

Adran yr Economi a'r Seilwaith  
Department for Economy and Infrastructure



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Llywodraeth Cymru  
Welsh Government

**Objection Ref OBJ0247 - Cycling UK**

**File Refs**     **WG/REB/OBJ0247-1- Professor S Cole**

**WG/REB/OBJ0247-2 - Dr S Melia**

**WG/REB/OBJ0247-3 - R Geffen / H Mackay**

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**1. AUTHOR**

- 1.1 I am Benjamin Sibert. I am a Director of Ove Arup and Partners Ltd (Arup), a multi-disciplinary consultancy. My professional qualifications are set out in my main proof of evidence and are not repeated here.
  
- 1.2 The evidence which I have prepared and provide in this proof of evidence has been prepared and is given in accordance with the guidance of my professional institution and I confirm that the opinions expressed are my true and professional opinions.

## **2. SCOPE AND PURPOSE OF THIS PROOF OF EVIDENCE**

- 2.1.1. Cycling UK have submitted Statements of Evidence in relation to the draft statutory Orders associated with the Welsh Government's proposals for the M4 Corridor around Newport (the Scheme), which has been received via the Programme Officer.
- 2.1.2. The evidence of Cycling UK is provided in three volumes from different witnesses as follows:
- i. Professor Stuart Cole (OBJ0247)
  - ii. Dr Steve Melia (OBJ0247)
  - iii. Mr Roger Geffen & Mr Hugh Mackay (OBJ0247)
- 2.1.3. My evidence will respond to the points raised in Cycling UK's evidence where it relates to the (engineering) aspects of the Scheme: the M4 Corridor around Newport (hereafter referred to as the Scheme), comprising a proposed new dual three lane motorway to the south of Newport and complementary measures. My evidence will also respond to the construction aspects of the alternative routes that Cycling UK has proposed. These areas of objection are raised only by Professor Stuart Cole in relation to the Objector's alternative Blue Route.
- 2.1.4. Aspects of my evidence interface with the evidence of other witnesses including Matthew Jones (WG1.1.1), Bryan Whittaker (WG1.2.1), Stephen Bussell (WG1.3.1) and Dr Peter Ireland (WG1.7.1). I make cross references to the evidence of these and other expert witnesses where appropriate.
- 2.1.5. I try to limit duplication of evidence given in my own Proof of Evidence (WG1.1.1) but draw on that when appropriate to address points raised by Cycling UK in their evidence.
- 2.1.6. For simplicity of reference, throughout my evidence I will refer to the following abbreviations:
- a) draft Compulsory Purchase Order (Doc. 2.1.5) as the "CPO";
  - b) the draft Side Roads Order (Doc. 2.1.3) as the "SRO";

- c) the Environmental Statement and its Supplements (Docs. 2.3.2, 2.4.4 and 2.4.14) as the “ES”;
- d) the Design Manual for Roads and Bridges (Doc. 6.1.8) as the “DMRB”.

2.1.7. My evidence is presented in the following structure, with a detailed contents provided at the start of the document.

1. Author
2. Scope and Purpose of this Proof of evidence
3. Blue Route Alternative Rebuttal
4. Blue Route Alternative Conclusions

### **3. REBUTTAL – BLUE ROUTE ALTERNATIVE**

#### **3.1. Introduction**

#### **3.2. The Plan**

3.2.1. At Section 47f of his evidence, Prof Cole states: *'It provides better access to/from Newport than does the Black Route.'*

3.2.2. Section 4 of the evidence of Matthew Jones (WG 1.1.1) describes the history of decision during the development of the Scheme, including junction strategy and access to/from Newport.

3.2.3. The proposed new motorway to the south of Newport provides an appropriate level of access to/from Newport, commensurate with its nature as a strategic highway route. The reclassification of the M4 around the north of Newport maintains and improves connectivity with Newport, with the addition of full movements access at junction 25 for St Julians and Caerleon. Such an improvement would not be possible with the Blue Route, without the reduction in traffic on the existing road which is achieved only by the proposed new motorway. Bryan Whittaker will confirm this in his rebuttal.

3.2.4. Based on the above, it is my opinion that Prof. Cole's statement on access to/from Newport is incorrect and that the Blue Route would not afford the benefits to Newport which would be provided by the Scheme comprising the proposed new motorway with its intermediate junctions, reclassification of the existing M4 and complementary measures.

#### **3.3. Expressway Standard**

3.3.1. The DMRB (Doc. 6.1.8) does not recognise the term "expressway" which Prof Cole uses throughout his evidence and Prof. Cole has not clarified its definition.

3.3.2. In his evidence and in his original paper on the Blue Route, Prof. Cole states: *'The Blue Route paper set out that it would "create a dual carriageway to motorway / expressway standard"'*. Refer to his evidence section 3.1.5. He also goes on to state at section 2 *'This term*

*‘expressway’ has been used to describe dual carriageway roads of a higher standard than normal’ and at section 48 c) ‘The WG says the predicted speed limit will be 50 mph). The exact speed that could be achieved is beyond my expertise, however, I would note that 50 mph does appear to be low when considering the nature of the Blue Route as an urban expressway made up of a four lane carriageway. This appears inconsistent.’*

- 3.3.3. It could be inferred, therefore, that an expressway is equivalent to an urban motorway with full grade separation at all junctions and a high speed flowing alignment commensurate with a motorway.
- 3.3.4. Transport initiatives requiring Welsh Government funding must be appraised using the WelTAG guidance (Doc. 6.1.4) to appropriately identify the problems, establish Transport Planning Objectives, and to ensure that possible solutions are considered against criteria spanning the Welsh Impact Areas of the economy, environment and society. In the absence of any such robust appraisal from Prof. Cole, the Welsh Government has explored, developed and appraised the suggested Blue Route (Doc. 6.2.35).
- 3.3.5. In making its appraisal of the Blue Route (Doc. 6.2.35) and absent any definition from Prof. Cole, the WG has made a balanced judgement of the appropriate design standards between the competing factors of safety, cost, impact on the existing communities and businesses along the corridor and connectivity with the existing local road network.
- 3.3.6. To provide a road to an urban dual two lane motorway standard in accordance with the DMRB would, in my opinion, increase costs and impacts excessively compared to the scenarios presented in the Blue Route appraisal report, because of increased highway width<sup>1</sup>, higher design speed resulting in larger horizontal radii of bends, longer, flatter

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<sup>1</sup> DRMB TD 27/05 Highway Cross Sections – Figure 4-2a versus Figure 4-4a resulting in 6.7m minimum greater width.

crest curves<sup>2</sup> and requirement for grade separation at all junctions<sup>3</sup>. It should be noted also that Prof Cole has confirmed that Scenario 7 is a fair representation of the Blue Route, as recorded at 4.4.9 of Doc.6.2.35, and also as confirmed verbally at the Pre Inquiry Meeting of January 27<sup>th</sup> 2017. The comments in Prof. Cole's evidence therefore appear to be contrary to his verbally stated confirmation of the WG's interpretation of what constitutes his Blue Route because of his assertion of the Blue Route being "expressway standard".

3.3.7. In the absence of clear definition from Prof Cole, the WG appraisal of the Blue Route has made assumptions as stated in section 4.2 and Table 4.1 of Doc. 6.2.35 and summarised as follows:

- a) urban Dual Carriageway with dual 7.3m wide kerbed carriageways;
- b) a combination of at grade and grade separated junctions;
- c) speed limits between 30mph and 50mph, depending upon road geometry and frequency of junctions; increasing where ever practical the existing speed limit through works to junctions;
- d) a maximum vertical gradient of 5%.

3.3.8. Prof Cole's statement in section 48 c) of his evidence suggesting that the choice of speed limits is inconsistent is thus not correct. The choice of speed limit has been chosen to be aligned holistically with the assumptions agreed above with Prof Cole and is not inconsistent. .

#### **3.4. Blue Route Scope of Works**

3.4.1. Prof Cole has confirmed that Scenario 7 is a fair representation of the Blue Route, as recorded at 4.4.9 of Doc.6.2.35, and also as confirmed verbally at the Pre Inquiry Meeting of January 27<sup>th</sup> 2017.

3.4.2. At section 25 to 29 of his evidence, Prof. Cole describes the Blue Route. Generally, Prof Cole's words concur with what has been

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<sup>2</sup> DMRB TD 9/93 – Highway Link Design – Table 3 – 1020m desirable minimum for 120kph design speed versus 510m desirable minimum for 85kph design speed; K=182 desirable minimum crest curve for 120kph design speed versus k=55 for 85kph. A 100kph design speed could also be appropriate for an urban motorway which would correspondingly require R=720m and k=100.

<sup>3</sup> DMRB TD 9/93 – Highway Link Design; Chapters 6 and 8.

previously agreed between himself and the Welsh Government, except where noted below.

3.4.3. In Section 26 of his evidence Professor Cole provides a list of junctions where grade separations are feasible. It is correct to include Beatty Road in this list as it has been found that the north facing slip roads required would not be compatible with M4 Junction 24 on safety and operational grounds. Grade separation of Beatty Road junction was not included in scenario 7 layouts agreed with Prof. Cole.

3.4.4. In Section 26 he states '*The proposed grade-separated intersection at Queensway Meadows would link on to the [A4810] SAR*'. To clarify this statement, the route north to M4 junction 24 along the A48 would pass over the junction on a grade separated viaduct. The east route via the A4810 would intersect at grade with the ground level gyratory.

3.4.5. Prof. Cole is correct to suggest that woodland to the north of the current four lane single carriageway section of the A48, adjacent to the Tredegar Park Sports Ground, near junction 28 of the M4, would be affected by the blue route.

### **3.5. Programme for Delivery**

3.5.1. At section 29 of his evidence, Prof. Cole states that '*This lower cost scheme could be constructed by 2018*'. He provides no programme to substantiate this date. He also states at section 105i of his evidence, Prof. Cole states '*No explanation is given for the reason why the construction period for the Blue Route should be longer than for the Black Route (para 4.6.4-4.6.6) given that the Blue Route was planned to be the new M4 line or route over a decade ago. It is highly likely that investigations performed at that time, together with the analysis undertaken of the Blue Route as part of this Inquiry process will enable the overall pre-construction phase to be shorter than that predicted by the WG. The timing of 8 years given for construction (para 4.6.4) is unsubstantiated and is considerably more than I would expect for this*

*kind of development, as shown with comparable roads, for example, the A465 (Hirwaun to Abergavenny)*

- 3.5.2. At section 4.6.6 of Doc. 6.2.35, the WG's appraisal states that the route could not be open before 2031 and provides a summary of the reasons why in sections 4.6.1 to 4.6.6. I will expand upon the procedure which would be followed in the following paragraphs.
- 3.5.3. The Blue Route suggested alternative to the published M4 Corridor around Newport Scheme has been received by the Welsh Government. While the Welsh Government is not promoting or supporting this alternative proposal, it is obliged to consider it so that the Inspectors conducting the Public Local Inquiry can report on its relative merits to the Welsh Ministers. The Inspectors could not recommend in their report that any alternative proposal be adopted, but could advise the Welsh Ministers that an alternative warrants further investigation. In such an event, and if such investigations were undertaken that concluded the alternative should be adopted, it would then be the subject of new statutory Orders which themselves would be open to formal objection.
- 3.5.4. In arriving at the date of 2031, the following procedural timescale has been assumed:
- a) Following receipt of Inspectors' Report, Ministers announce decision not to proceed with the Scheme and instead to consider the Blue Route: Early 2018.
  - b) Procure consultants to undertake WelTAG appraisal and consultation: appointed mid-2018.
  - c) Surveys, WelTAG, consultation, preferred route announcement: 18 months; preferred route announcement end of 2019.
  - d) Appoint ECI contractor for Stages 3 and 4: Appointed Spring 2020.
  - e) Preliminary design and draft Orders preparation; 18 months: publish Orders Autumn 2021.
  - f) PLI commence: Spring 2022.

- g) Inspector's Report: Autumn 2022
- h) Commence Design Construction Contract: Spring 2023
- i) Up to 8 years to construct: Blue Route fully open 2031.

3.5.5. The above is an optimistic programme given the potential and likely additional delay(s) that would result following the adoption of new WeITAG guidance (as has recently been subject to Welsh Government consultation) and any requirement for Strategic Environmental Assessment. Matthew Jones will also consider this in his evidence.

3.5.6. At section 110, Prof. Cole states '*The Blue Route could solve the congestion issue on the M4 earlier than the Black/Purple route since it could be completed sooner*'. Clearly, this statement is incorrect.

3.5.7. At Section 77, Prof. Cole states under the heading *Delivery of the Black Route*. '*The Welsh Government's argument here is disingenuous, as the procedures for the Black Route have been pursued vigorously whilst those for the Blue Route have not. This demonstrates not the lack of the suitability of the Blue Route. Rather it is the decision not to have evaluated its uncertainties and risks to the same extent as the Black Route*'.

3.5.8. As described in the evidence of Matthew Jones (WG 1.1.1) section 3 describes the details of the procedure followed by the Welsh Government in arriving at The Plan (Doc. 4.5.7), including, at sections 3.17 to 3.20, a summary of the Judicial Review undertaken in to the decisions taken by the Welsh Government, which were upheld to be rational and lawful.

3.5.9. The procedures for the Scheme, including evaluation of all reasonable alternatives have therefore been undertaken entirely correctly.

3.5.10. Contrary to Prof. Cole's statement in section 105i of his evidence, the construction programme of 8 years is substantiated as explained in section 4.6.4 of Doc. 6.2.35. Further detail of the assumptions made in arriving at this period are outline in the following paragraphs.

- 3.5.11. A period of 5 years and 2 months has been assessed (starting early 2018) to carry out the Blue Route scheme development, procurement, public consultation, WelTAG assessment, draft Orders preparation, Public Local Inquiry leading to a Welsh Government decision to proceed (comparable with the black route timescales) leading to commencing construction in February 2023.
- 3.5.12. The proposed Blue Route requires 9 grade separated junctions to be constructed on the SDR and SAR. In addition, works would be required on a further 9 at-grade junctions and a new connecting loop to the B4245 Newport Road is required at J23A Magor.
- 3.5.13. Due to the urban nature of the existing SDR and SAR roads, high existing traffic usage by local residents and businesses within Newport and, the on line nature of the works necessary to construct the Blue Route, it has been assumed that not all junctions could be worked on at the same time, This assumption has been adopted to limit the protracted disruption that work would cause to traffic already using the SDR and local businesses and residents over the construction period to an acceptable level. Therefore, it is assumed that work would be limited to a maximum of two junctions or junction combinations at a time, one on the SDR and one on the SAR. Based on this assumption 8 years 7 months would be required for detailed design and phased construction of the Blue route.
- 3.5.14. Due to the constrained urban nature of each junction site, traffic would be limited to a single lane in each direction to reduce the required land necessary for construction and associated impact on local properties and businesses.
- 3.5.15. Clearly if further junctions were in construction concurrently the construction period would be reduced e.g. 4 Junctions (instead of 2) would halve the construction period to approximately 4 years. Such major on-line works would cause considerable disruption to the city of Newport during construction.

### 3.6. Land Requirements - Ben

3.6.1. At section 21 of his evidence, Prof. Cole states '*The land that has been acquired as the SAR was presumably sufficient for widening to a three-lane motorway at a future date should this be needed*'. He also states at section 81: '*It was explained to me by WG officials in 2006 and in 2010 that the land acquired was sufficiently wide for an expressway or a 4 lane dual carriageway road with grade separated junctions*'.

3.6.2. This is not the case. The acquisition of land under compulsory purchase can only be for land that is essential for the scheme which is being promoted, which was, the improvement of the A4810 Steelworks Access Road.

3.6.3. At section 47b of his evidence, Prof. Cole states '*A higher proportion of the land needed is already in public ownership*'. At section 48d, he states '*Involve limited land take*' Prof. Cole provides no evidence to support these statements.

3.6.4. The procedure for development of a transport initiative described at 1.4 above does not set the land boundary for a scheme until Key Stage 3. Only at this stage can the full land ownership requirements of the scheme, including essential licence land required for construction and essential mitigation land, be established. The WG has not yet undertaken such an exercise and thus the balance of existing ownership of land required from the scheme is unknown.

3.6.5. Nevertheless, a preliminary exercise in assessing impacts on land and property has been undertaken and reported in Doc. 6.2.35 at section 7.4.

3.6.6. It should be noted that the A48 Newport Southern Distributor Road, along which the Blue Route Alternative would follow, is a Private Finance Concession road. The land is owned by Newport City Council and leased to Morgan Vinci Ltd, the concession company.

3.6.7. At his evidence section 105f, Prof. Cole states: '*The WG Blue Route report (para 7.4) there are properties that will be compulsorily*

*purchased. There are no domestic premises and some are disused or low value use land.* He provides no evidence to support this statement.

3.6.8. As stated in section 7.4 of Doc. 6.2.35, a preliminary GIS assessment has been undertaken to estimate the effects on property. GIS indicates approximately 20 residential properties and 30 commercial properties would be at high risk of demolition as a result of the proposed Blue Route works and required land take. Approximately 3,600 residential and commercial properties would also be within 200m of the proposed Blue Route, and could therefore be blighted with increased noise and air pollution.

### **3.7. Cost Estimates**

3.7.1. Prof. Cole claims in his evidence that the Blue Route would cost £380M at sections 12 and 22. He does not provide any evidence to support his stated cost estimate of £380M nor does he clarify what is included or outside this figure. In the absence of any other information, it is assumed that he is referring to the total budget to deliver the Blue Route for the Welsh Government.

3.7.2. In the WG's Blue Route Appraisal report, the cost estimate of £837.8M at Q4 2015 prices is presented in Table 7.3.

3.7.3. The Welsh Government's assessment of costs demonstrates that Prof Cole's estimate of £380M is a significant underestimate and has no evidence to support it.

3.7.4. At section 19e of Prof. Cole's evidence, he states '*Thus the Black Route is a £1.5bn M4 scheme to address 3.5 hours of congestion.*' This statement is incorrect: the WG's proposed Scheme would cost £1093M (March 2016) and would achieve far greater benefits than Prof Cole states, as described in my main evidence (Doc. 1.5.1), Matt Jones' Proof of Evidence (Doc. 1.1.1) and Bryan Whittaker's Proof of Evidence (Doc. 1.2.1)

3.7.5. At section 78 of Prof. Cole's evidence, he states "*In about 2000 the WG announced the redesign and rebuilding of J28 was being planned.*"

*Since then no progress has occurred. The cost should therefore not be included in the Blue Route costing as it has been planned as a separate WG project’.*

- 3.7.6. There are two matters in this statement which are incorrect. Firstly, construction work on the M4 Junction 28 improvements started recently in March 2017. The Welsh Government has been developing this scheme for a number of years, including more notably since 2010 as part of the M4 Corridor Enhancement Measures (three years in advance of Prof. Cole’s Blue Route report publication in December 2013). The proposals outlined support the objectives of the Welsh Government set out in the Welsh Transport Plan 2008 and Wales National Transport Finance Plan 2015. The works are due for completion in July 2018.
- 3.7.7. Secondly regarding the costs and the status of the M4 Junction 28 improvements, the WG’s Blue Route appraisal report (Doc. 4.3.4) clarifies *“All of the Blue Route scenarios listed above take into account planned and committed measures including the Welsh Government’s M4 Junction 28 Improvements project. This is also the case for the M4 Corridor around Newport Scheme proposals.”*
- 3.7.8. Therefore it is clear that both the appraisal of the Blue Route and the Scheme exclude costs of the M4 Junction 28 improvement.

#### 4. CONCLUSIONS – BLUE ROUTE ALTERNATIVE

- 4.1.1. While the Welsh Government is not promoting or supporting the Blue Route alternative, it is obliged to consider it so that the Inspectors conducting the Public Local Inquiry can report on their relative merits to the Welsh Ministers.
- 4.1.2. The Blue Route has been appraised by the Welsh Government and appraisal continues to demonstrate that the Blue Route is not a reasonable alternative to the proposed Scheme and would not perform anywhere near as well as the proposed Scheme in addressing the problems or achieving the objectives of the M4 around Newport. The Objectors' Suggested Alternatives Report (Document 4.7.2) explains how the Blue Route would meet six scheme objectives but all less well than the Scheme (1 to 5, 14) and would not meet nine scheme objectives (6 to 13, 15). This reflects the fuller analysis presented within Table 10.1 of the Appraisal of Objectors' Alternative Blue Route Proposals (p. 55, Document 6.2.35), which summarises the evidence collected in that document against scoring of likely impacts.
- 4.1.3. The 2015 Judicial Review that considered the Welsh Government's treatment of alternatives including the Blue Route found the decisions taken by the Welsh Ministers were rational and lawful.
- 4.1.4. I have demonstrated through my evidence that the statements made by Professor Cole are provided without evidential basis, incorrect or do not properly reflect the procedure of developing transport initiatives through Welsh Government policy including the application of WelTAG at the strategic and scheme levels, with subsequent Scheme development (in accordance with the appropriate guidance e.g. the Design Manual for Roads and Bridges).
- 4.1.5. Contrary to Professor Cole's statement in his section 105I: '*The document has a bias against the Blue Route rather than being balanced. For example the eight years construction plus statutory process. (para 4.6.8). This is one of many unexplained and anti-Blue*

*Route assertions for which little basis appears to have been published.*, there has been a very considerable amount of appraisal and reporting on the many Blue Route options as explained in detail in section 1 of the Blue Route appraisal report (Document 6.2.35).

- 4.1.6. All appraisals of alternatives including the suggested Blue Route have been carried out in an objective and evidenced based manner in line with relevant legislation, policy and WelTAG guidance.
- 4.1.7. The Blue Route appraisal report (Document 6.2.35) was prepared by the Welsh Government following the announcement on 21 June 2016, when Welsh Minister Mr Ken Skates confirmed that: “*The historic consideration of options will be examined, as will all alternative routes proposed by objectors, including the much referred to ‘blue route’... I am mindful of the continued interest in this alternative, and so, to address this, a fresh analysis of the blue route is being carried out and will be published prior to the inquiry. This will look again at scope, cost and traffic modelling and allow people to present their views to the inquiry inspector.*” The report was prepared using the principles of WelTAG as described in its section 1.2.
- 4.1.8. Little or no objective, evidence based argument backed up with analysis has been provided by Professor Cole to substantiate his claims that the Blue Route would address the aims and objectives of the M4 Corridor around Newport Scheme. It has been necessary for the Welsh Government to explore, develop and appropriately appraise the Blue Route. The Welsh Government’s objective, evidence based appraisal of the Blue Route, supported by analysis is provided in Document 6.2.35 and its conclusions given in section 11 of that report.
- 4.1.9. In overall summary, that appraisal (Document 6.2.35) has demonstrated that ‘*Whilst it has been demonstrated that the M4 Corridor around Newport Scheme would best address the identified problems and achieve the identified objectives, appraisal has demonstrated that the Blue Route would not address the transport*

*related problems, or sufficiently address the objectives as well as the M4 Corridor around Newport Scheme, although acknowledging that it could offer some positive contributions to some of the objectives’.*