

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



Llywodraeth Cymru  
Welsh Government

**The M4 Motorway (Junction 23 (East of Magor) to West of Junction 29 (Castleton) and Connecting Roads) and The M48 Motorway (Junction 23 (East of Magor) Connecting Road) Scheme 201-**

**The M4 Motorway (Junction 23 (East of Magor) to West of Junction 29 (Castleton) and Connecting Roads) and The M48 Motorway (Junction 23 (East of Magor) Connecting Road) (Amendment) Scheme 201-**

**The London to Fishguard Trunk Road (East of Magor to Castleton) Order 201-**

**The M4 Motorway (West of Magor to East of Castleton) and the A48(M) Motorway (West of Castleton to St Mellons)(Variation of Various Schemes) Scheme 201-**

**The M4 Motorway (Junction 23 (East of Magor) to West of Junction 29 (Castleton) and Connecting Roads) and the M48 Motorway (Junction 23 (East of Magor) Connecting Road) and The London to Fishguard Trunk Road (east of Magor to Castleton) (Side Roads) Order 201-**

**The Welsh Ministers (The M4 Motorway (Junction 23 (East of Magor) to West of Junction 29 (Castleton) and Connecting Roads) and the M48 Motorway (Junction 23 (East of Magor) Connecting Road) and the London to Fishguard Trunk Road (East of Magor to Castleton)) Compulsory Purchase Order 201-**

**The M4 Motorway (Junction 23 (East Of Magor) to West of Junction 29 (Castleton) and Connecting Roads) and The M48 Motorway (Junction 23 (East Of Magor) Connecting Road) (Supplementary) Scheme 201-**

**The Welsh Ministers (The M4 Motorway (Junction 23 (East Of Magor) to West of Junction 29 (Castleton) and Connecting Roads) and The M48 Motorway (Junction 23 (East Of Magor) Connecting Road) and The London to Fishguard Trunk Road (East of Magor to Castleton)) Supplementary Compulsory Purchase Order 201-**

**Summary Proof of Evidence**

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**Welsh Government, Engineering Design**

**Document Reference: 1.5.2**

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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.
- 1.2 I am a Fellow of the Institution of Civil Engineers (2015), a member of the Institution of Structural Engineers (1996) and a member of the Chartered Institution of Highways and Transportation (2012).
- 1.3 In March 2015 I was appointed as the Design Project Manager for the development of the preliminary design and draft Orders for the M4 Corridor around Newport (the Scheme), working in Arup Atkins Joint Venture for the ECI design and build contractor Costain Vinci Joint Venture. I have led the development of the Scheme through this period to the present including the publication of draft Orders in March 2016. I am responsible for managing and coordinating the engineering design teams involved in the Scheme, namely: highways, structures, geotechnics and drainage. I have worked with my colleague, Dr Peter Ireland, the Environmental Coordinator, to ensure coordination between the engineering design and environmental disciplines.
- 1.4 In preparing the draft Orders design I have been supported by my team of engineers and consultants. They have worked to my instruction and I adopt their work as my own and opinions I express are my own. My field of expertise is the design of structures, the coordination of input from other specialists and the holistic engineering design of the Scheme. The engineering team includes specialists in the fields of highway alignment, junction layout and the design of associated highway features including traffic signs and road markings, boundary fencing and road restraint systems, drainage, geotechnical design and the design of pavements and road lighting. I have drawn upon the expertise of these specialists in the production of this Proof of Evidence.
- 1.5 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 My evidence will explain the engineering design aspects for 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. It includes the vertical and horizontal highway geometry, the junction designs, design of the new structures, the earthworks, elements of surface water drainage and the associated infrastructure (fencing, safety barrier, pavement, traffic signs,

2.2 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”.

## **3. The Scheme**

3.1 The Scheme generally accords with the standards of the Design Manual for Roads and Bridges (DMRB) (Doc. 6.1.8).

3.2 A number of departures from the DMRB highway geometry standards are proposed that would benefit the Scheme, which have been approved by the Welsh Government.

3.3 The proposed new motorway would be a dual three lane motorway. The cross section would generally accord with the Dual three lane motorway

(D3M) designation in Figure 4-1a of TD27/05 – Cross Sections and Headroom.

- 3.4 The carriageway would have a low noise emitting surface.
- 3.5 Safety barriers, road markings and signs would all be provided in accordance with current design standards.
- 3.6 A Road Safety Audit Stage 1 (Doc. 6.2.8 and 6.2.11) has been carried out on the draft Orders proposals in accordance with HD 19/15<sup>1</sup>. The auditor made 79 recommendations across the two reports, although 2 of the original comments are removed through the design changes covered in the Addendum. My response to the auditor's comments is provided in the Road Safety Audit Stage 1 Response Reports (Doc. 6.2.8, 6.2.11) where I have accepted 67 of the audit 77 recommendations.
- 3.7 For reasons explained in the Response Report, I have proposed to the Welsh Government that 10 of the audit recommendations are not accepted which has thus required the Welsh Government to prepare an exceptions report to the Road Safety Audit (Doc. 6.2.9) which are approved with comments
- 3.8 For side roads crossing the proposed new motorway and adjustments to adjacent side roads as indicated in the SRO, Newport City Council and Monmouthshire County Council are the relevant highway authorities. Records of meetings with these organisations together with documentation of the proposals for their comments are included in the Alignment and Junctions Report (Doc. 6.2.1). This report also states the standards used for the design of side roads.
- 3.9 Both local authorities have reported their broad agreement to the side roads proposals and dialogue continues with them regarding the development of the Scheme design. No departures from standards for side roads are required.

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<sup>1</sup> DMRB Volume 5 Section 2: HD 19/15 - Road Safety Audits

- 3.10 The vertical alignment of the proposed new motorway across the Gwent Levels SSSIs has been designed to be as low as practical to achieve a balance for construction and operation. A low height is desirable to reduce earthworks volumes, land required from the SSSI and visual impacts. It is controlled by a number of factors: the drainage design<sup>2</sup>, bridges, culverts and the geometric standards of DRMB TD9/93 – Highway Link Design.
- 3.11 At Ch. 12+650 approximately, the alignment of the proposed new motorway is placed just to the north of an overhead electricity pylon in order to avoid moving the pylon. This alignment avoids impacts upon a key Western Power 132kV overhead electrical power line pylon which is located on the southern side of the proposed new motorway. This power line supplies the Severn Tunnel Pumping Station, so is of critical importance and would be expensive to divert with long programme lead in times of two years to implement.
- 3.12 Where the Scheme crosses Newport Docks, the March 2016 published draft Orders allowed for a 25.5m clearance above the design water level of +7.56m Above Ordnance Datum (AOD), approximating to the Highest Astronomical Tide (HAT), giving a structure soffit minimum level of +33.06mAOD. Refer to the draft Scheme Bridge Plan (Doc. 2.1.1). The 25.5m clearance assumed a 0.3m safety clearance, thus providing for 25.2m above the design water level for ships.
- 3.13 As a result of the ongoing dialogue between the Welsh Government and ABP since publishing draft Orders (meeting of 8 July 2016 and ABP's letter of 5 August 2016), the Welsh Government has written to ABP on 16 September 2016 to advise that change to the published draft Orders would be made as follows:
- a) The Design Water Level is +8.4mAOD
  - b) The Bridge minimum soffit level would be +34.60mAOD

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<sup>2</sup> Section 6 of the Drainage Strategy provided as Appendix 2.2 to the ES Chapter 2 – Scheme Description

- 3.14 The basis for the change of design water level to +8.4mAOD is ABP's stated plan to change the outer lock gates suitable for a future impounded water level of +8.4mAOD.
- 3.15 The purpose of the amendment would be to maintain the 25.2m clearance for ships above the design water level whilst accommodating an increase in safety clearance from 0.3m to 1m and the increase in water level to the maximum that would be possible with ABP's new lock gates. i.e. 26.2m above 8.4mAOD = 34.6mAOD; an overall increase in height of the bridge of 1.54m. Refer also to the evidence of Jonathan Vine (WG 1.22.1).
- 3.16 The existing rest area at Magor is accessed indirectly from the M4 motorway at J23A where motorway users leave the motorway via the junction slip roads and access via the grade separated J23A gyratory. Access to the rest area at J23A Magor would be provided in the Scheme layout from the proposed new motorway, the M48, the A4810 and the reclassified M4.
- 3.17 Traffic travelling eastbound on the M4 would experience a more indirect arrival to and exit from the rest area than present. Traffic travelling westbound would experience a more indirect exit from the rest area than at present. All other access routes (arrivals and departures) to the rest area would be similar to existing conditions with changes in distance ranging from insignificant up to approximately 300m due to the need to pass through junction 23.
- 3.18 . In order to provide eastbound travellers a convenient opportunity to make a stop at Magor, before embarking on the 33.1 miles / 53.2km journey to the next stop opportunity, I have concluded that the addition of an eastbound off slip road at junction 23A could be an appropriate addition to the Scheme and could add value against the Scheme objectives.

- 3.19 The existing M4 north of Newport, between junctions 29 and 23a, and the A48(M) between J29 Castleton and J29A St Mellons are proposed to be reclassified to all-purpose trunk roads. Additionally, the existing M4 junction 25 Caerleon is proposed to be reconfigured to provide all movements connections to the reclassified M4, where it presently connects only via the east facing slip roads. The reclassification of the existing M4 motorway is described in the Reclassification of the M4 and A48(M): Design and Options Report (Doc. 6.2.4) and a summary of the elements of reclassification is provided in more detail in the ES Chapter 2<sup>3</sup>.
- 3.20 The proposed new motorway would generally be unlit, except at junctions. Road lighting would be provided at the new Castleton Junction, Docks Way Junction, Glan Llyn Junction and the Magor Junction. At Docks Way Junction, the lighting would extend over the full length of the River Usk Crossing. There would be minor modifications made to the lighting systems on the reclassified M4 around Newport, which are required to support the revised junction and road layouts proposed at Junctions 28, 25, 24 and 23a.
- 3.21 The SRO and CPO includes for stopping up and new routes for public rights of way.
- 3.22 A Non-Motorised User Context Report (Doc. 6.2.18 and 6.2.19) has been prepared. The proposed new motorway and side roads have been audited against the objectives set. The audit concludes that provisions have been made to meet the objectives in the Scheme proposals.
- 3.23 In the vicinity of the B4245 at Junction 23, the Scheme would maintain existing NMU connections along the existing roads. Along the B4245 within Junction 23, the B4245 would benefit from provision of a combined footway/cycleway running on the southern side of the road, avoiding the need for NMUs to cross the busier arms of the junction.

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<sup>3</sup> ES Chapter 2, Scheme Description, Section 2.4.

- 3.24 Due to the nature of the reclassified existing M4, with constrained cross sections, high speed traffic and grade separated junctions with merges and diverges, I do not consider the reclassified existing M4 to be a suitable environment for NMUs. NMUs would be prohibited from the reclassified M4 for reasons of highway safety.
- 3.25 Across the Gwent Levels SSSIs, the proposed new motorway would be carried on low embankment (Refer to section 3.10 of my evidence for highways geometry). The embankment side slopes on the SSSI are proposed at a slope of 1(V):2(H).
- 3.26 Due to the combination of vertical alignment, minimum embankment heights, limited extent of cuttings and the natural topography, the Scheme would require earthworks materials to be both imported and sourced through borrow pits in order to construct the earthworks.
- 3.27 At Castleton, two significant cuttings are proposed to the north of the existing motorway to accommodate the proposed new interchange at Castleton: Castleton Cut East and West. Structures
- 3.28 Bridges are proposed at interfaces between the proposed new motorway and rivers, water courses, side roads, rights of way and at junctions.
- 3.29 Where the proposed new motorway crosses the Newport Docks and the River Usk, a cable stayed bridge and approach viaducts would be provided. The new bridge would be a 440m main span cable-stayed bridge crossing the River Usk and would have viaducts on the approaches to the main span providing an overall length of 2.1km.
- 3.30 Retaining walls would be provided where it would be impractical to construct battered earthworks and to reduce the title land required in the CPO, and at supports to bridges.
- 3.31 The proposed new motorway crosses Network Rail assets at three locations where new bridges would be provided Network Rail have objected to the draft Orders (OBJ0025).

- 3.32 The drainage systems would include features to address risk of pollution and to maintain the water quality to the Gwent Levels SSSIs even during periods of heavy rainfall. The ES Supplement Appendix S2.2 – Drainage Strategy (Doc. 2.4.4) details these system on pages 2 and 3.
- 3.33 The drainage system includes features designed to protect the water environment of the Gwent Levels SSSIs as follows:
- a) Grass lined channels in the highway verge which have both attenuating and pollution control effects;
  - b) Pollution Control lagoon or “forebay” to remove hydrocarbons and silt particles;
  - c) Attenuation and permanent dilution lagoon;
  - d) Reed bed to provide additional pollution control “polishing” of the water before out-falling into the reen network.
- 3.34 The highway drainage strategy has been developed to minimise the impact of the proposed new motorway on the Gwent Levels SSSIs by providing the minimum height of the earthworks embankments.
- 3.35 At the Magor and Castleton ends of the Scheme, the highway runoff would outfall to concrete surface water channels in the verge or central reservation dependent on the superelevation. Surface runoff from the cutting slope would outfall to either open ditches or filter drains located at the base of the cutting.
- 3.36 On the Gwent Levels highway drainage would outfall to lined grassed channels in the verge, or concrete channel in the central reservation if the carriageway is superelevated.
- 3.37 Water Treatment Areas (WTA) are required for attenuating flows to green field runoff rate and improving water quality.
- 3.38 The Scheme crosses a number of land drainage water courses and rivers. Flow of water in these would be maintained with a combination of bridges and culverts.

- 3.39 Away from the Gwent levels at the Magor and Castleton areas of the Scheme, lined cut-off ditches at the top of cuttings and unlined cut-off ditches at the bottom of embankments would intercept natural runoff. If the natural topography falls away from the road alignment, cut off ditches are not included other than to mitigate local flooding risk.
- 3.40 Private Means Access (PMA) are stopped up or provided for where the Scheme requires a modification to existing access to premises.
- 3.41 Intelligent Transport Systems (ITS) would be provided as follows:
- a) Closed Circuit Television (CCTV)
  - b) Motorway Incident Detection and Automatic Signalling (MIDAS) systems
  - c) Journey Time Information Systems
  - d) Emergency Roadside Telephones
  - e) Weather Detection Systems
  - f) Speed Enforcement
- 3.42 Adjacent to the Glan Llyn Junction, the Scheme includes a proposed new highway maintenance depot. This new depot would replace the Welsh Government's existing highway maintenance depot at Magor which would be demolished (Ch. 20+700).
- 3.43 On the existing M4 motorway to the north of Newport, which is proposed to be reclassified, the existing Variable Speed Limit infrastructure would remain in place in an advisory speed limit capacity.
- 3.44 To enable Natural Resources Wales (OBJ0268) to maintain, conserve and enhance the Gwent Levels SSSI Reen network, access routes have been identified to gain access to every reen and field ditch alongside the Scheme.
- 3.45 Every water treatment area and pollution control facility would be provided with a dedicated access track for maintenance vehicles.

- 3.46 Access for maintenance for the River Usk Crossing where this would pass over the Newport Docks, the CPO includes rights of access for these maintenance access routes which are essential for the Scheme.
- 3.47 The River Usk Crossing would require electricity supply for road lighting, maintenance lighting, maintenance, the aviation warning light on the tops of the main cable stayed bridge towers and marine navigation lights on the bridge deck. A bridge services building is proposed adjacent to the west tower which would house this electrical infrastructure as well as IT systems, an office, welfare facilities and parking facilities. An access track would be provided in order to gain access to the bridge services building. This building would be sited directly beneath the bridge deck in order to reduce the amount of land required for the Scheme from ABP (OBJ0031) beyond the footprint of the bridge.
- 3.48 My evidence has addressed the reasons why engineering features are essential in terms of title for the permanent works, for private means of access and rights of access for maintenance. Barry Woodman will address in his evidence (WG 1.6.1) land required for Essential Licence required for the construction of the Scheme. Peter Ireland will address in his evidence (WG 1.7.1) land for Essential Mitigation land required for the Scheme. Julia Tindale (WG 1.10.1) will address the viability of the agricultural holdings during and after construction of the Scheme.

## **4. Conclusions**

### **Route Selection**

- 4.1 I have reviewed of the historical selection of the corridor to the south of Newport, I have considered the reasons recorded for the decisions and, in my opinion, they are well considered reasons that are appropriately justified with physical characteristics and constraints imposed by the topography and local features that are present today as they were at the time.

- 4.2 The decision which was taken during 1993 and recorded in the Technical Appraisal Report (Docs. 4.1.13 to 4.1.16), to select a route to the south of Newport rather than to the north of Newport, meant that the proposed new motorway would inevitably pass through some parts of the Gwent Levels SSSIs. In my opinion, this remains the correct decision and any route to the north of Newport, which could avoid the Gwent Levels SSSIs, would not be practical due to the impacts which would result on communities and the engineering complexity which would result due to the topography.
- 4.3 With the selection of a route to the south of Newport, the alignment inevitably is required to pass through or near Newport Docks. A route to the south of the dock entrance, crossing the River Usk, was correctly discarded in 1995. Routes to the northern extent of the docks have been considered in 1995 and again in 2014 and each time rejected to avoid impacts on the Docks Way Landfill site and other commercial interests on the east bank of the River Usk. In my opinion, the route crossing the Junction Cut of Newport Docks achieves the appropriate balance between construction cost and impact on physical constraints.
- 4.4 In my opinion, the route of the proposed motorway south of Newport provides an appropriate balance between the needs of the environment and designated sites, buildings, communities, rivers and watercourses, ground conditions, physical constraints, the local road network, railways and statutory undertakers' assets, costs and programme.

### **The Gwent Levels SSSIs and River Usk SAC**

- 4.5 In my opinion, I have taken into consideration the environmental issues and proposed mitigation as detailed in the ES, including the requirements of Section 28G of the Wildlife and Countryside Act (Doc. 3.1.7) with respect to the Gwent Levels SSSIs “to take reasonable steps, consistent with the proper exercise of the authority’s functions, to further the conservation and enhancement of the flora, fauna or geological or physiographical features by reason of which the site is of special

scientific interest” and the requirements of The Conservation of Habitats and Species Regulations 2010 (Doc. 3.1.22) with respect to the River Usk Special Area of Conservation (SAC).

## Junctions

- 4.6 In my opinion, the junction arrangement at proposed at Junctions 23 and 23A would provide improved connections between the motorway network, the local road network and residential centres. The arrangement provides an appropriate balance between connectivity, construction cost and land required for the Scheme, whilst helping to achieve the Transport Planning Objectives for provide safer, easier and more reliable travel east-west in South Wales and to make the M4 attractive for strategic journeys that discourage local use. The junction fulfils the stated aim of The Plan (Doc. 4.5.7) complementary measures: *“A connection between the M4, M48 and B4245 - would provide relief to Junction 23A and to the local road network. It would also provide improved access to proposed park and ride facilities at Severn Tunnel Junction;”*.
- 4.7 In my opinion, the junction arrangements proposed at Glan Llyn and Docks Way would provide appropriate strategic connections between the motorway network, the local road network, residential centres, businesses and local development areas.
- 4.8 In my opinion, the junction arrangement at proposed at Castleton would provide appropriate free flow connections to help achieve the Transport Planning Objectives for safer, easier and more reliable travel east-west in South Wales and to make the M4 attractive for strategic journeys that discourage local use.
- 4.9 I am content that all the junctions on the Scheme are designed to accommodate the forecast level of traffic passing through them.

### **Motorway Rest Areas**

- 4.10 My opinion is that the Scheme provides access routes to and from the rest area at Junction 23A Magor to allow travellers to stop should they need to or wish to. If a traveller needs to make a stop, the facilities to make that stop would be provided together with advance information signs to direct them to the rest area. The traveller would also be provided with comprehensive advance sign information for access to allow them to make the decision on whether to stop or not.
- 4.11 Nevertheless, in order to provide eastbound travellers a convenient opportunity to make a stop at Magor, before embarking on the 33.1 miles / 53.2km journey to the next stop opportunity, I have, with the Welsh Government, concluded that the addition of an eastbound off slip road at junction 23A could be an appropriate addition to the Scheme that would add value against the Scheme objectives.

### **Side Roads**

- 4.12 In my opinion, the provision of Side Road crossings of the Scheme and realignments of existing routes are appropriate and achieve a balance of the factors of environment, local communities, land interests and the travelling public.

### **Reclassification**

- 4.13 The preparation of the reclassification design has identified 109 departures from the Welsh Government's highway geometry standards on the existing M4 motorway around Newport. These departures are measured against the lower standard of provision of an all-purpose trunk road rather than motorway standard.
- 4.14 In my opinion, the extent of the departures identified serves to quantitatively demonstrate the poor standard geometry that is the existing M4 around Newport and provides evidence of the need for the Scheme to improve safety.

4.15 In my opinion, the reclassification of the existing M4 around Newport would provide significant benefits to the communities of Caerleon and St Julians through improved accessibility to the strategic and local road network. The assessment of the existing road geometry to current standards has highlighted how poorly it measures up and how necessary the proposed new motorway is to provide a strategic route of modern design standards. The improvements to the highway layout proposed on the reclassified M4 would address some of the substandard highway geometry aspects of the existing road and should thus provide a safer route for road travellers.

### **Non Motorised Users**

4.16 I have ensured that the needs of Non Motorised Users (NMUs) have been considered in the development of the Scheme which includes cycling and walking friendly infrastructure features.

4.17 In my opinion, the needs of NMUs have been accommodated in the Scheme and have helped to achieve the aim of making “it easier and safer for people to access their homes, workplaces and services by walking, cycling, public transport or road.”

### **Land in the Compulsory Purchase Order**

4.18 The land required in the CPO for the permanent works arises from the alignment and the engineering required to deliver the proposed new motorway, junctions, side roads, structures, drainage, private means of access and Intelligent Transport Systems (ITS).

4.19 In my opinion, the footprint of the Scheme which requires title land for permanent works in the CPO is appropriate and achieves a balance between the factors of environment (including SSSIs), land interests, construction risk and programme and Scheme cost.

4.20 The CPO would necessitate that some businesses would need to be relocated and there is ongoing dialogue between the Welsh Government

and land interests in the CPO to achieve agreement on plans for relocation.

4.21 The CPO also includes for rights of access for the Welsh Government to inspect and maintain the highway infrastructure. It also includes for land and access rights for the NRW to maintain the SSSI reed network.

4.22 It includes land for essential licence for construction operations, and land for essential mitigation.

4.23 In my opinion, the title land for the permanent works and the rights of access for inspection maintenance included in the CPO is essential for the Scheme.

### **Intelligent Transport Systems**

4.24 In my opinion, the proposals to include Intelligent Transport Systems on the proposed new motorway would contribute to improving safety on the motorway network around Newport.

### **The Scheme**

4.25 The Scheme would provide a new dual three lane motorway to the south of Newport which would provide a new route for strategic motorway traffic to pass along the motorway network around Newport.

4.26 The existing M4 around Newport has a substandard highway layout and, in my opinion, the proposed new motorway would provide a safer journey for motorway users passing along the motorway network around Newport because of improved highway design standards.

4.27 In my opinion, the Scheme would have a positive impact when measured against Transport Planning Objectives which are within my area of expertise:

- 1. Safer, easier and more reliable travel east-west in South Wales.**
- 2. Improved transport connections within Wales and to England, the Republic of Ireland and the rest of Europe on all modes on the international transport network.**
- 3. More effective and integrated use of alternatives to the M4, including other parts of the transport network and other modes of transport for local and strategic journeys around Newport.**
- 4. Best possible use of the existing M4, local road network and other transport networks.**
- 7. Improved safety on the M4 Corridor between Magor and Castleton.**
- 13. Improved traffic management in and around Newport on the M4 Corridor.**
- 14. Easier access to local key services and residential and commercial centres.**

4.28 The proposed Improvement would bring up to standard and maintain the function of this section of the M4 motorway network. It would also allow future maintenance to take place on the proposed new motorway and reclassified existing M4 more easily than currently experienced on the existing M4 around Newport.

- 4.29 It would contribute to improving links to West Wales, Ireland, the English trunk road network and Europe with improved journey times and reduced journey time variability.
- 4.30 The design of the Scheme, which I have led, seeks to minimise environmental impacts whilst providing an appropriately balanced solution for the environment, local communities and the travelling public. Factors that have been taken into account include the impact on environmental and topographical constraints, traffic patterns and volumes, and safety.
- 4.31 In my opinion, these solutions strike a balance between the interests of local residents, the environment and the travelling public, such that the design is the most appropriate taking into account the constraints and factors influencing the Scheme.
- 4.32 In overall summary, the Scheme, in my opinion, would deliver the stated aim a) of making it easier and safer for people to access their homes, workplaces and services by walking, cycling, public transport or road, in a way that a Do Minimum intervention would not achieve and that the Scheme's impacts are balanced appropriately against the Welsh Government's aim.