choice of mode.

Point e – The need for the Scheme in light of the existing safety record of the A40 through Llanddewi Velfrey

2.39 Reducing the number and severity of collisions is one of several objectives that the Scheme seeks to address.

2.40 Personal injury accident data along the A40 corridor, obtained from police records, has been reviewed as part of the Scheme appraisal. Between 2006 and 2015, which were the 10 most recent years of accident data available at the time of the Scheme appraisal, 9 accidents occurred on the section of A40 through Llanddewi Velfrey and a further

13 accidents occurred between Llanddewi Velfrey and Penblewin Roundabout.

2.41 Several sections of A40 between Haverfordwest and St Clears have already been upgraded to the Wide Single 2+1 road standard (WS2+1) proposed for this Scheme. Sections that have been upgraded to WS2+1 standard provide safer overtaking opportunities than single carriageway roads. This results in a lower accident rate on WS2+1 roads as explained in Section 2.8 of the Economic Assessment Report (Doc. 4.05.05).

2.42 Between Haverfordwest and St Clears, the accident rate for WS2+1 roads with 50 / 60mph speed limit is 36% lower than the equivalent accident rate for single carriageway roads with the same speed limit. The accident rate for WS2+1 roads compares even more favourably against single carriageway roads with 30 / 40 mph speed limits. The WS2+1 accident rate is 52% lower in this comparison.

2.43 The Scheme would remove 96% of traffic from the village of Llanddewi Velfrey in the Scheme's design year (2036), thereby creating a safer environment within the village. The removal of traffic would provide the opportunity to widen footways through the village and make walking, cycling and horse-riding a more attractive proposition for trips within the village.

Point f – The necessity of improvements west of Llanddewi Velfrey linking to Penblewin Roundabout

2.44 Maximising the length of WS2+1 carriageway would provide the greatest potential to overcome problems associated with the provision of safe overtaking opportunities. In turn, this would help improve journey time reliability and reduce risky overtaking manoeuvres and driver frustration. A 36% reduction in the number of accidents would be expected on the western section of the proposed WS2+1 road compared to the existing A40 west of Llanddewi Velfrey as explained in paragraph 2.42.

Point j – Alternative proposals

i. Provision of a pedestrian crossing near the war memorial in the village of Llanddewi Velfrey

2.45 Whilst Mr Wheeler put forward an underpass as an alternative in his original objection letter from 8 September 2019, his Statement of Evidence submitted on 25 February 2020 instead referred to the provision of a pedestrian crossing, which he states could take the form of either a Puffin crossing, a footbridge or an underpass.

2.46 The provision of a pedestrian crossing would not address the problems identified in relation to lack of safe overtaking opportunities and slow-moving vehicles leading to platooning. Nor would this alternative meet objectives related to strategic movements along the A40 corridor, such as enhancing network resilience and improving regional prosperity.

2.47 Between 2006 and 2015, (the 10 most recent years of accident data available at the time of the scheme appraisal) none of the nine personal injury accidents recorded in Llanddewi Velfrey involved pedestrians, cyclists or horse riders. Whilst a pedestrian crossing would provide a safer crossing point for pedestrians (and, depending on its form potentially also for persons of reduced mobility, cyclists and horse riders), there is no evidence based on the existing accident records that it would reduce the number or severity of collisions on the A40.

2.48 A Puffin crossing would impact the capacity of the A40 and would likely exacerbate the existing issues related to platooning i.e. when there are convoys of heavy goods vehicles from the ferry ports and slow-moving agricultural vehicles. It would not solve the problems associated with limited and inconsistent overtaking opportunities which lead to journey time unreliability, driver frustration and associated dangerous manoeuvres with severe collision incidents.

2.49 Furthermore, the costs for a pedestrian crossing are likely to outweigh its benefits significantly. Mr Wheeler’s preferred option, a Puffin crossing,

would be likely to result in negative benefits due to its impact on journey times of traffic travelling along the A40. A footbridge or underpass would avoid these negative impacts on travel times along the A40 but would also be significantly more expensive and difficult to implement.

2.50 In his Statement of Evidence, Mr Wheeler states that a "bypass alone would not … ensure that pedestrians can cross [the existing A40 through Llanddewi Velfrey] in safety." The proposed Scheme would remove 96% of daily traffic from the existing A40 through Llanddewi Velfrey. The traffic flow figures included in Appendix A of the Traffic Forecasting Report (Doc. 4.05.03) show that traffic flows on the existing A40 near the war memorial would be in the order of 70 vehicles per hour during the PM peak in the Scheme's design year (2036). Given the low volume of traffic, the average gap between vehicles travelling in either direction through the village would be in excess of 50 seconds. This would provide plenty of time for pedestrians, cyclists or horse riders to safely cross the road without the addition of formal crossing facilities.

ii. Further reduction in the speed limit through the village

2.51 A reduction in the speed limit through the village would not address the identified problem relating to lack of safe overtaking opportunities and slow-moving vehicles leading to platooning. It would also be likely to exacerbate the issues along the A40 corridor issues related to platooning i.e. when there are convoys of heavy goods vehicles from the ferry ports and slow-moving agricultural vehicles.

2.52 A lower speed limit would likely result in negative benefits due to the adverse impact it would have on the journey times of traffic travelling along the A40 corridor.

2.53 In my Proof of Evidence (WG 1.2.2), I highlight in paragraph 7.71 that a reduced speed limit, as proposed here, may need to be implemented to address safety concerns in the absence of the proposed Scheme. A reduction in the speed limit would not address many of the problems

identified. It would therefore strengthen the economic case for the proposed Scheme due to increased journey time savings that could be achieved relative to the lower speed limit.

iii. Traffic Calming Measures

2.54 Traffic calming measures, such as the provision of speed bumps, would reduce the speed of traffic through the village of Llanddewi Velfrey. I have discussed the issues associated with speed reductions along the A40 in the previous paragraphs.

2.55 The introduction of traffic calming measures would also potentially reduce the capacity of the road. This would exacerbate the existing problems associated with limited and inconsistent overtaking opportunities due to the resulting additional traffic queues through Llanddewi Velfrey.

2.56 Speed bumps and other forms of traffic calming measures would also potentially contribute to increased emissions. Because drivers slow down as they approach speed bumps and speed up after traversing them, they burn more fuel which results in an increase in particulate matter and GHG emissions from vehicles.

iv. Pavement widening and provision of new pavements

2.57 A narrowing of the highway pavement would be necessary to accommodate a wider footway through Llanddewi Velfrey. This would be likely to result in a worsening of road safety through the village due to the vehicles travelling in opposite directions passing in closer proximity to each other.

v. Rail service enhancements

2.58 In November 2001, the National Assembly for Wales published the Transport Framework for Wales. This outlined that the east-west transport corridor in West Wales had been the subject of a multi-modal

study in the 1990s, which concluded that the A40 west of St Clears was in need of improvements.

2.59 The multi-modal study was carried out considering public transport improvements including rail, bus, freight and integrated bus and rail. However, it was concluded that improvements to public transport would not reduce the amount of traffic on the A40 trunk road. The report also found that costs associated with enhanced passenger services were likely to exceed revenue, thus requiring an operating subsidy.

2.60 While Pembrokeshire's low population density and rural nature is often a pull factor for tourism, this means that for many travellers, public transport is not a viable alternative due to the additional journey time involved in accessing rail stations from rural parts of Pembrokeshire. Of the car journeys that pass through Llanddewi Velfrey, only 7% of all travellers have an origin and destination that is located within 800m, which is a distance that is typically used to define a reasonable walking catchment of a station[3].

2.61 I have assumed in this section that improvements to rail services to Fishguard, Haverfordwest and Milford Haven from Cardiff and Swansea are made through frequency enhancements (for example doubling the existing number of trains to move from broadly one train every two hours to one train per hour) and through the inclusion of limited-stop express services to Cardiff. These enhancement measures would be likely to have only a marginal effect on reducing traffic volumes through Llanddewi Velfrey due to rail journey times generally being uncompetitive compared to car as a result of a large proportion of travellers having to spend significant time accessing stations from rural locations in addition to wait times involved at stations.

2.62 The existing mode share of rail travel is very low compared to car. Therefore, even if there was a significant percentage increase in rail

[3] Planning for Walking (Chartered Institution of Highways & Transportation, 2015, section 6.4)

passenger demand as a result of the suggested rail improvements, this would only have a relatively small percentage impact on reducing traffic volumes through Llanddewi Velfrey. A small reduction in car traffic would do little towards addressing the issues identified along the A40 corridor related to: platooning of traffic, lack of safe overtaking opportunities and poor road safety.

2.63 The operating costs related to running additional rail services would be likely to significantly outweigh the benefits because the passenger numbers on these services would be low. There may also be practical issues in incorporating additional express services into the existing rail timetable, as a limited-stop service would potentially need to be able to overtake slower-running stopping services to achieve the benefit indicated by Mr Wheeler. This may require additional rail infrastructure enhancement, for example in the form of passing loops, which would add to the cost of the proposed alternative.

2.64 I confirm that the statement of truth and professional obligations to the Inquiry from my main proof still applies.

John Davies (Planning & Sustainable Development)

Point a – Increase in emissions of greenhouse gases due to an increase in induced traffic along the A40;

2.65 My proof of evidence (WG 1.7.2) acknowledges that the Scheme would increase GHG emissions; this is also set out in Chapter 18 of the ES (Doc 3.18.01). However, this is not due to induced traffic, as explained by Philip Thiele above and in his proof of evidence (WG 1.2.2), but an increase in the average speed and marginal increase in the length of the Scheme compared with the existing road. It is incorrect to assert that emissions would be greater than forecast due to induced traffic.

2.66 The Welsh Government does not suggest that the additional emissions would be insignificant but that this increase is evaluated in the context of the actions being taken across all of the wide-ranging areas for which

the Welsh Government is responsible, including transport, to reduce GHG emissions and tackle climate change. These are set out in Prosperity for All: A Low Carbon Wales (Doc 4.01.24). The policies and proposals in this document do not include a review of all road-building schemes, which in my view is clear recognition that there will be situations where new road schemes are necessary and justified and that each one should be considered on its merits.

2.67 The Welsh Government has used the WelTAG 2017 framework, which embeds the principles of sustainable development enshrined in the Well-being of Future Generations (Wales) Act 2015 (WFG Act) (Doc 4.01.10). WelTAG has been used to: identify the problems associated with this section of the A40, evaluate the options for addressing those problems, and determine the Scheme as the preferred solution. As such, the Scheme seeks to improve the social, economic, environmental and cultural well-being of the local area and the wider region through delivering the Welsh Government's commitment to improve the strategic A40 corridor.

2.68 A considerable body of evidence has been prepared: to demonstrate the need for the Scheme, set out its impacts, and describe the mitigation proposals. Therefore, while it is true that the problems on the A40 have been known for many years, the current Scheme is the result of recent work that adhered to the principles set out in the WFG Act and included extensive collaboration with stakeholders and the local community.

2.69 The Objector criticises the Scheme for failing to contribute positively to objectives 7 and 8. The table in paragraph 4.7.2 of the WelTAG Stage 3 Report (Doc 4.03.07) explains how the Scheme performs against the set objectives. Against Objective 7: *To deliver a project which is sustainable in a globally responsible Wales, taking steps to reduce or offset waste and carbon*, the Scheme would have a 'Neutral' impact. For Objective 8: *Give due consideration to the impact of transport on the environment and provide enhancement when practicable,* the impact of the Scheme is described as 'Slight Adverse'. This does not mean that the Scheme

would not contribute to national well-being goal 7: *A globally responsible Wales*. The Scheme has to be evaluated against the national well-being objectives; this process is described in the table in paragraph 4.8.7 of the WelTAG Stage 3 Report. Preceding this paragraph is Table 1 from the Welsh Government's Well-being Statement 2017, which explains how each of the 12 national well-being objectives contributes to the seven well-being goals.

2.70 The table in paragraph 4.8.7 of the WelTAG Stage 3 report explains the Scheme's contribution to national well-being objectives 3, 7, 9, 11 and 12, which are the objectives contributing to well-being goal 7 'A globally responsible Wales'. The Scheme would not encourage modal shift and would increase GHG emissions (national well-being objective 3), but it would contribute positively to national well-being objectives 7, 9, 11 and 12. The Scheme would, therefore, make a positive contribution to several of the Welsh Government's well-being objectives that are intended to contribute to the achievement of well-being goal 7.

2.71 Furthermore, it must be remembered that WelTAG 2017 is a tool to assist decision-makers; it is "a framework for thinking about proposed changes to the transport system." It distinguishes the positive and negative impacts of the options that would address the identified issues. Ideally, the preferred option would have a positive or neutral assessment against all objectives, with no negative impacts, but it would be unrealistic to expect this ideal outcome in all cases. The fact that an option is assessed through WelTAG to have one or more negative impacts should not automatically lead to that option being rejected. All the positive impacts against the set objectives, against national well-being objectives, and against the well-being goals in the WFG Act must be taken into account and weighed against any adverse impacts before selecting the preferred way forward. That is the process that has been followed in selecting this Scheme, as documented in the WelTAG reports.

Point b - Compatibility with the Well-being of Future Generations Act, the Welsh Government's recently declared climate emergency, and Planning Policy Wales (Edition 10);

2.72 Chapter 5 of the ES (Doc 3.05.01), provides the legislative and policy context for the Scheme and includes consideration of the WFG Act, Planning Policy Wales Edition 10 (PPW10) (Doc 4.01.30) and other relevant legislation and guidance. A Sustainable Development Report (SDR) (Doc 4.03.09) has also been published, which describes how the proposed Scheme aligns to the WFG Act and its sustainable development principle, and its contributions to the well-being goals and objectives.

2.73 The SDR concludes that the Scheme represents sustainable development within the definition of the WFG Act. It acknowledges that there would be some adverse environmental impacts, but these have been mitigated wherever possible so that a positive contribution would be made to the national well-being objectives through: improved road safety, increased network resilience, reduced community severance and noise impact, and improved air quality. The SDR explains how the Scheme would make a positive contribution to nine of the national well-being objectives and hence to the majority of the well-being goals in the WFG Act.

2.74 I recognise that objectors to the Scheme disagree with the extent to which the Scheme would contribute positively to the national well-being objectives, and emphasise the failure to encourage modal shift and the increased GHG emissions. Nonetheless, in my view, it would be wrong to reject the Scheme based solely on its inability to contribute to one of the seven well-being goals, effectively ignoring its positive contributions to the others. A balanced view must be taken that weighs a failure to contribute to one goal against all positive contributions to other well-being goals.

2.75 Furthermore, the WFG Act does not require that every action by the Welsh Government must contribute positively to every one of the well-

being goals; it would not be practicable to impose such a requirement. Section 3(2)(a) of the WFG Act requires that a public body's well-being objectives should maximise 'its' contribution to achieving the goals. It is, therefore, the actions of the Welsh Government collectively rather than the contributions of individual projects that should be considered.

2.76 A central part of the Welsh Government's actions to tackle climate change is their declaration of a climate emergency in April 2019 (Doc 4.01.65). Objectors argue that this Scheme is incompatible with that declaration; their arguments imply that all road-building schemes should cease. However, the Welsh Government has not banned all new road schemes in Wales but is taking action across all areas for which it has a responsibility to meet its ambitions to tackle climate change. *Prosperity for All: A Low Carbon Wales*, published in March 2019 (Doc 4.01.24), contains 100 policies and proposals spread across all the Welsh Government ministerial portfolios. The Government's 2020-21 budget allocates £140m to support initiatives aimed at decarbonising transport. The objector criticises the Welsh Government's actions on transport decarbonisation but that is not a matter for this Inquiry.

2.77 It is correct that *Prosperity for All: A Low Carbon Wales* was published one month prior to the Welsh Government's declaration of a climate emergency. But there have been no subsequent policy declarations by the Welsh Government to restrict new road schemes. There has been no change to the commitment in *Prosperity for All: the national strategy* to deliver enhancements to the A40 in West Wales. The objector has criticised the effectiveness of the Welsh Government's policies on climate change, but that also is not a matter for this Inquiry. Improving the A40 in West Wales is still part of Welsh Government policy; this Scheme is the preferred method of making the much-needed improvements.

2.78 Turning to PPW10, the objector emphasises the transport hierarchy defined in paragraph 4.1.11 of that document. The paragraph states

"It is Welsh Government policy to require the use of a sustainable transport hierarchy in relation to **new development** (*my emphasis*), which prioritises walking, cycling and public transport ahead of the private motor vehicles."

2.79 It is quite clear from this that the sustainable transport hierarchy is intended to apply to new development and for that reason has limited relevance to this Scheme. This is reinforced in paragraph 4.1.12 of PPW10, which states that the sustainable transport hierarchy is intended to prevent car-dependent developments in unsustainable locations. As I point out in my proof of evidence (paragraph 4.25), PPW10 paragraph 5.3.13 states that new road schemes and road improvements should take into account the transport hierarchy, whereby active and sustainable transport is considered before private motor vehicles. However, the next part of this paragraph states that this will help minimise community severance and adverse impacts on the safety, convenience and amenity of routes for journeys on foot, bicycle and public transport. There can be no dispute that this Scheme would considerably reduce community severance in Llanddewi Velfrey and provides the opportunity to create a safe and attractive route through the village and its surroundings for walking, cycling and access to bus services. I, therefore, do not accept that the Scheme conflicts with national planning policies.

Point j – Alternative proposals

2.80 The Objector suggests that because neither his suggestions nor the Welsh Government's Scheme contribute positively to all eight of the Scheme's objectives, it is necessary to prioritise some of the objectives. He considers objectives 7 and 8 are far more important than objectives 1 and 2. These objectives are as follows:

O7: Deliver a project that is sustainable in a globally responsible Wales, taking steps to reduce or offset waste and carbon

O8: Give due consideration to the impact of transport on the environment and provide enhancement when practicable

O1: To enhance network resilience and improve accessibility along the east-west transport corridor to key employment, community and tourism destinations

O2: To improve prosperity and provide better access to the county town of Haverfordwest, the Haven Enterprise Zone and the West Wales ports at Fishguard, Milford Haven and Pembroke Dock.

2.81 These objectives are part of the WelTAG 2017 process for the 'development, appraisal and evaluation of proposed transport interventions in Wales.' As such, the WelTAG assessment must be carried out in as objective a manner as possible. Giving priority to certain of the objectives established as part of WelTAG will inevitably introduce bias into the process and undermine the credibility of WelTAG and the final recommendations.

2.82 Further, WelTAG 2017 has been developed to integrate the principles of sustainable development contained in the WFG Act. As part of the WelTAG assessment, the objectives identified are reviewed against the well-being goals in the WFG Act, so that an option that performs well against the objectives would be expected to align to the national well-being goals. This was done as part of the process of identifying this Scheme and the table in paragraph 3.11.10 of the WelTAG Stage 3 report (Doc 4.03.07) shows the relationship between the Objectives, Well-being Goals, and Problems. Consequently, prioritising WelTAG objectives would lead to some national well-being goals being given greater weight over others. This, in my view, would be contrary to the WFG Act since this does not give priority or greater importance to one well-being goal over any other.

2.83 Objectives 1 and 2 for this Scheme, to which the objector attaches far less importance, contribute to four of the seven well-being goals, whereas objectives 7 and 8 contribute to the same single goal. I do not suggest that objectives 1 and 2 should be regarded as more important simply because they contribute to more well-being goals. However, any attempt to prioritise particular objectives raises fundamental questions regarding the principle of sustainable development. This is defined in section 2 of the WFG Act as "*the process of improving the economic, social, environmental and cultural well-being of Wales by taking action in accordance with the sustainable development principle aimed at achieving the well-being goals.*" The objector's stated priorities would give less weight to the economic well-being of Wales, which in my view would be contrary to the WFG Act since the economy is one of the four pillars of well-being.

2.84 The Objector suggests a pedestrian crossing in Llanddewi Velfrey and that a bypass alone would not provide a safe means of crossing the existing A40 through the village. This is correct, but the Scheme includes detrunking the existing section of the A40 and the redesign of the road through the village. A 30mph speed limit through the village as suggested by the Objector would have safety benefits. However, this is a trunk road carrying high volumes of traffic that would continue to pass close to pedestrians even with a lower speed limit, creating an environment that is not conducive to walking or cycling. The great benefit of the Scheme is the 94-95% reduction in traffic in 2021 through Llanddewi Velfrey, which would have a much more significant impact on safety than simply introducing a 30mph speed limit. The Scheme would enable the redesign of the A40 through the village to provide both a safe and attractive environment for walkers and cyclists and a reduction of noise and air pollution for its residents.

I confirm that the statement of truth and professional obligations to the Inquiry from my main proof still applies.

Andrew Sumner (Environment)

Point g – Unacceptable damage to ancient woodland north of Llanddewi Velfrey.

2.86 The wood at Blaen-Pen-Troydin is an area of restored ancient woodland and is associated with the small valley of a minor watercourse. The ES Chapter 8 Ecology and Nature Conservation (Doc 3.08.01) states that surveys undertaken between 2016 and 2018 showed the area is semi-natural woodland and ES Chapter 8 paragraph 8.6.8 records that this area of woodland was considered of value. Clearance of a strip through this woodland would be required to provide space for the proposed road, which would be on an embankment. The extent of the clearance is shown in Appendix B of my evidence (WG 1.4.3), which show the area of ancient woodland. The area of the woodland is shown in context on the Environmental Masterplan Sheet 5, contained in the ES Volume 3 Appendix 2.5 (Doc 3.02.03).

2.87 The alignment through the area of Blaen-Pen-Troydin was considered to minimise the area of the woodland that would need to be cleared for construction whilst meeting required highway standards and minimising impact on habitats and on farm businesses. Tom Edwards provides further detail in his evidence (WG 1.3.2).

2.88 The area of the designated ancient woodland that would be cleared for the Scheme is a narrow finger of trees extending north from the main block of ancient woodland. This represents an area of 2,666m^2 that would be lost. A small area of the northern end of the ancient woodland designation would be severed.

2.89 The extent of the clearance is shown in Appendix C of my evidence, which shows the area of ancient woodland as green outline and hatch. The land take for the Scheme is shown in red lines and pink tone. The main block of the woodland can be seen extending over 200m to the south of the proposed Scheme. A small area to the north of the proposed Scheme would be retained. The CPO Plot 3/2j is required for Essential Mitigation, but the woodland in this plot would not be cleared.

Instead this plot and CPO Plot 3/3d and 3/2u will be used to plant replacement woodland and woodland soils stripped from the ancient woodland will be placed here to conserve the resource and enrich the new planting.

2.90 PPW10 paragraph 6.4.26 advises that such woodland areas should be protected from development unless there are significant public benefits. Because of its considerable public benefits the Scheme accords with national planning policy regarding ancient woodland in PPW10.

Point i – Concerns over works in ancient woodland at Ffynnon Wood

2.91 Ffynnon Wood (unique ID 4537), shown on drawing A40LVP-ARP-EHR-SWI-DR-LH-0001 contained in Appendix B of my Proof of Evidence (WG 1.4.3), is an area of semi-natural woodland which lies to the north and south of the existing A40. The part designated as restored ancient woodland is to the south. The existing A40 embankment is shown as lying within the designation boundary. A cross-section drawing (A40LVP-ARP-ELS-SR01-DR-LE-0001) demonstrating this is also contained within Appendix B of my evidence (WG 1.4.3).

2.92 The non-native coniferous species, concentrated on this roadside embankment slope, were planted during the construction of the A40 improvements, possibly as long ago as the 1960s and therefore predating the designation process that identified the area as ancient woodland. The ES Chapter 8 Ecology and Nature Conservation (Doc 3.08.01) (para 8.6.8) states that “The area of Ffynnon Wood which is affected is mainly mixed plantation on the embankment which is therefore of lower value than more semi-natural woodlands”. This conclusion is based on the results of surveys carried out between 2016 and 2018.

2.93 The extent to which the proposed Scheme would affect the ancient woodland designation has been measured. An area of 1,387m^2 is

included within the permanent land take of the Scheme. Of this, an area of 2,085m^2 is already within the existing A40 highway boundary and has therefore been cleared of trees and woodland soil and replanted with coniferous trees. In other words, the trees and the embankment on which they grow no longer have the characteristics of ancient woodland. Therefore, the true area of ancient woodland impacted would be 542m^2.

2.94 The proposed alignment through the Ffynnon Wood area has been designed to closely follow the existing A40 alignment and use the existing road embankment as far as practically possible, whilst meeting required highway standards. This minimises the area of the woodland to the north and south that would need to be cleared for construction of the Scheme.

2.95 The proposed carriageway is wider than the existing road and would approach the western fringe of the wood with the widening mainly on the south side of the existing road for a distance of about 220m (from Chainage 1+580 to 1+800). However, only about 130m of that length (Chainage1+680 to 1+810) would extend beyond the existing road embankment and into the ancient woodland. This intrusion would be for the widening but would also provide space for a new PRoW along the foot of the embankment. Extending east through Ffynnon Wood, the proposed Scheme curves slightly to the north of the existing A40 and this alignment would affect woodland on the north side (approximately Chainage 1+780 to 1+900), which is outside the boundary of the restored ancient woodland. The extent of the clearance of this woodland can be seen on Sheet 3 of the Environmental Masterplan, contained within the ES Volume 3 Appendix 2.5 (Doc 3.02.03).

Point j – Alternative proposals

2.96 The provision of a pedestrian crossing near the war memorial in Llanddewi Velfrey is shown in a plan included with the letter of objection. The proposal also includes traffic calming and a new footpath link eastwards. It is clear that the Objector's proposal attempts

to address an important problem in Llanddewi Velfrey, namely the poor connectivity through the village because of the narrow footways and the presence of traffic. The problems are reflected in the views of residents, making it clear that the community suffers from severance. Whilst the underpass proposal would provide some improvement in connectivity, it would only be a partial solution that would: not address severance, not remove traffic, not widen all the footways, not reduce traffic noise and provide only minimal opportunities for environmental enhancement within the village. The pedestrian crossing would only partially solve one of the problems experienced in the village.

2.97 By comparison, the bypass for Llanddewi Velfrey would: relieve the village of through traffic, allowing residents to walk or cycle more freely around the village, and enable environmental improvements associated with the detrunking of the existing A40.

2.98 Proposals for traffic calming measures are not always welcome. Measures can:

a) increase traffic noise due to breaking and accelerating vehicles;
b) result in queues of slow-moving traffic passing through the calmed area;
c) increase the sense of disturbance and increase the noise of slow-moving traffic; and
d) maintain the current sense of danger to pedestrians and cyclists.

2.99 The presence of calmed traffic would still discourage the crossing of the road and maintain the severance of the village. If pedestrians diverted through an underpass, it would be a less convenient route and the journey down into the ground and under the road could contribute to a sense of threat for some people.

2.100 The need for pavement widening and provision of new pavements is recognised in the proposals for de-trunking measures through the village.

2.101 In conclusion, it is my opinion that the measures proposed in the Objection would not provide the degree of community improvements for Llanddewi Velfrey that the Scheme would enable.

2.102 I confirm that the statement of truth and professional obligations to the Inquiry from my main proof still applies.

David Hiller (Noise)

Point j – Alternative proposals

2.103 I have responded below to the noise implications of the alternative proposals individually and then in combination if all alternatives were to be implemented.

i. Provision of a pedestrian crossing near the war memorial in Llanddewi Velfrey

2.104 The provision of an underpass would not lead to any changes in road traffic noise effects because an underpass would not change the traffic flows. Construction of an underpass would require excavation and ground support using a variety of heavy plant, which could include some form of piling. Such works could lead to some temporary disturbance to nearby residences through noise and vibration although it should be practicable to minimise these impacts.

ii. Further reduction in the speed limit through the village

2.105 Introduction of a pedestrian crossing would, when in use, lead to the changes in traffic noise due to braking and accelerating vehicles as may occur with horizontal traffic calming measures that I discuss in paragraph 2.107 below.

2.106 Further reduction in speed limit through the village would lead to a small decrease in traffic noise. Based on the Do-Minimum (i.e. without Scheme) assumptions of traffic flow and composition, the following indicative reductions in noise level could result from the indicated

changes in traffic speed. These calculations have used the CRTN method described in the ES.

2.107 The estimated noise levels (dB(A)) for different traffic speeds are shown in Table 1 below.

Table 1 Noise level reduction for different traffic speeds

Traffic Speed	Reduction in noise level
40mph (64km/h)	0 (dB(A))
35mph (56km/h)	0.7 (dB(A))
30mph (48km/h)	1.5 (dB(A))
20mph (32km/h)	2.4 (dB(A))

2.108 With reference to the guidance in ES Chapter 14 (Doc. 3.14.02) Table 14.4, all the noise level reductions in Table 1 above would be classified as a negligible beneficial impact in the long term and would be assessed as a not significant effect.

iii. Traffic calming measures

2.109 Traffic calming measures could help to control vehicle speeds and so control the noise levels from vehicles. As I have described above, reducing vehicle speeds can lead to a reduction in traffic noise levels. The introduction of interventions that locally lead to vehicles having to reduce speed can also lead to some adverse changes in the traffic noise.

2.110 Vertical deflection traffic calming measures (such as speed humps or cushions), can lead to additional noise through banging and rattling of heavy vehicle bodies and/or elements attached to them. Heavy vehicles (including buses) traversing vertical measures can also lead to groundborne vibration that could be perceptible to residents if the measures were implemented close to dwellings. For both vertical deflection and horizontal deviation measures (such as chicanes), noise from braking and acceleration that would not otherwise be necessary

can give rise to undesirable changes in the level and character of vehicle noise.

2.111 In summary, although the introduction of interventions to control traffic speed could mean that traffic would move more slowly, so causing less noise, other potential noise problems could be caused as a result of disruption to freely flowing traffic, depending on the measures implemented.

iv. Pavement widening and provision of new pavements

2.112 Pavement widening measures would have no effect on the traffic noise levels through the village.

Combined result of implementing all alternatives

2.113 The overall implications to the noise climate through the village that could arise through the combination of all proposed alternatives could be a negligible reduction in the noise level.

I confirm that the statement of truth and professional obligations to the Inquiry from my main proof still applies.

Tom Edwards (Engineering)

Point h – Loss of passing trade for local businesses

2.115 Should the Scheme proceed, access to Llanddewi Velfrey from the A40 trunk road would be retained for both the local community and other motorists who wish to use local facilities by the provision of the following:

a) a roundabout at the eastern end of the village (Llanddewi Velfrey East Junction); and
b) a major/minor priority junction at the western end of the village (Llanddewi Velfrey West Junction).

2.116 A Traffic Signs and Road Markings Strategy has been prepared during the development of the Scheme and is included in the Alignment and

Junction Strategy Report (Doc Ref. 4.04.02). This strategy includes the provision of signage at the Llanddewi Velfrey East and West Junctions informing road users of local facilities (including the sale of fuel, food and welfare) that would be available within the village. The sign would look similar to that shown in Figure 1. Similar local facilities signage was provided on the Robeston Wathen and Canaston Bridge roundabouts as part of the A40 Penblewin – Slebech Park improvements.

Figure 1 Example of Local Facilities Signage to be provided as part of the Scheme

2.117 The number and extent of the symbols on the signage would be dependent on the requirements of The Traffic Signs Regulations and General Directions 2016 (TSRGD). The sign shown in Figure 1 is based upon the requirements of Diagram 2308.1 of the TSRGD. The symbols currently shown are the minimum requirements for the sign. Further symbols could be included following an assessment of the facilities during the detailed design of the project, if the Scheme was to proceed.

Point j – Alternatives proposed

i. Provision of a pedestrian crossing near the war memorial in Llanddewi Velfrey;

2.118 The Objector suggests a pedestrian crossing near the war memorial in the centre of the Llanddewi Velfrey village.

2.119 There is an existing pedestrian crossing at this location, which is uncontrolled, with a central refuge island.

2.120 If a controlled crossing was constructed at this location, as suggested by the Objector, it would have an impact on the flow of traffic through the village. Philip Thiele has described this impact further in paragraphs 2.45 to 2.50 of this rebuttal.

2.121 The Objector's proposals for an underpass near the war memorial in the village of Llanddewi Velfrey as shown in the illustration on page 2 of his letter dated 8 September 2019 would require additional land outside of the existing highway boundary.

2.122 The practicality of constructing the underpass would be difficult. Construction of the underpass is a congested area without disturbing the A40 carriageway would be complex, leading to significant disruption to and the local community.

2.123 Any underpass solution would require ramps leading down to an underpass structure. These ramps would be in cuttings, which would have significant impacts on the properties in the village and the War Memorial. The impacts could potentially be reduced by the introduction of retaining structures on either side of the ramps.

ii. Further reduction in the speed limit through the village

2.124 Philip Thiele provides details on this point within paragraphs 2.51 to 2.53 of this Rebuttal.

iii. Traffic Calming Measures

2.125 The Objector suggests that traffic calming measures should be implemented as an alternative. Traffic calming measures can be either physical or non-physical. Examples of physical measures are: chicanes, road narrowing and speed ramps. Examples of non-physical measures are: gateway features, reduced speed limits, traffic enforcement and road markings

2.126 The Design Manual for Roads and Bridges (DMRB) TA87/04[4] provides advice on the use of traffic calming measures on trunk roads. TA87/04 provides a comprehensive list of measures and provides guidance on their use.

2.127 Traffic calming measures already exist on the A40 through Llanddewi Velfrey. These existing measures include:

a) gateway features at either end of the village, which include “dragons teeth road markings and village name signage;
b) reduced speed limit of 40mph, with appropriate road markings (40mph limit marked on road);
c) central hatching road markings and pedestrian refuge areas;
d) traffic Enforcement signage including “Police Speed check area” signage at either end of the village; and
e) narrow carriageway (both physical and narrow lane markings/hatching).

2.128 The westbound approach to the village has a stepped speed limit reduction on the approach, with a 50mph speed limit in place from just east of Bethel chapel, reducing to 40mph on the entrance to the village.

2.129 Traffic calming measures such as the provision of speed bumps as suggested by the Objector, would reduce the speed of traffic through the village of Llanddewi Velfrey. Philip Thiele discusses the issues associated with speed reduction along the A40 in paragraphs 2.51 to 2.53 of this Rebuttal.

2.130 TA87/04 clause 4.6 states *“On trunk roads where there are relatively large traffic flows and high proportions of large vehicles, road humps are unlikely to be used. Nevertheless, at locations where they are considered appropriate it is important that they comply fully with current regulations, including signing and markings. It should be noted that road*

[4] DMRB TA87/04 Vol 6 Section 3 - Traffic Calming on Trunk Roads a Practical Guide

humps cannot be installed on roads with speed limits greater than 30mph without special authorisation." Given the traffic flows and proportions of large goods vehicles, as detailed in Philip Thiele's Evidence (WG 1.2.2), speed humps are deemed not appropriate on the A40 through Llanddewi Velfrey.

2.131 There are no physical traffic calming measures on the A40 between St Clears and Haverfordwest, so when considering route consistency, introducing physical measures would not be favourable.

iv. Pavement widening and provision of new pavements

2.132 I have assumed in this section that by 'pavement widening and provision of new pavements' the Objector means widening / provision of new footways, and not widening / provision of new highway pavement.

2.133 Sections of the highway layout through Llanddewi Velfrey do not meet current design standards. The horizontal alignment is generally poor, and the road narrows to 6.5m in places. No hard strips are provided and footways are narrower than standard.

2.134 TD27/05 [6]provides the requirements for Cross-Sections of Trunk Roads. TD27/05 Figure 4-3a outlines the cross-section for a single carriageway road, which should be a total of 9.3m wide, comprising 3.65m lane widths and 1m hard strips. Therefore the existing carriageway is up to 2.8m narrower than the standards require.

2.135 The Objector suggests that the existing carriageway width is narrowed further in order to provide wider footways. The objector refers to the exhibition material displayed at the draft Orders Exhibitions held on 15 August 2019 and 5 September 2019, which is included in his statement. The cross-section shown is in relation to measures that could be provided if the A40 was detrunked and the through traffic removed.

[6] DMRB Volume 6 Section 1 Part 2 TD27/05 Cross-Sections and Headrooms

2.136 As part of the Scheme, the Welsh Government are considering options to improve Active Travel through the village. With the new Scheme in place, the significant reduction in traffic through the village does provide an opportunity to increase the footway pavement width which would encourage walking and cycling through and within the village by improving the perceived safety of the footpath. I outline this in my Proof of Evidence (WG 1.3.2) in paragraphs 5.183 to 5.191.

2.137 A further reduction in carriageway width by widening the footways (without the Scheme) would cause risks to drivers navigating this section of the A40 due to the reduced carriageway width and would be inappropriate for a trunk road.

2.138 I confirm that the statement of truth and professional obligations to the Inquiry from my main proof still applies.

Appendix A - Correspondence List

Date	In/Out	Author	Email/Post/Meeting
08/09/2019	In	Mr Thomas Wheeler	Email
12/02/2020	Out	Welsh Government	Letter
25/02/2020	In	Mr Thomas Wheeler	Email -Suggested Alternatives